Wastewater Management Division - Permit Application

Wastewater System & Potable Water Supply

VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

For Office Use Only:

Application#	PIN#	Date Complete Application Received
WW-138-0820		

Authority:
10 V.S.A. Chapter 64, the Environmental Protection Rules, Chapter 1, Wastewater System & Potable Water Supply Rules, and Chapter 21, Water Supply Rules, Appendix A. Part 11 - Small Scale Water Systems

General Information:
The organization and/or content of this form may not be altered, however, the form is designed to expand to allow additional information to be entered. Changes in the organization and/or content of the form may result in an invalid application or permit.

In most cases a licensed designer will be required for your project and to help complete this application form. There are also line-by-line instructions available to assist with completing this form.

NOTE: ***We strongly suggest referring to the application instructions while completing this application form.***

Part I Applicant (Landowner) & Project Contact Information

Section A - Applicant Details (if Landowner is an Individual or Individuals)

1 Last Name	2 First Name (and Middle Initial if appropriate)
Mendelsohn	Melissa

3 Mailing Address Line 1	4 Mailing Address Line 2
1306 Orchard Road	

5 Town/City	6 State/Province	7 Country	8 Zip/Postal Code
Charlotte	Vermont	United States	05445

9 Email Address	10 Telephone
ZINEA@aol.com	802-425-6541

Remove This Applicant

1 Last Name	2 First Name (and Middle Initial if appropriate)

3 Mailing Address Line 1	4 Mailing Address Line 2

5 Town/City	6 State/Province	7 Country	8 Zip/Postal Code
		United States	

9 Email Address	10 Telephone

Remove This Applicant

Add Another Applicant

Section B - Applicant Details (if Landowner is other than an Individual or Individuals, e.g. Corporations, Homeowner's Associations, etc.)

1 Registered Legal Entity or Organization Name	2 Telephone

3 Mailing Address Line 1	4 Mailing Address Line 2

5 Town/City	6 State/Province	7 Country	8 Zip/Postal Code
		United States	

Certifying Official
The Certifying Official must be a person who has signatory authority for the legal entity or organization that is the Applicant. A copy of the document authorizing this person to act as a signatory authority must be attached to this application.

9 Certifying Official Last Name	10 Certifying Official First Name (and MI if appropriate)

11 Certifying Official Title

12 Certifying Official Email Address	13 Telephone

Remove This Applicant

Add Another Applicant

Section C - Primary Contact Information (if other than Applicant)

1 Last Name	2 First Name (and Middle Initial if appropriate)

3 Mailing Address Line 1	4 Mailing Address Line 2

5 Town/City	6 State/Province	7 Country	8 Zip/Postal Code
		United States	

9 Email Address	10 Telephone

Section D - Building/Business Owner Information

1 Last Name	2 First Name (and Middle Initial if appropriate)

3 Mailing Address Line 1	4 Mailing Address Line 2

5 Town/City	6 State/Province	7 Country	8 Zip/Postal Code
		United States	

9 Email Address	10 Telephone

Part II Certifying Designer(s) Information

1 Designer Last Name	2 Designer First Name (and Middle Initial if appropriate)
Barnard	Jason S.

3 Designer License#	4 Company Name
00430	Jason Barnard Consulting, LLC

5 Mailing Address Line 1	6 Mailing Address Line 2
4400 VT Route 17	

7 Town/City	8 State/Province	9 Country	10 Zip/Postal Code
Starksboro	Vermont	United States	05487

11 Email Address	12 Telephone
jbsitetech@hotmail.com	802-453-2597

13 Designer Role(s) (check all that apply)

☐ Water Supply Designer

☒ Wastewater Disposal System Designer

Remove This Designer

Add Another Designer

Part III Property Location Information

Section A - Property Parcel ID#(s) and Location(s)

1 Please provide the property location information including Town or City Parcel ID#, Town/City, and Street or Road location in the table below:

	(a) Town/City Parcel ID#	(b) Town or City	(c) Street or Road Location
X	~~M01B01L~~21 00090-1306	Charlotte	1306 Orchard Road

Add Another Property

Section B - Center of Property GPS Coordinates

1 Enter the approximate center of property coordinates using GPS set for NAD83 or as derived from a map (map must be based on NAD83).

(a) Latitude
(in decimal degrees to five decimal places, ex. 44.38181°)

N 44.33543 °

(b) Longitude
(in decimal degrees to five decimal places, ex -72.31392 °)

W (-) 73.26975 °

Part IV Project Information

Section A - General Project Information & Questions

1 Project Name (if applicable)	2 Total Acreage of Property
Mendelsohn Replacement System	2.67

3 Business Name (if applicable)

4 Detailed Project Description

Melissa Mendelsohn owns a 2.67+/- acre parcel of land located at 1306 Orchard Road in Charlotte, Vermont. The property is improved and permitted for a 3-bedroom single-family residence and accessory office equipped with a kitchen facility. Both structures are provided water by an on-site drilled water supply well and are served by an on-site in-ground wastewater disposal system. The existing wastewater disposal system has failed (i.e. effluent is surfacing on the back lawn) and therefore needs to be replaced. As part of this application and in order to have the ability to add a bedroom to the existing residential structure at some point in the future, an area has been identified that will support a fully complying replacement performance-based Presby Environmental, Enviro-Septic wastewater disposal system. The replacement Presby Environmental, Enviro-Septic wastewater disposal system has been designed to properly treat and dispose of wastewater generated by a 4-bedroom single-family residence.

5 Were all buildings or structures, campgrounds, and their associated potable water supplies and wastewater systems substantially completed before January 1, 2007 and all improved and unimproved lots in existence before January 1, 2007? ◉ Yes ○ No

6 Does this application include subdividing the property? ○ Yes ◉ No

7 Has anyone from the Wastewater Management Division's Regional Office been to the property? ○ Yes ◉ No

If Yes, enter the staff person's name and the date of the visit.

(a) Name of Staff Person

(b) Date of Visit

8 Will any construction occur within 50 feet of a wetland boundary, mapped or designated? ○ Yes ◉ No

If Yes, contact the Wetlands Program of the Water Quality Division at (802) 241-3770.

9 Will more than one acre be disturbed during the entire course of construction, including all lots and phases? ○ Yes ◉ No

If Yes, contact the Stormwater Program of the Water Quality Division at (802) 241-4320.

10 Will there be any stream crossings by roads, utilities, or other construction? ○ Yes ◉ No

If Yes, contact the River Corridor Mgmt. Program of the Water Quality Division at:

Central & Northwest Vermont ..... (802) 879-5631
Southern Vermont ..... (802) 786-5906
Northeastern Vermont ..... (802) 751-0129

11 Is the project located in a special flood hazard area as designated on the flood insurance maps prepared for a municipality by the Federal Emergency Management Agency? ○ Yes ◉ No

If Yes, show the special flood hazard area limits on the site plan.

12 Act 250: Has the Applicant (Landowner) subdivided any other lots of any size within a five mile radius of this subdivision, or within the environmental district within the last five years ? ○ Yes ◉ No

If Yes, enter the town(s) and the associated number of lots in the table below:

	(a) Town	(b) Number of Lots
X		

Add Another Town/Lot

13 Is there any prior Act 250 jurisdiction on the tract of land? ○ Yes ◉ No

If Yes, enter the Act 250 permit number

(a) Act 250 Permit Number

Section B - Project Deed Reference

1 Please provide the Town, Book, and Page reference for the current landowner's deed(s) to this property in the table below:

	(a) Town	(b) Book	(c) Page(s)
X	Charlotte	162	325

Add Another Deed Reference

Section C - Project Plan Reference

1 Please provide the following information for all water supply and wastewater disposal system plans being submitted.

	(a) Sheet#	(b) Title	(c) Plan Date	(d) Plan Revision Date
X	1	Site Plan	08-27-2008	
X	2	Wastewater System Notes and Details	08-27-2008	

Add Another Plan Reference

Section D - Existing Project Lot/BuildingDetails

Please provide the existing project details. This section is used to describe what is existing for the project. For example, if you are subdividing an undeveloped 21-acre parcel, you would list the existing parcel. If you are revising the boundary lines of two commercial lots in an industrial park, and constructing an addition to an existing building you would list the existing lot numbers, existing acres, existing buildings, existing uses, construction date(s), prior permits, and answer the compliance questions.

1 Lot#	2 Lot Size (acres)	3 Existing Use of the Lot
1	2.67	3-Bedroom Res. with Accessory Office

4 Provide the following information for each building on the lot:

	(a) Building ID	(b) Existing Use	(c) Date Construction of Building Substantially Complete	(d) Prior Permits	(e) In compliance with with existing permits?
X	Lot 1 Residence	Residential		07-001-TM	◉ Yes ○ No

Add Another Building

Remove This Lot

Add Another Lot

Section E - Proposed Project Lot/BuildingDetails

This section is used to describe what you are proposing to do in this project. For example, if you were going to create 4 lots for construction of single family residences, you would list each lot, proposed acreage, proposed buildings, and proposed use

1 Lot#	2 Lot Size (acres)	3 Proposed Use of the Lot
1	2.67	4-Bedroom Single-Family Residence with Accessory Office

4 Is the lot being created as part of a subdivision? ○ Yes ◉ No

5 Are you requesting that the Blood, Marriage, or Civil Union special fee be applied to this lot? ○ Yes ◉ No

6 If the lot is exempt, please indicate the specific exemption from the Wastewater System and Potable Water Supply Rules?

7 Provide the following information for each building on the lot:

	(a) Building ID	(b) If building is exempt, indicate exemption	(c) Construction or increased flow?	(d) Proposed Use
X	Lot 1 Residence		☒	4-Bedroom Residence with Accessory Office

Add Another Building

Remove This Lot

Add Another Lot

Part V Water Supply Information

Section A - Water Supply Screening Questions

1 Are you proposing a new water supply for this project? ○ Yes ◉ No

2 Are you proposing changes to an existing water supply for this project? ○ Yes ◉ No

3 Is there a connection to an existing water supply for the project? ◉ Yes ○ No

*If you answered **No to all three of the above questions**, skip to Part VI. Otherwise, proceed with Part V.*

Section B - General Water Supply Questions

1 Does this project involve a failed water supply? ○ Yes ◉ No

2 Will any of the proposed water sources serve 25 or more people or have 15 or more service connections? ○ Yes ◉ No

If Yes, the applicant must contact the Water Supply Division at (802) 241-3400 for source, construction and operating

3 Are any of the existing or proposed water sources located within a special flood hazard area? ○ Yes ◉ No

4 Are any of the existing or proposed water sources located within a floodway? ○ Yes ◉ No

5 Are any of the proposed water sources located within 1 mile of a hazardous waste site as designated by the Waste Management Division and identified on the Agency mapping website? ○ Yes ◉ No

If Yes, please submit additional information on the site. The Waste Management Division can be reached at (802) 241-3888.

6 Does this project require an approval letter from the Water Supply Division for the construction of a public water system, municipal water line extension over 500 feet, or hydrants or sprinkler systems? ○ Yes ◉ No

If Yes, please submit a copy of the approval letter from the Water Supply Division.

7 Does the proposed or existing water supply(ies) use a water treatment device to obtain compliance with the quality requirements in the Water Supply Rule? ○ Yes ◉ No

If Yes, please submit additional information regarding the constituent(s) that exceeds the standards and plans, details, and specifications of the treatment device.

8 Is any portion of the proposed water supply located in or near a Water Source Protection Area as designated by the Water Supply Division? ( ) Yes (•) No

If in areas of known interference issues, please contact the Water Supply Division at (802) 241-3400.

Section C - Individual Water Supply Details

Please provide the following information for each of the existing and proposed water supply(ies) serving a building or structure, or campground on the property.

1 Water Supply Name/Identifier	2 Water Supply Owner (if not Applicant)
Mendelsohn Drilled Well	
3 Water Source Type	**4 Type of Change to Supply**
Non-Public Drilled Bedrock Well	New Connection or Increased Flow

5 Lots/Buildings Served by this Water Supply System

	(a) Lot#	(b) Building ID	(c) Type of Change to the Building's Supply	Design Flows (Gallons Per Day) (d) Existing	(e) Increase	(f) Total	(g) Rule or Meter Based Flows
X	1	Lot 1 Res.	Increased Flow (no construction)	420	70	490	Rule-based
				6	7	8	
				420	70	490	

Add Another Lot/Building Served by this Supply

9 Is this water supply located off-lot? ( ) Yes (•) No

10 Is this water supply shared? ( ) Yes (•) No

If the water supply is located off-lot or shared, submit a copy of the agreement to provide an easement prior to construction.

11 Is a variance being requested for this water supply? ( ) Yes (•) No

If Yes, please submit additional details related to the variance request

Remove This Water Supply

Add Another Water Supply

Section D - Water Supply Design Flows Summary Table

1 If the project includes more than one water supply, please list each water supply system and provide the total water supply design flows for the project. **IMPORTANT**: Please don't include systems that were identified in this Part on Section C, Line 4 as a "Replacement Area Designation" in this summary table

	(a) Water Supply Name/Identifier	Design Flows (Gallons Per Day) (b) Existing	(c) Increase	(d) Total
X	Mendelsohn Drilled Well	420	70	490
		2	3	4
		420	70	490

Add Another Water Supply

Part VI Wastewater Disposal System Information

Section A - Wastewater Disposal System Screening Questions

1 Are you proposing a new wastewater disposal system or replacement area for this project? (•) Yes ( ) No

2 Are you proposing changes to an existing wastewater disposal system for this project? ( ) Yes (•) No

3 Is there a connection to an existing wastewater disposal system for the project? (•) Yes ( ) No

*If you answered **No** to **all three of the above questions**, skip to Part VII. Otherwise, proceed with Part VI.*

Section B - General Wastewater Disposal System Questions

1 Does this project involve a failed wastewater disposal system? (•) Yes ( ) No

2 Do any of the systems require a curtain or dewatering drain as part of the design? ( ) Yes (•) No

3 Is a hydrogeologic study required for this project? (•) Yes ( ) No

4 If the project has a soil-based wastewater disposal system with design flows that exceed 1,000 GPD, is this project located in a Class A Watershed? ( ) Yes ( ) No (•) NA

If Yes, indicate the Class A Watershed in which the system(s) is located:

(a) Class A Watershed Name

5 Are there any existing or proposed floor drains as part of this project? ( ) Yes (•) No

If Yes, indicate where the floor drains will discharge:

(a) Floor Drain Discharge Point

6 If the project utilizes an Innovative/Alternative System or Product, has the applicant received a copy of the Wastewater Management Division's approval letter? (•) Yes ( ) No ( ) NA

7 Is any portion of the proposed wastewater disposal system located in or near a Water Source Protection Area as designated by the Water Supply Division? ( ) Yes (•) No

If Yes, contact the Water Supply Division at (802) 241-3400.

Section C - Individual Wastewater Disposal System Details

Please provide the following information for each of the existing and proposed wastewater disposal systems serving a building or structure, or campground on the property

1 Wastewater Disposal System Name/Identifier	2 Wastewater Disposal System Owner (if not Applicant)
Mendelsohn Replacement System	
3 Wastewater Disposal System Type	**4 Type of Change to System**
Mound	Replacement of Failed System

5 Lots/Buildings Served by this Wastewater Disposal System

	(a) Lot#	(b) Building ID	(c) Type of Change to the Building's System	Design Flows (Gallons Per Day) (d) Existing	(e) Increase	(f) Infiltration	(g) Total	(h) Rule or Meter Based Flows
X	1	Lot 1 Res.	Replacement of Failed Syste	420	70	0	490	Rule-based
				6 420	7 70	8 0	9 490	

Add Another Lot/Building Served by this System

10 Is this wastewater disposal system located off-lot? ( ) Yes (•) No

11 Is this wastewater disposal system shared? ( ) Yes (•) No

If the wastewater disposal system is located off-lot or shared, submit a copy of the agreement to provide an easement prior to initiation of construction.

12 Is a variance being requested for this wastewater disposal system? ( ) Yes (•) No

If Yes, please submit additional details related to the variance request.

13 If this wastewater disposal system type is a connection to an Indirect Discharge System, please provide the Indirect Discharge System ID number.

Indirect Discharge System ID Number

14 If this wastewater disposal system type is a connection to a municipal system, please select the town.

Town

15 If this wastewater disposal system is a soil-based system, please select the design approach used.

Design Approach Used

Performance Based

16 For soil-based systems, please check all that apply.

☐ Storage and Dose ☐ Filtrate

17 If this is an Innovative/Alternative soil-based system, please select the system use type.

Innovative/Alternative System Use Type

General

18 If this is an Innovative/Alternative soil-based system, please select the Innovative/Alternative system or product.

Innovative/Alternative System or Product

Presby Environmental Enviro-Septic System

Remove This Wastewater System

Add Another Wastewater System

Section D - Wastewater Disposal Systems Design Flows Summary Table

1 If the project includes more than one wastewater disposal system, please list each system on this page and provide the total wastewater disposal design flows for the project. **IMPORTANT**: Please don't include systems that were identified in this Part on Section C, Line 4 as a "Replacement Area Designation" in this summary table.

		Design Flows (Gallons Per Day)			
	(a) Wastewater Disposal System Name/Identifier	(b) Existing	(c) Increase	(d) Infiltration	(e) Total
X	Mendelsohn Replacement System	420	70	0	490
	Add Another Wastewater System	2	3	4	5
		420	70	0	490

Part VII Application Fees

1 Fee Amount $500.00

2 Fee Calculation Details

The application fee is $500.00 in accordance with the Town of Charlotte fee schedule.

Part VIII Designer Certification & Copyright License

Section A - Certifying Designer 1 Certification & Copyright License

"I hereby certify that in the exercise of my reasonable professional judgment, the design-related information submitted with this application is true and correct, and that the design included in this application for a permit complies with the Vermont Wastewater System and Potable Water Supply Rules and the Vermont Water Supply Rules.

As the individual who prepared this application, including all documents that are marked as copyrighted, I hereby grant a non-exclusive, limited license to the State to allow the documents to be made available for public review and copying in order to properly implement and operate the permitting programs for Wastewater Systems and Potable Water Supplies, and for no other purposes. As a conditon to this license, the State agrees that it will not make any changes to such documents, nor will the State delete any copyright notices on such documents "

1 Check the design(s) you are certifying. This should be the same as the Designer Role(s) you selected in Part II, Section A, Line 13.

- ☐ Water Supply Designer
- ☒ Wastewater Disposal System Designer

1 Designer 1 Name	2 Designer 1 Signature	3 Signature Date
Jason S. Barnard		8-28-08

Section B - Certifying Designer 2 Certification & Copyright License

"I hereby certify that in the exercise of my reasonable professional judgment, the design-related information submitted with this application is true and correct, and that the design included in this application for a permit complies with the Vermont Wastewater System and Potable Water Supply Rules and the Vermont Water Supply Rules.

As the individual who prepared this application, including all documents that are marked as copyrighted, I hereby grant a non-exclusive, limited license to the State to allow the documents to be made available for public review and copying in order to properly implement and operate the permitting programs for Wastewater Systems and Potable Water Supplies, and for no other purposes. As a condition to this license, the State agrees that it will not make any changes to such documents, nor will the State delete any copyright notices on such documents."

1 Check the design(s) you are certifying This should be the same as the Designer Role(s) you selected in Part II, Section B, Line 13.

- ☐ Water Supply Designer
- ☐ Wastewater Disposal System Designer

1 Designer 2 Name	2 Designer 2 Signature	3 Signature Date

Part IX Applicant(s) Signature & Acknowledgements

In order to insure compliance with the requirements of the regulations administered by the Department of Environmental Conservation, Wastewater Management Division, it may be necessary to visit the property. As this would involve a Department employee entering private property, we request your approval to do so.

1 If we do visit your property, do you have any special instructions?

"As landowner of the property for which I am requesting a permit from the Department of Environmental Conservation, I understand that by signing this application I am granting permission for the Department employees to enter the property, during normal working hours, to insure compliance of the property with the applicable rules of the Department.

I also understand that I am not allowed to commence any site work or construction on this project without written approval from the Department of Environmental Conservation.

If my project utilizes an Innovative/Alternative System or Product, I have received a copy of the Wastewater Management Division's approval letter and agree to abide by the conditions of the approval.

I also certify that to the best of my knowledge and belief the information submitted above is true, accurate and complete."

X	2 Print Applicant Name	3 Applicant Signature	4 Signature Date
	Melissa Mendelsohn	Melissa Mendelsohn	8/28/2008

Add Applicant Signature Block

ENVIRO-SEPTIC WASTEWATER DISPOSAL SYSTEM BASIS OF DESIGN

Melissa Mendelsohn
Replacement Wastewater System Design
1306 Orchard Road, Charlotte, Vermont
August 27, 2008
Prepared By: Jason S. Barnard, Licensed Designer #430-B

Replacement Enviro-Septic Wastewater Disposal System

I. WASTEWATER FLOWS

A. WASTEWATER FLOWS

3	Bedrooms	140	gpd/bedroom=	420	gpd	gpd
1	Bedrooms	70	gpd/bedroom=	70	gpd	gpd
			Total Flows =	**490**	gpd	**gpd**

II.PERCOLATION DATA

A. PERCOLATION RATE (P)

Percolation rates in the replacement system area ranged between 26.5 min/inch and 27.7 min/inch. In accordance with the Enviro-Septic Wastewater Treatment Systems Design and Installation Manual Vermont State Attachment, 4-Bedroom Single-Family Residential Sites with Percolation Rates Between 20 and 30 Minutes Per Inch Require 260 Linear Feet of Enviro-Septic Pipe.

III.WASTEWATER DISPOSAL SYSTEM DESIGN

A. MINIMUM LINEAR FEET OF ENVIRO-SEPTIC PIPE REQUIRED

Percolation Rates Ranged Between = **26.5 min/inch to 27.7 min/inch** at the site.

Total Number of Bedrooms =	4
Required Linear Feet of Enviro-Septic Pipe =	260 Linear Feet
Supplied Linear Feet of Enviro-Septic Pipe =	**300 Linear Feet**

Determined Using Table A of the Enviro-Septic Design and Installation Manual

B. REQUIRED PIPE SPACING

Average Natural Ground Slope =	12% (0.12 feet/foot)
Percolation Rates =	26.5 to 27.7 min/inch
Pipe Spacing =	**2.25 Feet On Center**
Supplied Pipe Length =	**Five (5) 60-Foot Long of Enviro-Septic Pipe**

Determined Using Table B of the Enviro-Septic Design and Installation Manual

C. TOTAL SYSTEM SAND AREA

A = LENGTH (L) x TOTAL WIDTH (W)

L =	62	ft
W=	12	ft
A=	744	sf

In Accordance with Table D of the Enviro-Septic, Design and Installation Manual, with 20 min/inch to 30 min/inch percolation rates require 685 Square Feet of system sand area.

System Sand Area Supplied = **744 Square Feet**

IV. REQUIRED SEPTIC TANK

A. SEPTIC TANK CAPACITY

Required Septic Tank Capacity = **1,000 gallons** for a 4-bedroom single-family residence. The existing 1,000-gallon concrete septic tank shall be pumped out, inspected, and retrofitted with a Polylok PI-122 effluent filter. If the existing septic tank is not water-tight, it shall be replaced with a new 1,000-gallon water-proof concrete septic tank equipped with an approved effluent filter.

Melissa Mendelsohn
Wastewater System Design and Permitting,
1306 Orchard Road,
Charlotte, Vermont

Replacement Presby Environmental Enviro-Septic Wastewater Disposal System Desktop Effluent Mounding Analysis

Replacement Presby Environmental Enviro-Septic Wastewater System:

- Soils present directly beneath the proposed replacement Presby Environmental, Enviro-Septic wastewater disposal system consist of a friable very fine sandy loam topsoil over top of a friable very fine sandy loam that extends to 24" below ground surface. Beneath the fine sandy loam soil unit is a friable fine sandy glacial till that extends to between 38" and 40" below ground surface. The very fine sandy loam was used in the effluent mounding analysis.

- Depth to the SHWT is 22" (1.83') below ground surface (conservative), based on the presence of soil mottling in test pits TP-01 and TP-02.

The average ground surface slope is 12% in the vicinity of the replacement system area.

The following equation is used from the ANR "Simplified Procedure for Prescriptive Desktop Mounding Analysis", dated January 30, 2003:

$$LLR = (f)(h)$$

where: LLR = linear loading rate, gpd/ft.

h = soil thickness available for groundwater mounding in feet.

f = the LLR factor from Table 1 of the January 30, 2003 ANR document, which is based on soil texture and slope.

from Table 1:

Very fine sandy loam soil with a slope of 12%, therefore $f = 18.7$

SHWT = 1.83' (22") – 0.5' (6") = 1.33' = h (conservative).

Using the formula above, the linear loading rate and minimum system length is determined as follows:

- LLR= (1.33)(18.7) = 24.87 gpd/linear foot.

- 490 gpd/24.87 gpd/linear feet = 19.70 feet minimum system length.

- In accordance with Table D in the Enviro-Septic Wastewater Treatment Systems Design and Installation Manual Vermont State Attachment, the minimum sand area size for a 4-bedroom single-family residence on a site with percolation rates between 20 minutes per inch (min/inch) and 30 min/inch is 685 square feet (sf).

- 744 sf of sand area is supplied by a 62-foot long by 12-foot wide system sand footprint. The system sand area contains five (5) 60-foot long Presby Environmental Enviro-Septic pipes that are spaced 2.25-feet apart on center.

- Since 60-foot long Presby Environmental pipes are used, the actual linear loading rate is: 490 gpd/60-feet = 8.17 gpd/linear foot.

- Therefore, the actual effluent mounding is determined as follows:

  $h = LLR/f = 8.17/18.7 = 0.44$ feet or 5.3-inches.

Conclusions

Based on the August 4, 2008 test pit evaluations and the hydrogeologic effluent mounding analysis presented above, the proposed replacement wastewater disposal system if constructed with five (5) 60-foot long Presby Environmental Enviro-Septic pipes with 1.61-feet (19.4-inches) of system sand beneath the invert of the Enviro-Septic pipes will maintain the effluent plume at least 6-inches below existing grade at all times of the year and will provide greater than 36-inches of vertical separation between the bottom of the Enviro-Septic pipes and the induced groundwater mound. Furthermore, with a minimum of 1.61-feet of system sand beneath the invert of the Enviro-Septic pipes and greater than 3-feet (36-inches) to bedrock in the test pits excavated in the proposed replacement system area, there is greater than 4-feet (48-inches) of vertical separation between the invert of the Enviro-Septic pipes and any underlying bedrock that may be present.

Melissa Mendelsohn
1306 Orchard Road,
Charlotte, Vermont
Percolation Tests of August 22, 2008
Replacement Wastewater
System Design

Table 1

P-01	Drop Time (min)	Total Drop Time (min)	Total Drop (inches)	Drop Rate (min/inch)
	5.10	5.10	1	10.20
	7.20	12.30	1	12.30
	7.52	19.82	2	13.21
	8.10	27.92	2	13.96
	8.92	36.84	3	14.74
	8.33	45.17	3	15.06
	9.00	54.17	4	15.48
	---	**1440.00**	---	**27.67**

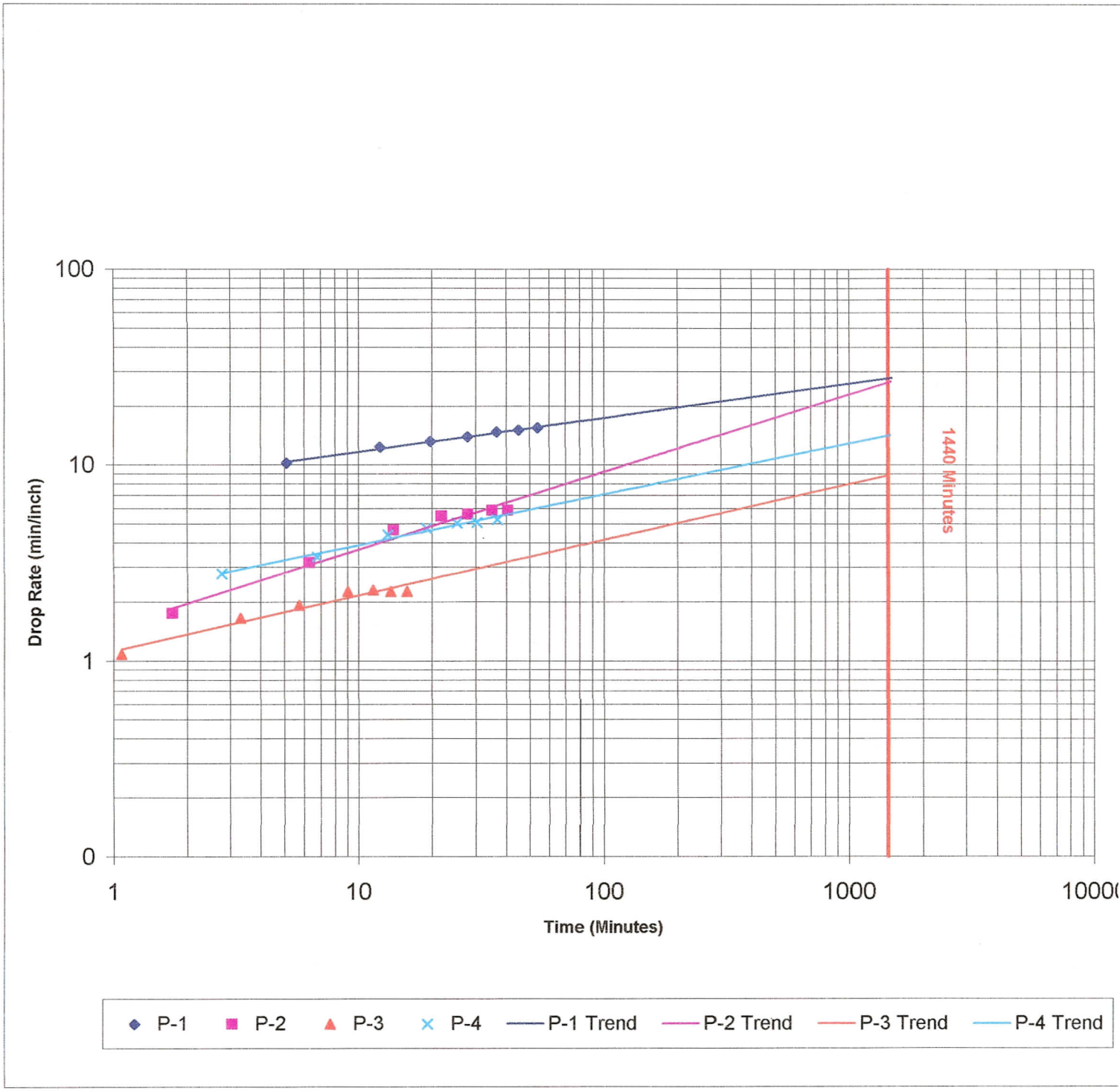
P-03	Drop Time (min)	Total Drop Time (min)	Total Drop (inches)	Drop Rate (min/inch)
	1.08	1.08	1	1.08
	2.22	3.30	2	1.65
	2.45	5.75	3	1.92
	3.28	9.03	4	2.26
	2.45	11.48	5	2.30
	2.05	13.53	6	2.26
	2.25	15.78	7	2.25
	---	**1440.00**	---	**8.86**

P-02	Drop Time (min)	Total Drop Time (min)	Total Drop (inches)	Drop Rate (min/inch)
	1.75	1.75	1	1.75
	4.56	6.31	2	3.16
	7.63	13.94	3	4.65
	7.90	21.84	4	5.46
	6.15	27.99	5	5.60
	7.22	35.21	6	5.87
	5.67	40.88	7	5.84
	---	**1440.00**	---	**26.51**

P-04	Drop Time (min)	Total Drop Time (min)	Total Drop (inches)	Drop Rate (min/inch)
	2.78	2.78	1	2.78
	4.00	6.78	2	3.39
	6.42	13.20	3	4.40
	5.82	19.02	4	4.76
	6.25	25.27	5	5.05
	5.25	30.52	6	5.09
	6.37	36.89	7	5.27
	---	**1440.00**	---	**14.16**

NOTES:
1. Percolation tests performed at 8 to 18-inches below ground surface.

1306 Orchard Road,
Charlotte, Vermont
Percolation Tests of August 22, 2008
Replacement Wastewater
System Design



State of Vermont

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conervation
State Geologist
RELAY SERVICES FOR HEARING IMPAIRED
1-800-253-0191 TDD>VOICE
1-800-253-0195 VOICE>TDD

Innovative/Alternative System Approval
General Use per §1-309 of the
Wastewater System and Potable Water Supply Rules, effective August 16, 2002

#2004-02

Vendor Information
Presby Environmental, Inc.
Route 117, P.O. Box 617
Sugar Hill, NH 03585

Technology Name
Enviro-Septic® Leaching System

Contact
David W. Presby, President
Presby Environmental, Inc.
Route 117, P.O. Box 617
Sugar Hill, NH 03585
Phone (800) 473-5298
Fax (603) 823-8114
Web: www.PresbyEnvironmental.com

Technology Type
Septic Tank Effluent Treatment & Distribution System

Expiration Date
November 1, 2006

Approval

The Enviro-Septic® Leaching System may be used as part of a subsurface wastewater disposal system approved under the Wastewater System and Potable Water Supply Rules, effective August 16, 2002 under the following conditions:

1. The leaching systems must be designed, installed and operated as described in the Enviro-Septic® & Simple Septic® Leaching Systems Design and Installation Manual and the Vermont State Attachment filed with the Agency of Natural Resources (Agency) on November 29, 2004.

2. This approval is based on treatment only of domestic wastewater of low and moderate strength as specified in §1-519(a)(1)(C) & (D) of the Wastewater System and Potable Water Supply Rules, effective August 16, 2002.

3. The system may be used for both new and replacement systems.

4. If the Wastewater System and Potable Water Supply Rules, effective August 16, 2002 are revised during the term of this approval, this approval shall be revised as needed to conform to the revisions.

5. Each application for use shall demonstrate the ability to construct a fully complying replacement system.

6. The designer shall provide a copy of this approval letter to any landowner who is a prospective purchaser of an Enviro-Septic® Leaching System prior to the sale of the system and prior to the filing of any application for a site-specific approval by the Agency for the purchaser's property. The application filed with the Agency shall include the landowner's written acknowledgement of this approval letter. Prior to any sale of the property or completion of a sales agreement to sell the property, a copy of the site-specific permit shall be provided to the prospective purchaser.

7. The vendor shall submit an annual report to the Agency by April 1 of each year containing the following information for the 12 month period ending December 31 of the previous year:

   A. The number of permitted systems installed in Vermont, including those permitted by the Agency and those permitted by Towns under authority of 24 V.S.A. Chapter 102.

   B. The address of each installation.

   C. The name of the owner at the time of installation and any known change in ownership.

   D. All known problems or failures, with a brief summary of the cause and remedial measures taken.

8. When a project is subject to the Wastewater System and Potable Water Supply Rules, effective August 16, 2002, site-specific permission for the use of this product is required in the form of a Water Supply – Wastewater Disposal System Permit.

9. A site-specific permit for the use of this product may be revoked if the system fails to function properly. Revocation of the permit will require that the use of the building be discontinued unless another wastewater disposal system is installed based on prior written approval by the Agency.

10. A town that regulates wastewater disposal systems under 24 V.S.A., Chapter 102 and whose ordinance permits, may approve use of an Enviro-Septic® Leaching System subject to all conditions in this approval.

11. This approval is not a representation or guarantee of the effectiveness, efficiency or operation of an Enviro-Septic® Leaching System.

Design and Review Conditions

The following conditions will be used by the Department in reviewing permit applications that include an Enviro-Septic® Leaching System.

Equipment

- Enviro-Septic® Leaching System

Design and Application

- The leaching system shall be designed in accordance with the approved Vermont State Attachment to the Enviro-Septic® & Simple Septic® Leaching Systems Design and Installation Manual. The designer shall assure that the system will properly function in all seasons.

- The designer must assess the ventilation path for the particular application and make any necessary provisions to assure proper flow and control of odor emissions.

- The designer shall include in the design a septic tank effluent filter with easy access for inspection and cleaning.

Installation Inspection

- The leaching system shall be installed accordance with the approved plans and under the instruction and guidance of an installer/inspector trained by the manufacturer.

- The leaching system shall be inspected by a Professional Engineer registered in Vermont as a civil, civil/sanitary, sanitary or environmental engineer or a Licensed Type B Designer, approved by the Vendor, during installation of the system and installation of any tanks before backfilling, and after backfilling and grading is complete. The inspection shall include checking for levelness of the pipes, and inspecting for damage and proper assembly.

- The engineer or site technician shall inspect all transport piping for proper installation and watertightness before backfilling.

Innovative/Alternative System Approval
#2004-02

Permitting

- The permit shall run with the land.
- A copy of the permit shall be provided to any prospective purchaser prior to the sale.
- Each new owner of the property shall inform the appropriate Regional Environmental Office of the Agency within 30 days of the transfer of the property and include the name and mailing address of the new owner.

Effective December 3, 2004 by Roger Thompson

Roger Thompson, Jr.
Regional Office Program Manager

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STATE MOUND SAND SPECIFICATIONS

(c) Fill Material: The fill material from the natural soil plowed surface to the top of the trench or bed shall be sand texture with one of the following sieve analyses:

(1).

Sieve Number	Opening (mm)	Percent Passing, by Weight
10	2.000	85-100
40	0.420	25-75
60	0.240	0-30
100	0.149	0-10
200	0.074	0-5

(2).

Sieve Number	Opening (mm)	Percent Passing, by Weight
4	4.750	95-100
8	2.380	80-100
16	1.190	50-85
30	0.590	25-60
50	0.297	10-30
100	0.149	2-10

(3).

Sieve Number	Opening (mm)	Percent Passing, by Weight
10	2.000	85-100
40	0.420	30-50
200	0.074	0-10

The material must meet specifications 1, 2, or 3 above. Interpolation of analyses is not permitted. Fill material 2 is ASTM Specification C-33 and is intended for manufactured material.

TEST PIT LOG

Client: Melissa Mendelsohn Date: August 4, 2008 Location: 1306 Orchard Road, Charlotte, Vermont

Project Description: Replacement Wastewater System Design and Permitting

Logged By: Jason Barnard, Licensed Designer #430-B Topographic Setting: Gently Sloping

Current/Historic Land Use: Residential Slope: 12% Vegetation: Lawn

Weather Conditions: 65° Partly Sunny Method of Excavation: Tracked Excavator

Test Pit #	Depth (inches)	Dominant Color	Soil Texture	Soil Structure	Consistency	Mottles	Comments
01	0-9"	Dark brown	Very fine sandy loam topsoil	Crumb blocky	Friable	No	Well drained
	9-24"	Orange-brown	Very fine to fine sandy loam	Crumb blocky	Friable	Fine, faint, few at 22".	Well drained
	24-40"	Gray to tan	Fine sandy glacial till	Crumb blocky	Friable	Prominent, common and distinct.	Groundwater seeps at 28". No bedrock to 40".
02	0-9"	Dark brown	Very fine sandy loam topsoil	Crumb blocky	Friable	No	Well drained
	9-23"	Orange-brown	Very fine sandy loam	Crumb blocky	Friable	Fine, faint, few at 22".	Well drained
	23-38"	Gray to tan	Fine sandy glacial till	Crumb blocky	Friable	Prominent, common and distinct.	Groundwater seeps 28". No bedrock to 38".

Client: Melissa Mendelsohn Date: August 4, 2008 Location: 1306 Orchard Road, Charlotte, Vermont

Test Pit #	Depth (inches)	Dominant Color	Soil Texture	Soil Structure	Consistency	Mottles	Comments
03	0-8"	Dark brown	Very fine sandy loam topsoil	Crumb blocky to granular	Loose to friable	No	Well drained.
	8-22"	Orange-brown	Very fine sandy loam	Crumb blocky	Friable	Fine, faint, few at 22".	Well drained
	22-36"	Gray	Very fine sandy glacial till	Crumb blocky	Friable	Prominent, common and distinct.	Groundwater seeps at 30". No bedrock to 36".
04	0-9"	Dark brown	Very fine sandy loam topsoil	Crumb blocky	Friable	No	Well drained
	9-22"	Orange-brown	Very fine sandy loam	Crumb blocky	Friable	Prominent, common and distinct at 22".	Well drained
	22-32"	Gray to tan	Very fine sandy glacial till	Crumb blocky	Friable	Prominent, common and distinct.	Groundwater seeps at 26". Bedrock at 32".

TEST PIT LOG

Client: Melissa Mendelsohn Date: August 22, 2008 Location: 1306 Orchard Road, Charlotte, Vermont

Project Description: Replacement Wastewater System Design and Permitting

Logged By: Jason Barnard, Licensed Designer #430-B Topographic Setting: Gently Sloping

Current/Historic Land Use: Residential Slope: 10 - 12% Vegetation: Lawn

Weather Conditions: 80° Method of Excavation: Hand Auger

Test Pit #	Depth (inches)	Dominant Color	Soil Texture	Soil Structure	Consistency	Mottles	Comments
SB-01	0-6"	Brown	Very fine sandy loam topsoil	Crumb blocky	Friable	No	Well drained
	6-18"	Brown	Very fine sandy loam	Crumb blocky	Friable	Mottled at 18".	Auger refusal at 18".
SB-02	0-6"	Brown	Very fine sandy loam topsoil	Crumb blocky	Friable	No	Well drained
	6-25"	Brown	Very fine sandy loam	Crumb blocky	Friable	Prominent, common and distinct at 20".	Well drained
	25-28"	Gray to brown	Very fine sandy glacial till	Crumb blocky	Friable	Prominent, common and distinct.	Groundwater seeps at 24". Ledge at 28".
SB-03	0-7"	Brown	Very fine sandy loam topsoil	Crumb blocky	Friable	No	Well drained
	7-17"	Brown	Very fine sandy loam	Crumb blocky	Friable	Mottled at 17".	Well drained
	17-30"	Brown to gray	Very fine sandy glacial till	Crumb blocky	Friable	Prominent, common and distinct.	Groundwater seeps at 20". No ledge to 30".

Client: Melissa Mendelsohn Date: August 22, 2008 Location: 1306 Orchard Road, Charlotte, Vermont

Test Pit #	Depth (inches)	Dominant Color	Soil Texture	Soil Structure	Consistency	Mottles	Comments
SB-04	0-8"	Brown	Very fine sandy loam topsoil	Crumb blocky	Friable	No	Well drained
	8-24"	Brown	Very fine sandy loam	Crumb blocky	Friable	Mottled at 23".	Well drained
	24-36"	Gray to brown	Very fine sandy glacial till	Crumb blocky	Friable	Prominent, common and distinct.	Groundwater seeps at 27". No ledge to 36".