

APPLICATION

FOR PERCOLATION TESTING AND SITE EVALUATION

TEST DATE(S) _____ TEST TIME _____ A/P _____

AGENCY REVIEW: _____ DATE _____

DO NOT WRITE ABOVE THIS LINE

I HEREBY APPLY FOR THE NECESSARY TESTING/EVALUATION PRIOR TO ISSUANCE OF SEWAGE DISPOSAL SYSTEM PERMIT(S) TO:

- CHECK AS NEEDED:
- CONSTRUCT NEW SEPTIC SYSTEM(S)
 - REPAIR/ADD TO AN EXISTING SEPTIC SYSTEM
 - REPLACE AN EXISTING SEPTIC SYSTEM

- CHECK AS NEEDED:
- NEW STRUCTURE(S)
 - ADDITION TO AN EXISTING STRUCTURE
 - REPLACE AN EXISTING STRUCTURE

- CHECK ONE:
- CREATE NEW LOT(S)
 - BUILD ON AN EXISTING LOT IN A SUBDIVISION
 - BUILD ON AN EXISTING PARCEL OF RECORD

- IS THE PROPERTY WITHIN 2500' OF ANY RESERVOIR?
- YES
 - NO

THE TYPE OF STRUCTURE IS:

- RESIDENTIAL WITH _____ PROPOSED BEDROOMS IN THE COMPLETED STRUCTURE (NOTE **UNKNOWN** IF APPROPRIATE)
- COMMERCIAL (PROVIDE DETAIL OF NUMBERS AND TYPES OF EMPLOYEES/ CUSTOMERS ON ACCOMPANYING PLAN)
- INSTITUTIONAL/GOVERNMENT (PROVIDE DETAIL OF NUMBERS AND TYPES OF EMPLOYEES/USERS ON ACCOMPANYING PLAN)

PROPERTY OWNER(S) _____

DAYTIME PHONE _____ CELL _____ FAX _____

MAILING ADDRESS _____
STREET CITY/TOWN STATE ZIP

APPLICANT 6404 Lochridge Road

DAYTIME PHONE _____ CELL _____ FAX _____

MAILING ADDRESS _____
STREET CITY/TOWN STATE ZIP

APPLICANT'S ROLE: DEVELOPER BUILDER BUYER RELATIVE/FRIEND REALTOR CONSULTANT

PROPERTY LOCATION
SUBDIVISION/PROPERTY NAME _____ LOT NO. _____

PROPERTY ADDRESS _____
STREET TOWN/POST OFFICE

TAX MAP PAGE(S) _____ GRID _____ PARCEL(S) _____ PROPOSED LOT SIZE _____

AS APPLICANT, I UNDERSTAND THE FOLLOWING: THE SYSTEM INSTALLED SUBSEQUENT TO THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC SEWERAGE IS AVAILABLE. THIS APPLICATION IS COMPLETE WHEN ALL APPLICABLE FEES AND A SUITABLE SITE PLAN HAVE BEEN RECEIVED. I ACCEPT THE RESPONSIBILITY FOR COMPLIANCE WITH ALL M.O.S.H.A. AND "MISS UTILITY" REQUIREMENTS. APPROVAL IS BASED UPON SATISFACTORY REVIEW OF A PERC CERTIFICATION PLAN.

TEST RESULTS WILL BE MAILED TO APPLICANT. _____
SIGNATURE OF APPLICANT

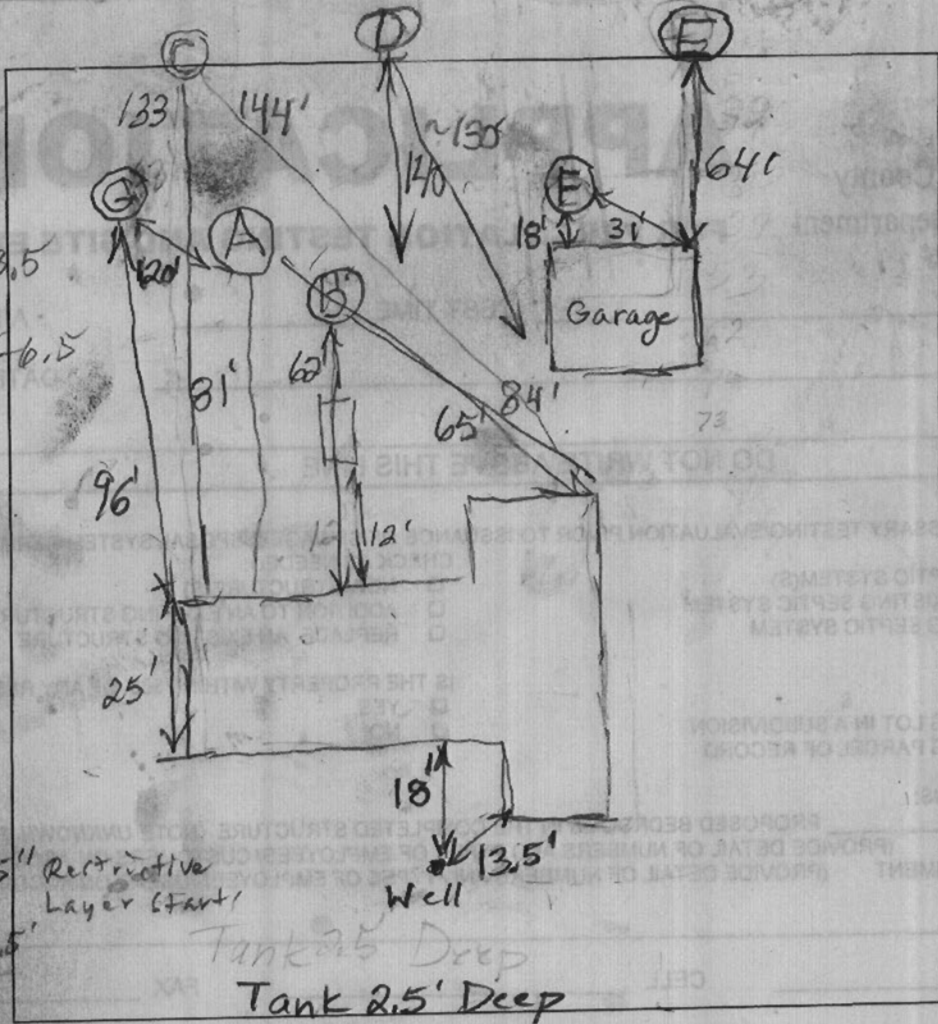
HOWARD COUNTY HEALTH DEPARTMENT, BUREAU OF ENVIRONMENTAL HEALTH, WELL AND SEPTIC PROGRAM
7178 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND 21046 (410) 313-1771 FAX (410) 313-2648
TDD (410) 313-2323 TOLL FREE 1-877-4MD-DHMH

APR 538/30

(A)
 Br Si Cl Loam Sbk 3-3.5
 Red Br Sa Cl Loam 6.5-6.5
 Red Loamy Sa
 75-70% Rock
 Hard Bottom

(B)
 Br Cl Loam Moderately Dense Sa Cl Loam 3-3.5
 Sa Loam
 Loamy Sa
 Hard Bottom

(C)
 Moderately Dense Si Cl Loam - Cl Loam 1.5-2
 Moderately Dense Red Br Sa Cl Loam 2-2.5
 Moderately Dense Sa Loam 3-5
 Moderately Dense Sa Loamy Sa 7.5



(D)
 Br Si Cl Loam Sbk 1.5-2
 Very Dense Br Sa Cl Loam 2.5-3
 Very Dense Red Br Sa Cl Loam 5-5.5
 Dense Red Br Sa Loam
 Hard Bottom 7.5

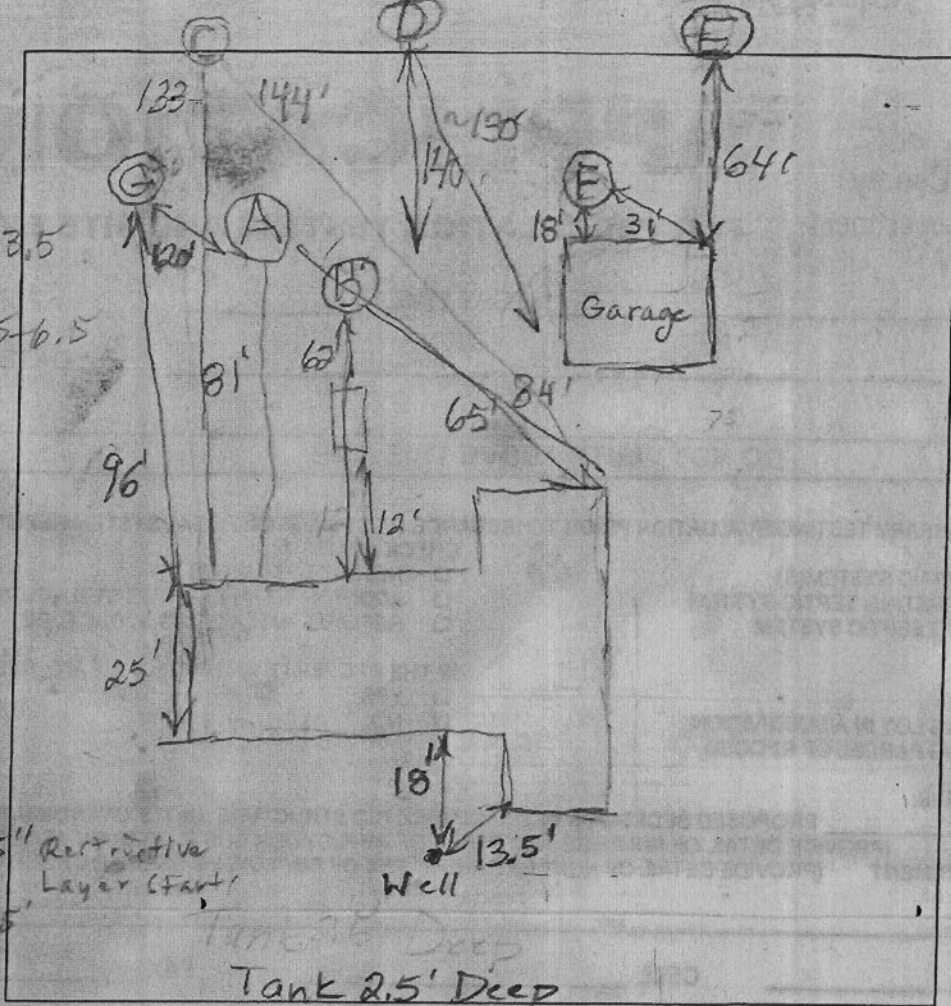
(E)
 Br Si Cl Loam - Cl Loam Sbk 2-2.5
 Very Dense Br Sa Loam 4.5-6
 Dense Red Br Sa Loam Loamy Sa Hard Bottom 11

(F)
 Br Si Cl Loam Sbk 3
 Red Br Gravelly Cl Loam
 Hard Bottom 5

DATE	TEST #	DEPTH	START	BREAK 1" DROP	STOP 2" DROP	TIME OF 2ND INCH	P/F/H	
11/16/2012	A	25' 8"	11:10	11:19	11:35	16		
	B	25' 6"	11:28:30	12:49:30	Almost to 91 Second Peg		F	
	C	23" / 7.5'	12:05	12:31	1:04	33	H	
	D	3' 9" / 7.5'	12:51:30					
	E	6.5' / 11'	1:31:30	1:47	2:28	41	H	
	F	5'	Visual					
	G	3' 8" / 8.5'	3:03	Pulled ~ 5/8" in				
			30 minutes					

REMARKS Material Very Inconsistent
 SANITARIAN B. Baker BACKHOE South Carroll OTHERS Homeowner
 TEST HOLES USED IN SDA A+C AVG. PERC TIME _____ SQ. FT/BR _____
 TRENCH WIDTH _____ INLET DEPTH _____ MAX. BOT DEPTH _____ EFFECTIVE SW _____

AP 538130



(A)
Br Si Cl Loam
sbk
2'
Red Br Sa
Cl Loam
3-3.5'
6.5-6.5'
Red
Loamy
Sa
6'
75-70
Rock
Hard
Bottom
8'

(D)
Br Br Si Cl
Loam, sbk
1.5-2'
Very Dense
Br Sa Cl Loam
2.5-3'
Very Dense Red
Br Sa Cl Loam
5'-5.5'
Dense Red
Br Sa Loam
Hard
Bottom
7.5'

(B)
Br Cl Loam
Moderately
Dense
Sa Cl Loam
3-3.5'
Sa Loam
5'
Loamy
Sa
6'
Hard
Bottom
6'

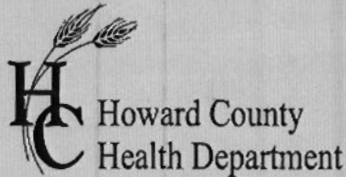
(E)
Br Si Cl Loam
- Cl Loam, sbk
2-2.5'
Very Dense
Br and Red
Br Sa Loam
4.5-6'
Dense
Red Br
Sa Loam
Loamy Sa
Hard
Bottom
11'

(C)
Moderately
Dense Si Cl
Loam - Cl Loam
1.5-2'
Moderately
Dense Red Br
Sa Cl Loam
2-2.5'
Moderately
Dense Sa
Loam
3-5'
Moderately
Dense
Loamy Sa
7.5'

(F)
Br Si Cl Loam
sbk
3'
Red Br
Gravelly
Cl Loam
Hard
Bottom
5'

DATE	TEST #	DEPTH	START	BREAK 1" DROP	STOP 2" DROP	TIME OF 2ND INCH	P/F/H
11/16/2012	A	25' 8" V	11:10	11:19	11:35	16	
	B	25' 6" V	11:28:30	12:49:30	Almost to 81' Second Peg		F
	C	23" 7.5" V	12:05	12:31	1:04	33	H
	D	3' 9" 7.5" V	12:51:30				
	E	65' 11" V	1:31:30	1:47	2:28	41	H
	F	5'	Visual				
	G	3' 8" 8.5" V	3:03	Pulled ~ 5/8" in 30 minutes			

REMARKS: Material Very Inconsistent
 SANITARIAN B. Baker BACKHOE South Carroll OTHERS Homeowner
 TEST HOLES USED IN SDA A+C AVG. PERC TIME _____ SQ. FT/BR _____
 TRENCH WIDTH _____ INLET DEPTH _____ MAX. BOT DEPTH _____ EFFECTIVE SW _____



APPLICATION

FOR PERCOLATION TESTING AND SITE EVALUATION

TEST DATE(S) _____ TEST TIME _____

AP 538130

AGENCY REVIEW: _____

DATE 11-14-12

DO NOT WRITE ABOVE THIS LINE

I HEREBY APPLY FOR THE NECESSARY TESTING/EVALUATION PRIOR TO ISSUANCE OF SEWAGE DISPOSAL SYSTEM PERMIT(S) TO:

CHECK AS NEEDED:

- CONSTRUCT NEW SEPTIC SYSTEM(S)
- REPAIR/ADD TO AN EXISTING SEPTIC SYSTEM
- REPLACE AN EXISTING SEPTIC SYSTEM

CHECK AS NEEDED:

- NEW STRUCTURE(S)
- ADDITION TO AN EXISTING STRUCTURE
- REPLACE AN EXISTING STRUCTURE

CHECK ONE:

- CREATE NEW LOT(S)
- BUILD ON AN EXISTING LOT IN A SUBDIVISION
- BUILD ON AN EXISTING PARCEL OF RECORD

IS THE PROPERTY WITHIN 2500' OF ANY RESERVOIR?

- YES
- NO

THE TYPE OF STRUCTURE IS:

- RESIDENTIAL WITH _____ PROPOSED BEDROOMS IN THE COMPLETED STRUCTURE (NOTE **UNKNOWN** IF APPROPRIATE)
- COMMERCIAL (PROVIDE DETAIL OF NUMBERS AND TYPES OF EMPLOYEES/ CUSTOMERS ON ACCOMPANYING PLAN)
- INSTITUTIONAL/GOVERNMENT (PROVIDE DETAIL OF NUMBERS AND TYPES OF EMPLOYEES/USERS ON ACCOMPANYING PLAN)

PROPERTY OWNER(S) Diane Reitz

DAYTIME PHONE 301-998-8349 CELL _____ FAX _____

MAILING ADDRESS 6404 Lochridge Rd Columbia 21044
STREET CITY/TOWN STATE ZIP

APPLICANT South Carroll Bachhoe

DAYTIME PHONE 410-875-4197 CELL 410-596-3618 FAX 410-875-0326

MAILING ADDRESS 4410 Salem Bottom Rd Westminster MD 21157
STREET CITY/TOWN STATE ZIP

APPLICANT'S ROLE: DEVELOPER BUILDER BUYER RELATIVE/FRIEND REALTOR CONSULTANT

PROPERTY LOCATION
SUBDIVISION/PROPERTY NAME Same as above LOT NO. _____

PROPERTY ADDRESS _____
STREET TOWN/POST OFFICE

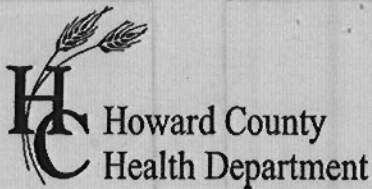
TAX MAP PAGE(S) _____ GRID _____ PARCEL(S) _____ PROPOSED LOT SIZE _____

AS APPLICANT, I UNDERSTAND THE FOLLOWING: THE SYSTEM INSTALLED SUBSEQUENT TO THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC SEWERAGE IS AVAILABLE. THIS APPLICATION IS COMPLETE WHEN ALL APPLICABLE FEES AND A SUITABLE SITE PLAN HAVE BEEN RECEIVED. I ACCEPT THE RESPONSIBILITY FOR COMPLIANCE WITH ALL M.O.S.H.A. AND "MISS UTILITY" REQUIREMENTS. APPROVAL IS BASED UPON SATISFACTORY REVIEW OF A PERC CERTIFICATION PLAN.

TEST RESULTS WILL BE MAILED TO APPLICANT.

Ben Reitz
SIGNATURE OF APPLICANT

HOWARD COUNTY HEALTH DEPARTMENT, BUREAU OF ENVIRONMENTAL HEALTH, WELL AND SEPTIC PROGRAM
7178 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND 21046 (410) 313-2640 FAX (410) 313-2648
TDD (410) 313-2323 TOLL FREE 1-877-4MD-DHMH



APPLICATION

FOR PERCOLATION TESTING AND SITE EVALUATION

TEST DATE(S) _____ TEST TIME _____ A/P _____

AGENCY REVIEW: _____ DATE _____

DO NOT WRITE ABOVE THIS LINE

I HEREBY APPLY FOR THE NECESSARY TESTING/EVALUATION PRIOR TO ISSUANCE OF SEWAGE DISPOSAL SYSTEM PERMIT(S) TO:

CHECK AS NEEDED:

- CONSTRUCT NEW SEPTIC SYSTEM(S)
- REPAIR/ADD TO AN EXISTING SEPTIC SYSTEM
- REPLACE AN EXISTING SEPTIC SYSTEM

CHECK AS NEEDED:

- NEW STRUCTURE(S)
- ADDITION TO AN EXISTING STRUCTURE
- REPLACE AN EXISTING STRUCTURE

CHECK ONE:

- CREATE NEW LOT(S)
- BUILD ON AN EXISTING LOT IN A SUBDIVISION
- BUILD ON AN EXISTING PARCEL OF RECORD

IS THE PROPERTY WITHIN 2500' OF ANY RESERVOIR?

- YES
- NO

THE TYPE OF STRUCTURE IS:

- RESIDENTIAL WITH _____ PROPOSED BEDROOMS IN THE COMPLETED STRUCTURE (NOTE **UNKNOWN** IF APPROPRIATE)
- COMMERCIAL (PROVIDE DETAIL OF NUMBERS AND TYPES OF EMPLOYEES/ CUSTOMERS ON ACCOMPANYING PLAN)
- INSTITUTIONAL/GOVERNMENT (PROVIDE DETAIL OF NUMBERS AND TYPES OF EMPLOYEES/USERS ON ACCOMPANYING PLAN)

PROPERTY OWNER(S) _____

DAYTIME PHONE _____ CELL _____ FAX _____

MAILING ADDRESS _____

STREET CITY/TOWN STATE ZIP

APPLICANT 6404 Lochridge Rd.

DAYTIME PHONE _____ CELL _____ FAX _____

MAILING ADDRESS _____

STREET CITY/TOWN STATE ZIP

APPLICANT'S ROLE: DEVELOPER BUILDER BUYER RELATIVE/FRIEND REALTOR CONSULTANT

PROPERTY LOCATION
SUBDIVISION/PROPERTY NAME _____ LOT NO. _____

PROPERTY ADDRESS _____
STREET TOWN/POST OFFICE

TAX MAP PAGE(S) _____ GRID _____ PARCEL(S) _____ PROPOSED LOT SIZE _____

AS APPLICANT, I UNDERSTAND THE FOLLOWING: THE SYSTEM INSTALLED SUBSEQUENT TO THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC SEWERAGE IS AVAILABLE. THIS APPLICATION IS COMPLETE WHEN ALL APPLICABLE FEES AND A SUITABLE SITE PLAN HAVE BEEN RECEIVED. I ACCEPT THE RESPONSIBILITY FOR COMPLIANCE WITH ALL M.O.S.H.A. AND "MISS UTILITY" REQUIREMENTS. APPROVAL IS BASED UPON SATISFACTORY REVIEW OF A PERC CERTIFICATION PLAN.

TEST RESULTS WILL BE MAILED TO APPLICANT. _____
SIGNATURE OF APPLICANT

HOWARD COUNTY HEALTH DEPARTMENT, BUREAU OF ENVIRONMENTAL HEALTH, WELL AND SEPTIC PROGRAM
7178 COLUMBIA GATEWAY DRIVE COLUMBIA, MARYLAND 21046 (410) 313-1771 FAX (410) 313-2648
TDD (410) 313-2323 TOLL FREE 1-877-4MD-DHMH

AP 538130

(G)

Fill 12"-20"
 Gray Black
 4 Loam 2'-3'
 Red Br
 Sacl Loam

Bottom
 Covered
 Hard
 Bottom 8.5

APPLICATION FOR PERCOLATION TESTING AND SITE AGENCY REVIEW

TEST TIME _____

DATE _____

DO NOT WRITE ABOVE THIS LINE

CHECK AS NEEDED

NEW STRUCTURE(S)

ADDITION TO AN EXISTING STRUCTURE

REPLACE AN EXISTING STRUCTURE

IS THE PROPERTY WITHIN 200' OF ANY RESERVATION?

YES

NO

PROPERTY OWNER(S) _____

DAYTIME PHONE _____

MAILING ADDRESS _____

STREET _____

CITY/TOWN _____

STATE _____

ZIP _____

APPLICANT'S ROLE: _____

DEVELOPER _____

BUILDER _____

BUYER _____

RELATOR _____

CONSULTANT _____

LOT NO. _____

TOWN/POST OFFICE _____

STREET _____

PROPOSED LOT SIZE _____

PARCELS _____

GRID _____

TAX MAP PAGE(S) _____

AS APPLICANT, I UNDERSTAND THE FOLLOWING: THE SYSTEM INSTALLED SUBSEQUENT TO THIS APPLICATION IS ACCEPTABLE ONLY UNTIL PUBLIC SEWERAGE IS AVAILABLE. THIS APPLICATION IS COMPLETE WHEN ALL APPLICABLE FEES AND SUITABLE SITE PLAN HAVE BEEN RECEIVED. I ACCEPT THE RESPONSIBILITY FOR COMPLYING WITH ALL LOCAL, STATE AND FEDERAL UTILITY REQUIREMENTS. APPROVAL IS BASED UPON SATISFACTORY REVIEW OF A PERCOLATION PLAN. TEST RESULTS WILL BE MAILED TO APPLICANT.

DATE	TEST #	DEPTH	START	BREAK 1" DROP	STOP 2" DROP	TIME OF 2ND INCH	P/F/H
11/16/2012	G	8.5'	~5/8"	in	30	Minutes	

REMARKS _____

SANITARIAN _____ BACKHOE _____ OTHERS _____

TEST HOLES USED IN SDA _____ AVG. PERC TIME _____ SQ. FT/BR _____

TRENCH WIDTH _____ INLET DEPTH _____ MAX. BOT DEPTH _____ EFFECTIVE S/W _____

DESIGN FLOW (in gallons/day)?
 Elevation of the PUMP OFF SWITCH, in feet?
 Elevation of the upper LATERAL, in feet?
 DELIVERY PIPE distance, from pump to manifold, in feet?
 DELIVERY PIPE diameter, in inches (if not 2"-use 2" min)?
 Design DISTAL PRESSURE, in feet (if not 2.5)? (hd)
 IS MANIFOLD CENTER-FED & SYMMETRICAL (yes or no)?
 How many orifices in the MANIFOLD?
 MANIFOLD ORIFICE diameter, in inches (if not 5/16")
 MANIFOLD DIAMETER (if not 2"-use 2" min)?
 TOTAL LENGTH OF MANIFOLD
 Does MANIFOLD drain to FIELD after dose (yes or no)?
 How many LATERALS?
 Pumping chamber weep hole size (usually .25")

450
 2
 3.34
 80
 2.067
 2.5
 no
 0
 0
 2.067
 7
 no
 4
 0.25

(Inside Diameter)

PRETREATED EFFLUENT REQUIRED

GO TO MANIFOLD DESIGN Center FEED

(Ignore)

0.3125 (Ignore)

2.067 (Inside Diameter)

(Are you pumping downhill)

USE 0 IF FORCE MAIN DOES NOT DRAIN Back to Pump Chamber

PROGRAM WILL CALCULATE UP TO 26 LATERALS AND UP TO 50 ORIFICES PER LATERAL

TRENCH LENGTH

100 100 100 100

Your HIGHEST elevation lateral MUST be LATERAL 1:

(first orifice from lateral 1/2 of orifice spacing)

Length of each LATERAL, in feet?

Diameter of each LATERAL, in inches (1.5" min)?

Elevation of each LATERAL, in feet?

Number of ORIFICES per lateral

Distance from Manifold to closest Orifice, in feet

ORIFICE SPACING, in feet (2-6 ft ok 3-6 preferred) 3-10 in MD

Diameter of ORIFICES, in inches? (D)

Square feet of leachfield per laterals (can ignore)

Maximum number of orifices in any one lateral

Minimum lateral diameter

	Lateral 1:	Lateral 2:	Lateral 3:	Lateral 4:
Length of each LATERAL, in feet?	95.00	95.00	94.44	94.44
Diameter of each LATERAL, in inches (1.5" min)?	1.61	1.61	1.61	1.61
Elevation of each LATERAL, in feet?	3.34	3.34	2.75	2.75
Number of ORIFICES per lateral	10	10	9	9
Distance from Manifold to closest Orifice, in feet	5.00	5.00	5.56	5.56
ORIFICE SPACING, in feet (2-6 ft ok 3-6 preferred) 3-10 in MD	10.00	10.00	11.11	11.11
Diameter of ORIFICES, in inches? (D)	0.25	0.25	0.25	0.25
Square feet of leachfield per laterals (can ignore)	300	300	300	300
Maximum number of orifices in any one lateral	10			
Minimum lateral diameter	1.61			

RESULTS

FRICTION CALCULATIONS (using Hazen Williams friction $f = Ld((3.55Qm/Ch(Dd^{2.63})))^{1.85}$)

PRESSURE CALCULATIONS (using orifice discharge equation $Q = 11.79 D^{2.5} hd^{0.5}$)

	Lateral 1:	Lateral 2:	Lateral 3:	Lateral 4:
LATERAL DISCHARGE (first approximation)	11.65	11.65	10.49	10.49
MANIFOLD ORIFICE DISCHARGE	0.00			
TOTAL SYSTEM DISCHARGE (first approximation)	44.27			
TOTAL DISCHARGE PER LATERAL	11.72	11.72	11.71	11.71
DISCHARGE PER SQUARE FOOT OF LEACHFIELD	0.03905033	0.039050332	0.03904825	0.03904825
ORIFICE MAXIMUM DISCHARGE BY LATERAL	1.18	1.18	1.31	1.31
ORIFICE MINIMUM DISCHARGE BY LATERAL	1.17	1.17	1.30	1.30
ORIFICE % DIFFERENCE DISCHARGE within LATERAL	1.5%	1.5%	1.3%	1.3%
MAXIMUM DISCHARGE LATERAL	11.72			
MINIMUM DISCHARGE LATERAL	11.71			
MAXIMUM DISCHARGE PER SQUARE FOOT	0.04			
MINIMUM DISCHARGE PER SQUARE FOOT	0.04			
% DIFFERENCE DISCHARGE for SYSTEM by orifice	11.2% as percent of maximum orifice in system			
% DIFFERENCE DISCHARGE for SYSTEM by laterals	0.0% as percent of maximum lateral in system			
% DIFFERENCE DISCHARGE for SYSTEM by square feet	0.0% as percent of maximum square foot in system			
WEEP HOLE DISCHARGE (usually a 1/4" weep hole)	1.48		weep hole=	0.25 inch
VOID VOLUME IN DELIVERY PIPE	10.46			
VOID VOLUME IN MANIFOLD	9.43	Volume from Manifold Design		
VOID VOLUME IN EACH LATERAL	10.05	10.05	9.99	9.99
TOTAL LATERAL VOID VOLUME	40.07			
MINIMUM DOSE VOLUME (based on void volume)	200.34 to		400.68 MIN	
ACTUAL MINIMUM IS BASED ON DAILY DESIGN FLOW (weep hole, usually 1/4", not counted for dose, effluent is repumped during process and not counted for friction, except as fitting headloss)				
TOTAL HEAD LOSS IN EACH LATERAL	0.41	0.41	0.42	0.42
MAXIMUM TOTAL LATERAL HEADLOSS IN SYSTEM	0.42			
MANIFOLD HEADLOSS (center-fed unless manifold design)	0.25			
DELIVERY PIPE HEADLOSS	2.12	w/ delivery 2.067 inch diameter		
FITTING LOSS (headloss *.15)	0.38	add extra head if fittings are more than absolute minimum		
DISTAL PRESSURE HEAD	2.50			
STATIC HEAD (OFF-SWITCH TO HIGH LATERAL/MANIFOLD)	1.34			
HEADLOSS PUMP TO WEEPHOLE (assume 3' run)	0.11			
PUMP MUST BE ABLE TO PASS SOLIDS AT	48.33	G.P.M.	7.12	FEET OF HEAD
or				
After OTIS (network losses = 1.3*distal head)	48.33	G.P.M.	9.35	FEET OF HEAD

Yellow cells inputs

Williams, Jeffrey

From: Wolf, Kevin
Sent: Friday, December 07, 2012 12:49 PM
To: Williams, Jeffrey
Attachments: LPD King Revised Pump Uphill Equal.xls

Things to remember:

Lateral elev A and B - top 5'8, bot 7'3
Pump off elevation ~~8'~~
Lateral length
Lateral diameter (1 1/2")
hole diameter (1/4")
of holes
Hole spacing
Forcemain diameter
Forcemain length - 67' @ 90° - 3 tees
Manifold length
Manifold diameter -
Number of bends equal to total equivalent length -

Pump design would detail:

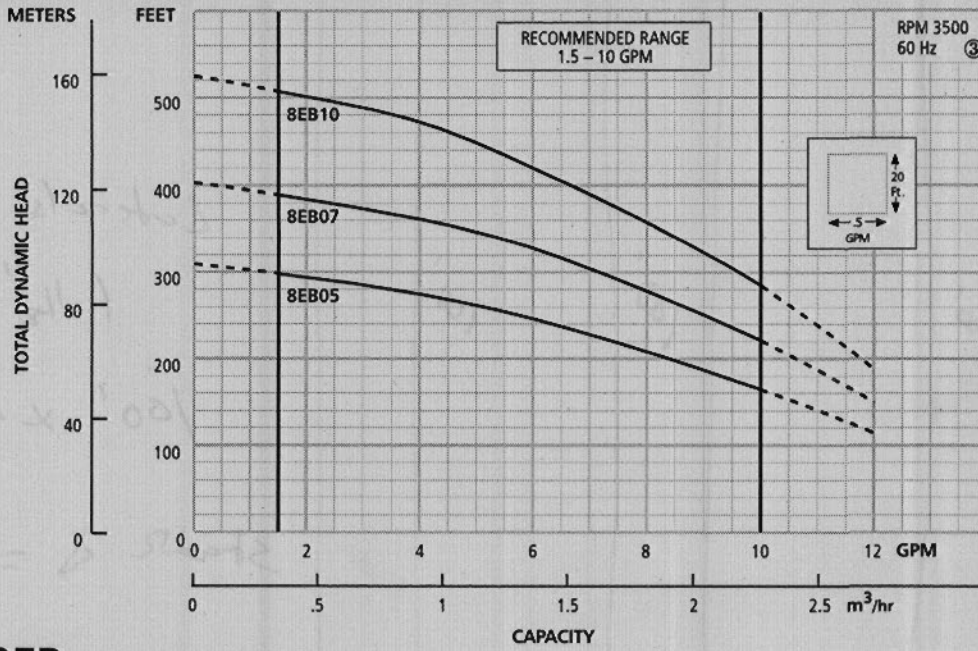
TDH
Flow (which would be less than 50gpm)
Static head (pump off - lateral inverts)
Dose
Friction loss
Distal head (4')

CONFIDENTIALITY NOTICE

This message and the accompanying documents are intended only for the use of the individual or entity to which they are addressed and may contain information that is privileged, confidential, or exempt from disclosure under applicable law. If the reader of this email is not the intended recipient, you are hereby notified that you are strictly prohibited from reading, disseminating, distributing, or copying this communication. If you have received this email in error, please notify the sender immediately and destroy the original transmission.

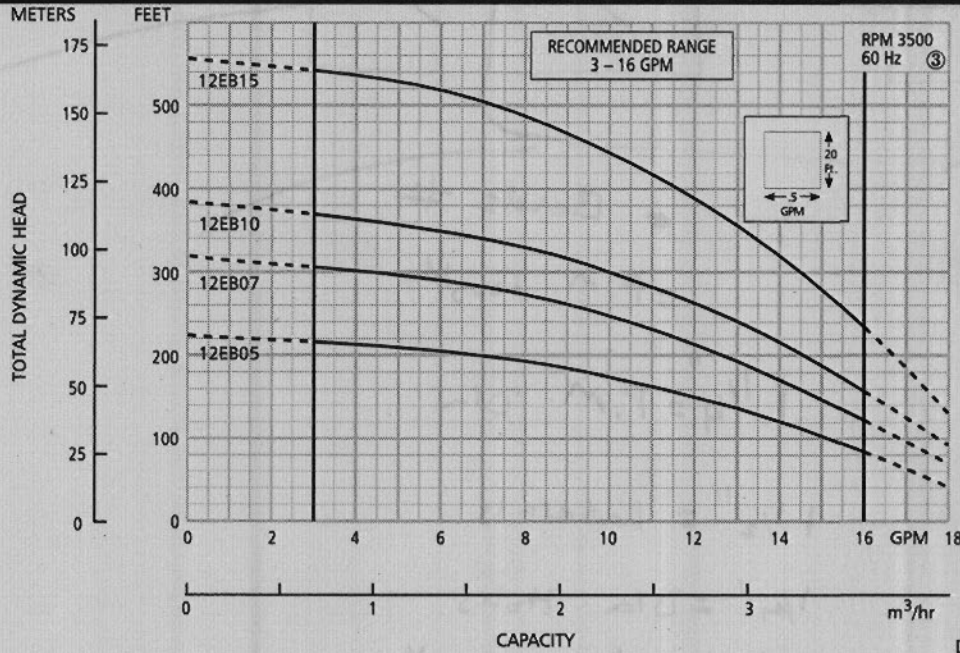
FILTERED EFFLUENT BLASTER.

Model 8EB



110
256
750

Model 12EB

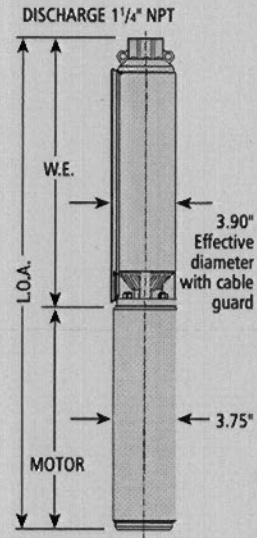


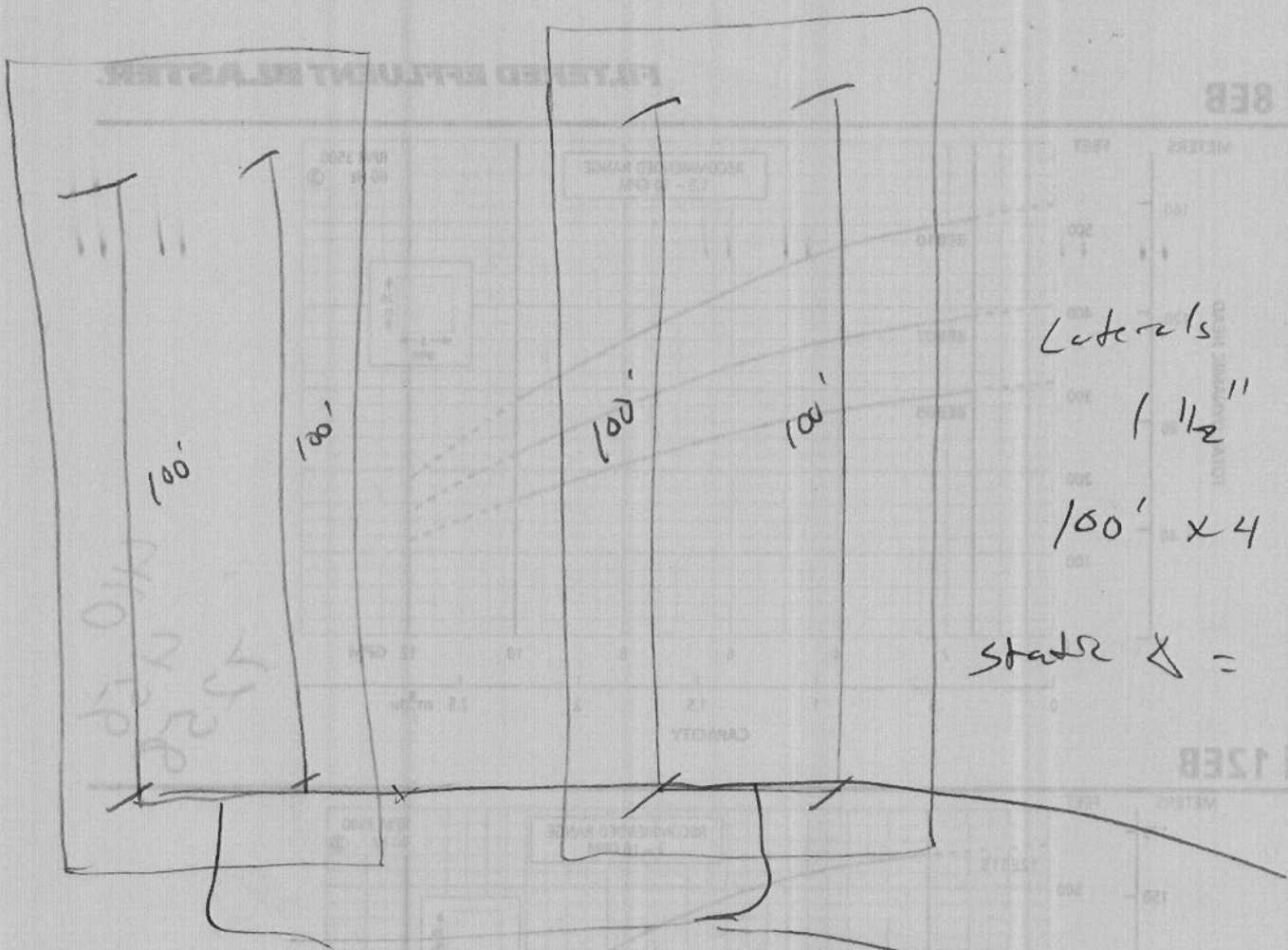
750

DIMENSIONS AND WEIGHTS

Order Number	HP	Phase	Stages	Length (inches)			Weight (lbs.)		
				W.E.①	Motor	L.O.A.②	W.E.	Motor	Total
8EB0522J, 8EB0521J	1/2	1	10	13.3	9.5	22.8	5	18	23
8EB0722J	3/4	1	13	15.4	10.7	26.1	6	20	26
8EB1022J	1	1	17	18.3	11.8	30.1	8	23	31
12EB0522J, 12EB0521J	1/2	1	7	11.0	9.5	20.5	4	18	22
12EB0722J	3/4	1	10	13.0	10.7	23.7	5	20	25
12EB1022J	1	1	12	14.4	11.8	26.2	6	23	29
12EB1522J	1 1/2	1	17	17.9	15.1	33.0	8	31	39

- ① W.E. = water end or pump without motor.
- ② L.O.A. = length of assembly - complete pump - water end and motor.
- ③ Performance curves are based on running pumps without 1/4" discharge head weep hole. Actual performance will be slightly lower unless weep hole is plugged.





Laterals
 1 1/2"
 100' x 4

Starts & =

120

= Berds #
 = F.M. Length

1 1/4" = F.M. Dia

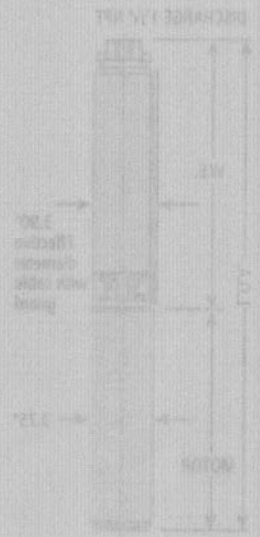
1 1/2" = Laterals

1/4" = Dia Holes

100' = Lateral length
 (x4)

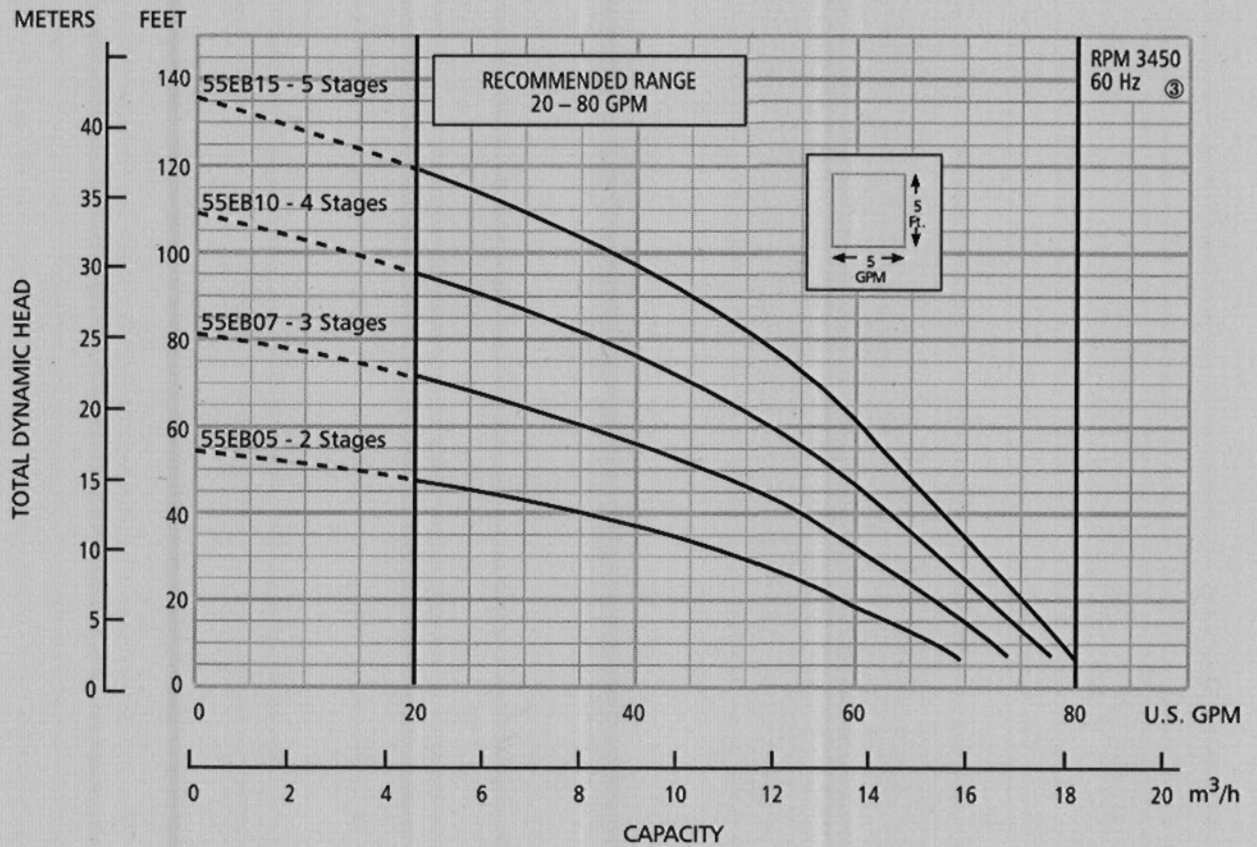
○ = manifold Dia

= manifold length



Order Number	HP	Phase	W.C.	W.C. Min	L.O.A. W.C.	W.C. Max	W.C. Min
82802521	W	1	13.3	12.8	12.8	13.3	12.8
82802521	W	1	13.3	12.8	12.8	13.3	12.8
82802521	W	1	13.3	12.8	12.8	13.3	12.8
82802521	W	1	13.3	12.8	12.8	13.3	12.8
82802521	W	1	13.3	12.8	12.8	13.3	12.8
82802521	W	1	13.3	12.8	12.8	13.3	12.8
82802521	W	1	13.3	12.8	12.8	13.3	12.8
82802521	W	1	13.3	12.8	12.8	13.3	12.8
82802521	W	1	13.3	12.8	12.8	13.3	12.8
82802521	W	1	13.3	12.8	12.8	13.3	12.8

© 1988 by The McGraw-Hill Companies, Inc. All rights reserved. This document is the property of The McGraw-Hill Companies, Inc. and is loaned to you for your use only. It is not to be distributed, copied, or otherwise used without the written permission of The McGraw-Hill Companies, Inc.



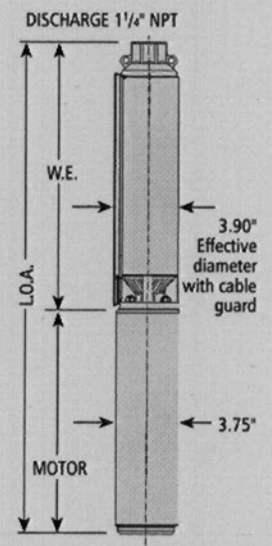
DIMENSIONS AND WEIGHTS

Order Number	HP	Phase	Stages	Length (inches)			Weight (lbs.)		
				W.E.①	Motor	L.O.A.②	W.E.	Motor	Total
55EB0522J, 55EB0521J	½	1	2	11.4	9.5	20.9	4	18	22
55EB0722J	¾	1	3	13.5	10.7	24.2	5	20	25
55EB1022J	1	1	4	15.5	11.8	27.3	6	23	29
55EB1522J	1½	1	5	17.6	15.1	32.7	8	31	39

① W.E. = water end or pump without motor.

② L.O.A. = length of assembly – complete pump – water end and motor.

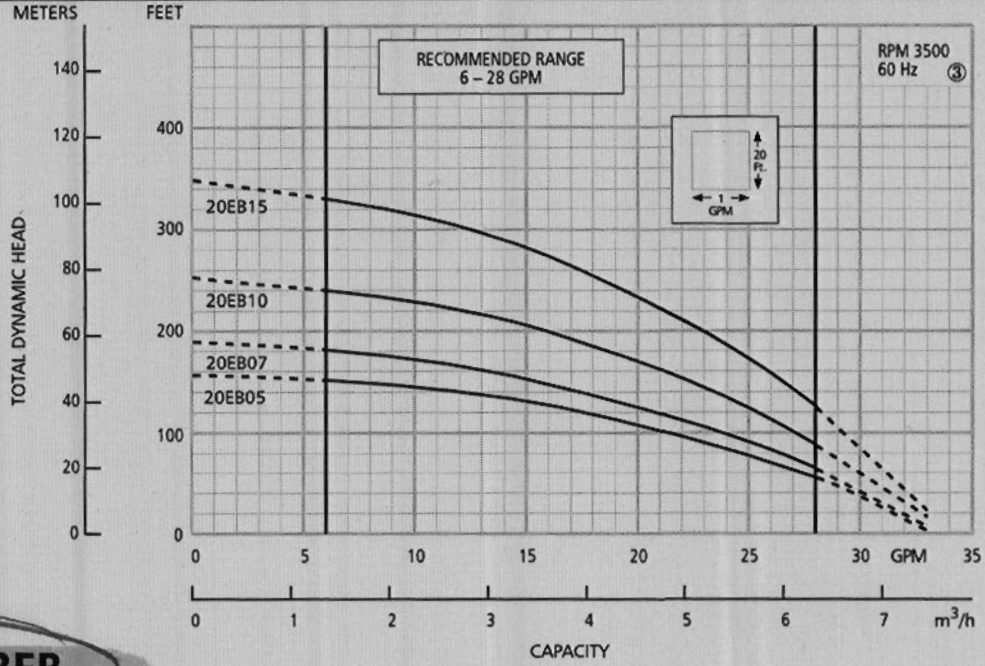
③ Performance curves are based on running pumps without ¼" discharge head weep hole. Actual performance will be slightly lower unless weep hole is plugged.



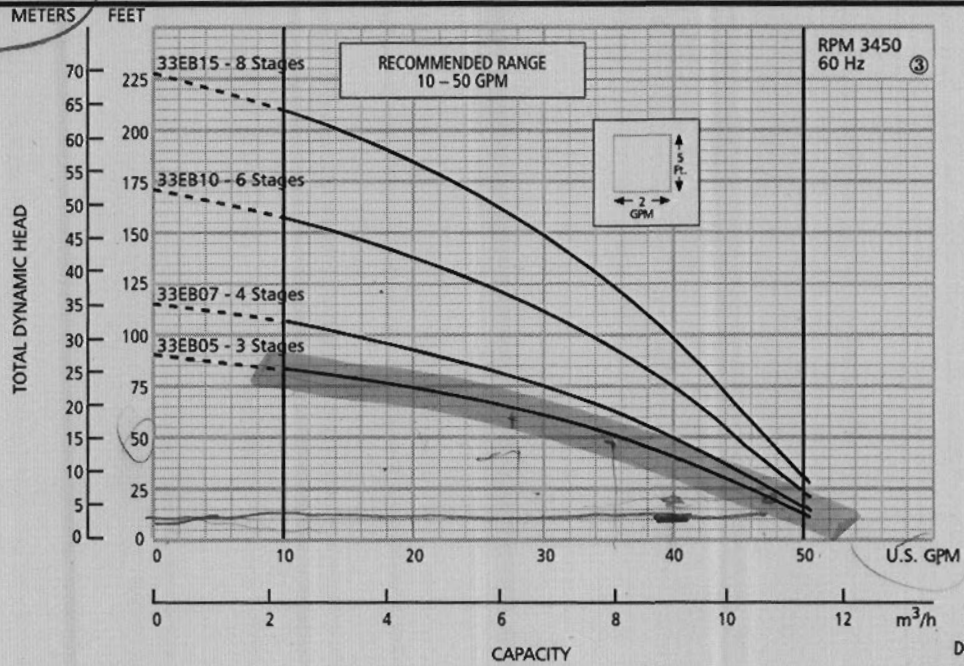
End feed 10 spacing

Model 20EB

FILTERED EFFLUENT BLASTER.



Model 33EB



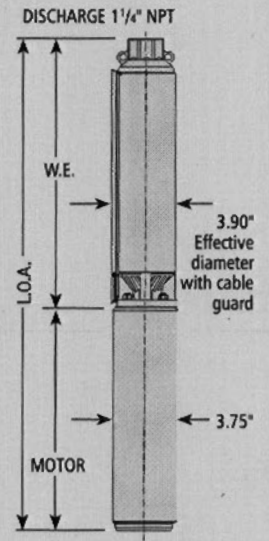
3'
22 1/2"

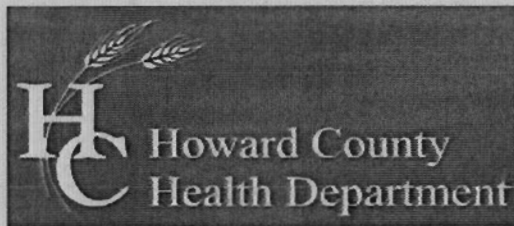
4'-5'
Design Head.

DIMENSIONS AND WEIGHTS

Order Number	HP	Phase	Stages	Length (inches)			Weight (lbs.)		
				W.E.①	Motor	L.O.A.②	W.E.	Motor	Total
20EB0522J, 20EB0521J	1/2	1	5	9.6	9.5	19.1	3	18	21
20EB0722J	3/4	1	6	11.3	10.7	22.0	4	20	24
20EB1022J	1	1	8	13.0	11.8	24.8	5	23	28
20EB1522J	1 1/2	1	11	15.5	15.1	30.6	6	31	37
33EB0522J, 33EB0521J	1/2	1	3	11.0	9.5	20.5	4	18	22
33EB0722J	3/4	1	4	12.2	10.7	22.9	5	20	25
33EB1022J	1	1	6	14.7	11.8	26.4	6	23	29
33EB1522J	1 1/2	1	8	17.1	15.1	32.2	7	31	38

① W.E. = water end or pump without motor.
 ② L.O.A. = length of assembly - complete pump - water end and motor.
 ③ Performance curves are based on running pumps without 1/4" discharge head weephole. Actual performance will be slightly lower unless weep hole is plugged.





Bureau of Environmental Health

7178 Columbia Gateway Drive, Columbia, MD 21046-2147

Main: 410-313-2640 | Fax: 410-313-2648

TDD 410-313-2323 | Toll Free 1-866-313-6300

www.hchealth.org

Facebook: www.facebook.com/hocohealth

Twitter: HowardCoHealthDep

Maura J. Rossman, M.D., Acting Health Officer

**OPERATION AND MAINTENANCE AGREEMENT
FOR AN ON-SITE SEWAGE DISPOSAL SYSTEM
HAVING AN ADVANCED PRE-TREATMENT SYSTEM**

THIS AGREEMENT is made this 3rd day of December, 2012, among Barry P. Reitz and Diane M. Reitz hereinafter collectively referred to as "Owner", and the Howard County Health Department hereinafter referred to as the "County".

WHEREAS, Owner is the owner or contract owner of a parcel of land located at 6404 Lochridge Rd., Columbia, MD, in the 12th Election District of Howard County, Maryland, and the deed to same is recorded or shall be recorded among the Land Records of Howard County, Maryland in Liber 02046 Folio 00756.

WHEREAS, The Lot is suitable for the installation of a conventional on-site sewage disposal system, but an advanced pre-treatment system, utilizing best available technology to perform nitrogen reduction, must be installed as part of the sewage disposal system for a 3 bedroom home with 1854 square feet of finished living space and 1500 square feet of unfinished living space. Advanced pre-treatment has been required (pick one):

To minimize the potential impact of the on-site sewage disposal system on down grade wells.

For an existing lot of record that does not have enough area available for an initial and two replacement onsite sewage disposal systems.

For the purpose of repairing a failing onsite sewage disposal system on an existing lot of record.

NOW, THEREFORE, the parties hereto agree as follows:

A. Owner hereby grants to the County the right to enter upon the Lot at any reasonable time for access to the system to make periodic inspections and the Owner agrees to provide any information and data in Owner's possession reasonably requested and needed by the County to develop accurate and thorough test results.

B. Owner acknowledges and agrees that neither the County nor any of its agents or employees, either officially or individually, underwrites the operation of any system approved by them.

C. The Owner will devote reasonable care and effort to the operation and maintenance of the system in perpetuity or until a public sewer connection is made so that a system malfunction is not the result of poor maintenance, faulty operation, or neglect.

D. The Owner agrees to enter into a contract reasonably acceptable to the Owner and the County with a private entity to operate and maintain on a regularly scheduled basis an approved advanced pre-treatment system. The owner shall supply a copy of the contract to the County when it is renewed or altered.

E. This agreement shall run with the land and upon Owner's taking title to the Lot shall bind the Owner, their heirs, successors, and assigns to the provisions of the agreement as long as the property is in existence and after installation of the system. Owner further agrees that they shall inform in writing any subsequent purchaser or lessee of the Lot that the system shall require maintenance or other attention. Upon taking title to the Lot, the Owner agrees to cause this agreement to be recorded in the Land Records of Howard County and assure that it becomes part of the Deed for the subject property in order that prospective buyers may be aware of the special conditions affecting this property.

F. This agreement shall not be construed to limit any authority of the County to protect the public health, safety or comfort or to issue any other orders to take any other action which is now or may hereafter be within its authority.

G. This agreement may be voided at any time at the discretion of the County.

H. This agreement contains the entire agreement and understanding between the County and the Owner. There are no additional terms other than as contained in this agreement. This agreement may not be modified, except in writing signed by each of the parties or by their authorized representatives.

I. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

J. Owner acknowledges and agrees that interior renovations to increase the number of bedrooms or an increase in living space shall not be permitted without approval from the County.

IN WITNESS WHEREOF, the parties have signed and sealed this agreement on the date indicated above.

Burton R. Peck 12-3-2012
Owner Date

Travis D. Reitz 12-3-2012
Owner Date

Richard J. Davis 12/4/12
Howard County Health Department

**AGREEMENT AND EASEMENT FOR INSTALLATION
OF BEST AVAILABLE TECHNOLOGY SYSTEMS
WITH BAY RESTORATION FUNDS.**

THIS AGREEMENT is made this 3rd day of December 2012, among Barry P. Reitz and Diane M. Reitz hereinafter referred to as "Owner," the Howard County Health Department hereinafter collectively referred to as the "County," and the Department of the Environment, hereinafter referred to as the "Department."

WHEREAS, Owner owns a tract of land located on 6404 Lochridge Rd., Columbia, MD, in the Election District of Howard County, Maryland, and the deed to same is recorded among the Land Records of Howard County, Maryland, in _____ and in Liber 02046 Folio 00756.

WHEREAS, the Bay Restoration Fund (BRF) may provide a grant for the cost attributable to upgrading an onsite sewage disposal system to the Best Available Technology (BAT) for the removal of nitrogen.

WHEREAS, the BRF may also provide a grant for the cost difference between a traditional onsite sewage disposal system and a system that utilizes the BAT for the removal of nitrogen.

WHEREAS, Owner understands that participation in the Bay Restoration Fund is voluntary.

NOW, THEREFORE, the parties hereto agree as follows:

- A. Owner hereby grants to the Department and the County the right to enter upon the property at any reasonable time for access to the system to make periodic inspections and the Owner agrees to provide any information and data requested and needed by the Department to develop accurate and thorough test results.
- B. Owner acknowledges and agrees that a manufacturer-approved installer will install the BAT system.

- C. Owner acknowledges and agrees the manufacturer will provide for Operation and Maintenance of the BAT for a period of 5 years as a condition of sale of the BAT. After the 5 year period the Operation and Maintenance contract can be further extended at the behest of the property owner. The Department and County encourage the property owner to continuously maintain an Operation and Maintenance contract during the lifetime of the system.
- D. Owner acknowledges and agrees that the manufacturer appointed Operation and Maintenance provider will have access to the BAT system at all times.
- E. Owner acknowledges and agrees that the manufacturer or manufacturers designee will have access to sample the effluent of the BAT system. Owner acknowledges and agrees that the proposed installation of a BAT system funded by the BRF is voluntary. Owner agrees that there shall be no liability on the part of the County or Department to Owner if this BAT system fails, and that the County and the Department do not warrant or guarantee that the BAT system will adequately or properly function.
- F. Owner acknowledges and agrees that neither the County nor the Department nor any of its agents or employees, either officially or individually, underwrites the operation of any system approved by them.
- G. The Owner will devote such care and effort to the maintenance of the BAT system so that any malfunction is not the result of poor maintenance, faulty operation, or neglect.
- H. The Canaan Valley Institute agrees to grant \$^{up to}3,000.00 toward the cost of installation of the BAT system, and financial responsibility is limited to this amount. Operating costs will be at the Owners expense.
- I. The Owner acknowledges that the BRF grant can only be used for that portion of the OSDS attributable to (BAT) for the removal of nitrogen.

- J. Owner acknowledges in the event the total project cost is greater than \$25,000 the proposal will have to be approved by the Maryland State Board of Public Works.
- K. The Owner agrees to contact both the Water Management Administration, On-Site Systems Division of the Wastewater Permits Program and the County at least forty-eight (48) hours prior to system installation, so that the Department has the opportunity to be present at the time of installation or thereafter for inspection.
- L. The Owner must install BAT system according to the manufacturer recommended plans and specifications approved by the Department.
- M. The Owner agrees and acknowledges that if installation deviates substantially from the approved plans or changes such that performance of the system is compromised or reduced, BRF funding will not be provided.
- N. This agreement shall run with the land and binds the Owner, his heirs, successors, assigns except that the provisions of paragraph A, C, D and E shall be binding for a period of 5 years only after installation of the system and occupation of the home. Owner further agrees that he shall inform in writing any purchaser or lessee of the property that the system may require maintenance or other attention. The Owner agrees to record this agreement in the land records of Howard County.
- O. This agreement shall not be construed to limit any authority of the Department to protect the public health, safety or comfort or to issue any other orders to take any other action that is now or may hereafter be within its authority.
- P. This agreement may be voided at the discretion of the Department if the system construction is not completed within six (6) months of the effective date of this agreement.
- Q. This agreement contains the entire agreement and understanding between the County and the Owner and the Department. There are no additional terms other than as contained in this

agreement. This agreement may not be modified except in writing signed by each of the parties or by their authorized representatives.

R. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

IN WITNESS WHEREOF, the parties have signed and sealed this agreement on the date indicated above.

DATE: 12-3-2012

Berry P. Reitz, Ph.D. & M. Reitz
Owner

DATE: 12/4/12

William J. Owen
Howard County Health Department

Circuit Court for
HOWARD COUNTY
Clerk of the Court,
WAYNE A ROBEY
8360 COURT AVENUE
ELLICOTT CITY, MD 21043-
(410) 313-2111

Howard County Maryland
Department of Finance
3430 Court House Drive
Ellicott City, MD 21043

12/14/2012 03:08 PM Cashier 0031
T/Ref 0048059195 Reg 0048 Tran No 9066
Cash Report: 121205-01 for 12/5/2012

Transaction Block: 145

Ref: 280
MISC AMOUNT
IMP FD SURE \$5 40.00
RECORDING FEE \$20.00 20.00
SUBTOTAL: 60.00

Transaction Block: 146

Ref: 281
MISC AMOUNT
IMP FD SURE \$5 40.00
RECORDING FEE \$20.00 20.00
SUBTOTAL: 60.00

TOTAL CHARGES: 120.00

PAYMENTS
CHECK 120.00

TOTAL TENDERED: 120.00

Cashier: CGH Reg # CH06
Rcpt # 83246
Date: Dec 04, 2012 Time: 03:23 pm

01 - Main Location
Recordation Taxes
100000000-1300-409910-1300000000-999999
9999999999
Parcel Number: 5347939
Doc Type: Easements
Consideration Amount: \$0.00
Method: Express \$0.00
Validation Number: 064530
=====

Total

Thank You!