2/6/01 Layout 10-11
Revised Tues 2/27/01 11-12
3/7/01 2:00
3/11/01 Sunday Installations! Need Sunday Inspection Co. 3/12/01
3/10/01 9:00 AM
6/7/01 Septic Pump Test (TA) 3PM

PERMIT

SEWAGE DISPOSAL SYSTEM

HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
410-313-2640

INDEXED

P 512791
A 511447
ISSUE DATE 11/1/1999
APPROVAL DATE 6/7/01
Call 410-984-5211

Donald C. Ruddy / Foglea IS PERMITTED TO INSTALL X ALTER ____

ADDRESS 2545 Martin Road, Willow Grove, PA 19090 PHONE 285-5870

SUBDIVISION Ruddy Property LOT NUMBER ____ ADDRESS 588 West Watersville Road

PROPERTY OWNER Chris Whitehead PROPERTY OWNER'S ADDRESS 8450 Savage Guilford Road

SEPTIC TANK CAPACITY 1500 Top Seam GALLONS

PUMP CHAMBER CAPACITY 1500 Top Seam GALLONS

** "LOW PRESSURE DOSING" SEWAGE DISPOSAL SYSTEM REQUIRED **

NUMBER OF BEDROOMS 4

SQUARE FEET PER BEDROOM ____

LINEAR FEET OF TRENCH REQUIRED 360

64-331 230

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

LOCATION: **INSTALL AS PER SITE PLAN AND (4) ATTACHED DESIGN SHEETS AND SPECIFICATIONS** dated 9/2/99 by Paul Dietz, P.E., and approved by Ronald J. Pinkley (Howard County Health Department) on 6/12/00.

TRENCH DESIGN (see cross section detail on sheet 4 of 4)
Layout inspection required prior to any construction.

Sewage disposal area to be fenced to prevent any encroachment during house construction phase. OK 12/22/00 dc

BUILDING PERMIT SIGNED AND RETURNED 4-25-01

PLANS APPROVED Ronald J. Pinkley B01129798-DECK DATE 11/20/2000

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

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

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

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

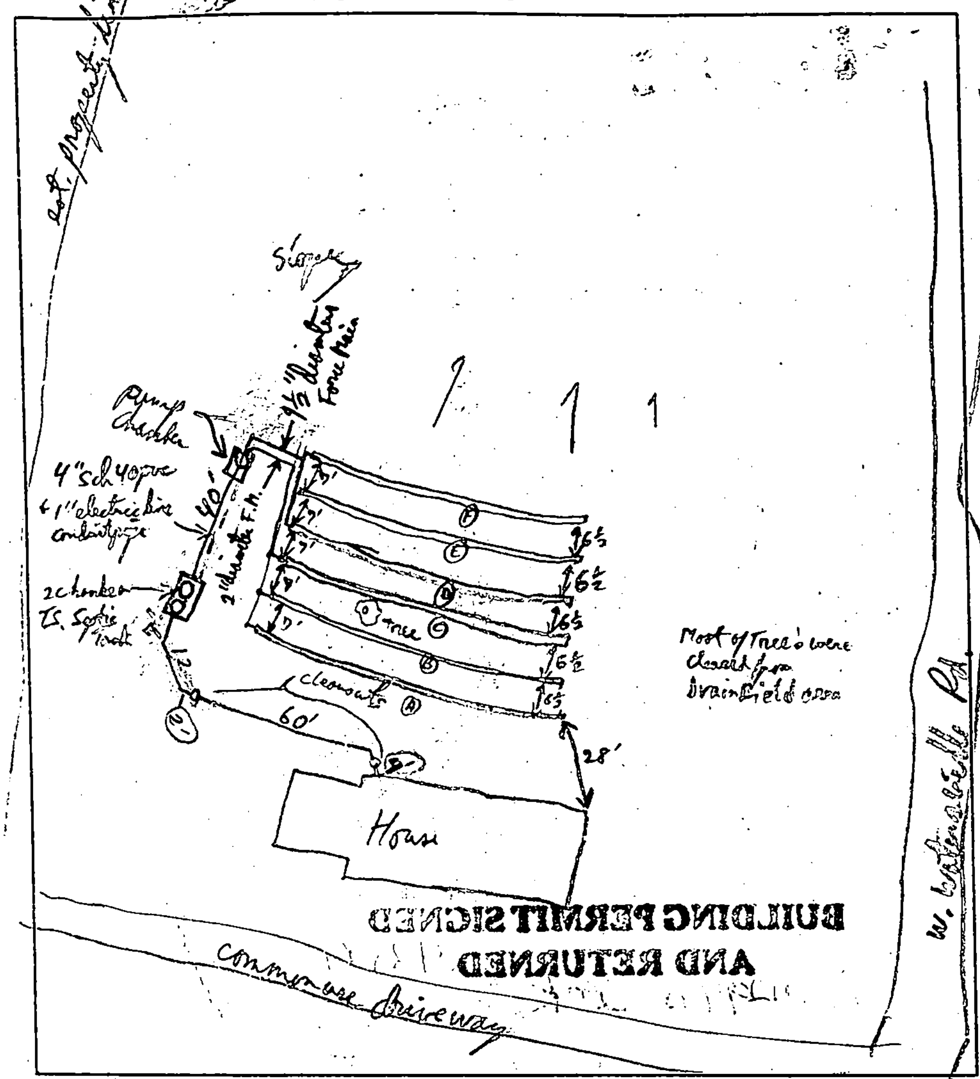
512791

as installed Trench #	perf Size	First perf spacing	Between perf Spacing	# perf
A	19/64"	4'2"	8'2"	11
B	17/64	4'2"	8'2"	11
C	1/4"	9 ft	9 ft	10
D	(Not			
E				
F				

(all 2" [illegible] sch 40 [illegible] & [illegible])

(W) well

NOT TO SCALE



TRENCH DATA

TRENCH WIDTH 2'

TRENCH INLET DEPTH (center of Trench) 18"

TRENCH BOTTOM DEPTH (downhill side) 24"

DEPTH OF STONE 12" under lateral)

NUMBER OF TRENCHES 6 × 90' each

TOTAL TRENCH LENGTH 540 LF

ABSORBENT AREA 1080 sq ft @ 0.45 [illegible] pressure Distribution system (in 2" Force Main)

DISTRIBUTION BOX LEVEL NA

BAFFLE IN DISTRIBUTION BOX NA

SEPTIC TANK DATA

SEPTIC TANK 1500 TS 2 chambered GALLONS

MANHOLE RISER 2 (one 3', other 3½' Tall)

6 INCH INSPECTION PORT NA

PUMP CHAMBER DATA

PUMP CHAMBER GALLONS 1500 gal T.S.

MANHOLE RISER ✓ (3 Ft)

ALARM ✓

PUMP PERFORMANCE TEST ✓

PRE-CONSTRUCTION INSPECTION: Site layout appears level, some trees cleared but more to be cleared. Installer will call for 1st Trench Open Trench inspection prior to placing gravel. (open Tank Holes very [illegible])

INSPECTION COMMENTS: Septic tank + House connection pipe to pump chamber all set, S.T. + P.C. all "T" Baffled OK (S.T. has "T" Baffle at midwall but no access port in lid). Manifold will be set 3' below grade with up left [illegible] "T" connections over a 3' wide earth wall into drain line Trenches. OK to Continue. [illegible] 3/7/01

(Highest A) First Trench open (24" deep on Downhill side) – bottom in orange [illegible] Clay loam (dense stuff!). Ready to [illegible] – lateral was assembled + perforation size + spacing OK as per plan. [illegible] 3/9/01 First Tr Covered, 2nd Trench dug + graveled, laterals B + C drilled, perf size + spacing as per plan, geotextile fabric used OK to proceed. [illegible] 3/9/01 Ends of Trenches, Turnups OK, laterals into Trench OK, most of Trenches already graded, 6" + cap over original grade. OK to cover all work. Call for Pump Test. [illegible] 3/12/01 6/7/01 Pump and alarm working. (BB)

INSPECTOR B. Baker DATE SYSTEM APPROVED 6/7/01

APPLICATION

PERCOLATION TESTING

A 511447

P _____

HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
3525-H ELLICOTT MILLS DRIVE/ELLICOTT CITY, MARYLAND 21043
TELEPHONE: 313-2640

DISTRICT _____

DATE _____

TO: THE COUNTY HEALTH OFFICER
ELLICOTT CITY, MARYLAND

I HEREBY APPLY FOR THE NECESSARY TEST PRIOR TO APPLICATION FOR PERMIT TO CONSTRUCT (OR RECONSTRUCT) A SEWAGE DISPOSAL SYSTEM.

PROPERTY OWNER Audy

ADDRESS _____ PHONE _____

AGENT OR PROSPECTIVE BUYER _____

ADDRESS _____ PHONE _____

PROPERTY LOCATION:

SUBDIVISION _____ LOT NO. _____

ROAD AND DESCRIPTION W Watersville Rd

TAX MAP 2 PARCEL # 172

SIZE OF LOT _____ TYPE BLDG. _____
(SINGLE FAMILY DWELLING OR COMMERCIAL)

THE SYSTEM INSTALLED UNDER THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC FACILITIES BECOME AVAILABLE. I FULLY UNDERSTAND THE FEE CONNECTED WITH THE FILING OF THIS PERC TEST APPLICATION IS NON-REFUNDABLE UNDER ANY CIRCUMSTANCES. I ALSO AGREE TO COMPLY WITH ALL M.O.S.H.A. REQUIREMENTS IN TESTING THIS LOT. _____
(SIGNATURE OF APPLICANT)

APPROVED BY _____ FOR _____ DATE _____

DISAPPROVED BY _____ FOR _____ DATE _____

HOLD PENDING FURTHER TESTS _____

REASONS FOR REJECTION OR HOLDING _____

PERCOLATION TEST PLAT/PRELIMINARY PLAT - TITLE OR I.D. # _____ DATE _____

SITE DEVELOPMENT PLAN/FINAL PLAT - TITLE OR I.D. # _____ DATE _____

THIS IS NOT A PERMIT

HD-216 (3/92)

A511447 Ruddy Property
COUNTY #

SOIL PROFILE

0' Test Hole 5, 6

dark Brn SiL

8-10" yel Brn Lloam

20"

yel Brn CL-LL 10-15% f ch

3'

Red yel ch CL 20-25% ch

4½-5'

Red Brn - Red Brn v Ch loam 25-45% ch including gravel & rock fragments

7'

Hole #7

dark Brn loam

5"

yel Brn - Red Brn Lloam-L

12-14"

Red yel Ch LL 15-20% ch

1½-3'

Red yel ch CL-LL (25% f-vf ch)

4½-5'

Neutral Brn - yel Brn exch Loam 20% stones 40-50% ch

7'

SOIL PROFILE

0'

INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

DATE	TEST NO.	DEPTH	PRE-WET START	PRE-WET STOP	TEST - 1" DROP START	TEST - 1" DROP STOP	TIME
6/11/99	Q5	1½	2:00:00	2:25:00	2:25:00	2:50:20	25 min/in
	P5	3'	2:01:45	2:40:00	2:40:00	start 2½" @ 3:30 4:00	80 min/in
	Q6	1½	2:27:00	2:30	2:30	2:40	10 min/in
	P6	3'	2:27:30	2:50	2:50:00	3:23	33 min/in
	Q7	1½	3:27:00	3:32	3:32	3:38	6 min/in
	P7	7' 3'	3:27:00	3:44	3:44	4:12	28 min/in
	Hole #8	visual only - soils wet + clayey as @ hole #3 Moist Hole					

REMARKS _____

TYPE OF SOIL _____

TESTED BY Ron Pinkley ALSO PRESENT Don + Ken Ruddy, Michael Talbot, Jeanie Morrison

TRENCH DESIGN DATA: AVERAGE PERCOLATION TIME _____ TRENCH WIDTH _____

INLET DEPTH _____ MAXIMUM BOTTOM DEPTH _____ SQ. FT/BEDROOM _____

~~5/24/99 RAIN~~
6/1/99

APPLICATION

5/14/97

PERCOLATION TESTING

A ~~3040~~ 7

P _____

HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
3525-H ELLICOTT MILLS DRIVE/ELLICOTT CITY, MARYLAND 21043
TELEPHONE: 313-2640

DISTRICT _____

DATE _____

TO: THE COUNTY HEALTH OFFICER
ELLICOTT CITY, MARYLAND

I HEREBY APPLY FOR THE NECESSARY TEST PRIOR TO APPLICATION FOR PERMIT TO CONSTRUCT (OR RECONSTRUCT) A SEWAGE DISPOSAL SYSTEM. (Buyer Greg Der)

PROPERTY OWNER ~~James + Emma Williams (Estate)~~ (owner) Mr Reedy

ADDRESS _____ PHONE _____

AGENT OR PROSPECTIVE BUYER _____

ADDRESS _____ PHONE _____

PROPERTY LOCATION: To private Cul off w/ west Ellicott City Rd approx 3600 N of old Fred Rd (Rte 99

SUBDIVISION _____ LOT NO. _____

ROAD AND DESCRIPTION _____

TAX MAP 2 PARCEL # 172

SIZE OF LOT _____ TYPE BLDG. _____
(SINGLE FAMILY DWELLING OR COMMERCIAL)

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(SIGNATURE OF APPLICANT)

APPROVED BY _____ FOR _____ DATE _____

DISAPPROVED BY _____ FOR _____ DATE _____

HOLD PENDING FURTHER TESTS _____

REASONS FOR REJECTION OR HOLDING _____

PERCOLATION TEST PLAT/PRELIMINARY PLAT - TITLE OR I.D. # _____ DATE _____

SITE DEVELOPMENT PLAN/FINAL PLAT - TITLE OR I.D. # _____ DATE _____

THIS IS NOT A PERMIT

HD-216 (3/92)

A511447
COUNTY #

SOIL PROFILE A

- 0'–10": Dark Brn L
- 10"–: pale reddish yel SiCL 15% vf ch...
- Med yellowish SiCL 2 f m sbk 20% vf–m channers
- 3'–4½': dense chalky very weathered St hard Rock or St + Saprolite
- 4½'

SOIL PROFILE B

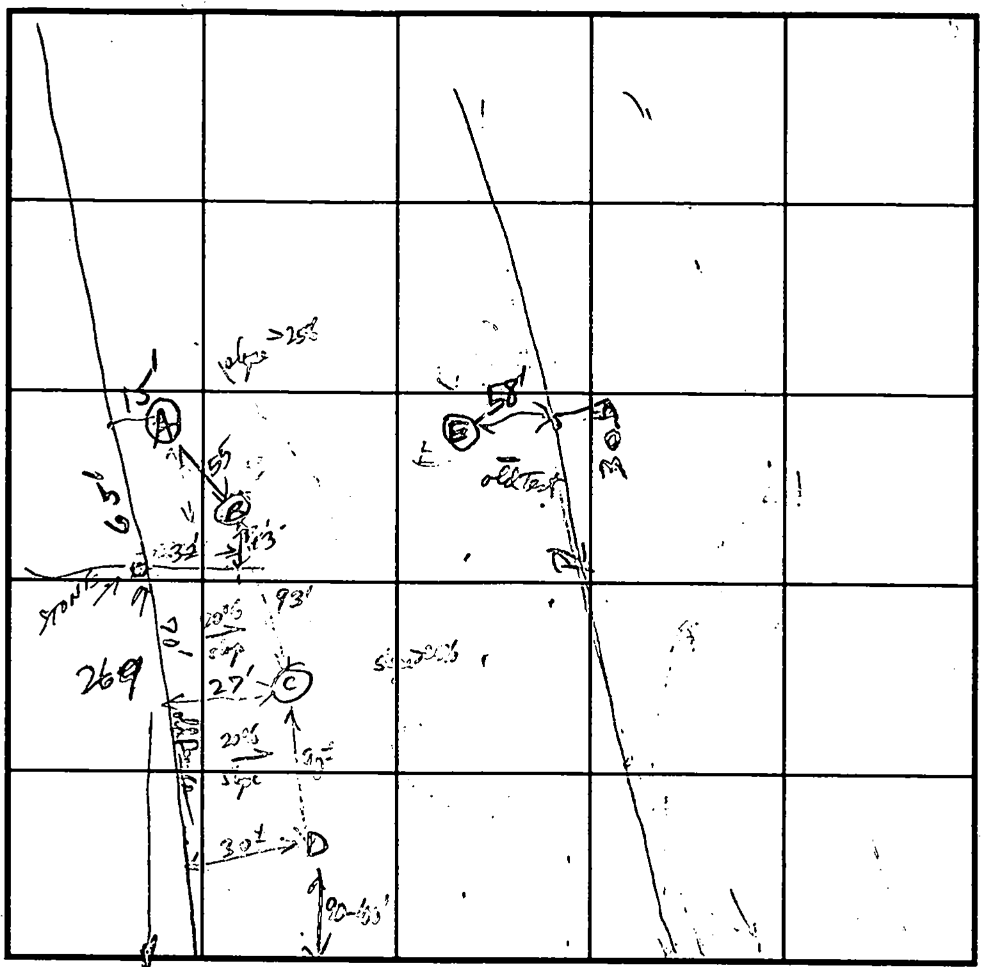
- 0–6": dark brn SiL
- 6"–3': pale reddish yel (7.5YR 6/6) chSiCL 10–15% vf ch
- 3'–7': same colors 20–25% ch
- 7'–9': 50% St & Saprolite & Rock.
- 9': Hard Bottom

SOIL PROFILE C

- 0–1½': dark Brn loam – SiL
- 1½'–2½–3': pale Reddish-yellow chCL (60% vf)
- 2½–3'–5': yel Brn chSiCL
- 5'–8': yel red–yel Brn chSiL
- 8'–10': Mix of red cl & f ph... ...; 50% Rock ch

SOIL PROFILE D

- 0–1½': Dk brn SiL
- 1½'–4': yellowish-red chSiCL
- 4'–6': brighter chSiL & 40% ch + Rock
- 6'–7': 50% Blue Gray Phyllite/Shale Rock in Mix Reddish CL/vf ph...
- 7'



INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

Hole E (Same as Hole C) Top Channery + Rocky @ 8' 25% Rock + channers with SL @ 5-8'

DATE	TEST NO.	DEPTH	PRE-WET START	PRE-WET STOP	TEST - 1" DROP START	TEST - 1" DROP STOP	TIME
5/7/99	A	√4½ Refusal	>80% very weathered	chalky Rock	St + Saprolite	(hard) @ 3'	Fail
cchSiCL	B	√9' Refusal 3'	12:42	1:00	pulled less than	⅛" drop	Fail
	C	√10' Refusal 4'	1:24	1:39	still on Top	Nail	Fails
upper area	D	√7' Refusal 3'	2:23	2:33	2:33	3:31	58 min
"							
	E	√10 3'	3:40	4:45	just Tip		60 min last inch
		2'	4:02	4:06	4:06:00	4:11	5 mpi

Area's E + uphill, D + uphill worth further testing for LPD, alternating Trench Type systems for existing ...

REMARKS Entire site has slopes >12% (Sand Mound Not an option) shallow LPD possible @ site D (Needs More Testing)

TYPE OF SOIL

TESTED BY R. ...ley, Brian Baker ALSO PRESENT (Greg Der) Mr. ..., Ed Harrison of Arnold's Backhoe

TRENCH DESIGN DATA: AVERAGE PERCOLATION TIME ______ TRENCH WIDTH ______

INLET DEPTH ______ MAXIMUM BOTTOM DEPTH ______ SQ. FT/BEDROOM ______

1/26/83
9:30 A.M.

APPLICATION

A 3-2407

SEWAGE DISPOSAL TESTING

STATE OF MARYLAND - DEPARTMENT OF HEALTH AND MENTAL HYGIENE

P _____

HOWARD COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH SERVICES
P. O. BOX 476 ELLICOTT CITY, MARYLAND 21043
TELEPHONE: 992-2330

DISTRICT 4th District

DATE 1/6/83

TO: THE COUNTY HEALTH OFFICER
ELLICOTT CITY, MARYLAND

I, HEREBY, APPLY FOR THE NECESSARY TEST IN ORDER TO CONSTRUCT (OR RECONSTRUCT) A SEWAGE DISPOSAL SYSTEM.

PROPERTY OWNER CURRENT OWNER JAMES AND ERMA WILLIAMS (ROBERT ENICKELL JR.)

ADDRESS 2315 THOMPSON DR MARRIOTTSVILLE, MD 21104 PHONE 442-1542

PROPERTY LOCATION:

SUBDIVISION Tax map 2, parcel 72 LOT NO. _____

ROAD AND DESCRIPTION 3,600' NORTH of old Frederick Rd FROM 70 heading west GRAVEL ROAD LEFT OFF WEST WATERSVILLE RD (west side)

SIZE OF LOT 2.557 ACRE TYPE BLDG. 3 (NUMBER OF BEDROOMS)

THE SYSTEM INSTALLED UNDER THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC FACILITIES BECOME AVAILABLE. I FULLY UNDERSTAND THE FEE CONNECTED WITH THE FILING OF THIS PERC TEST APPLICATION IS NON-REFUNDABLE UNDER ANY CIRCUMSTANCES. I ALSO AGREE TO COMPLY WITH ALL M.O.S.H.A. REQUIREMENTS IN TESTING THIS LOT. Robert E Nickell Jr (SIGNATURE OF APPLICANT)

APPROVED BY _____ FOR _____ DATE _____

REJECTED BY C Williams FOR ALL DATE 1-26-83

HOLD PENDING FURTHER TESTS _____ DATE _____

REASONS FOR REJECTION OR HOLDING Soil types G1C2, G1B2 can be tested anytime of year.
— THREE UNACCEPTABLE HOLES IN MIDDLE OF LOT — NOT ENOUGH REMAINING AREA TO CONTINUE DIGGING 1-26-83 C Williams

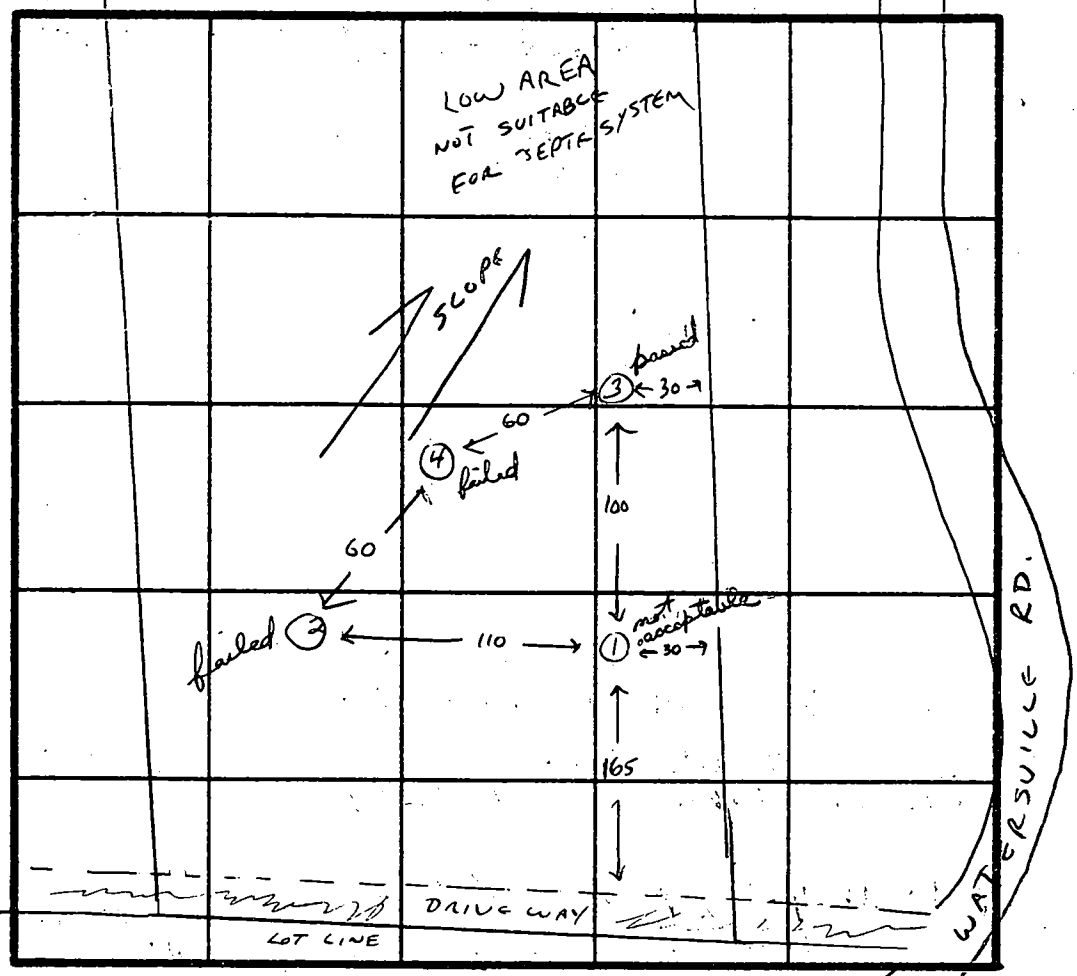
3/30/83 I concur Mr. Williams J.F.

THIS IS NOT A PERMIT

#1

SOIL PROFILE

0 CLAY
2 CLAY-SHALE LOAM
9 SHALE
11



INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

#2

CLAY
3
CLAY-SHALE MIX
10
SHALE
12

#3

CLAY
4
CLAY-SHALE MIX
11
SHALE
12

#4

CLAY
5
CLAY-SHALE MIX
10
SHALE
11½

DATE	TEST NO.	DEPTH	PRE-WET START	PRE-WET STOP	TEST - 1" DROP START	TEST - 1" DROP STOP	TIME
1-26-83	1 not acceptable	4	9:48	10:01	10:01	10:29	28 MIN
		8	9:47	9:50	9:50	9:53	3 MIN
		11	CLAY SHALE LOAM		CHANGING TO	SHALE AT 9'	
1-26-83	2 failed	4	9:58	11:24	X	X	86 MIN FAILED
		8	9:58	9:58:30	9:59:30	10:02	2½ MIN
	X	5½ 12	11:48 CLAY TO 3' THEN		¼ INCH IN 15 MIN MIXED WITH SHALE		FAILED THEN SHALE AT 10'
1-26-83	3	4½	10:18	10:30	10:30	10:58	28 MIN
		9	10:22	10:25	10:25	10:28	3 MIN
		12	CLAY TO 5' THEN		MIXED THEN SHALE AT 11		
1-26-83	4 failed	6 9	11:04 11:05	11:28 11:09	11:29 11:09	STOPPED 14:14	FAILED 5 MIN
		11	CLAY TO 5' THEN CLAY-SHALE MIX				SHALE AT 10

REMARKS FAILED - CLAY / HOLE #1 NOT ACCEPTABLE — NO NOTICEABLE WATER MOVEMENT FOR TWO HOURS AFTER THE SECOND INCH

TYPE OF SOIL CLAY & SHALE

TESTED BY C Williams ALSO PRESENT HERMAN & JUNIOR SIRK

EH-12-1079

APPLICATION

A 32407

SEWAGE DISPOSAL TESTING

STATE OF MARYLAND - DEPARTMENT OF HEALTH AND MENTAL HYGIENE

P _____

HOWARD COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH SERVICES
P. O. BOX 476 ELLICOTT CITY, MARYLAND 21043
TELEPHONE: 992-2330

DISTRICT 4th District

DATE 1/6/83

TO: THE COUNTY HEALTH OFFICER
ELLICOTT CITY, MARYLAND

I, HEREBY, APPLY FOR THE NECESSARY TEST IN ORDER TO CONSTRUCT (OR RECONSTRUCT) A SEWAGE DISPOSAL SYSTEM.

PROPERTY OWNER CURRENT OWNER JAMES AND ERMA WILLIAMS (ROBERT E NICKELL JR)

ADDRESS 2315 THOMPSON DR MARRIOTTSVILLE, MD 21104 PHONE 442-1542

PROPERTY LOCATION:

SUBDIVISION Tax map 2, parcel 72 LOT NO. ~~FROM 70 heading west~~

ROAD AND DESCRIPTION 3,600' NORTH of old Frederick Rd GRAVEL ROAD LEFT OFF WEST WATERSVILLE RD (west side)

SIZE OF LOT 2.557 ACRE TYPE BLDG. 3 (NUMBER OF BEDROOMS)

THE SYSTEM INSTALLED UNDER THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC FACILITIES BECOME AVAILABLE. I FULLY UNDERSTAND THE FEE CONNECTED WITH THE FILING OF THIS PERC TEST APPLICATION IS NON-REFUNDABLE UNDER ANY CIRCUMSTANCES. I ALSO AGREE TO COMPLY WITH ALL M.O.S.H.A. REQUIREMENTS IN TESTING THIS LOT. Robert E Nickell Jr
(SIGNATURE OF APPLICANT)

APPROVED BY _____ FOR _____ DATE _____

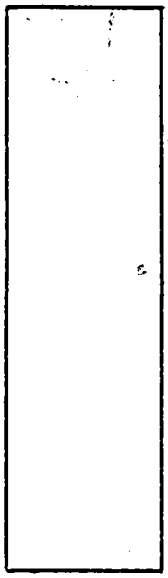
REJECTED BY _____ FOR _____ DATE _____

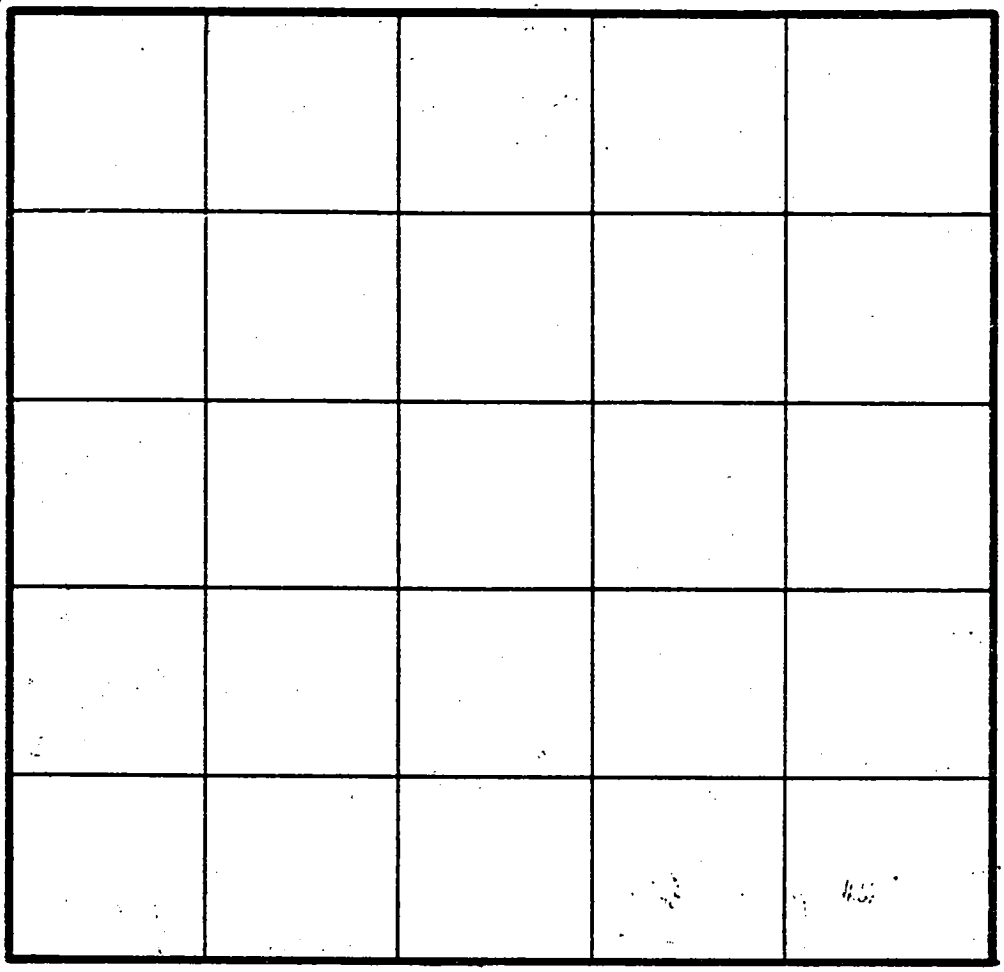
HOLD PENDING FURTHER TESTS _____ DATE _____

REASONS FOR REJECTION OR HOLDING _____

THIS IS NOT A PERMIT

SOIL PROFILE





INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

DATE	TEST NO.	DEPTH	PRE-WET		TEST - 1" DROP		TIME
			START	STOP	START	STOP	

REMARKS _____

TYPE OF SOIL _____

TESTED BY _____ ALSO PRESENT _____

EH-12-1079

APPLICATION

5/7/99 10:00

PERCOLATION TESTING

PREVIEW OK - REQUEST FOR RE-EVAL IF EXISTING LOT - PREVIOUSLY UNSUCCESSFUL (IF NOT SUCCESSFUL FOR CONVENTIONAL THIS TIME - WILL NEED MORE ACCURATE TOPOGRAPHY FOR FURTHER EVALUATION... CW

A 5711447

P

DISTRICT 4

DATE March 3 ,1999

HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
3525-H ELLICOTT MILLS DRIVE/ELLICOTT CITY, MARYLAND 21043
TELEPHONE: 313-2640

TO: THE COUNTY HEALTH OFFICER
ELLICOTT CITY, MARYLAND

I HEREBY APPLY FOR THE NECESSARY TEST PRIOR TO APPLICATION FOR PERMIT TO CONSTRUCT (OR RECONSTRUCT) A SEWAGE DISPOSAL SYSTEM.

PROPERTY OWNER DONALD C. RUDDY Backhoe operator Ed Harrison (Arnold's Backhoe) 410-795-7873

ADDRESS 2545 MARTIN ROAD Willow Grove, PA 19090 PHONE 215-659-3157 F 215-659-6344

AGENT OR PROSPECTIVE BUYER N.A. Engineer Paul Dietz III

ADDRESS 4958 Durham Rd Kintnersville, PA 18930 PHONE

PROPERTY LOCATION:

SUBDIVISION Origional subdivision of Aug. 24,1909 LOT NO. Lot no.2

ROAD AND DESCRIPTION The lot has 180' frontage on the north side of a private road begining 240' west of West Watersville Road. The subject private road is located about 1600' N. of Old Frederick Road.

TAX MAP 2-13-72-2 PARCEL # 04-331230

SIZE OF LOT 180' X 650' (2-1/2 acres) TYPE BLDG. vacant lot residential
(SINGLE FAMILY DWELLING OR COMMERCIAL)

THE SYSTEM INSTALLED UNDER THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC FACILITIES BECOME AVAILABLE. I FULLY UNDERSTAND THE FEE CONNECTED WITH THE FILING OF THIS PERC TEST APPLICATION IS NON-REFUNDABLE UNDER ANY CIRCUMSTANCES. I ALSO AGREE TO COMPLY WITH ALL M.O.S.H.A. REQUIREMENTS IN TESTING THIS LOT. Donald C. Ruddy
(SIGNATURE OF APPLICANT)

APPROVED BY _____ FOR _____ DATE _____

DISAPPROVED BY _____ FOR _____ DATE _____

HOLD PENDING FURTHER TESTS _____

REASONS FOR REJECTION OR HOLDING _____

PERCOLATION TEST PLAT/PRELIMINARY PLAT - TITLE OR I.D. # _____ DATE _____

SITE DEVELOPMENT PLAN/FINAL PLAT - TITLE OR I.D. # _____ DATE _____

THIS IS NOT A PERMIT

HD-216 (3/92)

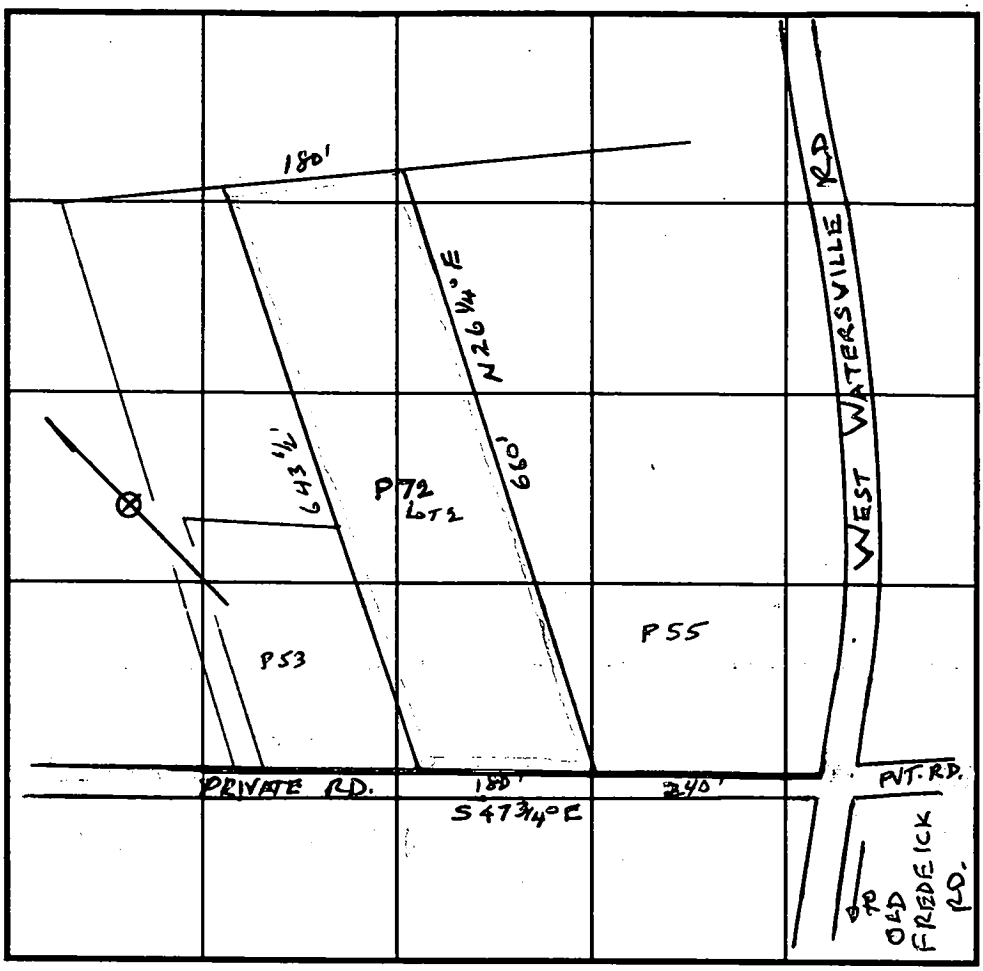
COUNTY #

SOIL PROFILE

0'

SOIL PROFILE

0'



INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

DATE	TEST NO.	DEPTH	PRE-WET START	PRE-WET STOP	TEST - 1" DROP START	TEST - 1" DROP STOP	TIME

REMARKS _____

TYPE OF SOIL _____

TESTED BY _____ ALSO PRESENT _____

TRENCH DESIGN DATA: AVERAGE PERCOLATION TIME _____ TRENCH WIDTH _____

INLET DEPTH _____ MAXIMUM BOTTOM DEPTH _____ SQ. FT/BEDROOM _____

APPLICATION

PERCOLATION TESTING

A 511447

P _____

HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
3525-H ELLICOTT MILLS DRIVE/ELLICOTT CITY, MARYLAND 21043
TELEPHONE: 313-2640

DISTRICT _____

DATE _____

TO: THE COUNTY HEALTH OFFICER
ELLICOTT CITY, MARYLAND

I HEREBY APPLY FOR THE NECESSARY TEST PRIOR TO APPLICATION FOR PERMIT TO CONSTRUCT (OR RECONSTRUCT) A SEWAGE DISPOSAL SYSTEM.

PROPERTY OWNER RUDY

ADDRESS _____ PHONE _____

AGENT OR PROSPECTIVE BUYER _____

ADDRESS _____ PHONE _____

PROPERTY LOCATION:

SUBDIVISION _____ LOT NO. _____

ROAD AND DESCRIPTION W WATERSVILLE RD

TAX MAP 2 PARCEL # 172

SIZE OF LOT _____ TYPE BLDG. _____
(SINGLE FAMILY DWELLING OR COMMERCIAL)

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(SIGNATURE OF APPLICANT)

APPROVED BY _____ FOR _____ DATE _____

DISAPPROVED BY _____ FOR _____ DATE _____

HOLD PENDING FURTHER TESTS _____

REASONS FOR REJECTION OR HOLDING _____

PERCOLATION TEST PLAT/PRELIMINARY PLAT - TITLE OR I.D. # _____ DATE _____

SITE DEVELOPMENT PLAN/FINAL PLAT - TITLE OR I.D. # _____ DATE _____

THIS IS NOT A PERMIT

HD-216 (3/92)

A51/490 Riddle Property

COUNTY #

SOIL PROFILE

Hole 1, 3

0'

dark Brn Loam

6 8"

Yel Brn – Red yel (5-10% cl) ch Loam – hL

20 22"

Red yel ch hL-cL 20% ± cl

4'

Yel Red-Red Brn ch Loam (18% clay) 30-40% ch

5½'

40-50% ch ch loam

7'

Hole 2

dk Brn L

Red yel chL-hL

1½

CL 20% ch

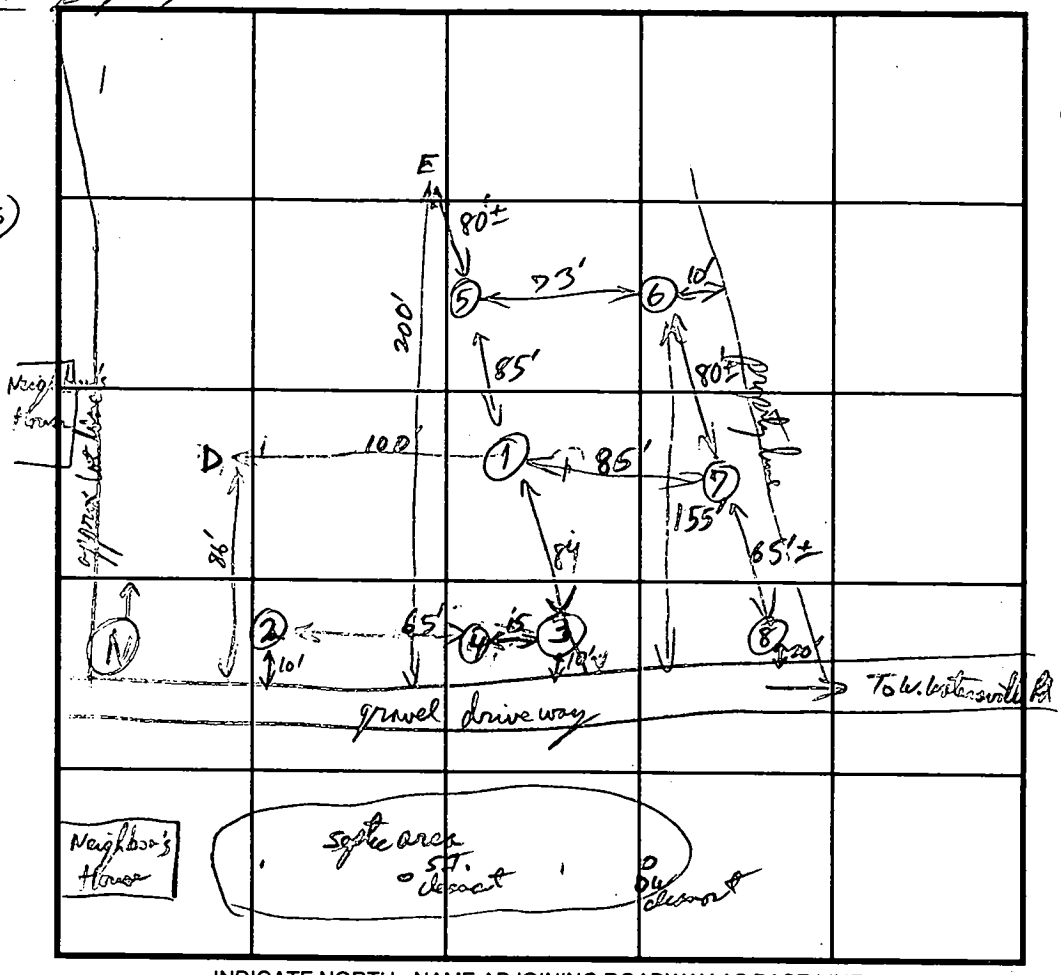
4

only 20%-30% Chroma chL-hL

6'

35% Chroma ch L

7'



INDICATE NORTH - NAME ADJOINING ROADWAY AS BASE LINE.

SOIL PROFILE

0'

DATE	TEST NO.		DEPTH	PRE-WET START	PRE-WET STOP	TEST - 1" DROP START	TEST - 1" DROP STOP	TIME	
6/1/99	1	P_1	3'	12:00:00	12:25:00	12:25:00	1:50	85 min	OK
		Q_1	VF 1½'	12:06:00	12:56	12:56	1:50	54 min	
	2	P_2	3'	12:13:00	Not Quite @ 2:45 (P.)	1:51 Not 2:12 at 6" Tight 2)	Full 6" in 2 Shrs	Too Slow	Fail
		Q_2	VF 1½'	12:15:35	1:14	¼" Not 2:12 1:14	only ¼" in 2 hrs 1:02:45	30 to 180 mpi Too Slow	Fail
(Similar in Redyellows Red Heavier L – CL than #1)		P_3	3'	12:39:00	No change @ 2 2:43 only ¼" movement @ 1:14		¼" in 2 hrs	Too Slow	Fail
also wet & clayey throughout	3	Q_3	VF 2'	12:44:00	No change only ¼-½"	long 2:43 ¼" Movement @ 1:44	¼" in 2 hrs	Too Slow	Fail
(15' W of P3)	No Deep Hole Here	Q_4	1½	1:51:00	2:05:00	2:05	2:42	37 min	OK
	8		v 6'	very similar to Hole #3 – Not Tested					

REMARKS Rocks are weathered (Cream + yel Red colors) Micaceous Schist & white Feldspar Crystals & few chert intrusions

TYPE OF SOIL Mt. Airy

TESTED BY _____ ALSO PRESENT _____

TRENCH DESIGN DATA: AVERAGE PERCOLATION TIME _____ TRENCH WIDTH _____

INLET DEPTH _____ MAXIMUM BOTTOM DEPTH _____ SQ. FT/BEDROOM _____

07831 (3 6) SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND
WELL COMPLETION REPORT
FILL IN THIS FORM COMPLETELY
PLEASE TYPE

THIS REPORT MUST BE SUBMITTED AFTER WELL IS COMPLETED. 8/10/00 O.K. BB

COUNTY NUMBER A511447

ST/CO USE ONLY
DATE Received MM DD YY (8 13)

DATE WELL COMPLETED: MM 08 DD 31 YY 00 (15 20)

Depth of Well: 22 225 26 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": HO-94-2743 (28 29 30 31 32 33 34 35 36 37)

OWNER Ruddy (last name) Donald (first name)

STREET OR RFD West Watersville Rd TOWN Mt Airy

SUBDIVISION Ruddy Property SECTION — LOT —

WELL LOG
Not required for driven wells

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

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
Top Soil	0	2	
Brown Shale	2	30	
Brown Slate	30	35	
Blue Slate	35	45	
Brown Slate	45	50	✓
Blue Slate	50	150	
Flint Rock	150	155	✓
Blue Slate	155	225	

NUMBER OF UNSUCCESSFUL WELLS: 0

WELL HYDROFRACTURED: yes [Y] no [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, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: MD 117

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO.: — D —

SAME

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

GROUTING RECORD
WELL HAS BEEN GROUTED (Circle Appropriate Box): yes [Y] no [N] (44 44)

TYPE OF GROUTING MATERIAL (Circle one)

CEMENT [C M] (45 46) BENTONITE CLAY [B C] (47 48)

NO. OF BAGS 5 NO. OF POUNDS 80

GALLONS OF WATER 48

DEPTH OF GROUT SEAL (to nearest foot): from 0 (48 TOP 52) ft. to 30 (54 BOTTOM 58) ft.

(enter 0 if from surface)

CASING RECORD
casing types insert appropriate code below

[S T] STEEL [C O] CONCRETE [P L] PLASTIC [O T] OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)!	Total depth of main casing (nearest foot)
PL (60 61)	6 (63 64)	40 (66 70)

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD
screen type or open hole — insert appropriate code below

[S T] STEEL [B R] BRASS BRONZE [H O] OPEN HOLE [P L] PLASTIC [O T] OTHER

C 2 (1 2)

DEPTH (nearest ft.) — EACH SCREEN

		from	to
1	HO (8 9)	38 (11 15)	225 (17 21)
2	(23 24)	(26 30)	(32 36)
3	(38 39)	(41 45)	(47 51)

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: from ____ to ____ (68)

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (70) (E.R.O.S.) (72) W Q (74 75 76)

TELESCOPE CASING — LOG INDICATOR — OTHER DATA

C 3 (1 2)

PUMPING TEST
HOURS PUMPED (nearest hour): 3 (8 9)

PUMPING RATE (gal. per min.): 7.5 (11 15)

METHOD USED TO MEASURE PUMPING RATE: Bucket

WATER LEVEL (distance from land surface)

BEFORE PUMPING: 45 (17 20) ft.

WHEN PUMPING: 85 (22 25) ft.

TYPE OF PUMP USED (for test)

[A] air (27) [P] piston (27) [T] turbine (27)

[C] centrifugal (27) [R] rotary (27) [O] other (describe below) (27)

[J] jet (27) [S] submersible (27)

PUMP INSTALLED
DRILLER INSTALLED PUMP (CIRCLE) (YES or NO): 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. (29)

CAPACITY: GALLONS PER MINUTE (to nearest gallon) (31 35)

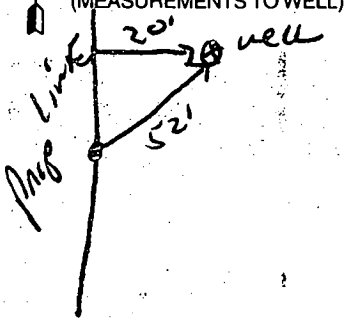
PUMP HORSE POWER (37 41)

PUMP COLUMN LENGTH (nearest ft.) (43 47)

CASING HEIGHT (circle appropriate box and enter casing height)

[+] above [−] below (49) LAND SURFACE 2 (nearest foot) (50 51)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURES AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



DENV-CR97 ② COUNTY

Date 8-1-00 of

Review 8/10/00 O.K. BB

FIELD DATA SHEET
HOWARD COUNTY WELL YIELD TEST

Well Permit No. HO - 94-2743

Location of property (road) West Watersville Rd

Subdivision NA Lot Block Plat Sec.

Well Driller Ralph Mayne Owner Donald Ruddy

Depth of well 225'

Distance of measuring point (M.P.) above ground 2"

Static water level (S.W.L.) below M.P. 45'

I. High rate pumping -- reservoir drawdown

Time pump started 1:00 Pumping rate 15 GPM

Total time 15 hrs to reach pumping water level 85 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 5 gallon bucket	FLOW METER READING (if used)	CALCULATED FLOW (gallons per minute)
1:15	85 "	8 Sec		7.5 GPM
1:30	85 "	8 Sec		7.5 GPM
1:45	85 "	8 Sec		7.5 GPM
2:00	85 "	8 "		7.5 "
2:15	85 "	8 "		7.5 "
2:30	85 "	8 "		7.5 "
2:45	85 "	8 Sec		7.5 GPM
3:00	85 "	8 Sec		7.5 GPM
3:15	85 "	8 Sec		7.5 GPM
3:30	85 "	8 "		7.5 "
3:45	85 "	8 "		7.5 "
4:00	85 "	8 Sec		7.5 GPM
4:15	85 "	8 Sec		7.5 GPM

HD-224

HOWARD COUNTY HEALTH DEPARTMENT

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

June 12, 2000

Mr. Donald C. Ruddy
2545 Martin Road
Willow Grove, PA 19090

RE: LPD Design & Percolation Plan
Application Number: A511447
Proposed Use: Lot of Record
Property ID: Donald Ruddy Property
West Watersville Road
Tax Map: 2 Parcel: 272

Dear Mr. Ruddy:

Percolation testing was conducted May 7 and June 1,1999 on the above referenced property. That testing as well as testing in January, 1983 demonstrated this property unsuitable for conventional sewage disposal systems due to shallow depth to fractured rock and slow percolation times. Sand mound type systems were not considered due to steep slopes. However, as a lot of record where less stringent standards apply, it appeared the soil and site conditions might be suitable for a Low Pressure Dosing type septic system provided adequate area for this specific type system could be demonstrated in a design plan. Copies of the percolation test results are enclosed.

It gives me great pleasure to inform you that the revised LPD design plan, submitted this past April has been reviewed and approved. While we will retain the two copies submitted for health dept. records, you may submit additional copies to be stamped and returned for your own purposes.

This letter will serve as Health Dept. recognition of the above referenced property as a buildable lot, provided the house is no larger than four bedrooms in size and the building permit plans conform to the well and septic restrictions of the approved LPD design plan.

If you have any questions regarding this matter, please feel free to contact me at the address below or by calling (410)313-2640.

Very truly yours,

Ronald J. Pinkley, R.S.
Water and Sewerage Program

Cc: Paul Dietz III, P.E.
file

Bureau of Environmental Health
3525-H Ellicott Mills Drive • Ellicott City, Maryland 21043-4544
Water and Sewerage, Permits (410) 313-1771 Community Environmental Health Program (410) 313-1773
Director (410) 313-2640 TDD(410) 313-2323 TOLL FREE - 1-877-4MD-DHMH

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: Carroll Water Systems Telephone #: 410-876-5100
Address: 60 Arleron Ct. Suite 3
Westminster, MD 21157

(Must circle one) Licensed Plumber Licensed Well Driller (Licensed Well Pump Installer)
License # and name of individual responsible for the field installation:
Name (Print): Ron Smith License#

*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: Deerbrook Homes Telephone #:
Subdivision: Lot #: 2 Well Tag #: HO-94-2743
Site Address: 5488 W. Watersville Rd
Mt Airy

Submersible Pump Data
Make: Goulds
Model #: 5SB06422
Pump Capacity 5 GPM
Well Yield: 7.5 GPM

Pitless Adapter
Make: Campbell
Model#: B10X
Depth: 42 (36" min)
NSF approved: Yes

Well Cap and Electric Conduit
Two piece watertight cap: Yes
Screened, vented well cap: Yes
Cap secured to casing: Yes
Conduit min 18" B.G.: 24"
Conduit secured to well cap: Yes

Depth of well encountered at time of pump installation: 250 (feet)
If pump capacity exceeds well yield, a low water cut off switch is required by NSPC 1990 Section 17.8.4
Torque arrestors or Cable guards are required – Must circle one
Safety rope, if used, attached to inside of well casing with eye bolt ✓

Piping to house
Type: PE
PSI: ✓ (160 psi min)
Depth of supply line: 42 (36" min)

House Connection
PVC sleeved to undisturbed soil at wall penetration: Yes
Approximate length of sleeve: 2'
Sleeve caulked and sealed properly: Yes

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 6/18/01 date

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For Health Department Use Only – Not to be completed by Installer

Date Insp. Requested: 3/20/01 Date Insp. Approved: 3/20/01 (BB) SRH
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

FITTING EQUIVALENT LENGTHS

ENTER	1	Number of 45d Bends	2.58
	1	Number of 90d Bends	5.55
	1	Number of Quick discont	1.35
	0	Number of Couplings	0.00
	0	Number of Check Vales	0.00
		TOTAL	9.48

PUMP OPERATING POINTS

Table of pipe lengths, flows, head,.. etc.

	2" Pipe Length In Feet	2" Fit'g Equiv. Length	Total 2" Equiv Length	Total Static Head	Volume Pipe (Gals.)	(TDH) Operating Point Head	Operating Point Q in gpm
PUMP # 1	10	9.48	19.48	10.44	95.63	16.08	69

88.50	Lateral length
45.00	Manifold length
10.00	Delivery length
586.00	Total

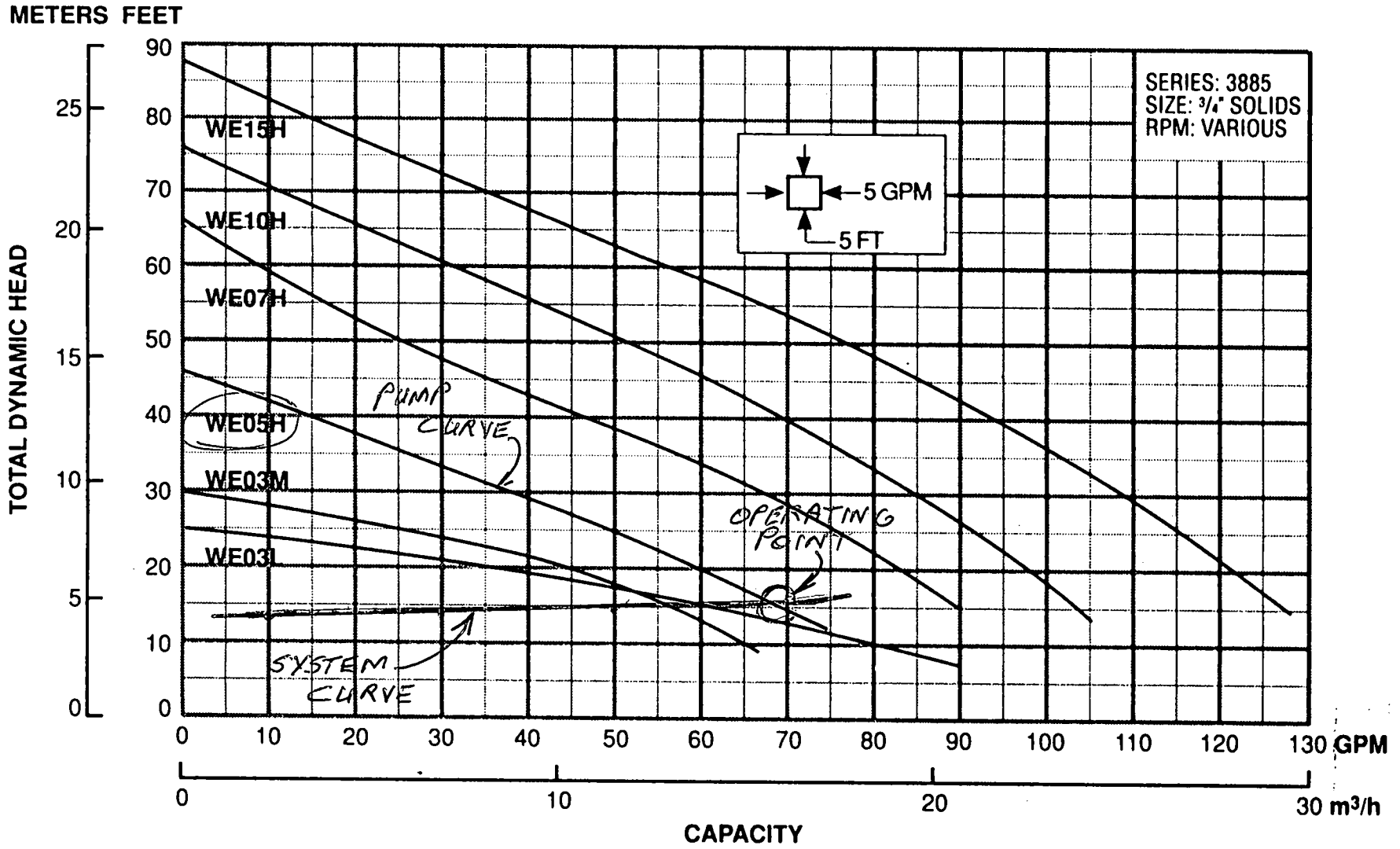
PUMP HEAD CURVE
Total static head 10.44
Head Maint'd @ Highest Lat. 3.09

Friction Head in 2" per 100 ft.	Total Friction Head in 2" pipe	Manifold Friction Head @ Lowest La	Manifold Friction Head @ Nx Highr	Manifold Friction Head @ Nx Highr	Manifold Friction Head @ Nx Highr	Manifold Friction Head @ Hghst Lat	Total Pump Dynamic Head	Q in GPM	Pump Performance Curve 1.0 Hp	
8.49	1.65	0.43	0.28	0.16	0.01	0.02	16.08	69	16.08	<-Pump
0.00	0.00	0.00	0.00	0.00	0.04	0.00	13.57	0	46.00	Operating
0.00	0.00	0.00	0.00	0.00	0.04	0.00	13.57	1	45.50	Point
0.01	0.00	0.00	0.00	0.00	0.04	0.00	13.57	2	45.00	
0.03	0.01	0.00	0.00	0.00	0.03	0.00	13.57	3	44.50	
0.04	0.01	0.00	0.00	0.00	0.03	0.00	13.58	4	44.00	
0.07	0.01	0.00	0.00	0.00	0.03	0.00	13.58	5	43.50	
0.09	0.02	0.00	0.00	0.00	0.03	0.00	13.59	6	43.00	
0.12	0.02	0.01	0.00	0.00	0.03	0.00	13.60	7	42.50	
0.16	0.03	0.01	0.01	0.00	0.03	0.00	13.61	8	42.00	
0.20	0.04	0.01	0.01	0.00	0.03	0.00	13.62	9	41.50	
0.24	0.05	0.01	0.01	0.00	0.03	0.00	13.63	10	41.00	
0.28	0.06	0.01	0.01	0.01	0.03	0.00	13.64	11	40.60	
0.33	0.07	0.02	0.01	0.01	0.03	0.00	13.66	12	40.20	
0.39	0.08	0.02	0.01	0.01	0.03	0.00	13.67	13	39.80	
0.44	0.09	0.02	0.01	0.01	0.03	0.00	13.69	14	39.40	
0.50	0.10	0.03	0.02	0.01	0.03	0.00	13.71	15	39.00	
0.57	0.11	0.03	0.02	0.01	0.03	0.00	13.73	16	38.60	
0.64	0.12	0.03	0.02	0.01	0.03	0.00	13.75	17	38.20	
0.71	0.14	0.04	0.02	0.01	0.03	0.00	13.77	18	37.80	
0.78	0.15	0.04	0.03	0.02	0.03	0.00	13.79	19	37.40	
0.86	0.17	0.04	0.03	0.02	0.02	0.00	13.81	20	37.00	
0.94	0.18	0.05	0.03	0.02	0.02	0.00	13.84	21	36.55	
1.02	0.20	0.05	0.03	0.02	0.02	0.00	13.86	22	36.10	
1.11	0.22	0.06	0.04	0.02	0.02	0.00	13.89	23	35.65	
1.20	0.23	0.06	0.04	0.02	0.02	0.00	13.91	24	35.20	
1.30	0.25	0.07	0.04	0.03	0.02	0.00	13.94	25	34.75	
1.40	0.27	0.07	0.05	0.03	0.02	0.00	13.97	26	34.30	
1.50	0.29	0.08	0.05	0.03	0.02	0.00	14.00	27	33.85	
1.60	0.31	0.08	0.05	0.03	0.02	0.00	14.03	28	33.40	
1.71	0.33	0.09	0.06	0.03	0.02	0.00	14.06	29	32.95	
1.82	0.35	0.09	0.06	0.04	0.02	0.00	14.09	30	32.50	
1.93	0.38	0.10	0.06	0.04	0.02	0.00	14.13	31	32.05	
2.05	0.40	0.10	0.07	0.04	0.02	0.01	14.16	32	31.60	
2.17	0.42	0.11	0.07	0.04	0.02	0.01	14.20	33	31.15	
2.29	0.45	0.11	0.08	0.04	0.02	0.01	14.24	34	30.70	
2.42	0.47	0.12	0.08	0.05	0.02	0.01	14.27	35	30.25	
2.55	0.50	0.13	0.08	0.05	0.02	0.01	14.31	36	29.80	
2.68	0.52	0.13	0.09	0.05	0.02	0.01	14.35	37	29.35	
2.82	0.55	0.14	0.09	0.05	0.02	0.01	14.39	38	28.90	
2.95	0.58	0.15	0.10	0.06	0.02	0.01	14.43	39	28.45	
3.10	0.60	0.16	0.10	0.06	0.01	0.01	14.47	40	28.00	
3.24	0.63	0.16	0.11	0.06	0.01	0.01	14.52	41	27.60	
3.39	0.66	0.17	0.11	0.07	0.01	0.01	14.56	42	27.20	

3.54	0.69	0.18	0.12	0.07	0.01	0.01	14.61	43	26.80
3.69	0.72	0.19	0.12	0.07	0.01	0.01	14.65	44	26.40
3.85	0.75	0.19	0.13	0.07	0.01	0.01	14.70	45	26.00
4.01	0.78	0.20	0.13	0.08	0.01	0.01	14.75	46	25.60
4.17	0.81	0.21	0.14	0.08	0.01	0.01	14.79	47	25.20
4.34	0.84	0.22	0.14	0.08	0.01	0.01	14.84	48	24.80
4.51	0.88	0.23	0.15	0.09	0.01	0.01	14.89	49	24.40
4.68	0.91	0.23	0.16	0.09	0.01	0.01	14.94	50	24.00
4.85	0.95	0.24	0.16	0.09	0.01	0.01	15.00	51	23.60
5.03	0.98	0.25	0.17	0.10	0.01	0.01	15.05	52	23.20
5.21	1.01	0.26	0.17	0.10	0.01	0.01	15.10	53	22.80
5.39	1.05	0.27	0.18	0.10	0.01	0.01	15.16	54	22.40
5.58	1.09	0.28	0.19	0.11	0.01	0.01	15.21	55	22.00
5.77	1.12	0.29	0.19	0.11	0.01	0.01	15.27	56	21.60
5.96	1.16	0.30	0.20	0.12	0.01	0.02	15.33	57	21.20
6.16	1.20	0.31	0.20	0.12	0.01	0.02	15.39	58	20.80
6.35	1.24	0.32	0.21	0.12	0.01	0.02	15.44	59	20.40
6.55	1.28	0.33	0.22	0.13	0.01	0.02	15.50	60	20.00
6.76	1.32	0.34	0.22	0.13	0.01	0.02	15.57	61	19.49
6.96	1.36	0.35	0.23	0.14	0.01	0.02	15.63	62	18.98
7.17	1.40	0.36	0.24	0.14	0.01	0.02	15.69	63	18.47
7.38	1.44	0.37	0.25	0.14	0.01	0.02	15.75	64	17.96
7.60	1.48	0.38	0.25	0.15	0.01	0.02	15.82	65	17.45
7.82	1.52	0.39	0.26	0.15	0.01	0.02	15.88	66	16.94
8.04	1.57	0.40	0.27	0.16	0.01	0.02	15.95	67	16.43
8.49	1.65	0.43	0.28	0.16	0.01	0.02	16.08	69	15.92 ← OPERATING POINT
8.72	1.70	0.44	0.29	0.17	0.00	0.02	16.15	70	15.50
8.95	1.74	0.45	0.30	0.17	0.00	0.02	16.22	71	15.08
9.18	1.79	0.46	0.30	0.18	0.00	0.02	16.29	72	15.00
9.42	1.84	0.47	0.31	0.18	0.00	0.02	16.36	73	14.58
9.66	1.88	0.48	0.32	0.19	0.00	0.02	16.43	74	14.16
9.90	1.93	0.50	0.33	0.19	0.00	0.03	16.51	75	12.50
10.15	1.98	0.51	0.34	0.20	0.00	0.03	16.58	76	10.00
10.40	2.03	0.52	0.35	0.20	0.00	0.03	16.65	77	9.58
10.65	2.07	0.53	0.35	0.21	0.00	0.03	16.73	78	9.16
10.90	2.12	0.55	0.36	0.21	0.00	0.03	16.80	79	8.74
11.16	2.17	0.56	0.37	0.22	0.00	0.03	16.88	80	5.00

Performance Curves

Submersible Effluent Pumps



ENTER	unknown	Perc Rate min/in		
ENTER	unknown	Gallon of flow/day		
	0	Needed Absorption area (sq. ft.)		
	0.0	Feet of trench needed		
	0.0	Length of 4 trenches ea.		
	0.0	Length of 6 trenches ea.		
ENTER - USE	90	ft of trench		
ENTER	6	Number of Trenches		
	1080	Absorption area provided		
ENTER	N/A	Ground slope ft/ft		
ENTER	63.5	Pump off Elev.		
ENTER	73.94	Highest lateral Elev.	3.09	Pump maint'd Head @ operating point
ENTER	72.5	Next Lower lateral Ele	4.81	Pump maint'd Head @ operating point
ENTER	71.09	Next Lower lateral Ele	5.96	Pump maint'd Head @ operating point
ENTER	69.68	Next Lower lateral Ele	7.63	Pump maint'd Head @ operating point
ENTER	68.5	Next Lower lateral Ele	8.55	Pump maint'd Head @ operating point
ENTER	67.06	Lowest lateral Elev.	10.40	Pump maint'd Head
ENTER	93	Overall System length in Ft		@ operating point
	90	Trench Length in Ft		
	88.50	Lateral length in Ft.	11.50	Lateral GPM
	81.00	Length for holes in Ft	13	No. of holes/lat.
ENTER	2	Inch Pipe Size	0.88	GPM per Hole
ENTER	150	Friction "C"	0.20634	Top Lat. hole size
			0.18471	Nx lowr Lat. hole size
			0.17508	Nx lowr Lat. hole size
			0.16459	Nx lowr Lat. hole size
			0.15998	Nx lowr Lat. hole size
			0.15235	Bot. Lat. hole size

T Lat.Q/h	0.86	GPM	ENTER	0.20313	USE 13/64" Top Holes
M Lat.Q/h	0.91	GPM	ENTER	0.18750	USE 12/64" Mid. Holes
M Lat.Q/h	0.85	GPM	ENTER	0.17188	USE 11/64" Mid. Holes
M Lat.Q/h	0.96	GPM	ENTER	0.17188	USE 11/64" Mid. Holes
M Lat.Q/h	0.84	GPM	ENTER	0.15625	USE 10/64" Mid. Holes
B Lat.Q/h	0.93	GPM	ENTER	0.15625	USE 10/64" Bot. holes
Top Trenc	11.14	GPM		13	# of Holes
Mid Trenc	10.94	GPM		12	# of Holes
Mid Trenc	11.08	GPM		13	# of Holes
Mid Trenc	11.58	GPM		12	# of Holes
Mid Trenc	10.97	GPM		13	# of Holes
Bot Trenc	11.17	GPM		12	# of Holes
Total Q =	66.88	GPM			

PUMP HEAD CURVE

Total static head	10.44
Head Maint'd @ Highest Lat.	3.09

SEE INFO ON PLANS

$f = 0.0984 \frac{Q^{1.85}}{d_i^{4.89}}$

E

Design Flow	69.00	GPM from Curve
Design Flow / Lateral	11.50	GPM
Design Flow / Discharge hole	0.88	GPM @ Trench "A"
Design Flow / Discharge hole	0.96	GPM @ Trench "B"
Design Flow / Discharge hole	0.88	GPM @ Trench "C"
Design Flow / Discharge hole	0.96	GPM @ Trench "D"
Design Flow / Discharge hole	0.88	GPM @ Trench "E"
Design Flow / Discharge hole	0.96	GPM @ Trench "F"

HOLE SIZING AT TRENCH "F" (LOWEST) $\sqrt{h} = 3.2249031$

Head Maintained	10.40	FT
$Q = 11.82 \times d^2 \times \sqrt{h}$		
d =	0.158576	inches (.15625) $d^2 = .0244141$
USE	10 / 64	inches Diameter Holes
Actual Hole Q =	0.93	GPM ok
Actual Q / Lateral =	11.17	GPM with 12 holes

HOLE SIZING AT TRENCH "E" (NEXT HIGHER) $\sqrt{h} = 2.9240383$

Head Maintained	8.55	FT
$Q = 11.82 \times d^2 \times \sqrt{h}$		
d =	0.159976	inches (.15625) $d^2 = .0244141$
USE	10 / 64	inches Diameter Holes
Actual Hole Q =	0.84	GPM ok
Actual Q / Lateral =	10.97	GPM with 13 holes

HOLE SIZING AT TRENCH "D" (NEXT HIGHER) $\sqrt{h} = 2.7622455$

Head Maintained	7.63	FT
$Q = 11.82 \times d^2 \times \sqrt{h}$		
d =	0.171315	inches .17188 $d^2 = .0295429$
USE	11 / 64	inches Diameter Holes
Actual Hole Q =	0.96	GPM ✓ok
Actual Q / Lateral =	11.58	GPM with 12 holes

HOLE SIZING AT TRENCH "C" (NEXT HIGHER)

Head Maintained	5.96	FT
$Q = 11.82 \times d^2 \times \sqrt{h}$		
d =	0.175076	inches .17188 $d^2 = .0295429$
USE	11 / 64	inches Diameter Holes
Actual Hole Q =	0.85	GPM
Actual Q / Lateral =	11.08	GPM with 13 holes

HOLE SIZING AT TRENCH "B" (NEXT HIGHER)

Head Maintained	4.81	FT
$Q = 11.82 \times d^2 \times \sqrt{h}$		
d =	0.192254	inches .18750 $d^2 = .0351563$
USE	12 / 64	inches Diameter Holes
Actual Hole Q =	0.91	GPM
Actual Q / Lateral =	10.94	GPM with 12 holes

HOLE SIZING AT TRENCH "A" (HIGHEST)

Head Maintained	3.09	FT
$Q = 11.82 \times d^2 \times \sqrt{h}$		
d =	0.206338	inches use .20313 $d^2 = .0412618$

2545 Martin Rd.
Willow Grove,PA
19090
March 1,1999

Howard County Health Dept.
Ellicott City,MD
Attention County Health Officer

Re. Percolation Test

Dear Sir or Madam;

I have enclosed an Application for a perc. test on a lot I own in western Howard County,along with a check for its processing. I live a good distance away and with my schedules it would be most helpful if such testing be done on a Thursday or Friday since I would want to be present at such time.

I have also heard that my lot was unsuccessfully tested over ten years ago for a James Williams. I have enclosed a preaddressed envelope and request that you please supply me with a sketch ,etc. of such so that when we dig our deep holes we are not revisiting the same poor location. I would also appreciate if you had a list of septic contractors in the area that you could also supply such to me.

Thank you,

Very truly yours,

Donald C. Ruddy

Donald C. Ruddy
215-659-3157

Paul Dietz, III, PE
4958 Durham Road, Kintnersville, PA 18930
(610) 847-2738

October 25, 1999

Ref. Application A511447
Property ID TM 2 Parcel 72
West Waterville Road

Mr. Ronald Pinkley, R.S.
Howard County Health Department
3525-H Ellicott Mills Drive
Ellicott City, MD 21043-4544

Dear Mr. Pinkley:

Please find enclosed the plans, calculations and product literature for the septic system design of the above noted property. I have based the design on the criteria given to my by Mr. Ruddy which are part of the Maryland septic system design requirements. Where I did not have that guidance I used requirements that would be used in designs for Pennsylvania systems. The following list of items are things based on Pennsylvania regulations.

OK
1,500 gal tank not available unless 2 compt

1. Septic tank size and type - 1300 gals based on Chapter 73.17(a)(2)&(3). Three bedroom house = 400 gallons per day plus 100 gallons for each bedroom over 3. Tank volume is 900 gallons for three bedrooms plus (3.5 x flow over first 400) = 1250 gallons for four bedroom house. I therefore selected a 1300 gallon tank. I also selected a two compartment tank as part of good engineering. The most common cause of failure in septic systems is the discharge of solids out in the absorption area. Therefore; two compartment help prevent that from occurring. It also helps during peak flows into tank to make sure solids are not discharge into pump tank and then into absorption area.
2. Absorption area dosing quantity - 5 times distribution piping capacity Chapter 73.45(2)
3. Design flow in each lateral - within 10% of adjoining lateral and total system flow within 10% of design flows. Chapter 73.44(c). The system has been designed and balanced very closely to assure equal dosing throughout absorption area.

Please review the submitted information and if you have any questions or problems or additional information you need please feel free to call me at (215) 766-0643 or write.

Sincerely,

Paul Dietz

Paul Dietz, P.E.

cc: Donald Ruddy

2545 Martin Road
Willow Grove, PA 19090
September 30, 1999

Mr. Ronald J. Pinkley, R.S.
Howard County Health Department
3525-H Ellicott Mills Dr.
Ellicott City, MD 21043-4544

Re: Application A511447, Property I.D. Tax Map 2 Parcel 72, West Watersville Road, 2.5 Ac.

Dear Mr. Pinkley:

My registered engineer has completed the attached design for an alternate septic system for my lot. It also includes a contour plot of the property on 2-foot intervals. I believe his attached notes and associated sheets should explain the technical basis of his final produced design.

You might note the presence of a dirt road on the map, which was not present when you were at the site. Such was done strictly to give access to the property for the placement of a well and for access to the field area. I hope you find the design satisfactory. If you need to discuss it, please give Paul Dietz a call at 215-766-0643 during working hours. I will be away on vacation for three weeks and would only be able to pass messages along if I were home. His FAX number is 215-766-3412.

I have enclosed a check for $180.00 to cover the cost for a sewage disposal system permit. I will subsequently be applying for a well permit. I hope the design is satisfactory.

Very truly yours,

Don Ruddy

Donald C. Ruddy

cc: Paul Dietz III

TANK ALERTS

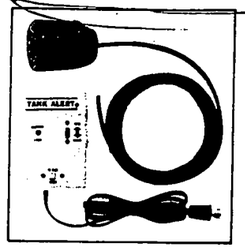
Like Buying Insurance. S.J. Electro Systems' Tank Alerts are alarm systems that can help prevent the disaster of sewage or sump pump failure. They also serve to monitor sewage holding tanks to prevent overflow, and serve as high or low liquid level warning for other holding systems.

They are, in a real sense, inexpensive insurance policies to prevent the drudgery and costs of clean-up.

Designed For Simplicity: A sensor float. A cord. An alarm panel (with warning light, horn, silent switch, and test button). Both models have these three advantages:

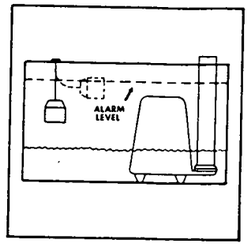
1. **Installation is as easy** as mounting the alarm panel (and connecting to an electrical source), wiring the sensor float cord to the panel, and tossing in the float.
2. **High reliability and low cost.**
3. **Quality is guaranteed** by a 2-year warranty and factory testing of each control.

Tank Alert® I



This indoor model has a compact metal alarm panel that is designed to fit conveniently inside buildings.

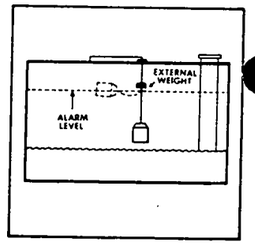
When activated, a light goes on and a horn gives a steady blast.



Tank Alert® II

This model has a non-metallic alarm panel for outdoor or indoor use. All exposed parts are corrosion, wind, and rain resistant.

When activated, a flashing light goes on and a tamper-proof horn gives a loud pulsating blast.



S.J. Electro Systems, Inc., was started in 1975 as a design and manufacturing company. Since the beginning, there has been a consistent growth in sales, the labor force, and total operating space — due to the continuing demand for quality products that are innovative, simple, and uniquely meet the needs of the market.

S.J. Electro Systems, Inc., is proud of its strict quality control and problem-free reliable products. That's why we offer an industry-leading 2-year warranty on all our products.

Two Year Warranty

All S.J. Electro Systems' liquid level controls are guaranteed to be free of defects in material and workmanship for a period of two years. Any defective returns will be promptly repaired or replaced.

CALL OR WRITE FOR COMPLETE INFORMATION ON ANY OF OUR PRODUCTS.

S.J. Electro Systems, Inc.
Route 1, Box 17
Detroit Lakes, Minnesota 56501
(218) 847-1317

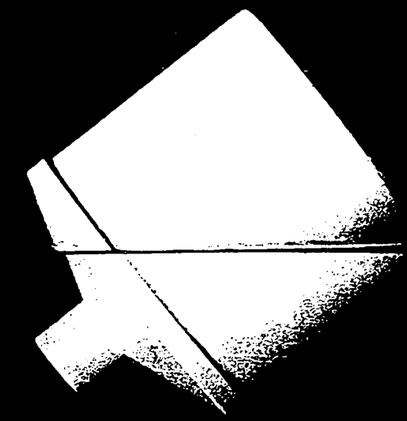
MODERN
Concrete Septic Tank Co.
P. O. Box 339 - Durham Rd.
Ottsville, Pa. 18942-0339
(215) 847-5112

SSPMA Certified Member

Submersible Wastewater Pump Association SWPA MEMBER

• ALARM SYSTEMS
• MERCURY FLOAT SWITCHES

FOR
SUMP PUMPS,
SEWAGE SYSTEMS,
AND DRAINAGE AND HOLDING SYSTEMS



ECONOMICAL — EASY TO INSTALL — BUILT TO LAST

There are three basic areas to consider when deciding which liquid level co[illegible]ols to [illegible]y: 1. RELIABILITY 2. EASE OF INSTALLATION 3. AVAILABILITY AND PRICE

S.J. Electro Systems is a solid choice in all three areas.

1. RELIABILITY: The number one reason customers buy additional products from us is that what they previously bought functioned extremely well and lasted ... and lasted ... and lasted.

2. EASE OF INSTALLATION: With a design that eliminates time-consuming labor, you won't find anything anywhere that is easier to install.

3. AVAILABILITY AND PRICE: Sold nationwide, our products' competitive pricing and long-life dependability make them the most economical liquid level controls available.

DIRECT SWITCHING OF LARGER PUMPS

To 1 HP at 120V — To 2 HP at 230V

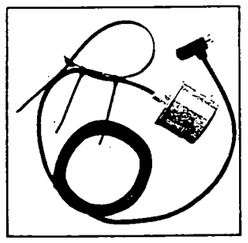
These two pump switches (the Super Single Float Pump Switch and the Double Float Pump Switch) from S.J. Electro Systems automatically control pumps, solenoids, relays, and alarms.

They are unique (including three patents). They are designed for simplicity and no-problems practical use. They are virtually fail proof.

Just check these advantages:

1. **You'll never have to pull a pump** to replace a switch. Our controls make a manual pump automatic with a separately-mounted switch. (Manual operation is possible.)
2. **Installation is as easy** as attaching a clamp, tossing in a float, and plugging in a cord. **No control panel is needed.**
3. **Unique designs** provide steady, accurate control at all times — with little effect from turbulence or rotation.
4. **Heavy-duty non-wearing switches** (mercury-to-mercury contacts) are designed to outlast the pumps they control.
5. **Quality is guaranteed** by an industry-leading 2-year warranty, factory testing of each control, and UL listing.

Super Single Float Pump Switch

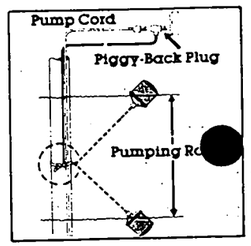


Designed For Simplicity: One float. A piggy-back plug. A cord. An adjustable mounting clamp.

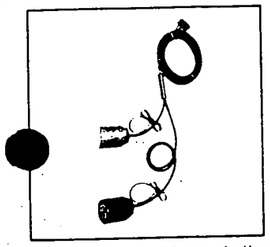
Adjustable pumping range of 6.5" to 16". Pump up and pump down models available.

Uniqueness: The patented feature of the Super Single Switch is its 360° pivoting tumbler design ... which assures that the on-off is not affected by rotation or turbulence.

(PATENT 4302641)



Double Float Pump Switch



Designed For Simplicity: Two floats. Two cords molded into one piggy-back plug cord. Two adjustable mounting clamps.

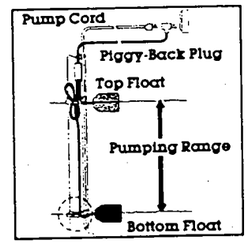
Adjustable pumping range of 1" to 48". Pump up and pump down models available.

Uniqueness: One patented feature of the Double Float Switch is that the relay is mounted and sealed inside the float housing. The second patented feature is that the load-control circuit prevents arcing in the relay contacts, which dramatically extends the life of the contacts. What all this means is reliability, no-problems operation, long life — and **no control panel.**

The Double Float Switch is also designed to assure that the on-off is not affected by rotation or turbulence.

Comparison: The Double-Float Switch has a wider pumping range and can be used in a smaller diameter area than the Super Single Switch.

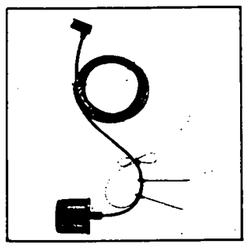
(PATENTS 4262216 & 4291261)



DIRECT SWITCHING OF SMALLER PUMPS

To 1/3 HP

Wide Angle Mercury Float Switch



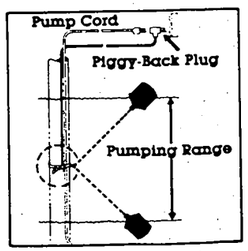
Designed For Simplicity: One float. A piggy-back plug. A cord. An adjustable mounting clamp.

Adjustable pumping range of 8" to 30". Pump up and pump down models available.

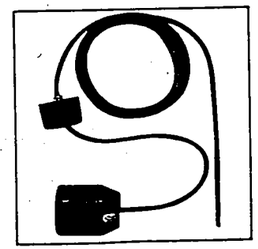
The Economical Answer to small pump operation.

These controls have a mercury-to-metal switch for automatic control of pumps, solenoids, relays, and alarms — and many of the advantages of the switches for larger pumps:

1. **You'll never have to pull a pump** with these separately-mounted switches. (Manual operation is possible.)
2. **Installation is as easy** as attaching a clamp, tossing in a float, and plugging in a cord.
3. **Not affected by rotation** and operates well in moderately turbulent conditions.
4. **Quality is guaranteed** by an industry-leading 2-year warranty, factory testing of each control, and UL listing.

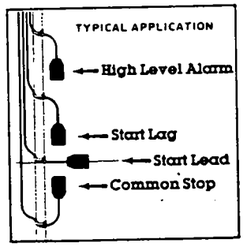


SENSOR FLOATS



These liquid sensors turn on and off slightly above or below a horizontal position. They are frequently used in sewage and drainage applications to activate pump control panels, solenoids, and relays; set off alarms; measure liquid levels; etc.

Three Available Types: Pipe Clamp, Internal Weight, External Weight.



Final Plan Review 2/14/00 RPC

W. Waterville Rd

Tax Map 2 Parcel 72

Proposed 4 Bdrm Use = 600 gpd daily wastewater flow

$\frac{w+2}{w+1+2(1)} = \frac{2+2}{2+1+2(1)} = \frac{4}{6} = 80\%$

$d = \frac{1}{2}"$

$w = 24"$

$600 \div .45 = 1333.3$ sq ft/system

$600 \div .25 = 2400$ sq ft Needed

$(90 \times 6) \times 4$ Trench $= 360 \times 4 = 1440$ ft

$5 \times 9' + 6 \times 2' + 9$ Turnouts $= 54w \times 99'$ long $= 5400 - 160 = 5240$ ft

$90 \times 6 = 540$ LF/Trench

$\therefore \frac{540}{600} = 0.9$ gal/LF

≥ 2 sq ft sidewall only @ .45

$S = 0.0984 \frac{Q^{1.85}}{di\ 4.87}$

		Q(gpm)	di		di 4.87	$Q^{1.85}$	S
Highest							
Lateral	(1)	0.86	0.20313	13/64"	.00042855	.756523	174.95715
	(2)	0.[illegible]	0.18750	12/64"	0.00028871	.8398981	
	(3)	0.[illegible]	0.17188	11/64"	.00018856	.7403294	
	(4)	0.75	0.17188	11/64"	.00018856	.9272606	
	(5)	084	0.15625	10/64"	.00011186	.7224292	
Lowest	(6)	0.93	0.15625	10/64"	.00011186	.8743664	

$\frac{1}{4}Q = 11.5$ gpm $Q^{1.85} = 91.683762$ $\frac{1}{4}$ $Q = 69$ gpm $Q^{1.85} = 2522.73$

by Comparison $\frac{1}{4}$" diam $= 0.2500$

5/16" diam $= 0.3125$

di	d^2
0.20313	
0.18750	
0.17188	
.17188	
0.15625	
0.15625	

Major Concerns

(1) shows one Septic Field — Needs 1 initial plus one repair area (Not shown).

(2) This repair area will displace House site & well area.

Field could be one set of 6 Trenches = 2 sqft sidewall only @ 0.45 gpd/sqft = 0.9 gpd/sqft

or could be 2 sets of 3 Trench each = 4 sqft sidewall @ 0.45 gpd = 1.8 gpd/sqft

or 1½ feet = 2 sqft sidewall @ 0.45 and 2 sqft bottom @ 0.25 = 1.4 gpd/sqft

Freddy PR 6/2000 [redacted] TE in PA.

6/14/00 Cross check of Engineer's Calculations

by PP

h = head pressure @ lateral, d = diameter

For friction loss @ C = 150

$$f = 0.0984 \frac{Q^{1.85}}{d^{4.87}}$$

For Hole Size

$$Q = 11.82 \times d^2 \sqrt{h}$$

(C) $h = 6.52'$ $\sqrt{h} = 2.5534$

$d = 0.253469$ $d^2 = .064246$ $\times 11.82$ $= \sqrt{h} \times .759394$

OK 1.94 ≈ 1.9390 ✓

if $d = .2500$ $d^2 = .0625$ $\times 11.82$ $.738375$ $\times 2.5534$ $= 1.886232 \approx 1.89$ ✓

(B) $h = 4.69$ $\sqrt{h} = 2.16564$ +1/4

$d = .295319$ $d^2 = .075800$ $\times 11.82$ $1.940318 = \sqrt{h} \times .895966$

if $d = .2656$ $d^2 = .0705583$ $\times 11.82$ $.0834010$ $\times 2.16564$ $1.806167 \approx 1.81$ ✓

(A) $h = 3.09$ $\sqrt{h} = 1.757838$

$d = .29688$ (actual) $d^2 = .0881377$ $\times 11.82$ $1.041988 = \sqrt{h} \times 1.041988$

final adjusted hole size ≈ 1.83 ✓ 1.83297

if $d = .30556$ $d^2 = .09334$ $\times 11.82$ 1.103279 $\times 1.757838$ 1.9398 ← Design Leakage

---

(F) $h = 7.49$ #/head $\sqrt{h} = 2.736986$

$d = .258797$ $d^2 = .0669759$ $\times 11.82$ $.0791655$ $\times 2.736986$ 2.16659 ✓

if $d = .2500$ $d^2 = .0625$ $\times 11.82$ $.738375$ $\times 2.736986$ 2.02180 ✓ actual

(E) $h = 4.86'$ $\sqrt{h} = 2.19946$

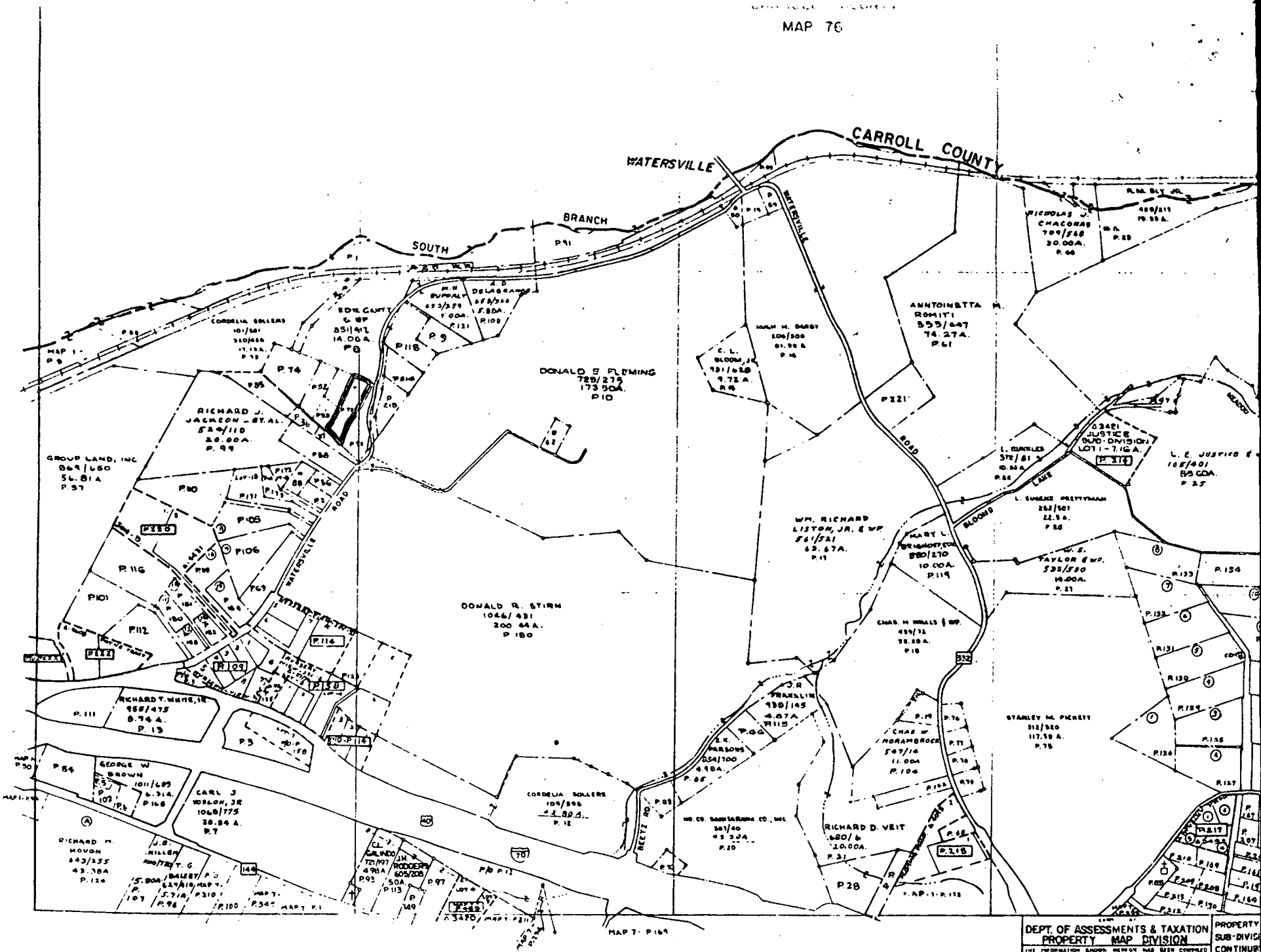
$d = .290056$ $d^2 = .08413248$ $\times 11.82$ $.994448$ $\times 2.19946$ 2.18654 ✓

if $d = .28125$ (18/64) $d^2 = .07910156$ $\times 11.82$ $.934980$ $\times 2.19945$ $2.03774 \approx 2.04$ ✓ actual

(A) $h = 3.09$ $\sqrt{h} = 1.757838$

$d = .322922$ $d^2 = .104286$ $\times 11.82$ 1.232503 $\times 1.757838$ 2.16687

if $d = 20/64 = 5/16 = .3125$ $d^2 = .09765625$ $\times 11.82$ 1.154269 $\times 1.757838$ $2.02907 \approx 2.03$ ✓ actual



DEPT. OF ASSESSMENTS & TAXATION
PROPERTY MAP DIVISION

THE INFORMATION SHOWN HEREON HAS BEEN COMPILED FROM DEED DESCRIPTIONS AND IS NOT AN ACTUAL SURVEY. IT SHOULD NOT BE USED FOR LEGAL DESCRIPTIONS. USERS NOTING ERRORS ARE URGED TO NOTIFY DEPARTMENT OF ASSESSMENTS & TAXATION, 301 W. PRESTON ST., BALTO. 21201

PROPERTY
SUB-DIVIS
CONTINUA
PARCEL N

SCALE:

REVISED TO: DATE: JAN. 1, '82 USER: IORT BY: R.B.W.

CONFIRMED

HOWARD COUNTY HEALTH DEPARTMENT

Joyce M. Boyd, M.D., County Health Officer

March 22, 1999

Donald Ruddy
2545 Martin Rd.
Willow Grove, Pa. 19090

Re: Percolation Test Application A511447
2.5 acre lot - West Watersville Rd.
Tax Map 2, Parcel 72

Dear Mr. Ruddy,

A percolation test date for the above referenced property has been tenetatively scheduled for 10:00 a.m. Friday May 7, 1999.

Please have your contractor on-site to begin excavting test holes in appropriate locations a few hours prior to our scheduled time of arrival.

Per your request of March 1, I have enclosed a copy of prior unsuccessful testing from 1983, and a list of contractors who commonly perform percolation test excavations in this area.

Please cal this office promptly to confirm your acceptence of the scheduled date, and again on the morning of testing if inclement weather raises any doubt as to whether or not testing can proceed on schedule.

Yours truly,

Craig Williams
Sanitarian

4/1/99
TALKED ABOUT I & A.
HD WILL CONSIDER HAVING A CONSULTANT INVOLVED, BUT AT THIS MOMENT ITS TEST AS USUAL...
CW

c:

Bureau of Environmental Health
3525-H Ellicott Mills Drive Ellicott City, Maryland 21043-4544
Water and Sewerage Program (410) 313-2640 Community Environmental Health Program (410) 313-2644
Food Protection Program (410) 313-2642 TDD (410) 313-2323 FAX (410) 313-2648

2545 Martin Road
Willow Grove, PA 19090
April 13, 2000

Mr. Ronald J. Pinkley, R.S.
Howard County Health Department
3525-H Ellicott Mills Dr.
Ellicott City, MD 21043-4544

Re: Application A511447, Property I.D. Tax Map 2 Parcel 72, West Watersville Road, 2.5 Ac.

Dear Mr. Pinkley:

I had my registered engineer redesign the alternative septic system per the changes you requested at our meeting in your office on February 14, 2000. The following changes were made:

OK (a) The "working" field area has been relocated uphill to allow a reserve area below it for the future.
OK (b) The proposed well area has been relocated to the rear of the lot, north and east of the septic field.
OK (c) A 1500-gallon pump tank has replaced the previous 1000-gallon one.
OK (d) All perforated holes in the laterals have been made to be ¼" to 5/16" diameter (larger than previously).
OK (e) The one feed line to laterals A, B, C, D, E, and F has been split as requested into two feed lines, A, B, C, and D, E, F.
✓ (f) You also recommended valving (in the lines to the upper laterals (A, B, C) and lower laterals (D, E, F)) to be present so as to manually adjust these in the field due to the hydraulic differences which exist. This has been addressed also.

On this last item, my engineer has come up with a valve alternative which I believe is an improvement over that which we both envisioned during our meeting. Instead of feeding all the six laterals (via two lines) at the same time and trying to balance them with a valve(s) for their elevation differences, he has instead designed-in an alternating valve in which the laterals A, B, C are first fed and then on the next cycle, the valve then feeds laterals D, E, F. By such means the head differential to the laterals is significantly reduced to less than half of the former. The achieved flows to the upper set of laterals are maintained to within 5% of each other and the flows to the lower set of laterals are maintained to within 1% of each other.

Very good

I believe the engineer came up with an optimum design for the situation. During perc testing last summer you had mentioned the possibility in a design of using alternative feeds and the benefit of the additional "rest" time between dosings achieved by such. I have enclosed two complete sets of prints and accompanying design information for the proposed system. Since you have already done a preliminary design review and we have incorporated the requested changes, I hope you will be able to easily complete your review. We have an anxious buyer for the property who wants to start building quickly. Thank you.

Very truly yours,

Approved Septic System Plan
Howard County Health Department

Donald C. Ruddy

Enclosures

Signature _____ Date 6/12/00

EMERGENCY/TEMP NO. IF ANY

B 1 | 18615 (1 2 3 6) SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND
PERMIT TO DRILL WELL

W5 13662 Please print or type

STATE PERMIT NUMBER: HO-94-2743 (70 79) fill in this form completely

Date Received (APA): 6/30/00 (8 MM DD YY 13)

OWNER INFORMATION

Ruddy (15 Last Name) Donald (Owner First Name) (34)

2545 (36) MARTIN RD. (Street or RFD) (55)

WILLOW GROVE (57 Town) PA (70 State) 19090 (72 Zip 76)

DRILLER INFORMATION

Ralph Mayne (Driller's Name) MSD 116 (76 License No. 81)

Ralph Mayne Well Drilling (Firm Name)

9120 Brown Church Rd. Mt Airy (Address)

Ralph Mayne (Signature) 6-26-00 (Date)

B 2 WELL INFORMATION

APPROX. PUMPING RATE (GAL. PER MIN.): 5 (8 12)

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): 500 (14 20)

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- (D) DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION
- [F] FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION
- 22 [I] INDUSTRIAL, COMMERICIAL, DEWATERING
- [P] PUBLIC WATER SUPPLY WELL
- [T] TEST, OBSERVATION, MONITORING
- [G] GEO-THERMAL

APPROXIMATE DEPTH OF WELL: 150 (24 28) FEET

APPROXIMATE DIAMETER OF WELL: 6" (NEAREST INCH)

METHOD OF DRILLING (circle one)

BORED (or Augered) | JETTED | Jetted & DRIVEN

30 (AIR-ROTary) | AIR-PERcussion | ROTARY (Hydraulic Rotary)

37 CABLE | REVerse-ROTary | DRive-POINT

other

REPLACEMENT OR DEEPENED WELLS (CIRCLE APPROPRIATE BOX)

- (N) THIS WELL WILL NOT REPLACE AN EXISTING WELL
- [Y] THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- 39 [S] THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY-CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS
- [D] THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE) 41 ___ ___ - ___ ___ - ___ ___ ___ ___ 52

Not to be filled in by driller (MDE OR COUNTY USE ONLY)

APPROP. PERMIT NUMBER: GAP (54 63)

PERMIT No. HO-94-2743 (70 71 72 73 74 75 76 77 78 79)

B 3 LOCATION OF WELL

Howard (8 COUNTY 21)

Ruddy Parcel (23 SUBDIVISION 42)

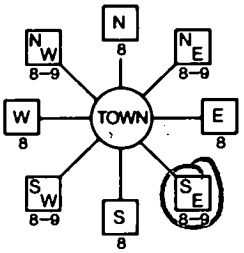
SECTION — (44 46) LOT — (48 50)

Mt Airy (52 NEAREST TOWN 71)

MILES FROM TOWN (enter 0 if in town): 2 (73 M I 76 77 78)

B 4

1 2 DIRECTION OF WELL FROM TOWN (CIRCLE BOX)



West Watersville Rd (11 NEAR WHAT ROAD 30)

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)

34 1000 37 DISTANCE FROM ROAD

ENTER FT OR MI (38 39) Ft

TAX MAP: 2 BLK: ___ PARCEL 172

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

Howard (COUNTY NAME) A511447 (COUNTY NO.)

STATE SIGNATURE ___ INSERT S → (41)

DATE ISSUED: 7/19/00 (43 MM DD YY 48) CO SIGNATURE [signature] EXP. DATE: 7/19/01

NORTH GRID: 556 000 (50 55)

EAST GRID: 0966 000 (57 63)

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X →

SOURCES OF DRILLING WATER
1. well
2.
3.

WRITE THE BOX NUMBER FROM THE MAP HERE

E 0966

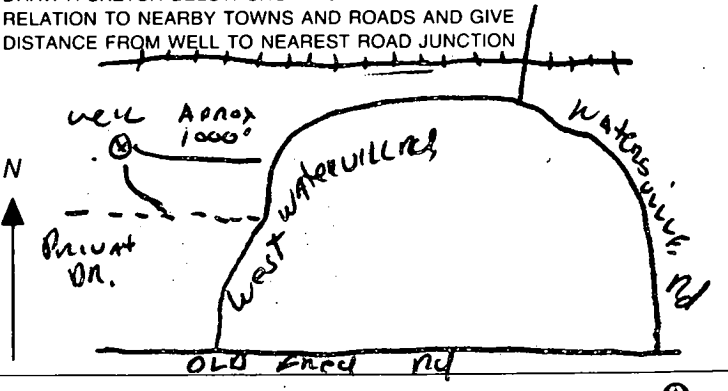
N 556

000
000

8/1/00

8/1/00 K
No Inspection
BB

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



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

DENV-Permit 97

② COUNTY

HOWARD COUNTY HEALTH DEPARTMENT

Mary Sue Baker, MBA, Acting County Health Officer

July 22, 1999

Ronald Ruddy
2545 Martin Road
Willow Grove, Pennsylvania 19090

RE: Percolation Test Results: Application A511447
Proposed use: Recorded Lot
Property ID: 2.5 acre lot
West Watersville Road
Tax Map 2, Parcel 72

Dear Mr. Ruddy:

Percolation testing conducted May 7, 1999, on the above referenced property indicated limited satisfactory soil conditions. Testing revealed this property was unsuitable for a conventional septic system due to shallow depth to fractured rock and moderately slow percolation rates. Follow-up evaluation on June 1, 1999, revealed site conditions with uncertain prospects for a shallow pressure dosing type septic system, or its equivalent. Copies of all percolation test results are enclosed.

It is not possible at this time to predict whether or not a favorable outcome can be achieved. Further review would require 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' of property boundaries have been shown. Because proper landscape position is especially critical for shallow systems with relatively slow percolation rates, it is requested that the review document be at a scale of 1"=50' and include field matched contours at 2' intervals.

Bureau of Environmental Health
3525-H Ellicott Mills Drive Ellicott City, Maryland 21043-4544
Water and Sewerage, Permits (410) 313-2640 Community Environmental Health Program (410) 313-2644
Director (410) 313-2642 TDD (410) 313-2323

This should be submitted within sixty (60) days to allow field verification if necessary. If you have any questions regarding this matter, please feel free to contact me at the above address or by calling 410-313-2640.

Very truly yours,

Ron Pinkley (cw)

Ronald J. Pinkley, R.S.
Water and Sewerage Program

RJP:mlb
Enclosures
cc: File

Goulds

Submersible Effluent Pumps

MODEL

3885

AVAILABLE CERTIFICATIONS

ETL LISTED SUBMERSIBLE PUMP
CLASS I AND II DIV. 2 AND
CLASS III DIV. 1 AND 2
ETL TESTING LABORATORIES, INC.
CORTLAND, NEW YORK 13045 G1086131480

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: ¾" maximum.
- Discharge size: 2" NPT.
- Capacities: up to 114 GPM.
- Total heads: up to 123 feet TDH.
- Mechanical seal: carbon-rotary seat/ceramic-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: ⅓ HP, 115 or 230 V 60 Hz, 1750 RPM; ½ HP, 115V, 60 Hz, 3500 RPM; ½ HP – 1½ HP, 230 V, 60 Hz, 3500 RPM. Built-in overload with automatic reset. Class B insulation.
- Three Phase: ½ HP – 1½ HP 208/230 V, 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: ⅓ and ½ HP-16/3 SJTO with three prong plug. ¾ – 1½ HP-14/3 STO with bare leads. Three phase: ½ – 1½ 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. Bronze impeller available as an option.

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

Mechanical Seal: Ceramic vs carbon 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.

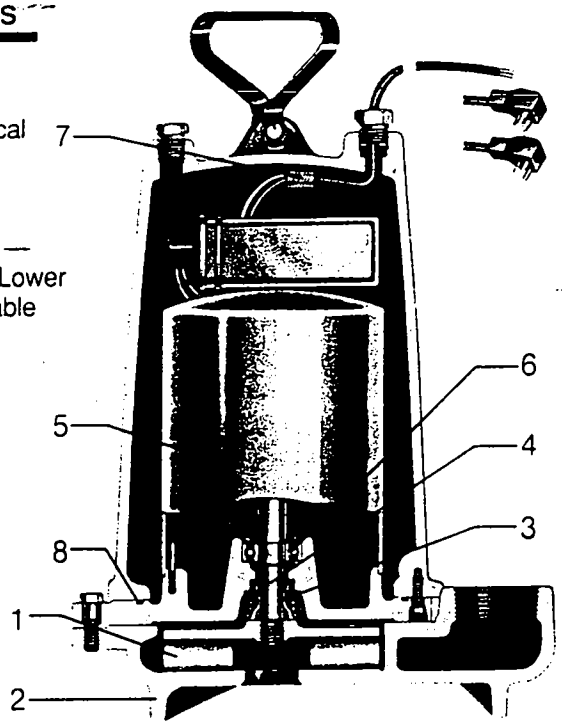
Goulds

Submersible Effluent Pumps

MODEL 3885

FEATURES

1. Impeller
2. Casing
3. Mechanical Seal
4. Shaft
5. Motor
6. Bearings — Upper & Lower
7. Power cable
8. O-Ring



MODELS

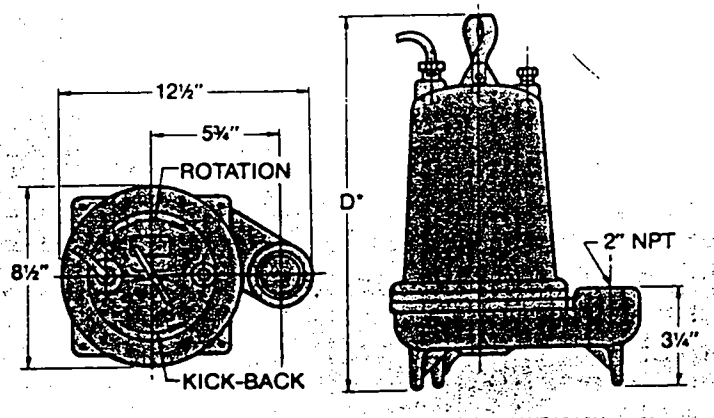
Series	HP	Volts	Phase	Max. Amp.	RPM	Solids	Wt. (lbs.)
WE0311L	⅓	115	1	9.4	1750		56
WE0312L		230		4.7			
WE0311M		115		9.4			
WE0312M		230		4.7			
WE0511H	½	115	1	13.0	3500	¼"	60
WE0512H		230		6.5			
WE0532H		208 – 230	3	3.4			
WE0534H		460		1.7			
WE0511HH		115	1	13.0			
WE0512HH		230		6.5			
WE0532HH		208 – 230	3	3.3			
WE0534HH		460		1.65			
WE0712H	¾	230	1	10.0			70
WE0732H		208 – 230	3	5.4			
WE0734H		460		2.7			
WE1012H	1	230	1	12.5			
WE1032H		208 – 230	3	7.0			
WE1034H		460		3.5			
WE1512H	1½	230	1	15.0			80
WE1532H		208 – 230	3	9.2			
WE1534H		460		4.6			
WE1512HH		230	1	15.0			
WE1532HH		208 – 230	3	9.2			
WE1534HH		460		4.6			

PERFORMANCE RATINGS (gallons per minute)

Series No.		WE0311L WE0312L	WE0311M WE0312M	WE0511H WE0512H WE0532H WE0534H	WE0712H WE0732H WE0734H	WE1012H WE1032H WE1034H	WE1512H WE1532H WE1534H	WE0511HH WE0512HH WE0532HH WE0534HH	WE1512HH WE1532HH WE1534HH
	HP	⅓	⅓	½	¾	1	1½	½	1½
	RPM	1750	1750	3500	3500	3500	3500	3500	3500
Total Head Feet of Water	5	100	70	80	90	106	—	60	—
	10	80	65	76	87	102	112	56	84
	15	60	57	72	84	100	108	53	82
	20	36	45	65	79	95	105	48	77
	25		25	59	74	91	100	45	75
	30			50	67	85	96	40	72
	35			40	61	79	92	35	70
	40			26	52	72	86	30	67
	45			10	43	64	80	25	64
	50				30	54	73	18	60
	55				17	42	65	12	58
	60				6	30	54	3	54
	65					16	40		51
	70					5	26		47
	75						14		43
	80						4		40
	90								33
	100								24
	110								15
	120								5

DIMENSIONS

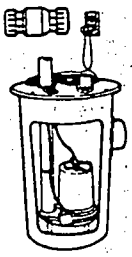
(All dimensions are in inches. Do not use for construction purposes.)



D* ⅓, ½, ¾ and 1 HP = 15" except for model WE0712H and WE1012H = 18"; 1½ 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.



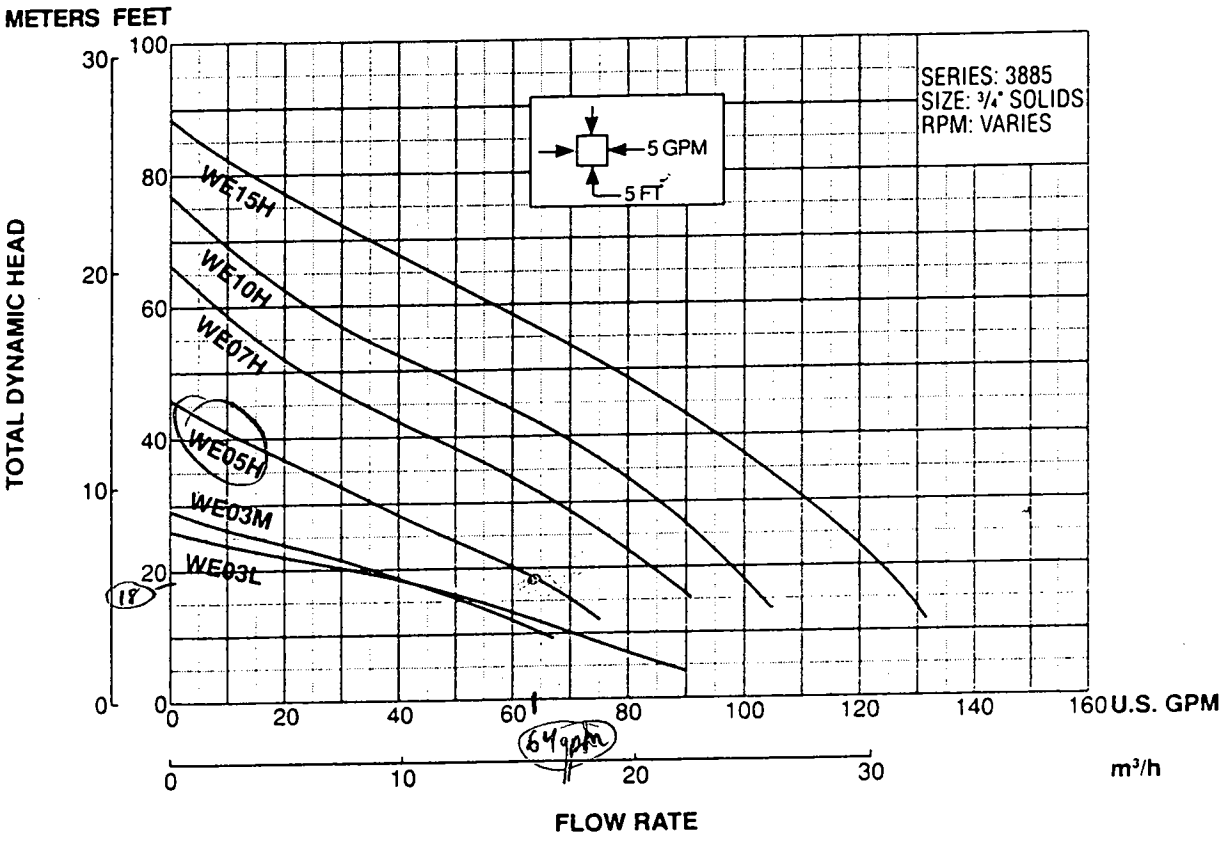
Package Includes:
Submersible Effluent Pump, WE0311L, 12L or WE0311M, 12M, WE0511HH, 12HH
Mercury Level Control Switch A2-5 (115V), A2-6 (230V)
Basin A7-1801S
Basin Cover A8-1822
Check Valve A9-2P
Order No.: SWE0311L, SWE0312L, SWE0311M, SWE0312M, SWE0511HH, SWE0512HH.

WATER TECHNOLOGIES GROUP
SENECA FALLS, NEW YORK 13148

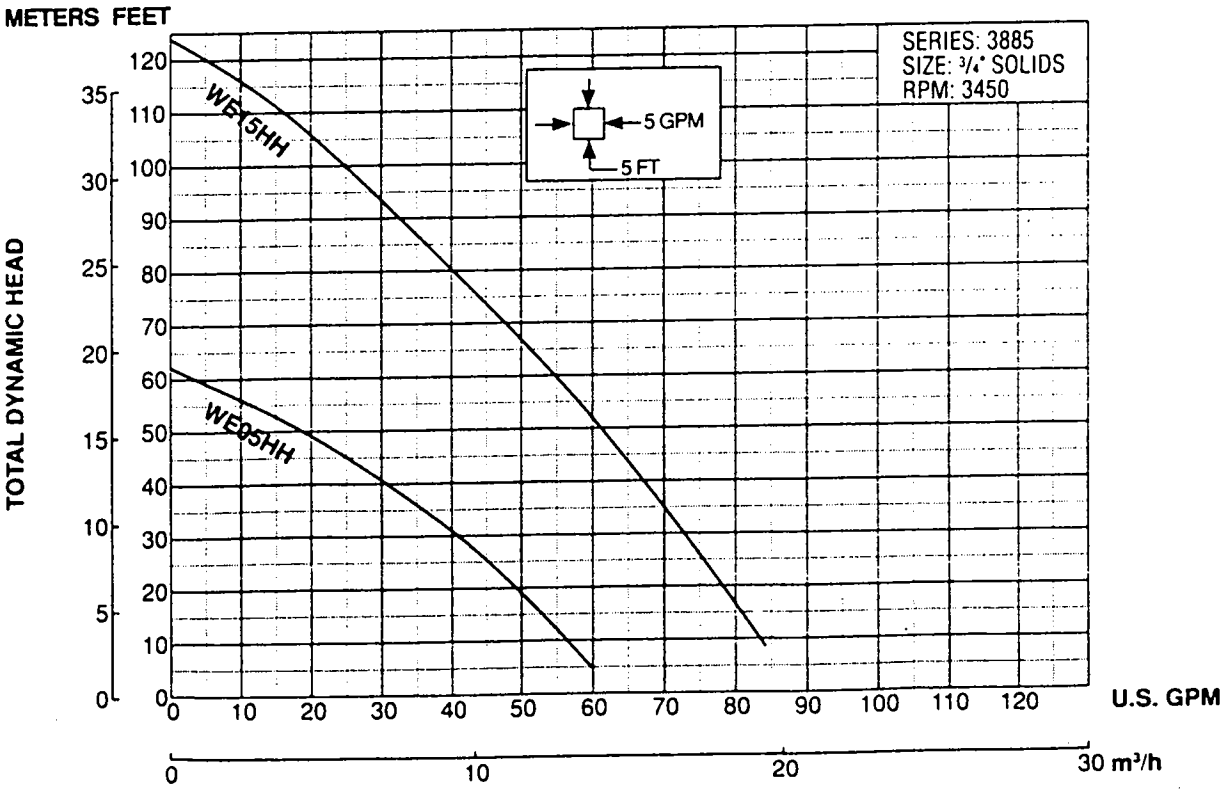
PRINTED IN U.S.A.

Performance Curves

Submersible Effluent Pumps



GOULDS PUMPS, INC.
WATER TECHNOLOGIES GROUP
SENECA FALLS NEW YORK 13148

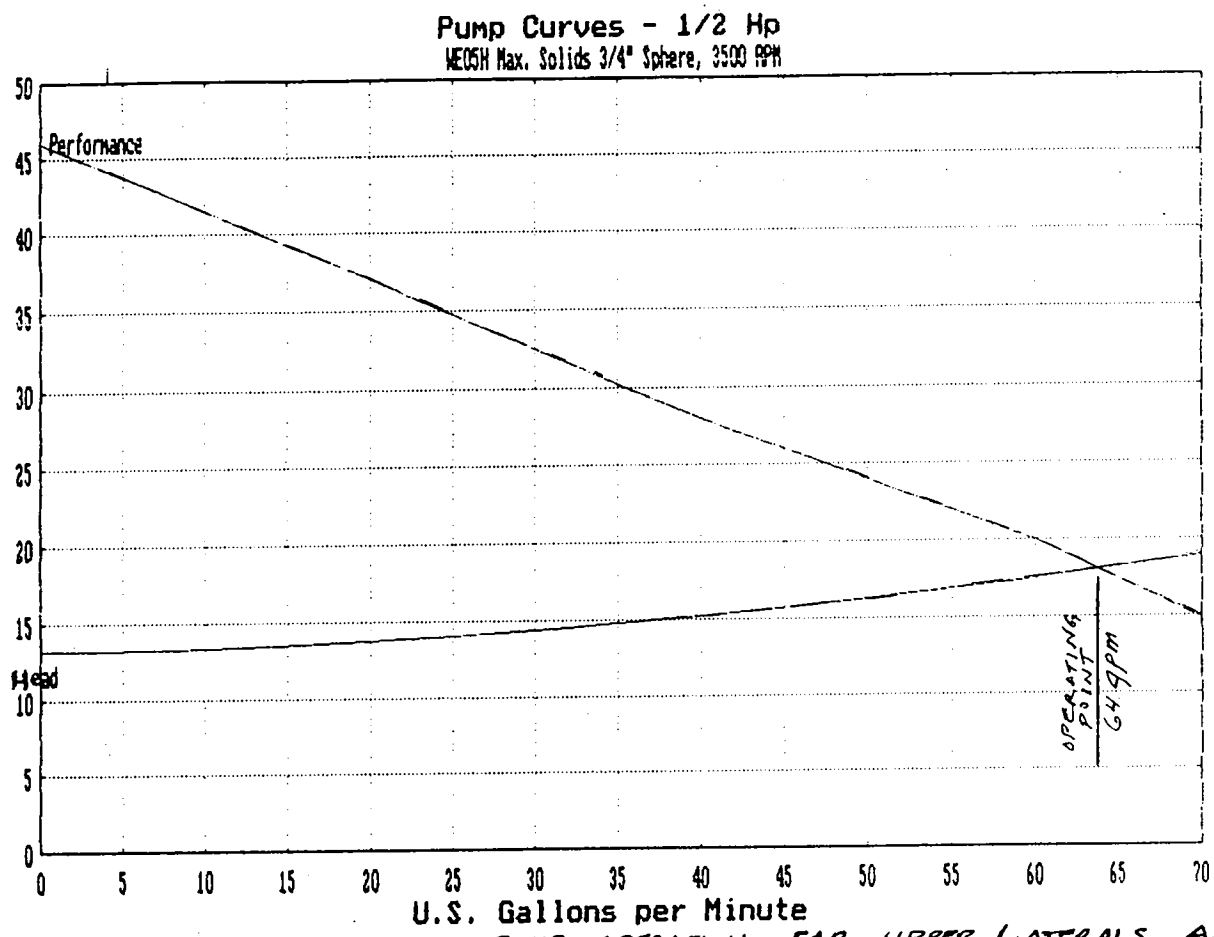


W, S.

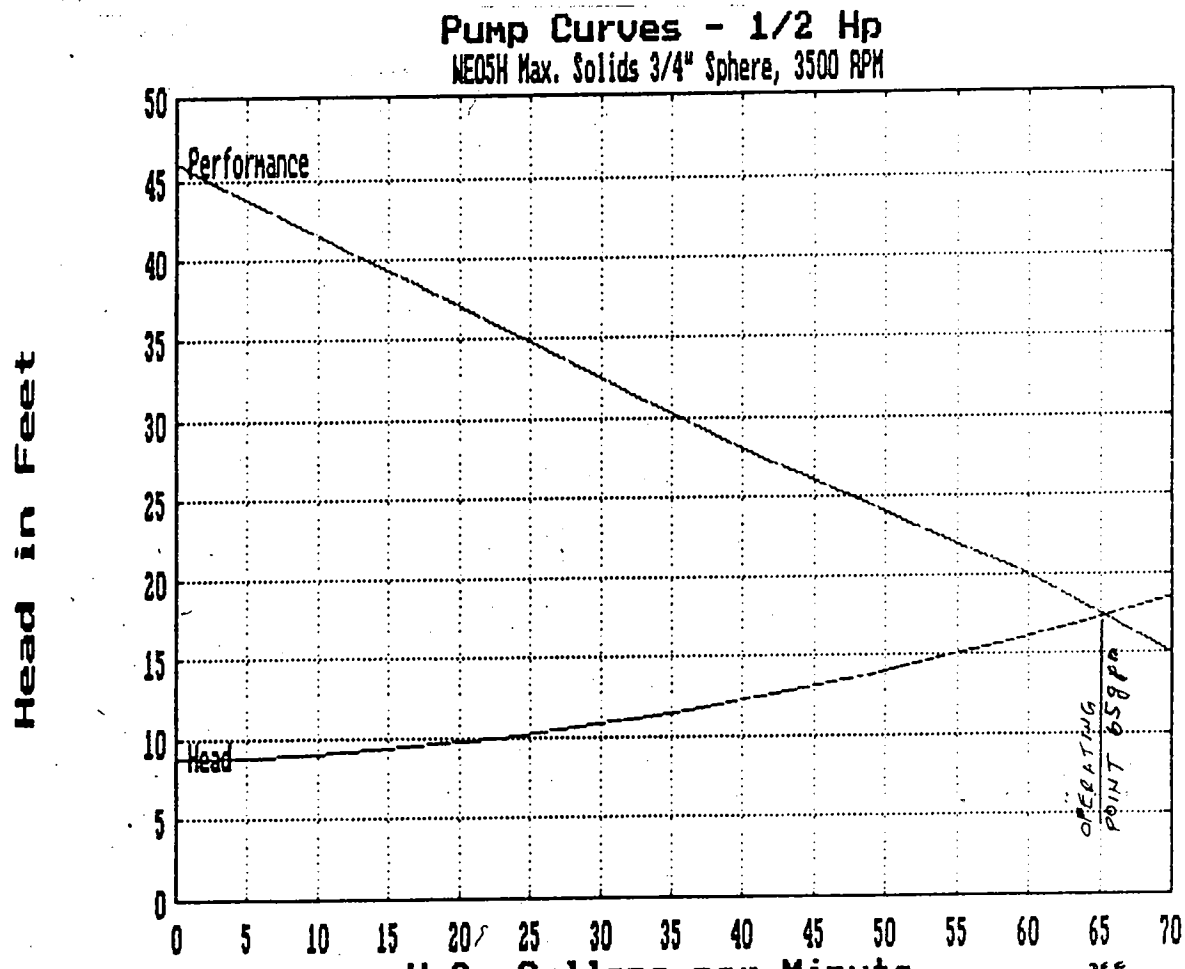
SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Effective July, 1993
PRINTED IN U.S.A.
C38853450

MODEL 3885 PUMP



PUMP OPERATION FOR UPPER LATERALS A, B, C. ✓



PUMP OPERATION FOR LOWER LATERALS D, E, F. ✓

$\frac{W+2}{W+1+2A} = \frac{2+2}{2+1+2(0}$ = 4/6 = 80% of Std Trench

HYDRAULICS
UPPER LATERALS
A, B, C

ENTER - USE	90	ft of trench		
ENTER	3	Number of Trenches		
	1620	Absorption area provided	(1080 ft² of Tr provided 1069 req.	
ENTER	N/A	Ground slope ft/ft		
ENTER	67.05	Pump off Elev.	>10.11 Ft elev diff	
ENTER	77.16	Highest lateral Elev.	3.09	Pump maint'd Head @ operating point
ENTER	75.65	Next Lower lateral Elev.	4.69	Pump maint'd Head @ operating point
ENTER	74.13	Lowest lateral Elev.	6.52	Pump maint'd Head @ operating point
ENTER	93	Overall System length in Ft		
	90	Trench Length in Ft		
	88.83	Lateral length in Ft.	21.33	Lateral GPM
	81.67	Length for holes in Ft	11	No. of holes/lat.
ENTER	2	Inch Pipe Size	1.94	GPM per Hole
ENTER	150	Friction "C"	0.30552	Top Lat. hole size
			0.27532	Mid. Lat. hole size
			0.25347	Bot. Lat. hole size

T Lat.Q/h	1.83	GPM	ENTER	0.29688	USE 19/64" Top Holes OK
M Lat.Q/h	1.81	GPM	ENTER	0.26563	USE 17/64" Mid. Holes OK
B Lat.Q/h	1.89	GPM	ENTER	0.25000	USE 16/64" Bot. holes OK
Top Trenc	20.14	GPM			
Mid Trenc	19.86	GPM			
Bot Trenc	20.75	GPM			
Total Q =	60.75	GPM			

Site plan, Detail Sheets + 12 pages of attachments

Approved Septic System Plan
Howard County Health Department

Signature

6/12/00
Date

ABC

PUMP HEAD CURVE

Total static head 10.11

Head Maint'd @ Highest Lat. 3.09

Friction Head in 2" per 100 ft.	Total Friction Head in 2" pipe	Manifold Friction Head @ Lowest Lat	Manifold Friction Head @ Mid. Lat	Total Pump Dynamic Head	Q in GPM	Pump Performance Curve 1/2 Hp	
7.38	4.31	0.40	0.09	18.00	64	18.00	<-- Pump
0.00	0.00	0.00	0.00	13.20	0	46.00	Operating
0.01	0.01	0.00	0.00	13.21	2	45.10	Point
0.04	0.03	0.00	0.00	13.23	4	44.20	
0.09	0.05	0.01	0.00	13.26	6	43.30	
0.16	0.09	0.01	0.00	13.30	8	42.40	
0.24	0.14	0.01	0.00	13.35	10	41.50	
0.33	0.19	0.02	0.00	13.42	12	40.60	
0.44	0.26	0.02	0.01	13.49	14	39.70	
0.57	0.33	0.03	0.01	13.57	16	38.80	
0.71	0.41	0.04	0.01	13.66	18	37.90	
0.86	0.50	0.05	0.01	13.76	20	37.00	
1.02	0.60	0.06	0.01	13.87	22	36.10	
1.20	0.70	0.07	0.01	13.98	24	35.20	
1.40	0.81	0.08	0.02	14.11	26	34.30	
1.60	0.93	0.09	0.02	14.24	28	33.40	
1.82	1.06	0.10	0.02	14.38	30	32.50	
2.05	1.20	0.11	0.02	14.53	32	31.60	
2.29	1.34	0.12	0.03	14.69	34	30.70	
2.55	1.49	0.14	0.03	14.86	36	29.80	
2.82	1.64	0.15	0.03	15.03	38	28.90	
3.10	1.81	0.17	0.04	15.21	40	28.00	
3.39	1.98	0.18	0.04	15.40	42	27.20	
3.69	2.16	0.20	0.04	15.60	44	26.40	
4.01	2.34	0.22	0.05	15.81	46	25.60	
4.34	2.53	0.24	0.05	16.02	48	24.80	
4.68	2.73	0.25	0.05	16.24	50	24.00	
5.03	2.94	0.27	0.06	16.47	52	23.20	
5.39	3.15	0.29	0.06	16.71	54	22.40	
5.77	3.37	0.31	0.07	16.95	56	21.60	
6.16	3.59	0.34	0.07	17.20	58	20.80	
6.55	3.83	0.36	0.08	17.46	60	20.00	
6.96	4.07	0.38	0.08	17.73	62	19.00	
7.38	4.31	0.40	0.09	18.00	64	18.00	
7.82	4.57	0.43	0.09	18.28	66	17.00	
8.26	4.82	0.45	0.10	18.57	68	16.00	
8.72	5.09	0.47	0.10	18.87	70	15.00	
9.18	5.36	0.50	0.11	19.17	72	14.20	
9.66	5.64	0.53	0.11	19.48	74	13.40	
10.15	5.93	0.55	0.12	19.80	76	12.60	
10.65	6.22	0.58	0.12	20.12	78	11.80	
11.16	6.52	0.61	0.13	20.45	80	11.00	

ABC

Design Flow = 64.00 GPM from Curve
Design Flow / Lateral = 21.33 GPM
Design Flow / Discharge hole = 1.94 GPM ✓

HOLE SIZING AT TRENCH "C" (LOWEST)

Head Maintained = 6.52 FT

$Q = 11.82 \times d^2 \times \sqrt{h}$

d = 0.253469 inches
USE 16 / 64 inches Diameter Holes (.2500)
Actual Hole Q = 1.89 GPM OK
Actual Q / Lateral = 20.75 GPM ✓

HOLE SIZING AT TRENCH "B" (MIDDLE)

Head Maintained = 4.69 FT

$Q = 11.82 \times d^2 \times \sqrt{h}$

d = 0.275319 inches
USE 17 / 64 inches Diameter Holes (.2656)
Actual Hole Q = 1.81 GPM OK
Actual Q / Lateral = 19.86 GPM ✓

HOLE SIZING AT TRENCH "A" (HIGHEST)

Head Maintained = 3.09 FT

$Q = 11.82 \times d^2 \times \sqrt{h}$

d = 0.305516 inches
USE 19 / 64 inches Diameter Holes (.2968)
Actual Hole Q = 1.83 GPM OK
Actual Q / Lateral = 20.14 GPM ✓

ACTUAL TOTAL SYSTEM FLOW = 60.75 GPM

CHECK

Trench "A" to "B" Variation = 1.42%
Trench "B" to "C" Variation = 4.51%
Trench "A" to "C" Variation = 2.94%

ABC

FITTING EQUIVALENT LENGTHS

ENTER	0	Number of 45d Bends	0.00
	2	Number of 90d Bends	11.10
	1	Number of Quick disco	1.35
	1	Number of Couplings	1.35
	1	Number of Alt. Valves	2.60
		TOTAL	16.40

PUMP OPERATING POINTS

Table of pipe lengths, flows, head,.. etc.

	2" Pipe Length In Feet	2" Fit'g Equiv. Length	Total 2" Equiv Length	Total Static Head	Volume Pipe (Gals.)	(TDH) Operatg Point Head	(Q) Operatg Point in GPM
PUMP # 1	42	16.4	58.4	10.11	53.28	18.00	64

88.83	Lateral length
18	Manifold length
42	Delivery length
326.49	Total

Volume in Piping = 53.3 Gallons
Use Dosing Volume of 200.0 Gallons OK

ABC

HYDRAULICS
LOWER LATERALS
D, E, F

ENTER - USE	90	ft of trench		
ENTER	3	Number of Trenches		
	1620	Absorption area provided		
ENTER	N/A	Ground slope ft/ft		
ENTER	67.05	Pump off Elev.		
ENTER	72.72	Highest lateral Elev.	3.09	Pump maint'd Head @ operating point
ENTER	71.42	Next Lower lateral Elev.	4.75	Pump maint'd Head @ operating point
ENTER	70.00	Lowest lateral Elev.	7.49	Pump maint'd Head @ operating point
ENTER	93	Overall System length in Ft		
	90	Trench Length in Ft		
	88.5	Lateral length in Ft.	21.67	Lateral GPM
	81	Length for holes in Ft	10	No. of holes/lat.
ENTER	1.5	Inch Pipe Size	2.17	GPM per Hole
ENTER	150	Friction "C"	0.32292	Top Lat. hole size
			0.29006	Mid. Lat. hole size
			0.25880	Bot. Lat. hole size

T Lat.Q/h	2.03	GPM	ENTER	0.31250 USE 20/64" Top Holes (5/16")
M Lat.Q/h	2.04	GPM	ENTER	0.28125 USE 18/64" Mid. Holes
B Lat.Q/h	2.02	GPM	ENTER	0.25000 USE 16/64" Bot. holes (1/4")
Top Trenc	20.29	GPM		
Mid Trenc	20.37	GPM		
Bot Trenc	20.22	GPM		
Total Q =	60.88	GPM		

DEF

PUMP HEAD CURVE

Total static head	5.67
Head Maint'd @ Highest Lat.	3.09

Friction Head in 1.5" per 100 ft	Total Friction Head in 1.5" pipe	Manifold Friction Head @ Lowest Lat	Manifold Friction Head @ Mid. Lat	Total Pump Dynamic Head	Q in GPM	Pump Performance Curve 1/2 Hp	
30.85	6.47	1.68	0.36	17.27	65	17.27	<-- Pump
0.00	0.00	0.00	0.00	8.76	0	46.00	Operating
0.05	0.01	0.00	0.00	8.77	2	45.10	Point
0.18	0.04	0.01	0.00	8.81	4	44.20	
0.38	0.08	0.02	0.00	8.86	6	43.30	
0.64	0.13	0.03	0.01	8.94	8	42.40	
0.97	0.20	0.05	0.01	9.03	10	41.50	
1.35	0.28	0.07	0.02	9.13	12	40.60	
1.80	0.38	0.10	0.02	9.26	14	39.70	
2.31	0.48	0.13	0.03	9.40	16	38.80	
2.87	0.60	0.16	0.03	9.55	18	37.90	
3.49	0.73	0.19	0.04	9.72	20	37.00	
4.16	0.87	0.23	0.05	9.91	22	36.10	
4.88	1.02	0.27	0.06	10.11	24	35.20	
5.66	1.19	0.31	0.07	10.32	26	34.30	
6.50	1.36	0.35	0.08	10.55	28	33.40	
7.38	1.55	0.40	0.09	10.80	30	32.50	
8.32	1.74	0.45	0.10	11.05	32	31.60	
9.30	1.95	0.51	0.11	11.33	34	30.70	
10.34	2.17	0.56	0.12	11.61	36	29.80	
11.43	2.40	0.62	0.13	11.91	38	28.90	
12.57	2.64	0.68	0.15	12.23	40	28.00	
13.75	2.89	0.75	0.16	12.55	42	27.20	
14.99	3.14	0.82	0.17	12.89	44	26.40	
16.27	3.41	0.89	0.19	13.25	46	25.60	
17.61	3.69	0.96	0.20	13.62	48	24.80	
18.99	3.98	1.03	0.22	14.00	50	24.00	
20.42	4.28	1.11	0.24	14.39	52	23.20	
21.89	4.59	1.19	0.25	14.80	54	22.40	
23.42	4.91	1.28	0.27	15.22	56	21.60	
24.99	5.24	1.36	0.29	15.65	58	20.80	
26.60	5.58	1.45	0.31	16.10	60	20.00	
28.27	5.93	1.54	0.33	16.56	62	19.00	
29.98	6.29	1.63	0.35	17.03	64	18.00	
31.73	6.66	1.73	0.37	17.51	66	17.00	
33.53	7.04	1.83	0.39	18.01	68	16.00	
35.38	7.42	1.93	0.41	18.52	70	15.00	
37.28	7.82	2.03	0.43	19.04	72	14.20	
39.21	8.23	2.14	0.45	19.58	74	13.40	
41.20	8.64	2.24	0.48	20.12	76	12.60	
43.22	9.07	2.35	0.50	20.68	78	11.80	
45.30	9.50	2.47	0.52	21.26	80	11.00	

DEF

Design Flow = 65.00 GPM from Curve
Design Flow / Lateral = 21.67 GPM
Design Flow / Discharge hole = 2.17 GPM

HOLE SIZING AT TRENCH "F" (LOWEST)

Head Maintained = 7.49 FT

$Q = 11.82 \times d^2 \times \sqrt{h}$

d = 0.258797 inches
USE 16 / 64 inches Diameter Holes (.2500)
Actual Hole Q = 2.02 GPM OK
Actual Q / Lateral = 20.22 GPM ✓

HOLE SIZING AT TRENCH "E" (MIDDLE)

Head Maintained = 4.75 FT

$Q = 11.82 \times d^2 \times \sqrt{h}$

d = 0.290056 inches
USE 18 / 64 inches Diameter Holes
Actual Hole Q = 2.04 GPM OK
Actual Q / Lateral = 20.37 GPM ✓

HOLE SIZING AT TRENCH "D" (HIGHEST)

Head Maintained = 3.09 FT

$Q = 11.82 \times d^2 \times \sqrt{h}$

d = 0.322922 inches
USE 20 / 64 inches Diameter Holes
Actual Hole Q = 2.03 GPM OK
Actual Q / Lateral = 20.29 GPM ✓

ACTUAL TOTAL SYSTEM FLOW = 60.88 GPM

CHECK

Trench "D" to "E" Variation = 0.40%
Trench "E" to "F" Variation = 0.75%
Trench "D" to "F" Variation = 0.36%

DEF

FITTING EQUIVALENT LENGTHS

ENTER	0	Number of 45d Bends	0.00
	1	Number of 90d Bends	4.73
	1	Number of Quick disco	1.05
	0	Number of Couplings	0.00
	1	Number of Alt. Valves	1.20
		TOTAL	6.98

PUMP OPERATING POINTS

Table of pipe lengths, flows, head,.. etc.

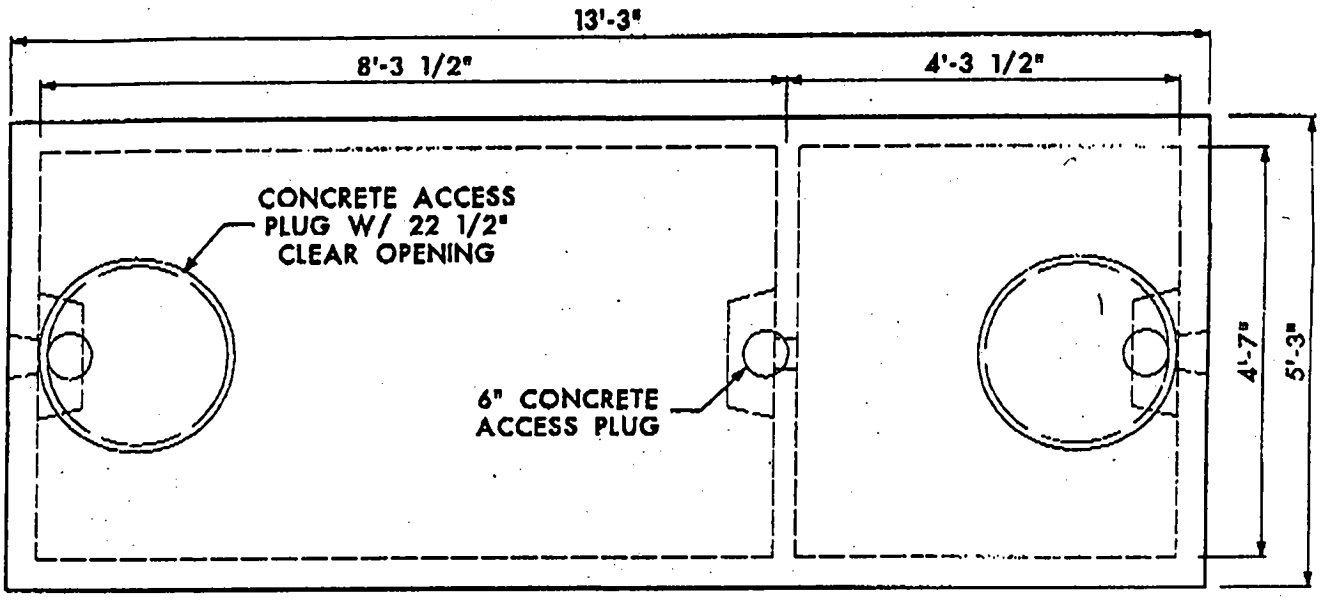
	1.5" Pipe Length In Feet	1.5" Fit'g Equiv. Length	Total 1.5" Equiv Length	Total Static Head	Volume Pipe (Gals.)	(TDH) Operatg Point Head	(Q) Operatg Point in GPM
PUMP # 1	14	6.98	20.98	5.67	27.31	17.27	65

88.5	Lateral length
18	Manifold length
14	Delivery length
297.5	Total

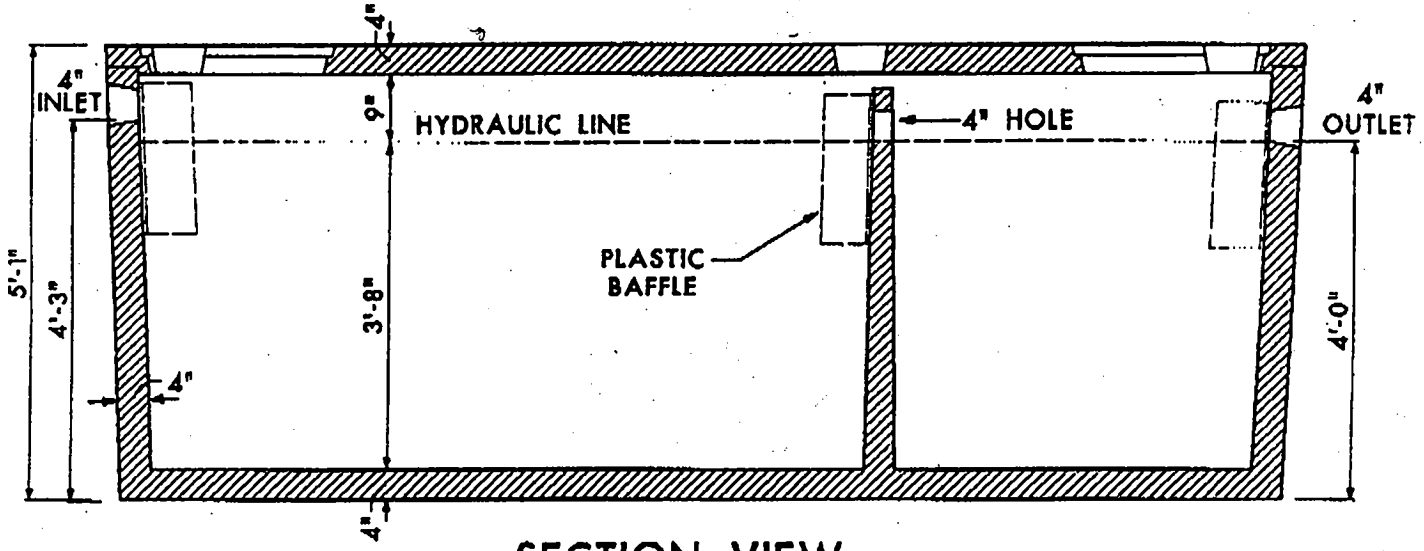
Volume in Piping = 27.3 Gallons
Use Dose volume of 200.0 Gallons OK

or Volume = 1997 = 80 gal Tank

DEF



PLAN VIEW



SECTION VIEW

ADDITIONAL NOTES:

CONCRETE TO HAVE A 4000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS
REINFORCING DETAIL: 6x6, W2.1/W2.1 WIRE MESH IN SIDES, BOTTOM, & CENTER WALL WITH ONE ROW OF #3 BARS HORIZONTALLY #4 BARS AT 6" ON CENTER, EACH WAY IN TOP

1500 GALLON SEPTIC TANK		
TWO COMPARTMENT TOP SEAMED		
2/98	DRAWING NOT TO SCALE	DWG. 1500-2-N

Mayer Bros. Inc. Since 1959

MAYER BROS., INC.
Precast Concrete Products
6264 RACE ROAD
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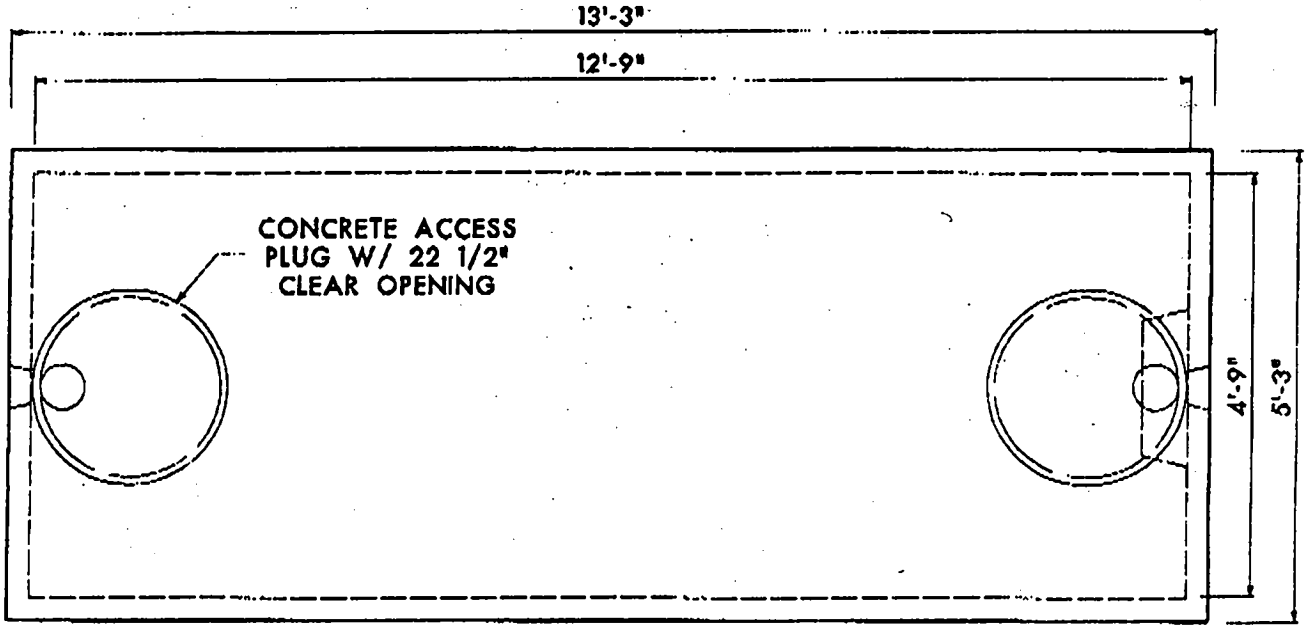
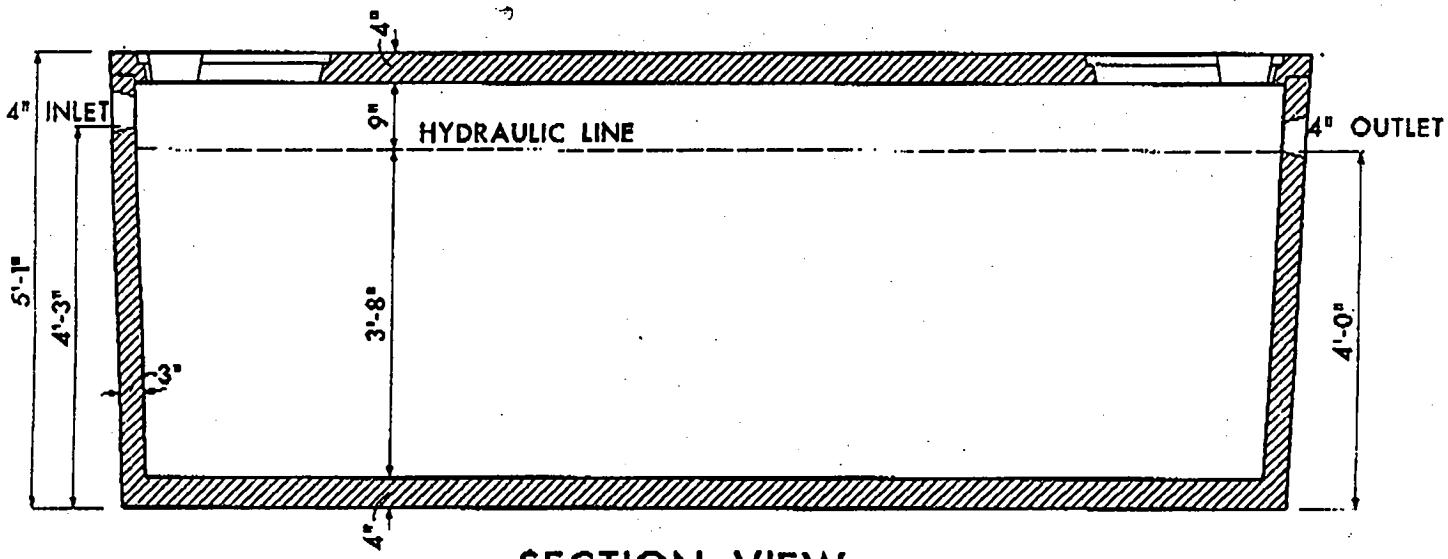


PLAN VIEW

≈ 40 gal/vert" ≈ 240 gal/6" vert/base OK



SECTION VIEW

ADDITIONAL NOTES:

CONCRETE TO HAVE A 4000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS
REINFORCING DETAIL: 6x6, W2.1/W2.1 WIRE MESH IN SIDES & BOTTOM
WITH ONE ROW OF #3 BARS HORIZONTALLY
#4 BARS AT 6" ON CENTER EACH WAY IN TOP

1500 GALLON PUMP TANK		
SINGLE COMPARTMENT TOP SEAMED		
8/96	DRAWING NOT TO SCALE	DWG. 1500-P

Mayer Bros. Inc. Since 1959

MAYER BROS., INC.
PRECAST CONCRETE PRODUCTS
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ELKRIDGE, MARYLAND 21075
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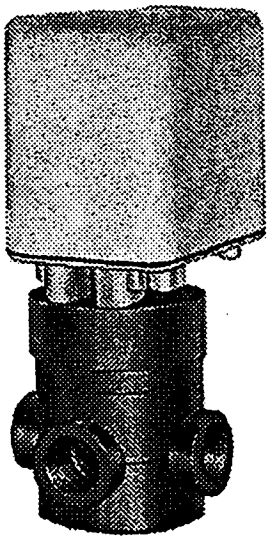
2 to 5 Way Valves
Specifications & Drawings
Stack Valves
Mounting Brackets
Air Actuator Elliptomatic Valve
Flow Patterns 3 Way Valves
Flow Patterns 4 and 5 Way Valves
Elliptomatic Liquid Dispensing Device

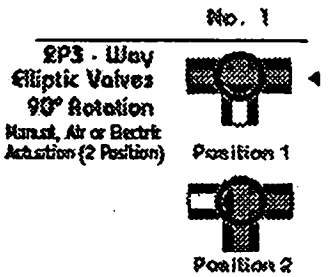
Electrical Actuator Elliptomatic Valve



2-Way (On-Off)
2P3-Way (Flow Diversion)
4-Way & 5-Way Valves
(See Flow Pattern Pages for Styles)

Provides automated valve control from a central location or for valves in remote locations.

Operating function:
Reversible Motor 115VAC
NEMA IV construction
Cycle time/90° - 3.5 seconds



PROCUREMENT INFORMATION		
SIZE	VALVE NUMBERS	
	2 - Way	2P3 - Way
1/8"	12-PP or PV-RE1	123-PP or PV-1-RE1
1/4"	22-PP or PV-RE1	223-PP or PV-1-RE1
3/8"	32-PP or PV-RE1	323-PP or PV-1-RE1
1/2"	42-PP or PV-RE1	423-PP or PV-1-RE1
3/4"	52-PP or PV-RE1	523-PP or PV-1-RE1
1-1/2"	72-PP-RE3	723-PP-RE3
2"	82-PP-RE3	823-PP-RE3

MATERIALS OF CONSTRUCTION	
Body Actuator	Die Cast Aluminum
Coupling	Aluminum
Adapter Plate	Nylon
Mt. Bracket	Polypropylene
Elliptic Valve	Polypropylene or PVDF
O -Ring Seals	Viton* -A
Retainer	S/S - Type 316
Screws	Cap Head
CONNECTION	Threaded - (FNPT)

* Viton - A Reg. T.M. - DuPont Dow Elastomer

Electrical Actuator Elliptomatic Valve | Flow Patterns 3-Way Valve
Flow Patterns 4 and 5 Way Valve | Elliptomatic Liquid Dispensing Device

Back to the Top

EVSCO
P.O. Box 732
Libertyville, Illinois 60048
847.362.7068 - Phone
847.362.7501 - Fax
E-Mail Company at: sales@evsco.com

TANK ALERTS

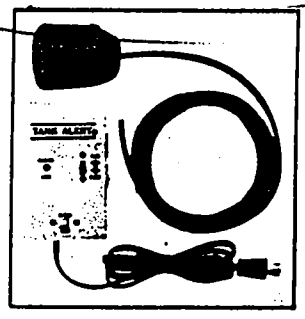
Like Buying Insurance: S.J. Electro Systems' Tank Alerts are alarm systems that can help prevent the disaster of sewage or sump pump failure. They also serve to monitor sewage holding tanks to prevent overflow, and serve as high or low liquid level warning for other holding systems.

They are, in a real sense, inexpensive insurance policies to prevent the drudgery and costs of clean-up.

Designed For Simplicity: A sensor float. A cord. An alarm panel (with warning light, horn, silent switch, and test button). Both models have these three advantages:

1. **Installation is as easy** as mounting the alarm panel (and connecting to an electrical source), wiring the sensor float cord to the panel, and tossing in the float.
2. **High reliability and low cost.**
3. **Quality is guaranteed** by a 2-year warranty and factory testing of each control.

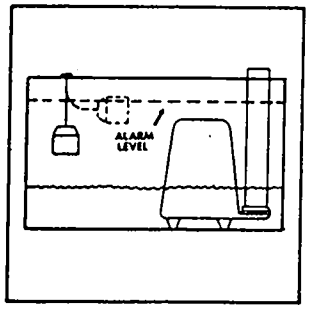
Tank Alert® I



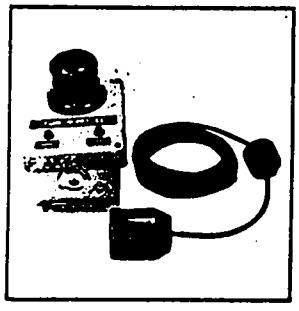
OK

This indoor model has a compact metal alarm panel that is designed to fit conveniently inside buildings.

When activated, a light goes on and a horn gives a steady blast.

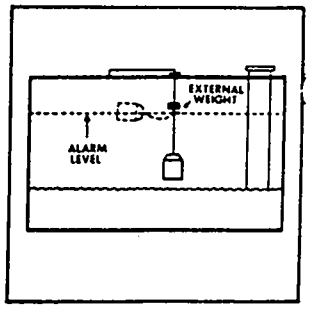


Tank Alert® II



This model has a non-metallic alarm panel for outdoor or indoor use. All exposed parts are corrosion, wind, and rain resistant.

When activated, a flashing light goes on and a tamper-proof horn gives a loud pulsating blast.



S.J. Electro Systems, Inc., was started in 1975 as a design and manufacturing company. Since the beginning, there has been a consistent growth in sales, the labor force, and total operating space — due to the continuing demand for quality products that are innovative, simple, and uniquely meet the needs of the market.

S.J. Electro Systems, Inc., is proud of its strict quality control and problem-free reliable products. That's why we offer an industry-leading 2-year warranty on all our products.

Two Year Warranty

All S.J. Electro Systems' liquid level controls are guaranteed to be free of defects in material and workmanship for a period of two years. Any defective returns will be promptly repaired or replaced.

CALL OR WRITE FOR COMPLETE INFORMATION ON ANY OF OUR PRODUCTS.

S.J. Electro Systems, Inc.
Route 1, Box 17
Detroit Lakes, Minnesota 56501
(218) 847-1317

ECONOMICAL — EASY TO INSTALL — BUILT TO LAST

DIRECT SWITCHING OF LARGER PUMPS

To 1 HP at 120V — To 2 HP at 230V

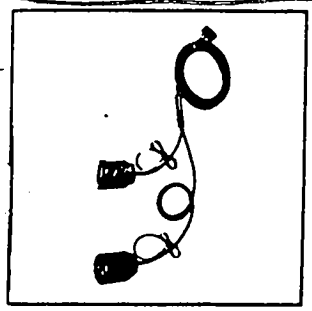
These two pump switches (the Super Single Float Pump Switch and the Double Float Pump Switch) from S.J. Electro Systems automatically control pumps, solenoids, relays, and alarms.

They are unique (including three patents). They are designed for simplicity and no-problems practical use. They are virtually fail proof.

Just check these advantages:

1. **You'll never have to pull a pump** to replace a switch. Our controls make a manual pump automatic with a separately-mounted switch. (Manual operation is possible.)
2. **Installation is as easy** as attaching a clamp, tossing in a float, and plugging in a cord. **No control panel is needed.**
3. **Unique designs** provide steady, accurate control at all times — with little effect from turbulence or rotation.
4. **Heavy-duty non-wearing switches** (mercury-to-mercury contacts) are designed to outlast the pumps they control.
5. **Quality is guaranteed** by an industry-leading 2-year warranty, factory testing of each control, and UL listing.

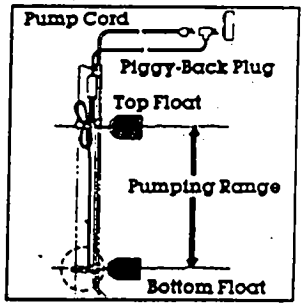
Double Float Pump Switch



Designed For Simplicity: Two floats. Two cords molded into one piggy-back plug cord. Two adjustable mounting clamps.

Adjustable pumping range of 1" to 48". Pump up and pump down models available.

Uniqueness: One patented feature of the Double Float Switch is that the relay is mounted and sealed inside the float housing. The second patented feature is that the load-control circuit prevents arcing in the relay contacts, which dramatically extends the life of the contacts. What all this means is reliability, no-problems operation, long life — and **no control panel.**

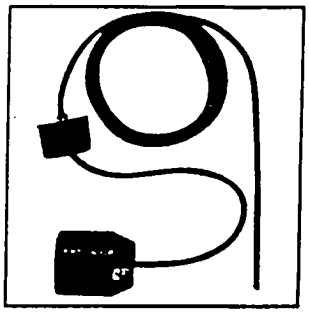


The Double Float Switch is also designed to assure that the on-off is not affected by rotation or turbulence.

Comparison: The Double-Float Switch has a wider pumping range and can be used in a smaller diameter area than the Super Single Switch.

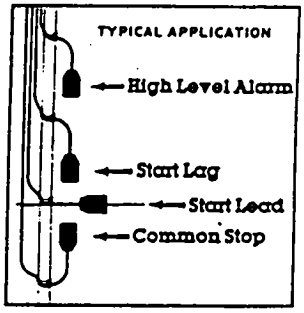
(PATENTS 4262216 & 4291261)

SENSOR FLOATS

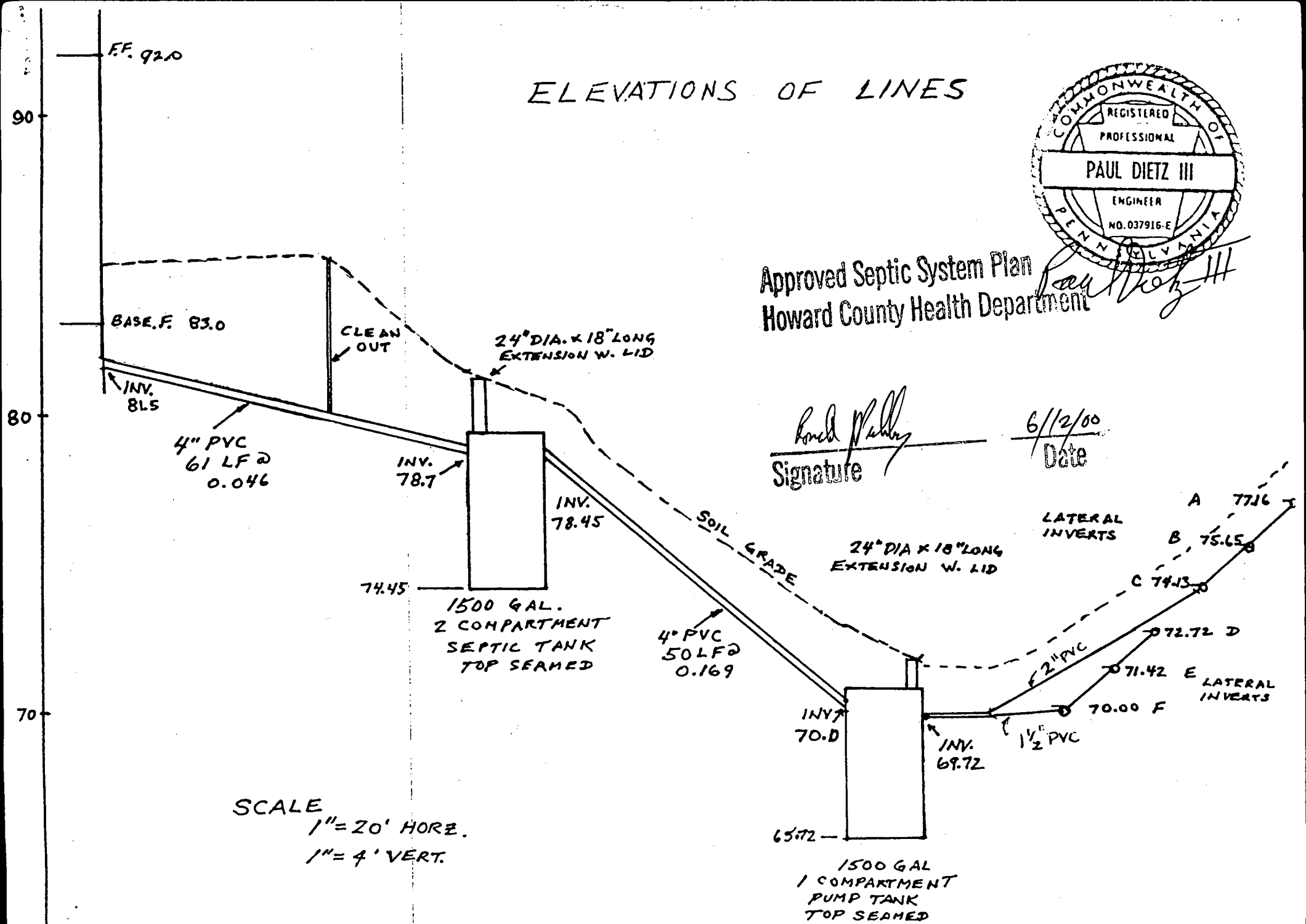


These liquid sensors turn on and off slightly above or below a horizontal position. They are frequently used in sewage and drainage applications to activate pump control panels, solenoids, and relays; set off alarms; measure liquid levels; etc.

Three Available Types: Pipe Clamp, Internal Weight, External Weight.



ELEVATIONS OF LINES



SCALE
1" = 20' HORZ.
1" = 4' VERT.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
PAUL DIETZ III
ENGINEER
NO. 037916-E

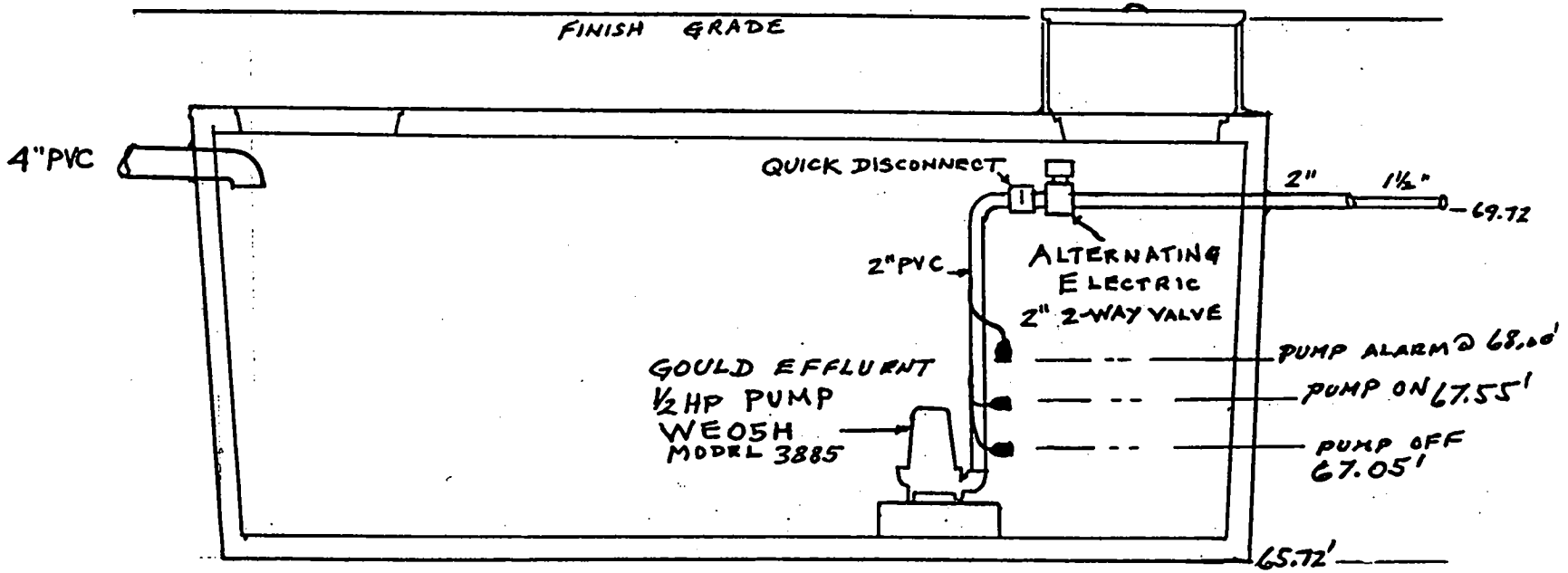
Approved Septic System Plan
Howard County Health Department

Signature

6/12/00
Date

PARCEL # 04-331230
SHEET 2 OF 4

PUMP TANK SETUP



1500 GALLON PUMP TANK

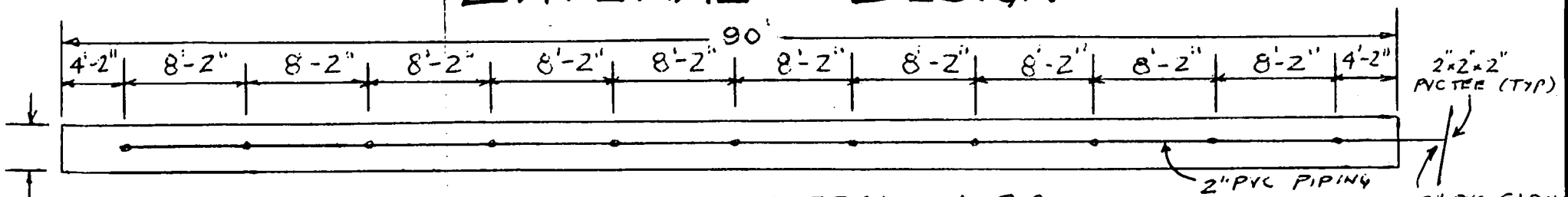
DOSE VOLUME 200 GAL.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
PAUL DIETZ III
ENGINEER
NO. 037916-E

PARCEL # 04-331230

SHEET 3 OF 4

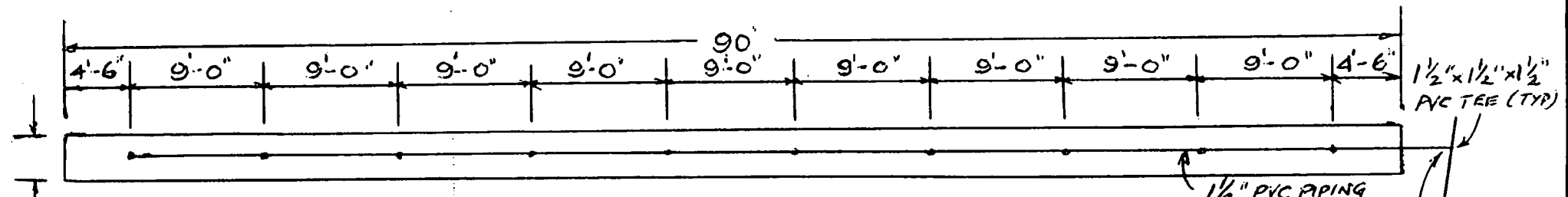
LATERALS DESIGN



UPPER LATERALS, A, B, C

HOLE PERFORATIONS
A = 19/64" DIAM (11)
B = 17/64" DIAM (11)
C = 1/4" DIAM (11)

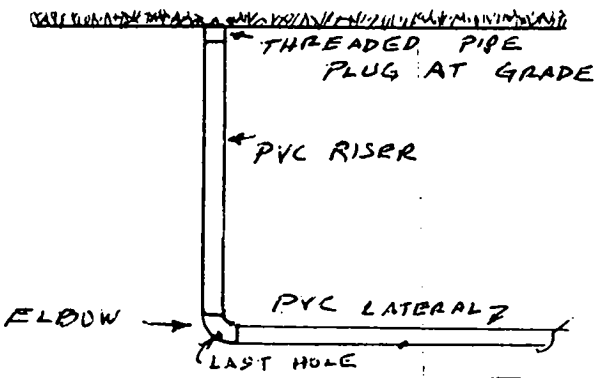
ALL HOLE SPACES AS SHOWN NTS



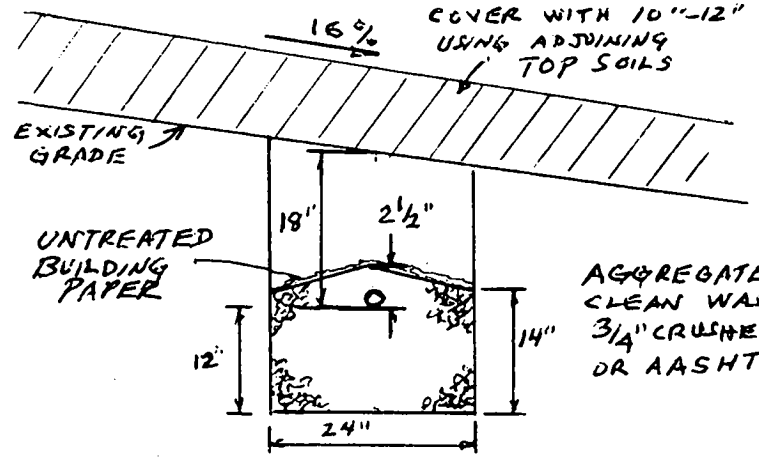
LOWER LATERALS, D, E, F

HOLE PERFORATIONS
D = 5/16" DIAM (10)
E = 9/32" DIAM (10)
F = 1/4" DIAM (10)

ALL HOLES SPACED AS SHOWN N.T.S.



LATERAL CLEANOUT N.T.S.



TYPICAL TRENCH SECTION N.T.S

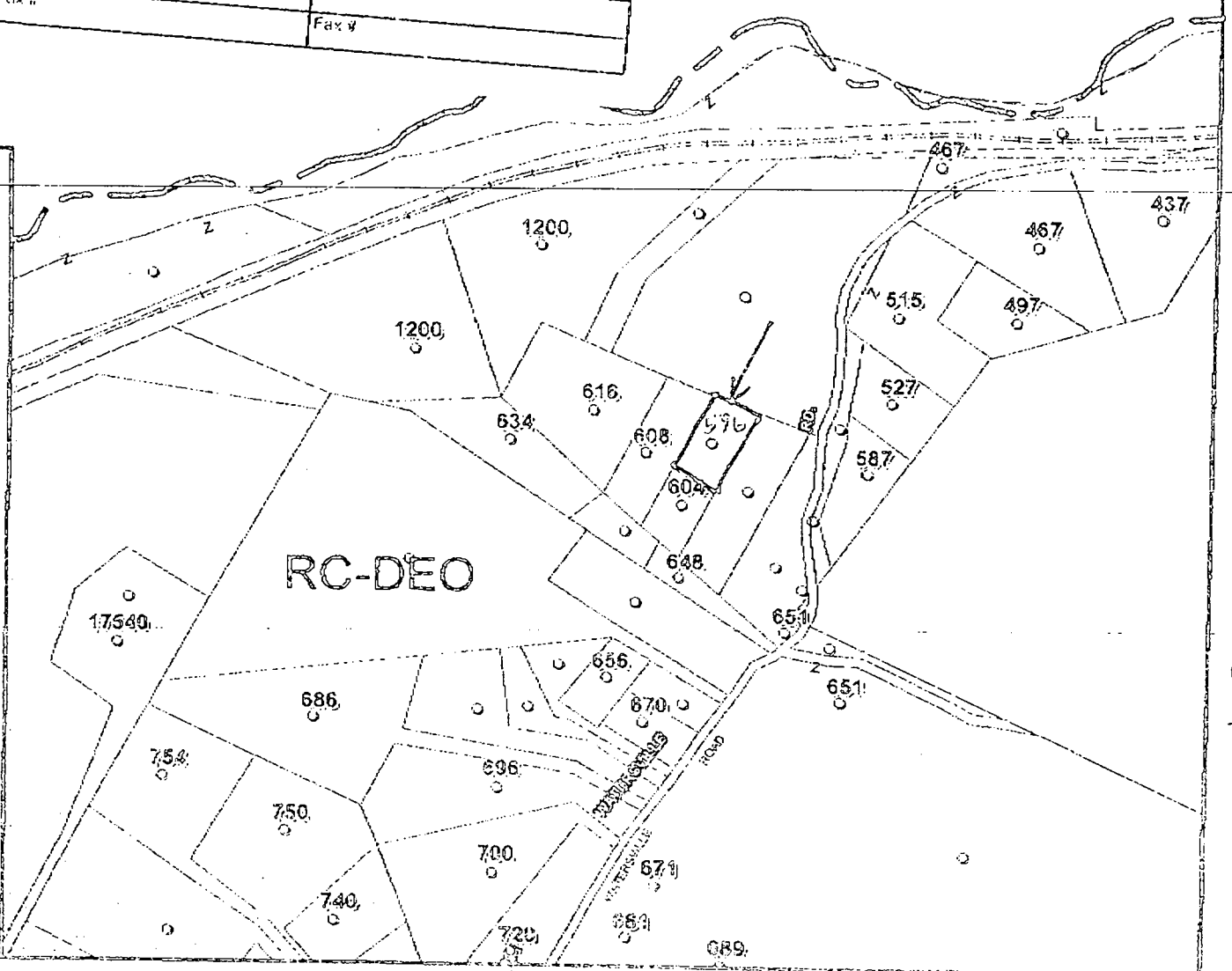
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
PAUL DIETZ III
ENGINEER
NO. 037916-E

PARCEL # 04-331230

SHEET 4 OF 4

Post-it® Fax Note 7671 | Date 3/14 | # of pages 1

To MARK RIFKIN	From R. Schaefer
Co./Dept. 2618	Co.
Phone #	Phone #
Fax #	Fax #



Zoning by zone

- B-1
- B-2
- B-R
- CC
- RC
- HO
- M-1
- M-1-MXD-3
- M-2
- NT
- PEC
- PGCC-1
- PGCC-2
- POR
- POR-MXD-3
- R-12
- R-20
- R-20-MXD-3
- R-A-15
- R-ED
- R-MH
- R-SA-8
- R-SA-8-MXD-3
- R-SC
- R-SC-MXD-3
- R-VH
- RC-DEO
- RR-DEO
- RR-MXD-3
- SC

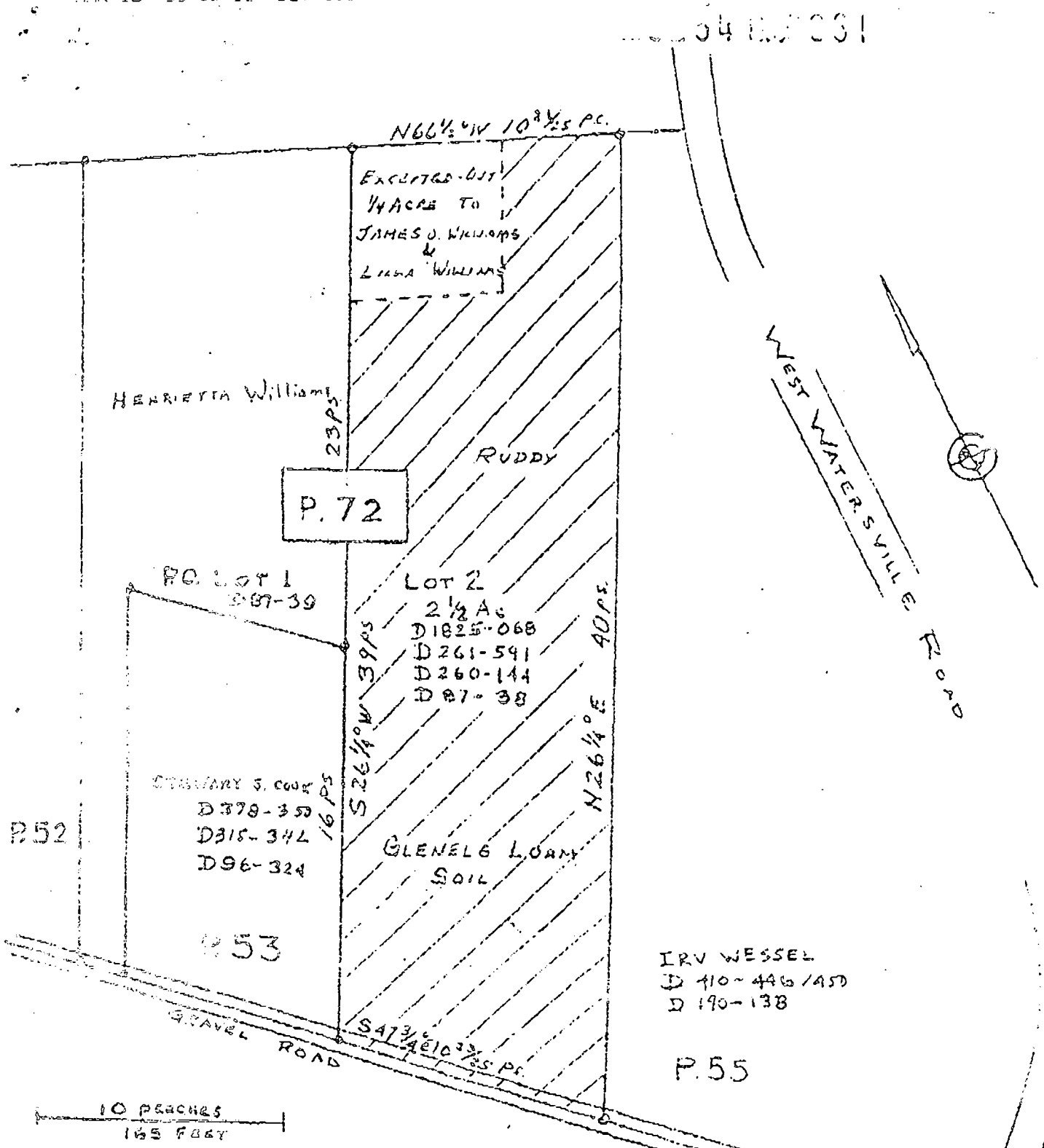
Parcel Information

TaxAcctNum: 1404331230
Map: 0002
Grid: 0015
Lot:
Parcel: 0072
OwnerName1: RUDDY DONALD C
OwnerName2:
OwnerAddress1: 2545 MARTIN ROAD
OwnerAddress2:
OwnerCity: WILLOW GROVE
OwnerState: PA
OwnerZip: 19090
OwnerZip2: 1617
LegalDescrip1: 2 P
LegalDescrip2: WATERSVILLE RD
LegalDescrip3: MT AIRY
PremiseNum:
PremiseSt: WATERSVILLE
PremiseCity:
PremiseZip:
LandUse: R
Acres: 2.000
LandArea: 2.000
YearBuilt: 00
Grantor: RUDDY DONALD C
LastSaleDate: 940512
LastSalePrice: 1
MarketLandVal: 7,000
MarketImprove: 0
TotalMarketVal: 7,000

Find My Parcel
Geographical Information Systems
Howard County, Maryland

Date : 03/13/2000
By : G.I.S.
Scale : 1 in. = 600 ft.

Jan 14 '00 13:51 P.01/01
Fax:14103133467
1/F2



PLAT OF TAX MAP
PARCEL 2-13-72
DISTRICT 4 HOWARD CO. MD
6-1-88

Plot 2 W. Watersville Rd.

DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MD 21043
PERMITS (410)313-2466 INSPECTIONS (410)313-1810
AUTOMATED INFORMATION (410) 313-3800

HOWARD COUNTY PERMIT APPLICATION

PERMIT NUMBER B0012979[illegible]

Building Address 588 West [illegible] Rd
Mt Airy Md. 21771

Suite/Apt. #: ______ SDP/WP/Petition #: ______

Census Tract 6040 Subdivision ______

Section ______ Area ______ Lot 2

Tax Map 2 Parcel 72 Grid 13

Zoning RC-DEO Map Coordinates 255 Lot size 2.45 AC

Owner's Name [illegible] C. [illegible] Inc
Address 8150 Savage Guilford Rd
City Savage State Md Zip Code 20763
Home Phone 301-776-9050 Work Phone 410-792-0900
Applicant's Name & Mailing Address, (if other than stated hereon):

Phone ______ Fax ______

Existing Use SF Home
Proposed Use Same
Estimated Construction Cost $ 3000
Description of Work Build 12 x 20' Sun Deck with steps to grade

Contractor Company Same as Owner
Contact Person ______
Address ______
City ______ State ______ Zip Code ______
License No. ______
Phone ______ Fax ______

Occupant or Tenant ______
Contact Name ______
Address ______
City ______ State ______ Zip Code ______
Phone ______ Fax ______

Engineer or Architect Company N/A
Contact Person ______
Address ______
City ______ State ______ Zip Code ______
Phone ______ Fax ______

BUILDING DESCRIPTION - *COMMERCIAL*

Building Characteristics

Height:

No. of stories:

Gross area, sq. ft. per floor:

Use group:

Construction type:
- ____ Reinforced Concrete
- ____ Structural Steel
- ____ Masonry
- ____ Wood Frame

____ State Certified Modular

Utilities

Water Supply:
- ____ Public
- ____ Private

Sewage Disposal:
- ____ Public
- ____ Private

Electric Yes ☐ No ☐
Gas Yes ☐ No ☐

Heating System:
Electric ☐ Oil ☐
Natural Gas ☐
Propane Gas ☐

Sprinkler system: N/A ☐
- ____ NFPA #13
- ____ Full
- ____ Partial
- ____ Other Suppression

BUILDING DESCRIPTION - *RESIDENTIAL*

Building Characteristics

SF Dwelling ☐ SF Townhouse ☐

	Depth	Width
1st floor:		
2nd floor:		
Basement:		

Finished Basement ☐ Unfinished Basement ☐
Crawl space ☐ Slab on Grade ☐
No. of Bedrooms ______

Multi-family dwellings:
No. of efficiency units: ______
No. of 1 BR units: ______
No. of 2 BR units: ______
No. of 3 BR units: ______

Other: ______
Dimensions: ______
Footings: ______
Roof: ______

____ State Certified Modular
____ Manufactured Home

Utilities

Water Supply:
- ____ Public
- ✓ Private

Sewage Disposal:
- ____ Public
- ✓ Private

Electric Yes ☒ No ☐
Gas Yes ☒ No ☐

Heating System:
Electric ☐ Oil ☐
Natural Gas ☐
Propane Gas ☐

Sprinkler system: N/A ☐
- ____ NFPA #13D
- ____ NFPA #13R
- ____ Other:

THE UNDERSIGNED HEREBY CERTIFIES AND AGREES AS FOLLOWS: (1) THAT HE/SHE IS AUTHORIZED TO MAKE THIS APPLICATION; (2) THAT THE INFORMATION IS CORRECT; (3) THAT HE/SHE WILL COMPLY WITH ALL REGULATIONS OF HOWARD COUNTY WHICH ARE APPLICABLE THERETO; (4) THAT HE/SHE WILL PERFORM NO WORK ON THE ABOVE REFERENCED PROPERTY NOT SPECIFICALLY DESCRIBED IN THIS APPLICATION; (5) THAT HE/SHE GRANTS COUNTY OFFICIALS THE RIGHT TO ENTER ONTO THIS PROPERTY FOR THE PURPOSE OF INSPECTING THE WORK PERMITTED AND POSTING NOTICES.

[signature] Chris [illegible]

Applicant's Signature *Print Name*

Builder 4-25-01

Title/Company *Date*

VALIDATION

Checks payable to: *DIRECTOR OF FINANCE OF HOWARD COUNTY*
** PLEASE WRITE NEATLY AND LEGIBLY. **

- FOR OFFICE USE ONLY -

AGENCY	DATE	SIGNATURE APPROVAL
Land Development, DPZ		
State Highways		
Building Official		
Dev. Engineering, DPZ		
Health	4/25/01	Donna Kraft
Fire Protection		

Is Sediment Control approval required prior to issuance?
YES ☐ NO ☐

CONTINGENCY CONSTRUCTION START: ☐
ONE STOP SHOP: ☐

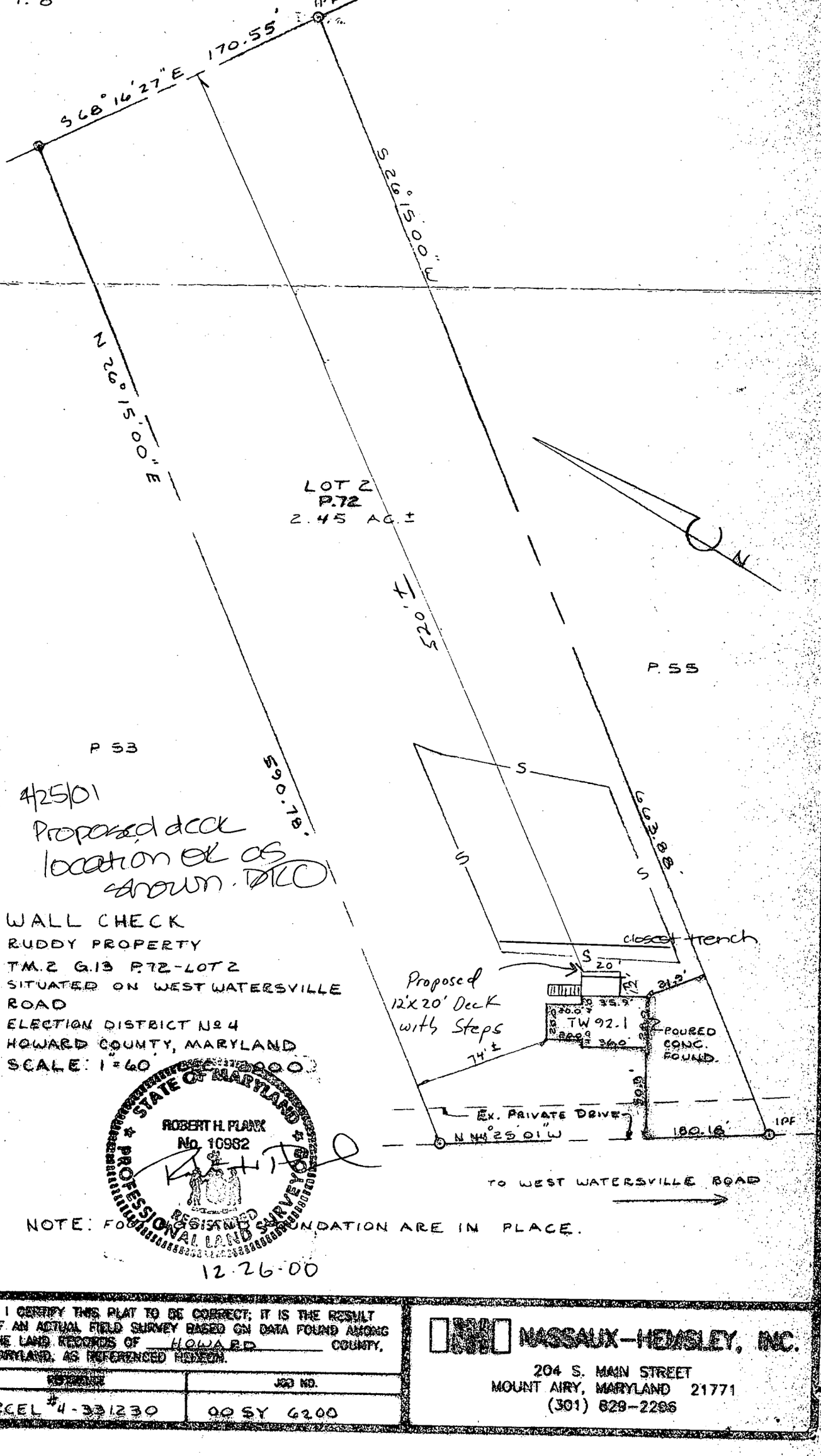
DPZ SETBACK INFORMATION
Front: ______
Rear: ______
Side: ______
Side St.: ______
All minimum setbacks met?
YES ☐ NO ☐
Is Entrance Permit required?
YES ☐ NO ☐
Historic District?
YES ☐ NO ☐
Lot Coverage for NewTown Zone ______
SDP/Red-line approval date ______

PROPERTY ID#: 4[illegible]
Filing Fee $
Permit Fee $ [illegible]
(.10 sq. ft. ☐) (.15 sq. ft. ☐)
Excise Tax $
(.40 sq. ft. ☐) (.80 sq. ft. ☐)
TOTAL FEES [illegible]
Check #
Validation # [illegible]
Accepted by: [illegible]

Distribution of Copies- White: Building Official Green: LDD, DPZ Yellow: DED, DPZ Pink: Health Gold: SHA

s:\permit.frm Rev. 8/25/98

P. 8



4/25/01
Proposed deck
location OK as
shown. DTC

WALL CHECK
RUDDY PROPERTY
TM. 2 G. 13 P. 72 - LOT 2
SITUATED ON WEST WATERSVILLE ROAD
ELECTION DISTRICT № 4
HOWARD COUNTY, MARYLAND
SCALE: 1" = 60'

STATE OF MARYLAND
ROBERT H. PLANK
No. 10982
REGISTERED
PROFESSIONAL LAND SURVEYOR

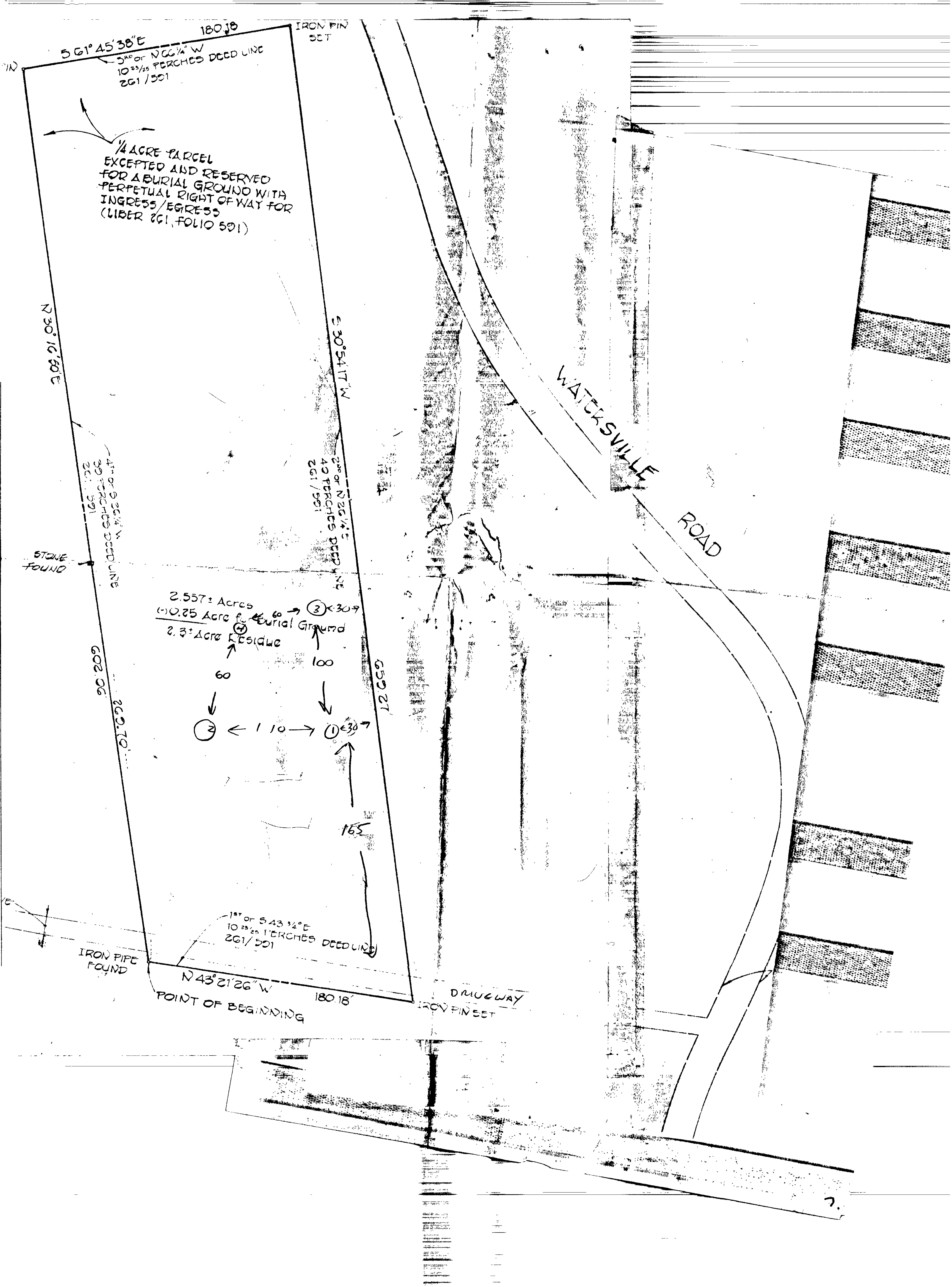
NOTE: FOUNDATION ARE IN PLACE.

12-26-00

I CERTIFY THIS PLAT TO BE CORRECT; IT IS THE RESULT OF AN ACTUAL FIELD SURVEY BASED ON DATA FOUND AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND, AS REFERENCED HEREON.

REVISIONS	JOB NO.
PARCEL #4-331230	00 SY 6200

NASSAUX-HEMSLEY, INC.
204 S. MAIN STREET
MOUNT AIRY, MARYLAND 21771
(301) 829-2296



S 61° 45' 38" E
180.18
IRON PIN SET
3RD or N 66¼° W
10 23/25 PERCHES DEED LINE
261 / 501
¼ ACRE PARCEL
EXCEPTED AND RESERVED
FOR A BURIAL GROUND WITH
PERPETUAL RIGHT OF WAY FOR
INGRESS/EGRESS
(LIBER 261, FOLIO 591)
N 30° 16' 50" E
S 30° 54' 17" W
4TH or S 26¼° W
39 PERCHES DEED LINE
261 / 591
2ND or N 26¼° E
40 PERCHES DEED LINE
261 / 591
STONE FOUND
2.557± Acres
(-)0.25 Acre f. Burial Ground
2.3± Acre Residue
60
100
110
30
309
165
602.06
262.70'
659.27
WATCKSVILLE ROAD
1ST or S 43¾° E
10 23/25 PERCHES DEED LINE
261/501
IRON PIPE FOUND
N 43° 21' 26" W
180.18'
POINT OF BEGINNING
IRON PIN SET
DRUCEWAY
7.

NOTES:

1. TRENCH BED @ 1½' IS BASED ON PERC RATE OF 54 MIN./1" @ .45 GAL/FT² = 1333.3 FT² REQ'D
2. TRENCH UNDERLYING AREA @ 3' IS BASED ON PERC RATE OF 85 MIN./1" @ .25 GAL/FT² = 2400 FT² BASE AREA
3. CREDIT FOR SIDE WALL ABSORPTION = $\frac{W+2}{W+1+2D}$ % = 80%

   1333.3 x 80% = 1067 FT² REQUIRED
   1080 FT² PROVIDED IN TRENCHES
   4059 FT² PROVIDED IN BASE AREA

Approved Septic System Plan
Howard County Health Department

Signature 10 Date 6/12/00

A511447

PERCOLATION TEST RESULTS

TEST NO.	TEST DEPTH	TIME FOR 1" DROP
P1	1½'	54 MIN.
P1	3'	85 MIN.
P5	1½'	25 MIN.
P5	3'	80 MIN.
P6	1½'	10 MIN.
P6	3'	35 MIN.
P7	1½'	5 MIN.
P7	3'	28 MIN.

LOCATIONS AND ELEVATIONS OF SOIL TESTS

PIT #	DISTANCE FROM N.S. STONE D.W.	DISTANCE FROM E.S. PROPERTY LINE	ELEV
1	92'	66'	78.4
5	190'	76'	64.9
6	161'	14'	66.8
7	78'	10'	79.6'

SEPTIC ELEVATIONS

HOUSE FIRST FLOOR	93.0
HOUSE BASEMENT	84.0
INV. @ HOUSE	81.5
EX. GRD @ SEPTIC TANK	80.7
INV. IN @ " "	78.3
INV. OUT @ " "	78.0
EX. GRD @ PUMP TANK	73.0
INV. IN @ " "	71.0
INV OUT @ " " (PUMP)	65.0
EX. GRD @ TRENCH A	78.7
INV. @ TRENCH A	77.2

HOUSE
SEPTIC TANK
DRY WELL
150' TO WELL
WELL
HOUSE
100' SEPTIC DISTANCE RADIUS
602.06'
N30°16'50"E
IRON PIN
STONE
IRON PIPE
TOP OF KEY STONE ELEV. 100.0
PROPOSED WELL AREA
CLEANOUT
N43°21'26"W
100' SEPTIC DISTANCE RADIUS
30' BRL
LIMIT OF DISTURBANCE
1500 GAL. 2 COMPARTMENT SEPTIC TANK TOP SEAMED
4" PVC @ 0.046
4" PVC @ 0.169
1500 GAL. PUMP TANK TOP SEAMED
MANHOLES
AREA OF DISTURBANCE (18000 SF)
4 PIT 1
4 PITS
SEWAGE DISPOSAL AREA
LIMIT OF DISTURBANCE
PROPOSED 4 BR HOUSE FF 93.0 BSMT 84.0
GAR.
DIRT ROADWAY
STONED ROADWAY
SEPTIC TANK TOP 80.7
DRAIN FIELD
180.18'
180.18'
S61°45'38"E
659.27'
S30°54'17"W
IRON PIN
IRON PIN +111.0
TO WEST WATERSVILLE RD.
SCALE
0' 10' 20' 30' 40' 80'

NOTE
PLAN USED WITH PERMISSION OF PAUL DIETZ III.

FOR SITE PLAN

ROBERT H. PLANK
No. 10262
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF MARYLAND
10-30-00
NASSAUX-HEMSLEY, INC.

FOR TOPO & SEPTIC PLANS

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
PAUL DIETZ III
ENGINEER
NO 037916 E

SITE PLAN
RUDDY PARCEL
WEST WATERSVILLE ROAD
FOURTH ELECTION DIST.
HOWARD COUNTY, MARYLAND
SCALE: 1"=20' OCT., 2000

TOPOGRAPHIC SURVEY OF RUDDY PARCEL

SCALE: 1"=20'	APPROVED BY: PD SHEET 1 OF 4	DRAWN BY WA.O.	
DATE: 9-2-99		REVISED 1	
TAX MAP 2-13-72 1&2 PARCEL # 04-331230		HOWARD CO. MARYLAND	
GROSS PARCEL AREA 2.557± ACRES		DRAWING NUMBER 99-09-02	

NOTES:

1. TRENCH BED @ 1½' IS BASED ON PERC RATE OF 54 MIN./1" @ .45 GAL/FT² = 1333.3 F² AREA
2. TRENCH UNDERLYING AREA @ 3' IS BASED ON PERC RATE 85 MIN./1" @ .25 GAL/FT² = 2400 FT² BASE AREA
3. CREDIT FOR SIDE WALL ABSORPTION = $\frac{W+2}{W+1+2D}$ % = 80%

1333.3 × 80% = 1067 F² REQUIRED
1080 FT² PROVIDED IN TRENCHES
4059 FT² PROVIDED IN BASE AREA

A511447

PERCULATION TEST RESULTS

TEST LOC	TEST DEPTH	TIME FOR 1" DROP
P1	1½'	54 MIN.
P1	3'	85 MIN.
P5	1½'	25 MIN.
P5	3'	80 MIN.
P6	1½'	10 MIN.
P6	3'	35 MIN.
P7	1½'	5 MIN.
P7	3'	28 MIN.

LOCATIONS AND ELEVATIONS OF SOIL TESTS

PIT #	DISTANCE FROM N.S. STONED D.W.	DISTANCE FROM E.S. PROPERTY LINE	ELEV.
1	92'	66'	78.4
5	190'	76'	64.9
6	161'	14'	66.8'
7	78'	10'	79.6'

Approved Septic System Plan
Howard County Health Department

Signature _____ Date 6/12/00

HOUSE
SEPTIC TANK
DRY WELL
130' TO WELL
HOUSE
WELL
100' SEPTIC DISTANCE RADIUS
602.06'
N30°16'50"E
STONE
IRON PIN
IRON PIPE
TOP OF REF STAKE ELEV. 100.0'
+99.0
PROPOSED WELL AREA
well site OK as Staked PP 9/19/00
CLEANOUT
100' SEPTIC DISTANCE RADIUS
N 43°21'26"W
4" PVC @ 0.0046
1500 GAL. 2 COMPARTMENT SEPTIC TANK TOP SEAMED
4" PVC @ 0.165
1500 GAL. PUMP TANK TOP SEAMED
CLEAN OUT
100'
SEPTIC TANK
DRAIN FIELD
STONED ROADWAY
DIRT ROADWAY
45'
PROPOSED 4 BEDROOM HOUSE 600 GAL/DAY SEWAGE FLOW
30'
4 PIT 1
4 PIT 5
4 PIT 7
4 PIT 6
SEWAGE DISPOSAL AREA
A 6½' B 5½' C 5' D 4½' E 5.5' F
180.18'
IRON PIN +99.0
TO WEST WATERSVILLE RD.
659.27'
S30°54'17"W
IRON PIN
S61°45'38"E
180.18'

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
PAUL DIETZ III
ENGINEER
NO. 037916-E

SCALE
0' 10' 20' 30' 40' 50'

TOPOGRAPHIC SURVEY OF RUDDY PARCEL

SCALE: 1" = 20'	APPROVED BY: PD SHEET 1 OF 4	DRAWN BY WA.O.
DATE: 9-2-99		REVISED 1
TAX MAP 2-13-72 lot 2 PARCEL # 04-331230	HOWARD CO. MARYLAND	
GROSS PARCEL AREA 2.557± ACRES		DRAWING NUMBER 99-09-02

RECEIVED
HOWARD COUNTY HEALTH DEPT.
ENVIRONMENTAL HEALTH
2000 AP 17 PM 1:59

6/10/00

Re: Waterwells Road Septic Design

Dear Mr. Pinkley:

Enclosed are two sets of design prints (4 sheets each) of the design which you approved. I have no departmental-sealed copies and I would appreciate it if you would seal these two sets and return them to me.

Once I receive them back from you I can add to them all the commercial data sheets that were attached to your sets. I didn't see any purpose in mailing back and forth data sheets that would not need your seal. Thank you,

Don Ruddy