



# Loudoun County Health Department

P.O. Box 7000  
Leesburg, VA 20177-7000



Environmental Health  
Phone: 703 / 777-0234  
Fax: 703 / 771-5023

Community Health  
Phone: 703 / 777-0236  
Fax: 703 / 771-5393

12/9/2014

## Pre-Construction Meeting Required

Thomas R. Wilson  
102 MICHIGAN AVE NE APT 12B  
WASHINGTON DC 20017-1027

RE: PIN - 257389103000  
Permit # T40441290001  
Sewage Disposal Construction Permit

This letter, in conjunction with the approved plans prepared by Phil Helm (22 pages), and dated 12/9/2014, which are attached, constitutes your permit to install the above referenced sewage disposal system. The application for a permit was submitted pursuant to 32.1-163.5 of the Code of Virginia which requires the Health Department to accept private soil evaluations and designs from a DPOR licensed Onsite Soil Evaluator (OSE) or a Professional Engineer working in consultation with an OSE for residential development. The permit site was certified as being in compliance with the board of health's regulations by: Phil Helm OSE / PE #1940001237, Phone # 540-4392716. This letter is issued in reliance upon that certification. This authorization is null and void if conditions are changed from those shown on the application or conditions are changed from those shown on the construction drawings, plans and specifications.

System Type: Alternative\*\*

A Norweco Singulair Green TNT 500/600 aerobic treatment unit with effluent pumped to shallow trenches 4 bedrooms/600 GPD

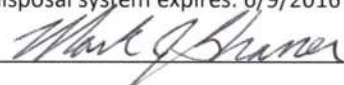
*\*\* If this permit is issued for an Alternative system, then it is the owner's responsibility to follow the operation and maintenance manual and abide by the requirements in 12VAC5-613-140, and Chapter 1067.04 of the Loudoun County Codified Ordinance.*

This sewage disposal permit was issued based upon a level II field review. Please call the Loudoun County Health Department to schedule an installation inspection at least 24 hours in advance. In addition to the Health Department inspection, the designer must complete a full inspection of the system and submit the appropriate documentation to the Health Department.

The Owner shall submit all required supporting documentation prior to final approval. The Department will make a final inspection on the system prior to the issuance of the Sewage Disposal Operation Permit and Water Well Approval.

This authorization to construct a sewage disposal system expires: 6/9/2016

Signature / Title

 EHS





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Phone: 703 / 777-0234  
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Community Health  
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Fax: 703/ 771-5393

## STATE NOTICE OF ALTERNATIVE ONSITE SEWAGE DISPOSAL SYSTEM

**OWNER: Thomas R. Wilson**

**COUNTY: LOUDOUN**

**ELECTION DISTRICT: Catoctin**

**PROPERTY DESCRIPTION: /11//23/////2/**

**PARCEL IDENTIFICATION NUMBER (PIN): 257-38-9103**

**SEPTIC PERMIT NUMBER: T40441290001**

**TO WHOM IT MAY CONCERN:**

The Loudoun County Health Department, 1 Harrison Street, S.E., Leesburg, Virginia 20175, has approved an alternative onsite sewage disposal system ("**Alternative System**") for use for the property identified above as long as such Alternative System is properly operated, maintained, and performs in accordance with the *Regulations for Alternative Onsite Sewage Systems* (12VAC5-613-10 et seq.), as amended, and Chapter 1067 of the Codified Ordinances of Loudoun County, as amended. The Alternative System approved for the above-identified property has components that are described as follows:

**A Norweco Singlair Green TNT 500/600 aerobic treatment unit with effluent pumped to shallow trenches**

The Permit identified above is issued in accordance with the provisions of Title 32.1, Chapter 6 of the *Code of Virginia*, as amended, and 12VAC5-610-340 of the *Sewage Handling and Disposal Regulations* of the Virginia Department of Health, as amended. The continued validity of this Permit is contingent upon compliance with the operations and maintenance requirements contained in the *Regulations for Alternative Onsite Sewage Systems* of the Virginia Department of Health (12VAC5-613-10 et seq.), as amended, and Chapter 1067 of the Codified Ordinances of Loudoun County, as amended. The Owner(s) of the property identified above is advised to be aware of the operation and maintenance instructions for the Alternative System and to follow them. Copies of the operation and maintenance instructions can be found by contacting the Loudoun County Health Department.

Title 15.2-2157 of the *Code of Virginia* requires you to record in the land records a reference to the applicable maintenance regulations for each component of the Alternative System, which shall be transferred with the title to the property upon its sale or transfer. Before the Permit for the Alternative System will be issued, you must record this Notice in the land records of the Clerk of the Circuit Court of Loudoun County. You must furnish to the Loudoun County Health Department certification from the Clerk of the Circuit Court showing the deed book number and page (or instrument number) upon which this Notice was recorded. This notice must be indexed in the grantor index under your name in the land records.

I have read and understand this State Notice of Alternative Onsite Sewage Disposal System.

**OWNER: Thomas R. Wilson**

By: \_\_\_\_\_ (SEAL)

Signature of Owner

Name (Printed) \_\_\_\_\_

Title: \_\_\_\_\_

COMMONWEALTH OF VIRGINIA

COUNTY OF \_\_\_\_\_, To-wit:

I, the undersigned Notary Public, in and for the jurisdiction aforesaid, do hereby certify that \_\_\_\_\_ as \_\_\_\_\_ of \_\_\_\_\_ whose name is signed to the foregoing Agreement, appeared before me and personally acknowledged the same in my jurisdiction aforesaid.

GIVEN under my hand and seal this \_\_\_ day of \_\_\_\_\_, 20 \_\_\_.

My commission expires: \_\_\_\_\_

Registration Number: \_\_\_\_\_

\_\_\_\_\_  
Notary Public

Prepared By:  
**George LeRoy Moran, Esquire**  
**A Member of the Virginia State Bar**  
Moran Monfort, PLC  
4041 University Drive  
Suite 301  
Fairfax, VA 22030-3410

File: 13-124C

Return To:  
National Title & Settlement Group, Inc.  
4229 Lafayette Center Dr., Ste. 1500  
Chantilly, VA 20151

Tax Id. No.: 11-23-2  
Parcel Id. No.: 257-38-9103-000

Grantee's Address:  
12602 Mullein Lane  
Lovettsville, VA 20180  
Consideration:\$40,000.00  
Assessment:\$76,000.00



**20131217-0095805**  
Loudoun County, VA Pgs: 2  
12/17/2013 1:02:40PM Grantor Tax Pd  
Gary M. Clemens, Clerk \$76.00

### GENERAL WARRANTY DEED

THIS DEED made this 4 th day of December, 2013, by and between **LARRY R. TAPLEY and JOANNE CAPRITTI TAPLEY aka JOANNE CAPRITTI-STEINER**, unmarried, parties of the first part, GRANTORS, and **THOMAS R. WILSON**, party of the second part, GRANTEE.

THAT, for and in consideration of Ten Dollars (\$10.00) and other good and valuable consideration, receipt of which is hereby acknowledged, the said parties of the first part, GRANTORS, do hereby grant, bargain, sell, and convey, in fee simple and with General Warranty of Title, unto the said GRANTEE, as the following described property, 12602 Mullein Lane, Lovettsville, Virginia, 20180, situate, lying, and being in the County of Loudoun, Commonwealth of Virginia, to-wit:

Lot 2, ECOVILLAGE, as the same appears duly dedicated, platted and recorded in Deed Book 1711 at Page 20, among the land records of Loudoun County, Virginia.

AND BEING the same property conveyed to Larry R. Tapley and Joanne Capritti Tapley, husband and wife, from Sycamore Springs Ecovillage, L.L.C., a Maryland Limited Liability Company, by virtue of General Warranty Deed dated June 29, 2001 and recorded July 3, 2001 in Deed Book 1958 at Page 2448, among the land records of Loudoun County, Virginia.

HiTech Title Solutions, Inc.

Loudoun County  
Box # 50

/DB

The GRANTORS covenant that said GRANTORS have the right to convey the aforesaid property; that the GRANTORS have done no act to encumber said property; that the GRANTEE shall have quiet possession of said property; and that the GRANTORS will execute such further assurances as may be requisite.

Witness the following signatures and seals:

*Larry R. Tapley* (SEAL)  
LARRY R. TAPLEY

*Joanne Capritti-Steiner* (SEAL)  
JOANNE CAPRITTI TAPLEY  
aka JOANNE CAPRITTI-STEINER

Notary Jurisdiction:

GLoucester  
NEW JERSEY, to-wit:

I, the undersigned, a Notary Public for the jurisdiction aforesaid, do certify that LARRY R. TAPLEY, known to me or satisfactorily proven, whose name is signed to the foregoing document, acknowledged the same before me in my jurisdiction aforesaid, this 4<sup>th</sup> day of December, 2013.

My Commission Expires: 06/05/2017  
My Commission/Registration No: \_\_\_\_\_

*Judith Green*  
Notary Public

Notary Jurisdiction:

\_\_\_\_\_, to-wit:



I, the undersigned, a Notary Public for the jurisdiction aforesaid, do certify that JOANNE CAPRITTI TAPLEY aka JOANNE CAPRITTI-STEINER, known to me or satisfactorily proven, whose name is signed to the foregoing document, acknowledged the same before me in my jurisdiction aforesaid, this 4<sup>th</sup> day of December, 2013.

My Commission Expires: DOES NOT EXPIRE  
My Commission/Registration No: \_\_\_\_\_

*Kara L. Preissel*  
Notary Public

Kara L Preissel  
Vice Consul



Confederation of Switzerland  
Bern, Canton of Bern  
Embassy of the United States  
of America

DATE: 11-20-2014

PERMIT NUMBER: T40441290001

PIN NUMBER: 257389103

TAX MAP NUMBER: 11 23 2

**CHECK LIST FOR SEPTIC OR SEPTIC AND WELL APPLICATIONS**

**\*\*used to ensure the application is complete at the time of submission\*\***

**GENERAL INFORMATION:**

- Applicant Name
- Agent's Name (if applicable)
- Current Mailing Address
- Phone Numbers (daytime/cell)
- Site Address
- GPIN Number/Tax Map Number
- Subdivision Name
- Directions to property are clear
- Site plan, plat or sketch attached?
- Signature of Owner or Agent
- Current Date when applied for application
- Fees paid and receipt given and recorded
- Application marked/ date received
- Health Department ID number recorded

*FSO + Plans*

**SYSTEM INFORMATION**

- Type of approval (Certification Letter, Construction, Repair, Expansion Permit, etc.)
- Proposed usage (Single Family, Multi-Family Dwelling, Non Residential/ Commercial)

Number of Bedrooms 4

Basement? (Yes or No)

Water Supply (Private or Public)

Survey (CAD) (if no survey - Attachment A)

Waiver Attachment A

**REMIND APPLICANT (IF BARE APPLICATION)**

- Are the property lines marked?
- Is the house site marked?

**AOSE PACKET**

- Must submit one copy (1 set if Certification letter)
- All pages of packet numbered & Included
- Certification Statement included
- Plat of Property
- Site & Soil Evaluation
- System specifications
- Required Nitrogen Reduction (Chesapeake Bay)

**SCANNED**

DATE NOV 21 2014

Checked By EWA Date 10/21/2014

SIGNATURE E. Gibson  
(Revised 12/5/2013)

10/19  
10/22

### OSE/PE Report for

Construction Report  Certification Letter  Subdivision Approval

**Property Location:**

911 Address: \_\_\_\_\_ City: Lovettesville  
Lot 2 Section \_\_\_\_\_ Subdivision \_\_\_\_\_  
GPIN or Tax Map# 257389103000/11 ((23)) 2 Health Dept. ID# \_\_\_\_\_  
County Loudoun Latitude/Longitude \_\_\_\_\_

**Applicant or Client Address:**

Name: Thomas Wilson  
Street: 102 Michigan Avenue NE, #812  
City: Washington State: DC Zip Code: 20017

**Prepared by:**

OSE Name: Philip B. Helm License# 1940 001237  
Address: PO Box 188  
City: Remington State: Virginia Zip Code: 22734

PE Name: \_\_\_\_\_ License# \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Date of Report: November 10, 2014 Date of Revision #1: \_\_\_\_\_  
OSE/PE Job#: \_\_\_\_\_ Date of Revision #2: \_\_\_\_\_

Contents/Index of this report:


- |  |   |                                     |
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| <u>Pg. 2-Application page</u>            | <u>Pg. 13-Soil Summary</u>                  | <u>Pg. 19-Copy of Plat</u>          |
| <u>Pg. 3-Construction Specifications</u> | <u>Pg. 14-Soil Notes - HD</u>               | <u>Norwego Information Attached</u> |
| <u>Pg. 4-Construction Drawing</u>        | <u>Pg. 15 to 17-DF &amp; Well Locations</u> |                                     |
| <u>Pg. 5 to 12 Pump Information</u>      | <u>Pg. 18-Abbreviated Design</u>            |                                     |

**Certification Statement**

I hereby certify that the evaluations and/or designs contained herein were conducted in accordance with the applicable provisions of the Sewage Handling and Disposal Regulations (12 VAC5-610), the Private Well Regulations (12 VAC5-630), the regulations for Alternative Onsite Sewage Systems (12-VAC5-613) and all other applicable laws, regulations, and policies implemented by the Virginia Department of Health. I further certify that I currently possess any professional license required by the laws and regulations of the Commonwealth that have been duly issued by the applicable agency charged with licensure to perform the work contained herein.

The work attached to this cover page has been conducted under an exemption to the practice of engineering, specifically the exemption in *Code of Virginia Section 54.1-402.A.11*

I recommend that a: Construction Permit  Certification Letter  Subdivision Approval   
be: Issued  Denied

OSE/PE Signature:  Date: 11/10/14  
*Revised 12/9/14*

LOUDOUN COUNTY HEALTH DEPARTMENT

2014

Office use: Received by [Signature] Date: NOV 21 2014 FEE PAID  YES  NO APPLICATION # 1404129001 Attach Receipt  YES  NO  
AOSE Submittal  YES  NO Sewage Disposal System > 1000 GPD  YES  NO

PSO-2014 + Plans

APPLICATION FOR:  SEWAGE DISPOSAL  WELL PERMIT  CERTIFICATION LETTER  
 SEPTIC REPAIR  WELL/SEPTIC ABANDONMENT  BOCA / ADDITION  
 BUILDING RENOVATION  MINOR REPAIR  PUMP AND HAUL  
 Betterment Loan Eligibility (\$50.00 fee)

APPLICANT Thomas Wilson HOME TELEPHONE \_\_\_\_\_  
MAILING ADDRESS 102 Michigan Ave. NE Bldg 12 OFFICE TELEPHONE 520 343 9267  
Washington DC 2017 E-Mail wilsonballew@msw.com

OWNER Srms TELEPHONE \_\_\_\_\_  
MAILING ADDRESS \_\_\_\_\_ E-Mail 12602 Muller Lane  
to RT 668 S Loveville, VA 20180

EXACT LOCATION (GIVE DIRECTIONS FROM LEESBURG) RT 15N to RT 62W Travel West

PROPERTY IDENTIFICATION NUMBER: SEC. 11 ALPHA \_\_\_\_\_ DC 23 BLOCK \_\_\_\_\_ LOT 2  
(IF APPLICABLE) NAME OF SUBDIVISION: Ecovillages PIN # 257389103000  
ACRES AND/OR SQ. FT. IN THIS PARCEL: \_\_\_\_\_ ATTACH SITE PLAN (SKETCH) ON FORM PROVIDED.

TYPE OF SEWAGE DISPOSAL: NOV 21 2014  
 PROPOSED  PUBLIC SEWER (SYSTEM: \_\_\_\_\_)  
 EXISTING  SEPTIC TANK DRAINFIELD SYSTEM  
 REPAIR  OTHER (DESCRIBE: Norweco TLD level pret treatment)  
 INTERMITTENT

TYPE OF WATER SUPPLY: NOV 21 2014  
 PROPOSED  PUBLIC-CENTRAL (SYSTEM NAME: \_\_\_\_\_)  
 EXISTING  PRIVATE DRILLED WELL  
 OTHER (DESCRIBE: \_\_\_\_\_)

TYPE OF CONSTRUCTION: NOV 21 2014  
 PROPOSED  SINGLE FAMILY DWELLING  
 EXISTING  COMMERCIAL  
 REMODELING  OTHER (DESCRIBE: \_\_\_\_\_)  
(DESCRIBE) (DESCRIBE)  
ATTACH A COMPLETE DESCRIPTION OF ALL ACTIVITIES - INCLUDE NO. OF EMPLOYEES, ETC., AND ALL OTHER PERTINENT INFORMATION.

If application is for an addition or a BOCA : CONSTRUCTION INFORMATION:  
Increase waste load?  YES  NO Number of marketable bedrooms 4  
Extending water?  YES  NO Will foundation be chemically treated for termites  YES  NO  
Extending sewer?  YES  NO Will plumbing fixtures be installed in the basement  YES  NO  
Related Building Permit # \_\_\_\_\_  
\*Is addition or BOCA properly staked?  YES  NO \*If no, please stake within 24 hours from date of application.  
Would you like to be present at the time of the site visit?  YES  NO

IF APPLICABLE, HAS THIS PROPERTY BEEN PREVIOUSLY EXAMINED BY THE HEALTH DEPARTMENT?  NO  YES  
IF YES, EXPLAIN (GIVE CASE NUMBER, DATE, ETC.) \_\_\_\_\_

THE PROPERTY LINES AND BUILDING LOCATION ARE CLEARLY MARKED AND THE PROPERTY IS SUFFICIENTLY VISIBLE TO SEE THE TOPOGRAPHY. I GIVE PERMISSION TO THE DEPARTMENT TO ENTER THE PROPERTY DESCRIBED FOR THE PURPOSE OF PROCESSING THIS APPLICATION.

IF THE APPLICANT IS OTHER THAN THE LEGAL OWNER OF THE PROPERTY AT THE TIME APPLICATION IS MADE, THEN THE LEGAL OWNER MUST SIGN, THEREBY GIVING CONSENT TO THE AGENTS OF THE COUNTY TO ENTER ONTO THE PROPERTY AND MAKE SUCH TESTS AS ARE NECESSARY AND/OR REQUIRED.  
LEGAL OWNER [Signature]  
(Required Current Legal Owner)  
DATE 11/18/2014

ATTACH SITE PLAN, FEE AND RETURN TO: LOUDOUN COUNTY HEALTH DEPARTMENT  
1 HARRISON STREET, S.E., LEESBURG, VA 20177

3.8.19  
22

**General Information**  
**Sewage Disposal System Construction Specifications**

New  Repair \_\_\_\_\_ Expanded \_\_\_\_\_ Conditional \_\_\_\_\_ Experimental \_\_\_\_\_  
Owner: Thomas Wilson Telephone: 520-343-9267  
Address: 102 Michigan Avenue NE, # 812 Washington, DC 20017  
For a Type II Directions to Property:

Subdivision: Ecovillage Section: \_\_\_\_\_ Lot: 2 Tax Map: 257389103000 11 ((23)) 2  
Actual or estimated water use: 600 GPD, 4 Bedrooms

*\*All systems installed MUST include an effluent filter equipped with a Smart Alarm effluent filter alarm.\**

**Water supply to be installed:**

Existing

**Building sewer:** *minimum fall requirement: 1 1/4 inches per every 10 ft.*

4" I.D. PVC 40 or equivalent. Slope 1.25" per 10' (minimum).

**Septic Tank:** Norweco Singular Green Biokinetic TNT-500 PBT 12/9/14

Capacity \_\_\_\_\_ gallons (minimum) with manhole access over effluent tee & influent tee.

Septic tank must comply with all requirements in *Virginia Sewage Handling and Disposal Regulations*.

**Inlet-outlet structure:**

PVC 40, 4" tees or equivalent. >1" to <2" fall.

\* Pre Construction Meeting

**Pump and pump station:**

No \_\_\_\_\_ Yes  (if yes; describe and show design)

**Effluent Line:**

2" force main with pressure fittings. Schedule 40.

Reviewed with Health Department and Designer

**Gravity Mains:**

4" or larger I.D., minimum 6" fall per 100'. Schedule 40.

**Distribution box:**

Inlet/Outlet lines must rest on undisturbed earth.

Pre-Cast Concrete Box with \*\* ports. \*\*1 Master concrete w/4 ports, 2 slaves concrete w/10 ports &

**Header lines:**

2 slaves concrete w/4 ports

4" I.D. schedule 40 PVC to 2' into absorption trench. Slope 2" minimum.

**Percolation Lines:**

Gravity 4" plastic 1000 lb. per foot bearing load or equivalent, slope 2" 4" (min. max.) per 100'. Aggregate size 1/2" - 1 1/2" - *The use of plastic gravel-less chamber systems is not approved. Other gravel-less systems may be used with no reduction of the foot print of the drain field.*

**Absorption trenches:**

Square feet required 1200; depth from ground surface to trench bottom 18" 20"; trench width 3'; Depth of aggregate 13"; trench length \*; number of trenches \*; Center to center spacing 9'.

12" PBT 12/9/14

slope 2" 4" (min. Max.) per 100'. \*8 lines 40' & 4 lines 20'

Please contact OSE if installation is desired during periods of wet weather.

**The Helm Group, LLC**

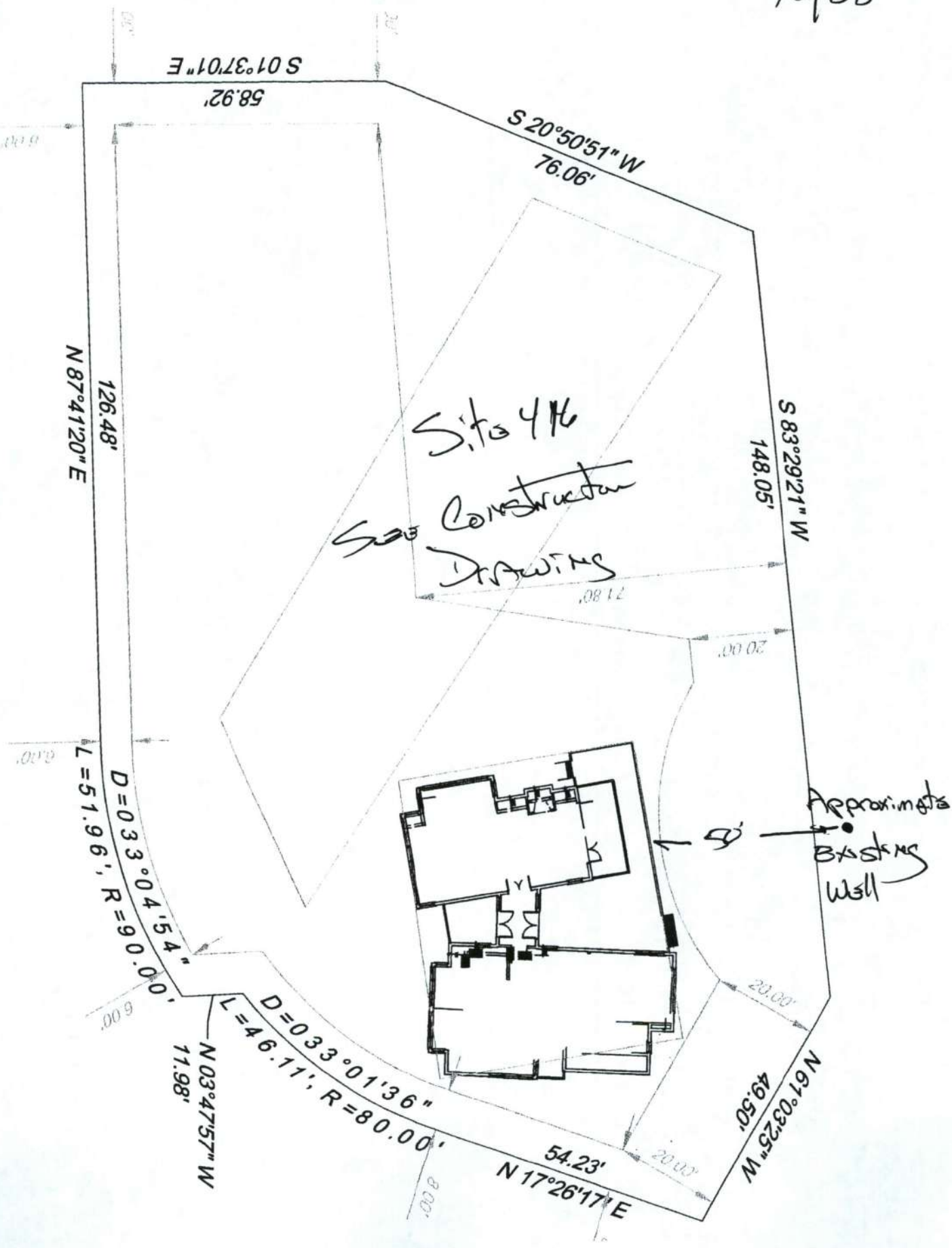
Philip B. Helm VA OSE #1940 001237, VCPSS #3401 000375

540-439-2716 (Office) 540-905-9485 (Mobile)

\*Clients/Contractors are advised **NOT TO DISTURB SOILS** in the designated Drainfield area(s) prior to septic field installation\*



4/2/22



4/20/15  
 4/20/15  
 4/20/15

# Construction Drawing

Scale 1" = 30'

• All header ditch pipe to be Sch 40 4" PVE Pressure

• Sch 40 2" Pressure RPS

• Distribution Box #2  
 Serving 3 Lines  
 40' Long  
 3' Wide  
 AND 4 Lines  
 20' Long  
 3' Wide

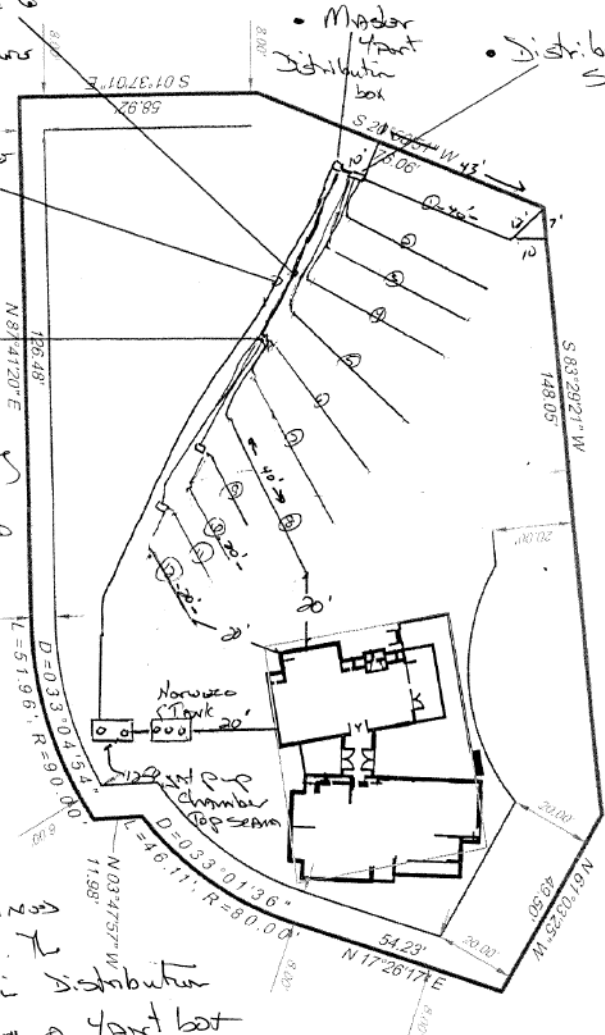
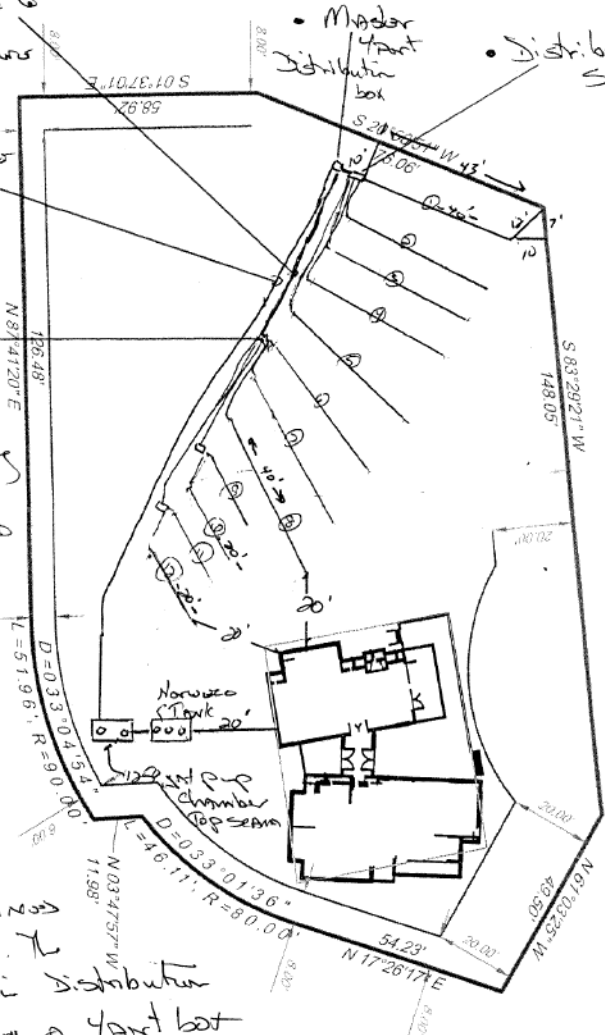
Lines 9+10 are combined to equal one 40' long line. The waste from one part in Distribution box 2 will be split by a 4 part box equally dividing the waste into 2 20' long lines 3' wide

Lines 11 + 12 are combined to equal one 40' long line. The waste from one part in Distribution box 2 will be split by a 4 part box equally dividing the waste into 2 lines 20' long 3' wide  
 Maintain 20' separation from the distal end of Line 8 to house  
 Maintain 20' separation from distal end of Line 12 to house

The inlet part of the pump chamber will be fitted with a manhole access riser to grade to allow for sample collection

• Manhole 4 part Distribution box

• Distribution Box #1  
 Serving 5 Lines  
 40' Long  
 3' Wide



6 5/19  
22

**PUMP SYSTEM DESIGN CRITERIA, SPECIFICATIONS, AND CALCULATIONS**

A.	Number bedrooms.....	4
B.	Gallons per bedroom.....	150
C.	Average Daily Flow = ; Design Flow in GPD.....	600
D.	Minimum pump capacity in gallons per minute using 2" force main.....	36
E.	Maximum Pump capacity in gallons per minute using 2" force main.....	84
F.	Relative elevation of force main at surge basin / distribution box.....	410
G.	Relative elevation of pump off float switch.....	400
H.	Static head in feet (F-G).....	8
I.	Equivalent length of 2" pipe in feet for this system (all materials are 2"):	
	1. Length of 2" force main..... =	160
	2. 5 90 degree bends at 7' per bend..... =	35
	3. 5 45 degree bends at 4' per bend..... =	20
	4. 1 check valve..... =	17
	5. 1 gate valve..... =	1.4
	6. 2 quick disconnect @ 27' per coupling..... =	54
	Total (1+2+3+4+5+6).....	287.4
J.	Friction loss in feet per 100' pipe (2" pipe, C=130, 21GPM).....	2.47
K.	Number of 100' pipe increments (I/100).....	2.874
L.	Friction head for this system ( J x K).....	7.0889
M.	Total Dynamic Head (H+L).....	14.0889
N.	Pump chamber volume in gallons.....	1250
	Gallons per inch in pump chamber... (inside length = 108, inside width = ").....	25.25
O.	TIMED DOSE REQUIREMENTS: doses per day <u>3</u> ; pump volume per dose.....	<del>10 equivalent</del> 200
P.	Number of soil absorption trenches.....	<del>10</del> 10
Q.	Length of soil absorption trenches.....	<del>400</del> 40
R.	Total linear feet of percolation piping (P x Q).....	<del>29400</del>
S.	Volume pumped per pump cycle in inches.....	<del>150</del> 7.8
U.	Minimum emergency storage in gallons (C/4).....	<del>5.94</del> 150
V.	Minimum emergency storage in inches (U/O).....	<del>5.33</del> 5.94
W.	Maximum pump run time in minutes.....	<del>2.23</del> 5.33
X.	Minimum pump run time in minutes.....	2.23
Y.	<del>Pump off time @ 21 gpm..... hrs. mins. secs.</del>	
Z.	<del>Pump off time @ 50 gpm..... hrs. mins. secs.</del>	

12/9/14  
TBH

**Pump Selection:**

Pump must provide a minimum of 36 GPM at a Total Dynamic Head of 15' feet.

Pump Zoeller Model # 140 Horsepower 1 115v

**Pump Control SEQ-B4196P 115/230v**

IT IS THE RESPONSIBILITY OF THE DRAINFIELD CONTRACTOR TO ENSURE THAT GPMs ARE DELIVERED AT THE SYSTEM HEAD. IF THE INFORMATION ABOVE DOES NOT MEET THIS CRITERIA, PLEASE ADJUST ACCORDINGLY AND CONTACT THIS OFFICE WITH THE ADJUSTED INFORMATION.

**The Helm Group, LLC**

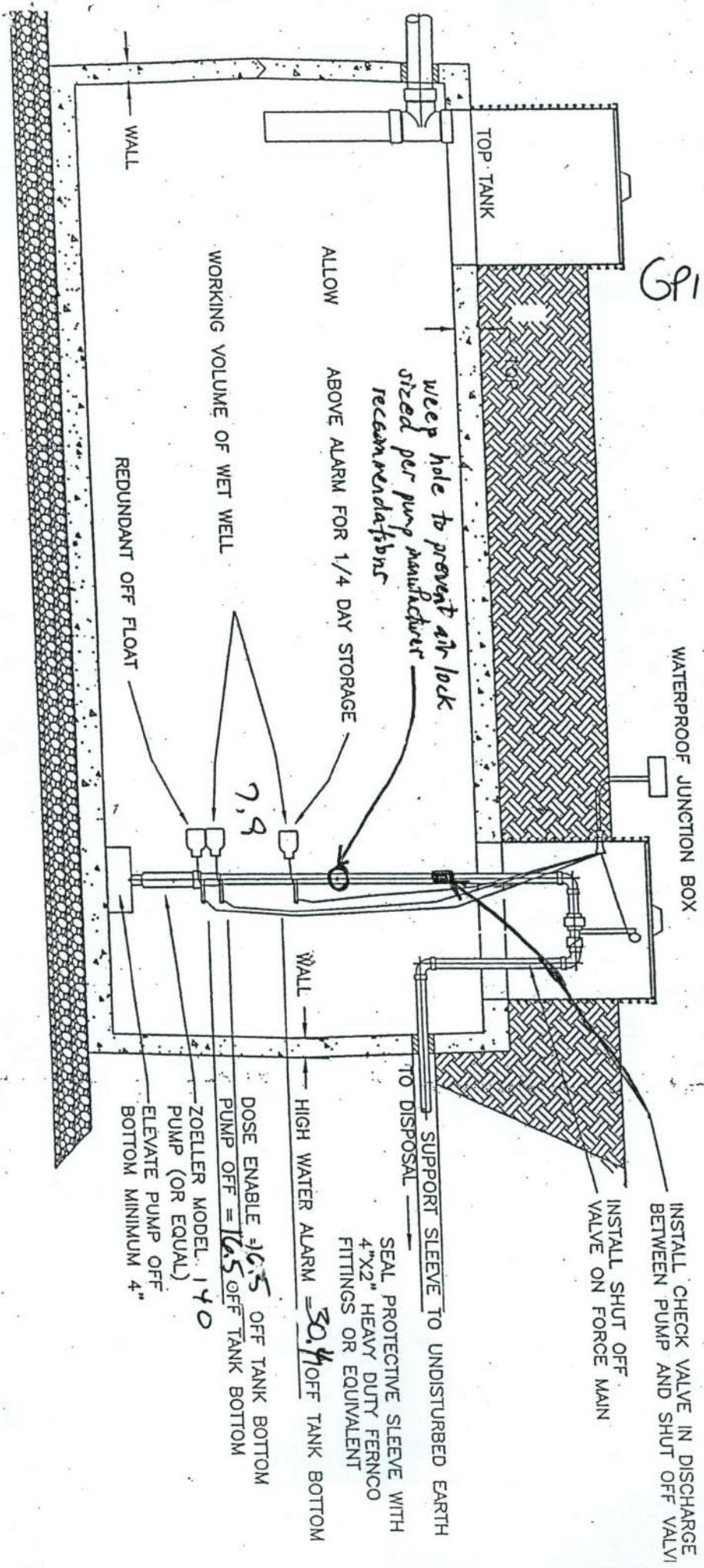
**Philip B. Helm VA OSE #1940 001237, VCPSS #3401 000375**

**540-439-2716 (Office) 540-905-9485 (Mobile)**

7 8814  
22

GPIN

JUNCTION BOX TO  
BE 12" ABOVE FINISHED GRADE



INSTALL CHECK VALVE IN DISCHARGE BETWEEN PUMP AND SHUT OFF VALVE

INSTALL SHUT OFF VALVE ON FORCE MAIN

SUPPORT SLEEVE TO UNDISTURBED EARTH  
SEAL PROTECTIVE SLEEVE WITH 4"X2" HEAVY DUTY FERROCEMENT FITTINGS OR EQUIVALENT

HIGH WATER ALARM = 30.4' OFF TANK BOTTOM

DOSE ENABLE = 31.5' OFF TANK BOTTOM  
PUMP OFF = 16.5' OFF TANK BOTTOM

ZOELLER MODEL 140 PUMP (OR EQUAL)  
ELEVATE PUMP OFF BOTTOM MINIMUM 4"

WORKING VOLUME OF WET WELL

ALLOW ABOVE ALARM FOR 1/4 DAY STORAGE

ALL ELEVATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED



**PUMP COMPANY**

Zoeller Family of Water Solutions

(/en-na)

807 19  
22

North America / English Change (/region)

Search

Sump, Effluent, Dewatering (/en-na/category/3-sump-effluent-dewatering)

**Flow-Mate  
140 Series**

Effluent or dewatering submersible pump for septic tank, low pressure pipe (LPP) and enhanced flow STEP systems.

MODEL		140/4140		145/4145	
Feet	Meters	Gal	Liters	Gal.	Liters
5	1.5	86	326	61	232
10	3.0	80	303	60	228
15	4.6	73	276	56	213
20	6.1	66	250	53	201
25	7.6	59	223	49	186
30	9.1	49	185	45	171
40	12.2	28	106	35	133
50	15.2	--	--	26	99
60	18.3	--	--	16	61
Shut-off Head:		50 ft (15.2m)		74 ft (22.6m)	

X





**PUMP COMPANY**

*Zoeller Family of Water Solutions*

(/en-na)

8/7 19  
9 28

North America / English Change (/region)

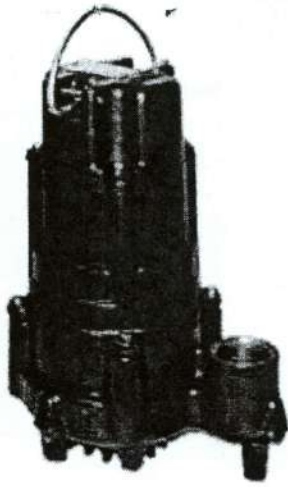
Search

Sump, Effluent, Dewatering (/en-na/category/3-sump-effluent-dewatering)

## **Flow-Mate 140 Series**

Effluent or dewatering submersible pump for septic tank, low pressure pipe (LPP) and enhanced flow STEP systems.





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22

<https://app.qleapahead.com/rtp/tools/165111-63.gif>



<https://app.qleapahead.com/rtp/tools/165106-32773-6>

Features and Benefits

Product Specifications

Technical Data

Literature and Documents

HERTZ	60 Hz
MOTOR	3/4 - 1 HP
VOLTAGE	115 or 230 V
PHASE	1 Ph
RPM	3450 RPM
TYPE	Permanent split capacitor
INSULATION	Class B
AMPS	6.0 - 13.0 Amps
OPERATION	Automatic or nonautomatic
DISCHARGE SIZE	1-1/2" NPT
SOLIDS HANDLING	1/2" (13 mm), 3/4" (19 mm) spherical solids
CORD LENGTH	20' (6 m) standard
CORD TYPE	UL listed, neoprene cord with molded plug cap and ground wire
MAX HEAD	50' (15.2 m) or 74' (22.6 m)
MAX FLOW RATE	86 GPM (326 LPM) or 61 GPM (232 LPM)
MAX OPERATING TEMP	130° F (54° C)
COOLING	Oil filled
MOTOR PROTECTION	Auto reset thermal overload
CAP	Cast iron
MOTOR HOUSING	Cast iron

PUMP HOUSING	Cast iron	10/19
BASE	Cast iron	
UPPER BEARING	Sleeve bearing	11/28
LOWER BEARING	Ball bearing	
MECHANICAL SEALS	Carbon and ceramic	
IMPELLER TYPE	Single vane or non-clogging vortex	
IMPELLER	Engineered thermoplastic	
HARDWARE	Stainless steel	
MOTOR SHAFT	JIS S45C steel	
GASKET	Neoprene	

60 Hz



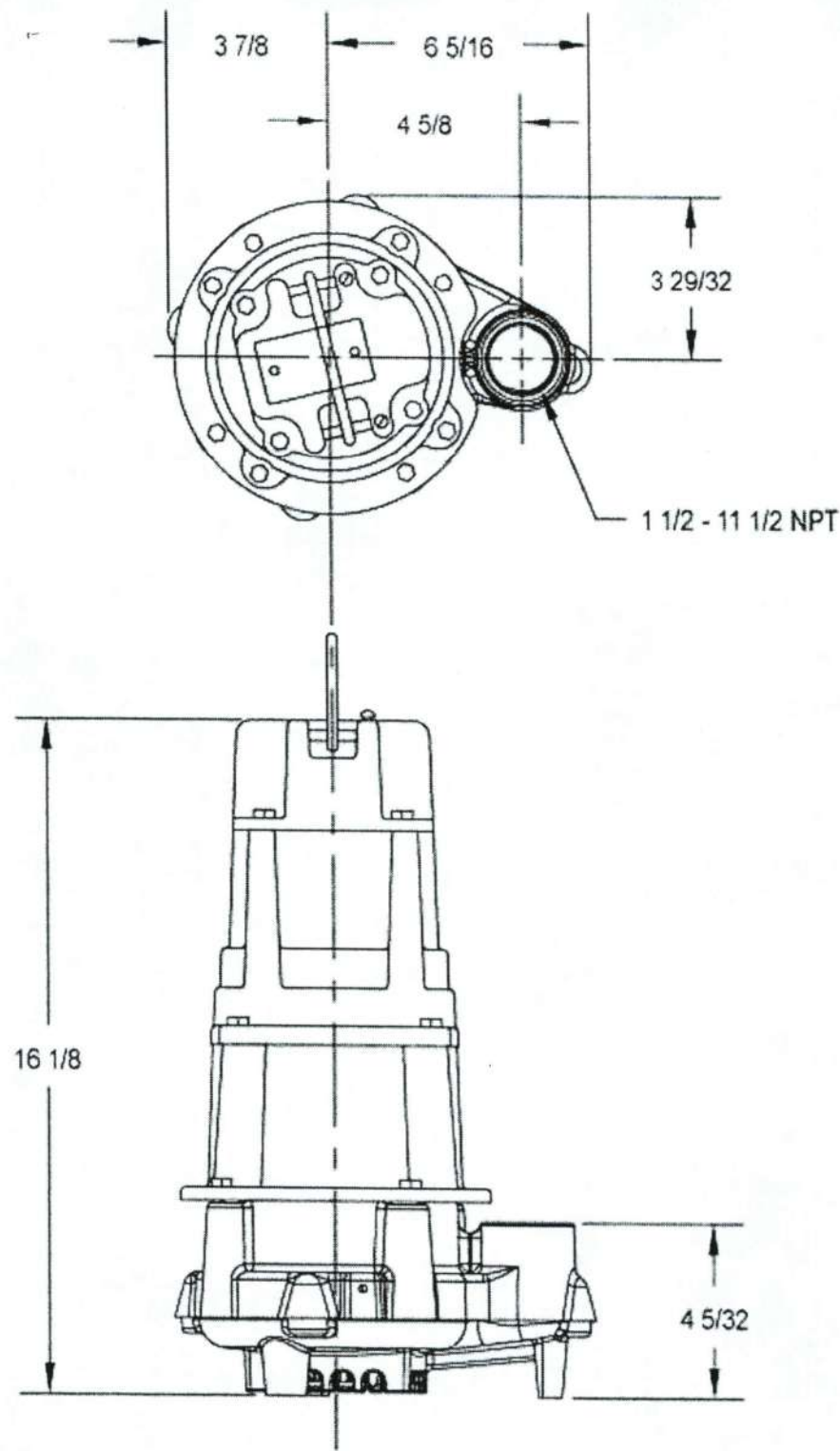
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[Privacy Policy \(/en-na/Zoeller-privacy-policy\)](/en-na/Zoeller-privacy-policy)

[Site Map \(/en-na/sitemap\)](/en-na/sitemap)



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### MODE

Product M

### PERFO

Models 1

Performan

### DIMEN

Optional

Single se

Double se

### CAUTIO

All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electric Code (NEC) and the Occupational Safety and Health Act (OSHA).

### SELECTION GUIDE

1. For automatic use single piggyback variable level float switch or double piggyback variable level



# Soil Evaluation Form

Commonwealth of Virginia  
Department of Health

Health Department  
Identification Number \_\_\_\_\_  
Tax Map Number 11 Parcels 71 & 72

### General Information

Date: 1/30/99 Loudoun County Health Department  
Applicant Grady O'Rear Telephone No. 301-662-4646  
Address 1726 Shooktown Rd, Frederick, Maryland 21702  
Owner Community Builders Address same as above  
Location East side of Rt. 668 across from intersection of Rt. 799  
Subdivision \_\_\_\_\_ Block/Section \_\_\_\_\_ Lot 416

### Soil Information Summary

1. Position in landscape satisfactory Yes  No  Describe convex ridgetop
2. Slope 2-4 %
3. Depth to rock/impervious strata Max. \_\_\_\_\_ Min. \_\_\_\_\_ None
4. Depth to seasonal water table (gray mottling or gray color) No  Yes  \_\_\_\_\_ inches
5. Free water present No  Yes  \_\_\_\_\_ range in inches
6. Soil percolation rate estimated Yes  Texture group I-II  
No  Estimated rate 50-55 min/ inch
7. Percolation test performed Yes  Number of percolation test holes \_\_\_\_\_  
No  Depth of percolation test holes \_\_\_\_\_  
Average percolation rate \_\_\_\_\_

Name and title of evaluator: Morgan A. Kash, Soil Scientist

Signature: [Handwritten Signature]

### Department Use

- Site Approved: Drainfield to be placed at \_\_\_\_\_ depth at site designated on permit.  
 Site Disapproved:

### Reasons for rejection:

1.  Position in landscape subject to flooding or periodic saturation.
2.  Insufficient depth of suitable soil over hard rock.
3.  Insufficient depth of suitable soil to seasonal water table.
4.  Rates of absorption too slow.
5.  Insufficient area of acceptable soil for required drainfield, and/or Reserve Area.
6.  Proposed system too close to well.
7.  Other Specify \_\_\_\_\_



ON LOT 2 16 of 22

SUBDIV TRACKING # 99-006

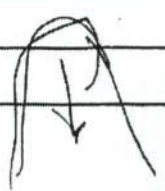
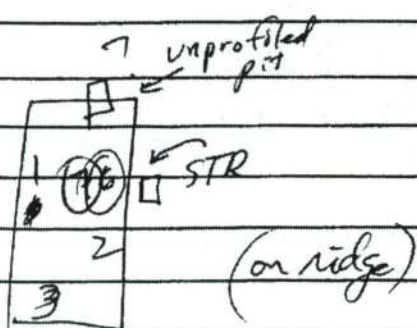
701 ~~Basin~~ lot 2  
LAWSON

Date of Evaluation 2/3/95  
 MT SUBDIVISION EcoVillage SITE 4/6  
11/71+72 LAWSON

PIT # | Horizon | Depth | Description of color, texture, etc. | Health condition

PIT #	Horizon	Depth	Description of color, texture, etc.	Health condition
6			STR	berg
7	Ap	0-9	DKY br ... SCL	
	Bt	9-25	STR SCL 2 wash M <sub>u</sub> O <sub>2</sub>	
			mid fill	
C	25-46		granite/some granite	

APPROX AREA  
110 x 30



Remarks

4		12	66
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A P D Depth Rate

Date of Evaluation 3/25/96  
 MT SUBDIVISION ECO-VILLAGE SITE 11  
11/71+72 Reservoir Lot 2

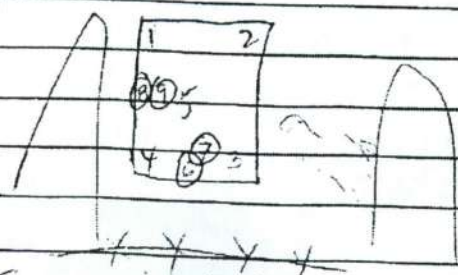
PIT #	Horizon	Depth	Description of, color, texture, etc.
7 <del>8</del>	Ap	0-10	dk grey sil
	PA	10-24	7.5YR 4/6 (STR) sil CL slightly clay m2 shk. few MnO <sub>2</sub>
	C	24-34	5YR mod dense l sil CL clay to v. clay granite ("rotten")
	Cr	34-60	harder granite schist
6			STR
8	<del>Ap</del>	<del>0-10</del>	STR
9	Ap	0-12	dk grey sil
	C	12-32	Gr, Wh, 5YR rock-controlled "rotten" rock SL
	Cr	32-55	harder rock w/ quartzite

APPROX AREA  
 60 x 35

60/74  
 60 x 35  
 5' in 60' line  
 3' wire

SPLIT AREA

1-5 backhoe



Remarks

X			20	60
---	--	--	----	----

A P D Depth Rate

Cut 20' on bottom  
 Cut 25' on L side (stakes not moved yet)

Roseme Lot 2

Eco

Date of Evaluation Dec '95

Profile Description  
SOIL EVALUATION REPORT

Health Department  
Identification No.

Site No: 7 (Roseme Lot 2)

Page 16 of 28

Where the local health department conducts the soil evaluation the location of profile holes may be shown on the schematic drawing on the construction permit or the sketch submitted with the application. If soil evaluations are conducted by a private soil scientist, location of profile holes and sketch of the area investigated including all structural features i.e., sewage disposal systems, wells, etc., within 100 feet of site (See section 4) and reserve site shall be shown on the reverse side of this page or prepared on a separate page and attached to this form.

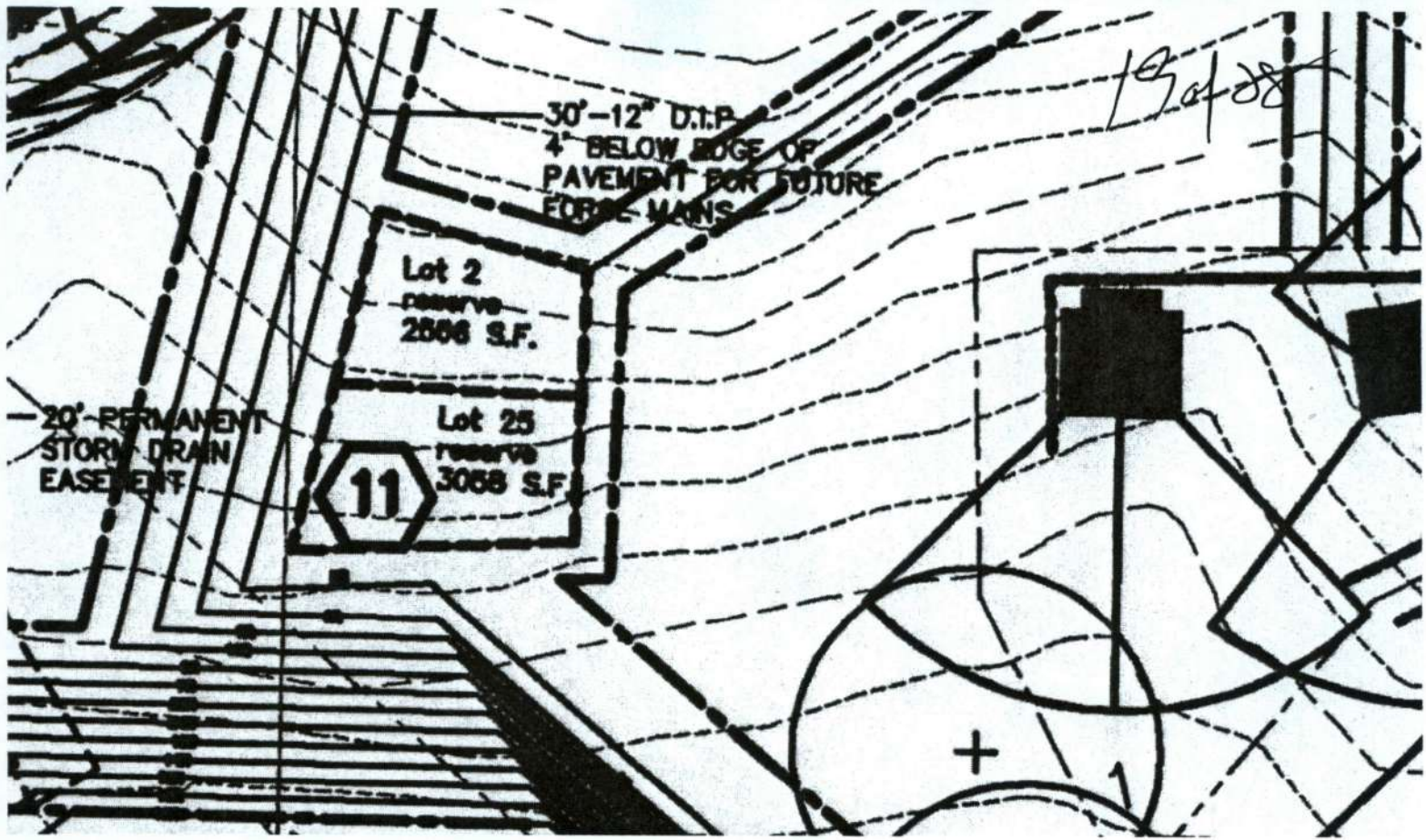
- See application sketch       See construction permit       See sketch on reverse side or page attached to this form

pit  
26

Hole#	Horizon	Depth (Inches)	Description of, color, texture, etc.	Texture Group
1	A <sub>p</sub>	0-10	Dr. Br. sil	3
	B/C	10-19	7.5 YR 4/6 sil	3
	C	19-65	Variegated (10 YR 4/6, Str. Br, Wh.) loam	2
2	A <sub>p</sub>	0-10	Dr. Br. sil	3
	B	10-16	7.5 YR 4/6 sil	3
	C	16-60	Med. dense variegated loam	2
3	A <sub>p</sub>	0-10	Dr. Br. sil	3
	B/C	10-15	7.5 YR 4/6 sil	3
	C	15-37	variegated (Str. Br, Br, Wh.) loam	2
	CR	37-60		
4	A <sub>p</sub>	0-6	Dr. Br. sil	3
	B	6-22	10 YR 5/6 Lk sil	3
	C	22-37	Variegated (7.5 YR 4/6, Str. Br, Wh.)	2-3
	CR	37-60	sil - loam	
5	A <sub>p</sub>	0-10	Dr. Br. sil	3
	B	10-21	7.5 YR 4/6 sil	3
	C	21-36	7.5 YR 4/6 & 10 YR 4/6 sil	3
	CR	36-50		

pit  
27

Remarks: Recommended drainfield depth of 20"



Reserve Area Location



# Best Well Location

20/16/19  
28

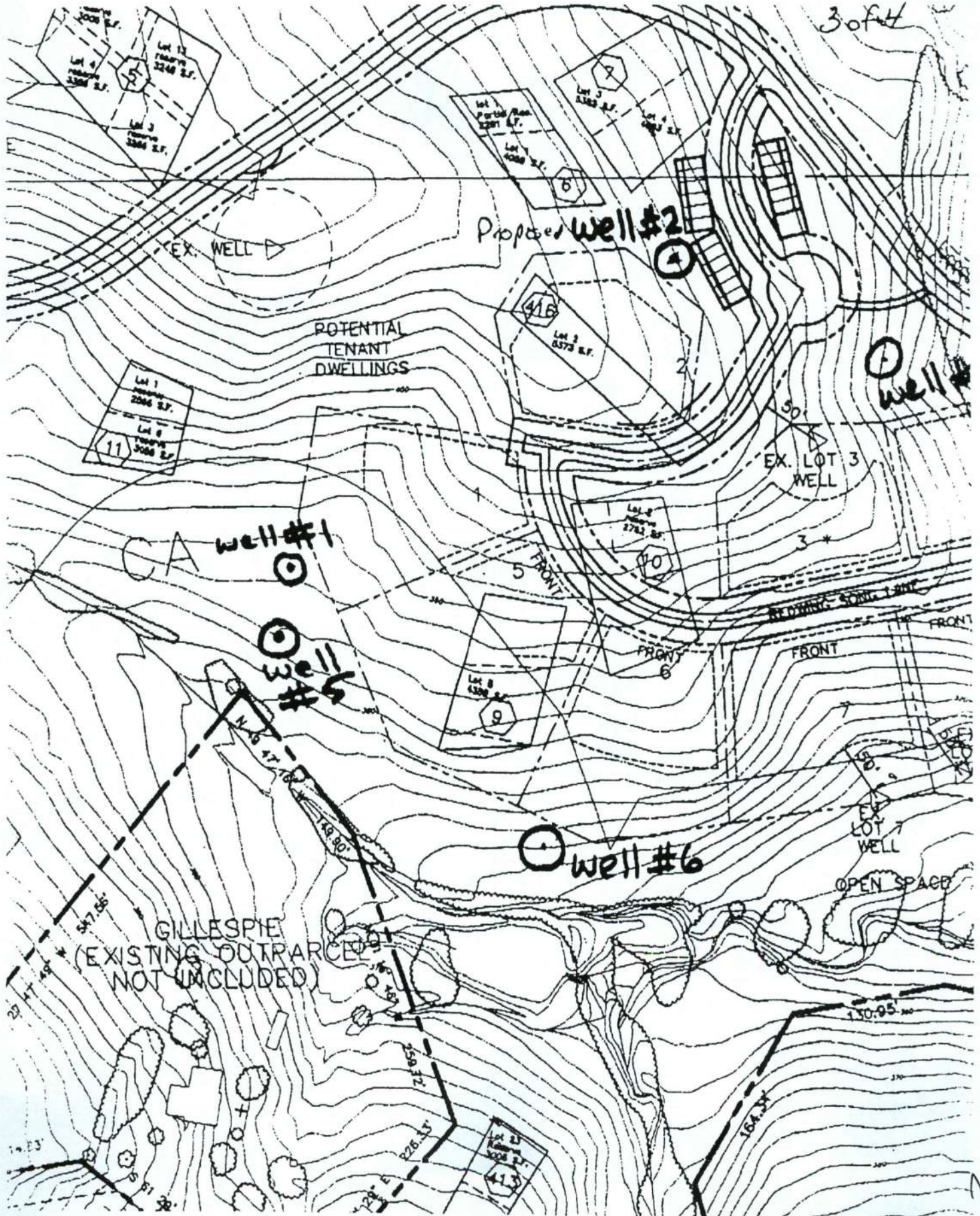
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ECOVILLAGE

PAGE 02

3 of 4



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21 22

### Abbreviated Design Form

This form is for use with gravity, pump to gravity, enhanced flow, and low pressure distribution (LPD) sewage system designs and when applying for a certification letter or subdivision approval.

**This abbreviated design is for (check one):**

**Primary and Reserve** \_\_\_\_ . **Primary Only**  X  . **Reserve Only** \_\_\_\_ .

*Note: If reserve area is physically separated or utilizes a different treatment and/or disposal method, fill out separate forms for each of primary and reserve system.*

---

#### Design Basis:

Total length of available area:  40'  . Total width of available area:  118'  .

Estimate Perc. Rate:  60  at  12"  ~~18"-20"~~ (depth) Number of bedrooms (or GPD):  4/600GPD  .

(1)Conveyance Method:  Pump  . (2)Distribution method (specify):  Gravity  .

(3)Dispersal system basis:  GMP 147  . LGMI required?  (Yes/No)

Effluent quality required:  TL 2  (Primary, Secondary, Advanced Secondary)

Square feet per bedroom:  300  . Total trench bottom area required:  1200  .

- (1)Gravity, pump, siphon
- (2)Enhanced flow, LPD, or Drip Dispersal
- (3)Table 5.4 of SHDR or identify the GMP used

---

#### Area Calculations:

Number of trenches:  10  (Note if a pad is used) Length of pad or trenches:  40'  .

Width of pad or trenches:  3'  . Center to center spacing:  9'  .

Reserve required?:  Yes  . Percent reserve area required:  100%  .

Total width of absorption area required:  84'  Total trench bottom area provided:  1200  .

The required width is calculated by multiplying the center-to-center spacing by the number of trenches and adding 1 trench width plus any required reserve area. If the topography is not uniform across the length of the site the trenches will need to flare apart on one end to maintain contour. When this occurs it is necessary to use a center-to-center spacing that accounts for the flair or the installer will not be able to fit the system within the approved area. It is perfectly acceptable to have more area available, especially up and down the slope, than is required.

EcoVillage Lot 2   
 Tax Map #11 ((23)) 2

**The Helm Group, LLC**  
**Philip B. Helm VA OSE #1940 001237, VCPSS #3401 000375**  
**(Office) 540-439-2716 (Mobile) 540-905-9485**

## Abbreviated Design Form

This form is for use with gravity, pump to gravity, enhanced flow, and low pressure distribution (LPD) sewage system designs and when applying for a certification letter or subdivision approval.

This abbreviated design covers the  primary and reserve area,  only the primary area,  only the reserve area (check one) for \_\_\_\_\_ (property ID).

### Design Basis

Total length of available area: 60 Total width of available area: 39  
 Estimated Perc. Rate: 60 at 20 1/2 in. (depth) Number of bedrooms (or GPD): 4 / 60 gpd  
 Conveyance Method<sup>1</sup>: Pump Distribution method<sup>2</sup> (specify): enhanced flow  
 Dispersal system basis<sup>3</sup> GMP 147 LGMI required? No (Yes/No)  
 Effluent quality required: T23 (Primary, Secondary, Advanced Secondary)  
 Square feet per bedroom: 202.70 Total trench bottom area required: 810.81

<sup>1</sup> Gravity, pump, siphon  
<sup>2</sup> Enhanced flow, LPD, or Drip Dispersal  
<sup>3</sup> Table 5.4 of SHDR or identify the GMP used

### Area Calculations

Number of trenches 5 (Note if a pad is used) Length of pad or trenches: 60  
 Width of pad or trenches: 3 Center to center spacing: 9  
 Reserve required? No Percent reserve area required: N/A  
 Total width of absorption area required 39 Total trench bottom area provided: 900

The required width is calculated by multiplying the center-to-center spacing by one less than the number of trenches and adding 1 trench width plus any required reserve area. If the topography is not uniform across the length of the site the trenches will need to flare apart on one end to maintain contour. When this occurs it is necessary to use a center-to-center spacing that accounts for the flair or the installer will not be able to fit the system within the approved area. It is perfectly acceptable to have more area available, especially up and down the slope, than is required.