Maine Center for Disease Control and Prevention
An Office of the Department of Health and Human Services

John E. Baldacci, Governor Brenda M. Harvey, Commissioner

Department of Health and Human Services
Maine Center for Disease Control and Prevention
286 Water Street
11 State House Station
Augusta, Maine 04333-0011
Tel: (207) 287-5689
Fax: (207) 287-3165; TTY: 1-800-606-0215

March 1, 2010

Wastewater Alternatives of New England, LLC
Attn.: Wesley C. Brighton
27 Kensington Road
Hampton Falls, NH 03844

Subject: Transfer of Product Registration Approvals, The Clean Solution

Dear Mr. Brighton:

The Division of Environmental Health has received your request to transfer all product registration approvals issued for *The Clean Solution* from Wastewater Alternatives of New England, LLC to Wastewater Alternatives, Inc. While there is no provision in the Subsurface Wastewater Disposal Rules which requires this, neither is there any provision which prohibits it.

Therefore, the Division hereby construes that all product registration approvals issued for *The Clean Solution* are issued to:

Wastewater Alternatives, Inc.
Attn.: Gary Spaulding
2 Whitney Road, Suite 10
Concord, NH 03301

If you have any further questions, please feel free to contact me at 287-5695.

Sincerely,

James A. Jacobsen

Division of Environmental Health
Drinking Water Program
Subsurface Wastewater Unit
286 Water Street, Augusta, ME 04333
e-mail: james.jacobsen@maine.gov

/jaj

xc: File
Gary Spaulding via e-mail

Jacobsen, James

From: Wesley Brighton [wcbrighton@wastewateralternativesne.com]
Sent: Thursday, February 25, 2010 10:54 AM
To: Jacobsen, James
Cc: Gary Spaulding
Subject: Re: Approval transfers
Follow Up Flag: Follow up
Flag Status: Red
Attachments: ME Company Approval Transfer.pdf; ATT1180435.htm

Hi Jim,

Please find my letter requesting an update to our file transferring Wastewater Alternatives of New England, LLC's ME approvals to Wastewater Alternatives, Inc. I will send out a signed copy today.

Thank you very much for your help,
Wes

WASTEWATER ALTERNATIVES OF NEW ENGLAND, LLC
27 Kensington Road
Hampton Falls, NH 03844
Phone (866) 926-9053 Fax (508) 693-2224

February 25, 2010

James A. Jacobsen
Environmental Specialist IV
Division of Environmental Health
Drinking Water Program
Subsurface Wastewater Unit
286 Water Street
Augusta, ME 04333
Phone: 207-287-5695
Fax: 207-287-3165

Dear Jim,

Wastewater Alternatives of New England, LLC would like to request an update to their file, placing all approvals under the following ownership:

Wastewater Alternatives, Inc.
2 Whitney Road, Suite 10
Concord, NH 03301
Phone: (603) 783-4499
Contact: Gary Spaulding

Thank you very much for your assistance.

Sincerely,

Wesley C. Brighton

Jacobsen, James

From: Jacobsen, James
Sent: Monday, March 01, 2010 9:53 AM
To: 'Wesley Brighton'
Cc: Gary Spaulding
Subject: RE: Approval transfers

Hi Wes,

Although not expressly stated in the Subsurface Wastewater Disposal Rules, we have not required design flows for facilities such as restaurants, cafeterias, etc. to modify the design flow for effluent strength when advanced treatment is used, capable of achieving a combined BOD5 and TSS of 30 mg/l or less. As you point out, the effluent is, for all intents and purposes, clean water.

Jim

James A. Jacobsen, Environmental Specialist IV
Division of Environmental Health
Drinking Water Program
Subsurface Wastewater Unit
286 Water Street, Augusta, ME 04333
Phone: 207-287-5695 Fax: 207-287-3165
http://www.maine.gov/dhhs/eng/plumb/index.htm

From: Wesley Brighton [mailto:wcbrighton@wastewateralternativesne.com]
Sent: Thursday, February 25, 2010 11:15 AM
To: Jacobsen, James
Cc: Gary Spaulding
Subject: Re: Approval transfers

Jim,

Please excuse my bombardment of questions and emails. My last question is in regard to the 1.8 restaurant multiplier when it comes to sizing the leach field. When we use our pre-treatment sizing chart or our 75% leach field reduction, we assume that the leach field would then be reduced based solely on flow (without the 1.8 multiplier) because the system is designed to disperse clean water, and therefore the larger sizing criteria that is designed to handle stronger strength effluents (such as restaurants) would not be necessary. In other words, because we design the treatment system larger when treating commercial strength flows, clean, clear water is dispersed, and leach field sizing is only based on hydraulic loading as apposed to biomat area. Therefore increasing the leach field sizing by 1.8 would be redundant and unnecessary. Would it be possible for this to be worked into our approval, or should it already be assumed?

Thank you for your consideration and time.

Wes

On Jan 28, 2010, at 3:11 PM, Jacobsen, James wrote:

Hi Wes,

The new owners would simply send us a letter asking to update the file, with all the appropriate contact info in it.

Jim

James A. Jacobsen, Environmental Specialist IV
Division of Environmental Health
Drinking Water Program
Subsurface Wastewater Unit
286 Water Street, Augusta, ME 04333
Phone: 207-287-5695 Fax: 207-287-3165
http://www.maine.gov/dhhs/eng/plumb/index.htm

From: Wesley Brighton [mailto:wcbrighton@wastewateralternativesne.com]
Sent: Thursday, January 28, 2010 12:02 PM
To: Jacobsen, James
Subject: Approval transfers

Dear Jim,

I hope you are doing well.

I am in the process of selling Wastewater Alternatives of New England, LLC back to its sister company, Wastewater Alternatives, Inc., so that I may go back to school for a graduate degree. I am wondering what the process is for transferring our ME approvals to the sister company.

Thanks for you help,
Wes

Wastewater Alternatives of New England, LLC
Wesley Brighton
27 Kensington Road
Hampton Falls, NH 03844
wcbrighton@wastewateralternativesne.com

866-926-9053 phone
508-693-2224 fax

Wastewater Alternatives of New England, LLC
Wesley Brighton
27 Kensington Road
Hampton Falls, NH 03844
wcbrighton@wastewateralternativesne.com

866-926-9053 phone
508-693-2224 fax

File

Maine Department of Health and Human Services

Maine Center for Disease Control and Prevention
286 Water Street, 3rd Floor
11 State House Station
Augusta, ME 04333-0011

John Elias Baldacci
Governor

Brenda M. Harvey,
Commissioner

Dora Anne Mills, MD, MPH
Public Health Director
Maine CDC Director

March 19, 2009

Wastewater Alternatives, Inc.
Attn.: Wesley C. Brighton
27 Kensington Road
Hampton Fall, NH 03488

Subject: Modified Product Registration, General Use Approval, The Clean Solution

Dear Mr. Brighton:

The Division of Environmental Health has completed a review of a registration application for your company's product. This information was submitted pursuant to Section 1802 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules (Rules), for code registration, for use in Maine.

Product Description

The Clean Solution system consists of a separate treatment tank which follows a conventional septic tank. The volume of the various models range from 1,000 gallons to 2,600 gallons. The volume is comprised of a section dedicated to an aerated recirculating filter media, a section dedicated to settling, and a pump chamber. The ratio of filter media volume to settling volume varies from model to model. This system was approved in 2004.

Claim

The current proposal is for use of only two application rates, rather than the prescriptive sizing requirements of the Rules, when the Clean Solution system is used. In support of this request, you submitted designs for 50 systems which have been installed in New Hampshire, and in use from one to eleven years. The loading rates for these systems range from 0.43 gpd/sq. ft. to 12 gpd/sq. ft. with an average loading rate of 3.44 gpd/sq. ft. You stated that these systems are not known to have had any operational problems.

You propose an application rate of 2.5 gallons per square foot, on Profile 1 though 8 soils (as defined in the Rules) and 1.75 gallons per square foot for Profile 9 and 10 soils; and prescriptive disposal area sizing based upon the number of bedrooms for residential uses. Reference: e-mail and attachment dated 01/25/07.

A designated reserve replacement disposal area required pursuant to the letter dated 05/16/07 is no longer required.

Determination

On the basis of the information submitted, the Division has determined that the Clean Solution systems with an application rate of 2.5 gallons per square foot, on Profile 1 though 7 soils (as defined in the Rules) and 1.75 gallons per square foot for Profile 9 and 10 soils; and 1.75 gallons per square foot for Profile 8 soils due to the fine textured component thereof, are acceptable for use in the State of Maine. They must be installed, operated, and maintained in conformance with the manufacturer's directions and the following conditions:

1. The sizing chart submitted in support of this proposal is hereby incorporated into this document, modified for Profile 8 soils:

Soil Conditions		Disposal Area sizing	Household GPD (based on State flow bedrooms)					
Type	Soil Profile		1 or 2 bedrooms	3 bedrooms	4 bedrooms	5 bedrooms	6 bedrooms	Add 90gpd/additional bedroom
Basal Glacial Till	1	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Ablation Type	2	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Basal Glacial Till	3	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Ablation Type	4	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Stratified Glacial Drift	5	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Stratified Glacial Drift	6	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Mixed geological origins	7	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Lacus-trine deposits	8	1.75 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Marine Deposits	9	1.75 g/ft^2	150ft^2	200ft^2	210ft^2	258ft^2	308ft^2	
Organic Deposits	10	1.75 g/ft^2	150ft^2	200ft^2	210ft^2	258ft^2	308ft^2	

2. In the event that the Clean Solution system fails to perform using an application rate as described above, use of the system shall cease, and disposal area sized pursuant to Table 603.1 of the Rules shall be installed, with appropriate permit(s) from the Local Plumbing Inspector.

3. The application rate for ten or more bedrooms shall be 1.5 gallons per square foot, except that systems in Profile 9 and 10 soils shall be sized pursuant to Table 603.1 of the Rules.

This letter supersedes all prior approval letters. This approval shall not supersede or abrogate any requirement, warranty, or recommendation of the manufacturer and/or distributor of any proprietary disposal device, including but not limited to, prefabricated chambers, fabric wrapped pipes, and gravel-less beds.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of Clean Solution system. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar products.

You may freely reproduce and distribute this letter. If you have any further questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

xc: Clean Solution Product File

John Elias Baldacci
Governor

Maine Department of Health and Human Services

Maine Center for Disease Control and Prevention
286 Water Street, 3rd Floor
11 State House Station
Augusta, ME 04333-0011

Brenda M. Harvey,
Commissioner

Dora Anne Mills, MD, MPH
Public Health Director
Maine CDC Director

May 16, 2007

Wastewater Alternatives, Inc.
Attn.: Wesley C. Brighton
27 Kensington Road
Hampton Fall, NH 03488

Subject: Modified Product Registration, General Use Approval, The Clean Solution

Dear Mr. Brighton:

The Division of Environmental Health has completed a review of a registration application for your company's product. This information was submitted pursuant to Section 1802 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules (Rules), for code registration, for use in Maine.

Product Description

The Clean Solution system consists of a separate treatment tank which follows a conventional septic tank. The volume of the various models range from 1,000 gallons to 2,600 gallons. The volume is comprised of a section dedicated to an aerated recirculating filter media, a section dedicated to settling, and a pump chamber. The ratio of filter media volume to settling volume varies from model to model. This system was approved in 2004.

Claim

The current proposal is for use of only two application rates, rather than the prescriptive sizing requirements of the Rules, when the Clean Solution system is used. In support of this request, you submitted designs for 50 systems which have been installed in New Hampshire, and in use from one to eleven years. The loading rates for these systems range from 0.43 gpd/sq. ft. to 12 gpd/sq. ft. with an average loading rate of 3.44 gpd/sq. ft. You stated that these systems are not known to have had any operational problems.

You propose an application rate of 2.5 gallons per square foot, on Profile 1 though 8 soils (as defined in the Rules) and 1.75 gallons per square foot for Profile 9 and 10 soils; and prescriptive disposal area sizing based upon the number of bedrooms for residential uses. Reference: e-mail and attachment dated 01/25/07. You also propose a reserve replacement disposal area be designated, sufficiently large for installation of a disposal area sized pursuant to Table 603.1 of the Rules, in the event that the reduced size disposal area malfunctions. You also propose eliminating the reserve area for replacement systems, such waiver to be reviewed on a case by case basis by this office.

Determination

On the basis of the information submitted, the Division has determined that the Clean Solution systems with an application rate of 2.5 gallons per square foot, on Profile 1 though 7 soils (as defined in the Rules) and 1.75 gallons per square foot for Profile 9 and 10 soils; and 1.75 gallons per square foot for Profile 8 soils due to the fine textured component thereof, are acceptable for use in the State of Maine. They must be installed, operated, and maintained in conformance with the manufacturer's directions and the following conditions:

1. The sizing chart submitted in support of this proposal is hereby incorporated into this document, modified for Profile 8 soils:

Soil Conditions		Disposal Area sizing	Household GPD (based on State flow bedrooms)					
Type	Soil Profile		1 or 2 bedrooms	3 bedrooms	4 bedrooms	5 bedrooms	6 bedrooms	Add 90gpd/additional bedroom
Basal Glacial Till	1	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Ablation Type	2	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Basal Glacial Till	3	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Ablation Type	4	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Stratified Glacial Drift	5	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Stratified Glacial Drift	6	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Mixed geological origins	7	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Lacus-trine deposits	8	1.75 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	
Marine Deposits	9	1.75 g/ft^2	150ft^2	200ft^2	210ft^2	258ft^2	308ft^2	
Organic Deposits	10	1.75 g/ft^2	150ft^2	200ft^2	210ft^2	258ft^2	308ft^2	

2. In the event that the Clean Solution system fails to perform using an application rate as described above, use of the system shall cease, and disposal area sized pursuant to Table 603.1 of the Rules shall be installed, with appropriate permit(s) from the Local Plumbing Inspector.

3. The application rate for ten or more bedrooms shall be 1.5 gallons per square foot, except that systems in Profile 9 and 10 soils shall be sized pursuant to Table 603.1 of the Rules.

This letter supersedes all prior approval letters. This approval shall not supersede or abrogate any requirement, warranty, or recommendation of the manufacturer and/or distributor of any proprietary disposal device, including but not limited to, prefabricated chambers, fabric wrapped pipes, and gravel-less beds.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of Clean Solution system. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar products.

You may freely reproduce and distribute this letter. If you have any further questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

xc: Clean Solution Product File

Wastewater Alternatives of New England, LLC
27 Kensington Road
Post Office Box 155
Hampton Falls, New Hampshire 03844
Tel: 603-926-9053

James A. Jacobsen
Environmental Specialist
Maine Department of Health and Human Services
Maine Center for Disease Control and Prevention
286 Water Street, 3rd Floor
11 State House Stations
Augusta, ME 04333-0011

February 14, 2007

Dear Jim,

Please find the enclosed revised version of the Clean Solution minimum sizing design chart. I have changed the separation distance to the limiting factor from 18" to 24". I have also required pressure distribution for all fields using this sizing criteria. I will make available on our website pressure distribution designs for each size field, so that the site evaluator can download a pre-designed leaching systems. For those site evaluators who choose not to use a computer, we will have the designs also available in a design manual.

I thank you and Russ for your time on the phone the other day, and apologize for trying to become too involved in the review process. I understand, and certainly respect the need to make the regulations fair and equal for all pre-treatment companies. If I may, I would only request that while taking general fairness into account, that the lengthy process we have undergone to entertain this possible approval, also be the format for other pre-treatment systems. We understand and accept that the process of installing 50 piloting systems to establish approval is unreasonable; however, we would also hope that there be some process of due diligence undergone by the pre-treatment companies to establish the effectiveness of such reductions assuming that there are varying pre-treatment results.

We would be extremely grateful if a decision on this application could be granted prior to the 27th of February in time for the MASE show. We, as our fellow venders all do, look forward to this show as our primary opportunity to connect with the site evaluators of the State, and to update and inform them on our current projects. We understand that you are very busy, but in the chance that it could be done, it would be greatly appreciated. Thank you for your help in this entire process.

Sincerely,

Wesley C. Brighton

Enclosure: Revised Chart
cc: Russ Martin

WASTEWATER ALTERNATIVES OF NEW ENGLAND, LLC.

Maximum design loading for field sizing using the Clean Solution™ aerobic, alternative septic system.

Soil Conditions		Disposal Area Sizing	Household GPD (based on State flow bedrooms)						
Type	Soil Profile		2 bedrooms or less	3 bedrooms	4 bedrooms	5 bedrooms	6 bedrooms	Add 90gpd/additional bedroom	Systems larger than > 810 gpd
Basal Glacial Till	1	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2	Use table	1.75
Ablation Type	2	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2		1.75
Basal Glacial Till	3	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2		1.75
Ablation Type	4	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2		1.75
Stratified Glacial Drift	5	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2		1.75
Stratified Glacial Drift	6	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2		1.75
Mixed geological origins	7	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2		1.75
Lacus-trine deposits	8	2.5 g/ft^2	100ft^2	110ft^2	144ft^2	180ft^2	220ft^2		1.75
Marine Deposits*	9	1.75 g/ft^2	150ft^2	200ft^2	210ft^2	258ft^2	308ft^2		Comply with regular 50% reductions
Organic Deposits*	10	1.75 g/ft^2	150ft^2	200ft^2	210ft^2	258ft^2	308ft^2		Comply with regular 50% reductions
Alluvial dune beach deposits	11	Classify Soil from code							
Filled Site	12	Classify Soil from code							

NOTES:
Limiting factor separations:

- When designing to the above criteria, all fields must use pressure distribution. For pre-designed pressure distribution systems, please go to our website, wastewateralternativesne.com for pre-designed, downloadable versions or call (603) 926-9053 for hard copies.
- When using the above design criteria you must have a 2ft. separation to the limiting factor such as water table, ledge or poor soil interface.
- When designing for new construction a 50% reserve area must be shown.
- When designing a replacement septic system without proper space for a reserve area the plan will be reviewed on case by case basis.

*These soil classifications must use a 24" separation between the bottom of the field and the limiting factor.
When the design is greater than 9 bedrooms or 810gpd the design criteria becomes 1.5 gal/ft^2 except when in soil class 9 and 10 the design must become a regular 50% reduction.

Wastewater Alternatives of New England, LLC
27 Kensington Road
Post Office Box 155
Hampton Falls, New Hampshire 03844
Tel: 603-926-9053

James A. Jacobsen
Environmental Specialist
Maine Department of Health and Human Services
Maine Center for Disease Control and Prevention
286 Water Street, 3rd Floor
11 State House Stations
Augusta, ME 04333-0011

Russ - What do you want me to do about this, if anything? Jim

February 14, 2007

Dear Jim,

Please find the enclosed revised version of the Clean Solution minimum sizing design chart. I have changed the separation distance to the limiting factor from 18" to 24". I have also required pressure distribution for all fields using this sizing criteria. I will make available on our website pressure distribution designs for each size field, so that the site evaluator can download a pre-designed leaching systems. For those site evaluators who choose not to use a computer ... the designs also available in a design manual.

HE'S GOING TO HAVE TO WAIT TILL I GET BACK

RUSS

hone the other day, and apologize for trying ss. I understand, and certainly respect the need l pre-treatment companies. If I may, I would ss into account, that the lengthy process we proval, also be the format for other pre- ɔt that the process of installing 50 piloting e; however, we would also hope that there be the pre-treatment companies to establish the ıat there are varying pre-treatment results.

ı on this application could be granted prior to ıow. We, as our fellow venders all do, look ıity to connect with the site evaluators of the current projects. We understand that you are very busy, but in the chance that it could be done, it would be greatly appreciated. Thank you for your help in this entire process.

Sincerely,

Wesley C. Brighton

Enclosure: Revised Chart
cc: Russ Martin

John Elias Baldacci
Governor

Maine Department of Health and Human Services
Maine Center for Disease Control and Prevention
286 Water Street, 3rd Floor
11 State House Station
Augusta, ME 04333-0011

Brenda M. Harvey,
Acting Commissioner

Dora Anne Mills, MD, MPH
Public Health Director
Maine CDC Director

April 5, 2006

Wastewater Alternatives, Inc.
Attn.: Wesley C. Brighton
27 Kensington Road
Hampton Fall, NH 03488

Subject: Revised Product Registration, The Clean Solution

Dear Mr. Brighton:

The Division of Health Engineering has completed a review of a proposal to revise the registration for your company's product.

Product Description

The Clean Solution consists of a separate treatment tank which follows a conventional septic tank. The volume of the various models range from 1,000 gallons to 2,600 gallons. The volume is comprised of a section dedicated to an aerated recirculating filter media, a section dedicated to settling, and a pump chamber. The ratio of filter media volume to settling volume varies from model to model. The large volume units have separate pump tanks and integral septic tanks. The Clean Solution is designed for use with conventional onsite sewage disposal areas.

Claim

According to the information you provided, the Clean Solution provides significant reductions in BOD_5, TSS, and nitrogen compounds. You have requested that Clean Solutions be allowed reduce separations form limiting factors based upon the high quality effluent.

Determination

On the basis of the information and sample product submitted, the Division has determined that Clean Solutions is acceptable for use in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacturer's directions, with the following provisions:

1. A minimum separation distance of 12 inches shall be maintained between the seasonal high groundwater table or other limiting factor, and the lowest elevation of the system's disposal area;

2. A minimum separation distance of 12 inches shall be maintained between bedrock and the lowest elevation of the system's disposal area; and

3. The disposal area size may be reduced by as much as 75 percent pursuant to the Division's letter of January 3, 2005, compared to a conventional stone and perforated pipe bed design.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of [product]. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar products.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj
xc: Product File

Jacobsen, James

From: west Brightot [wcbrighton@yahoo.com]
Sent: Friday, March 03, 2006 1:50 PM
To: Jacobsen, James
Subject: Question

Hi Jim,
My nerves were pretty wobbly at my presentation in Orono. I realized that I had forgotten to mention a few important points, but hopefully the attendees got a good understanding of our system.
I wanted to ask and I don't mean to press, but is it possible to achieve a 12" to limiting factor approval.
We have done some field testing with licimeter at 1' and 2'.
Leaving the exit baffle, we have a pathogen/virus content of 430 down from 18 mill., and at 1 foot in the leach field we have a content of 0.
So contamination is no problem.
I'll be in touch and I hope you have a good weekend.

Wesley

Jacobsen, James

From: west Brightot [wcbrighton@yahoo.com]
Sent: Friday, March 24, 2006 9:19 AM
To: Jacobsen, James
Subject: 1 foot to limiting factor

Jim,

I wanted to drop another quick note, I know this is certainly the busiest time of the year, but I was wondering if there was any decision on our 1 foot to water table or limiting factor request.

When you have a chance let me know if there is any additional information or data you need to support an approval.

Hope all is well,

Wes

STATE OF MAINE
DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF ENVIRONMENTAL HEALTH
286 WATER STREET
AUGUSTA, MAINE
04333-0011

John Elias Baldacci
Governor

John R. Nicholas
Commissioner

October 20, 2005

Wastewater Alternatives, Inc.
Attn.: Wesley C. Brighton
27 Kensington Road, P. O. Box 155
Hampton Falls, NH 03488

SUBJECT: Approval, Clean Solution Installation, Wes Moody Property, Viles Road, Salem Township

Dear Mr. Brighton:

The Division has reviewed a proposed system design for the subject property. The proposal is to install and monitor a system based upon a 75 percent reduction in disposal area size, pursuant to the letter dated 01/03/05 for the Clean Solution system. The system design prepared by 08/19/05 by Darryl Brown, SE is found to be in compliance with the Maine Subsurface Wastewater Disposal Rules.

We approve the proposal with the following requirements:

1. A permit for system installation is to be obtained from the Local Plumbing Inspector in advance of the start of system construction.

2. The system is to be installed in accordance with the submitted and approved system design. Should alterations to the design be required at the time of construction, the site evaluator is to be notified prior to making any changes.

3. The contractor is to scarify the soils under the fill extensions to create a transitional zone more compatible with the disposal field area.

4. In the event that the system fails to perform as projected, a full size disposal area shall be installed.

By accepting this approval and the associated plumbing permit, the owner agrees to comply fully with the conditions of approval and the Subsurface Wastewater Rules.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of the system.

Should you or others have any questions, please feel free to contact me at 287-5695.

Sincerely,

James A. Jacobsen

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj
xc: File
Wes Moody, owner
Leo Mayo, LPI
Darryl Brown, SE

WASTEWATER ALTERNATIVES OF NEW ENGLAND LLC
27 Kensington Road
Post office box 155
Hampton Falls, New Hampshire 03844

Telephone: (603) 926-9053
1-866-926-9053

November 4, 2004

James A. Jacobsen Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health and Engineering
Department of Human Services
161 Capital Street
11 State House Station
Augusta, Maine 02333-0011

Dear Jim,

I hope that this letter finds you well and that you are enjoying the fall weather.

I want to report on my efforts since we last discussed my request for approval by the State of Maine of a seventy-five per cent field reduction without trenches for the Clean Solution system. You requested that, as a condition to achieving the approval for a reduced field size, a Clean Solution system be installed on three sites which also could accommodate a conventional size leach field to provide a possible substitution for the system in the event that water mounding occurs. You further requested that the system(s) be monitored through documented view ports over a six-month period. Upon successful completion, showing no mounding of systems, the State of Maine may grant a blanket waiver to allow the seventy five per cent reduction using pipe and stone beds and or equally sized version of other equivalent sized proprietary stone replacements i.e. Envirotubes and Infiltrator.

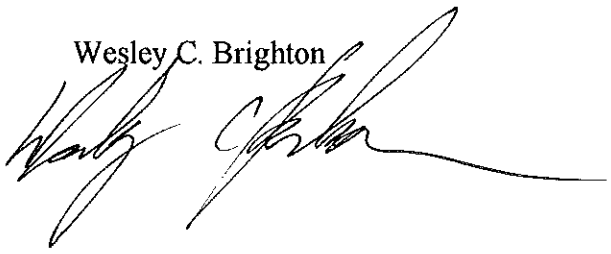
Please find enclosed plans of the first site, which will allow for a substitution of septic systems as you require and are now in the process of arranging for the installation of a Clean Solution system at that location. We are also following up on other potential sites which comply with your dual accommodation requirement and will keep you informed of our progress.

I am confident that the Clean Solution system with its seventy five per cent field reduction will not experience any water mounding. We have successfully installed over five hundred systems in New Hampshire and look forward to an equally successful experience in the State of Maine.

Thank you Jim for your continued cooperation. In the mean time, should you have any questions or wish to discuss any of this, please do not hesitate to contact me.

Best personal regards.

Wesley C. Brighton



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27 Kensington Road
Post Office Box 155
Hampton Falls, New Hampshire 03844
Telephone: (603) 926-9053
1-866-926-9053

January 4, 2005

James A. Jacobsen Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health and Engineering
Department of Human Services
161 Capital Street
11 State House Station
Augusta, Maine 02333-0011

Dear Jim,

Thank you for meeting with me the other day. I am sorry about barging in while you were still in the midst of moving, but I do appreciate you still taking the time to see me.

I am planning on installing some test systems at a 75% reduction without the trench. We are confident that we will not see any mounding in the field since it has never occurred in our ten-year history with the 95% reduction we hold in New Hampshire. If the evidence results in the same conclusion then possibly we can achieve the 75% approval without the trench. Upon submitting the plans for the 75% reduced fields I will also include a letter of assurance that in the odd case that the field does in fact mound, Wastewater Alternatives of New England will replace the field to proper working order.

We had also discussed that when using the Clean Solution on a restaurant that the field size would be a 75% reduction on a regular sized field instead of a 75% reduction on a 1.8 sized field, because the effluent of the Clean Solution is always treated. The size of the Clean Solution gets larger, not the size of the field, and therefore the dispersal field can be sized on the actual GPD flow, not the amount of bio-mat area. This is possible since the aerobic process takes place inside the Clean Solution.

If you have any problems or find any misunderstandings, please feel free to call so I can remedy the situation.

Best regards,

Wesley C. Brighton

STATE OF MAINE
DEPARTMENT OF HEALTH AND HUMAN SERVICES
161 CAPITOL STREET
11 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0011

JOHN ELIAS BALDACCI
GOVERNOR

JOHN R. NICHOLAS
COMMISSIONER

January 3, 2005

Wastewater Alternatives, Inc.
Attn.: Wesley C. Brighton & Harold Davis
27 Kensington Road
Hampton Fall, NH 03488

Subject: Revised Product Registration, The Clean Solution

Dear Mr. Brighton and Mr. Davis:

The Division of Health Engineering has completed a review of a registration application for your company's product. This information was submitted pursuant to Section 1802 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules (Rules), for code registration, for use in Maine.

Product Description

The Clean Solution consists of a separate treatment tank which follows a conventional septic tank. The volume of the various models range from 1,000 gallons to 2,600 gallons. The volume is comprised of a section dedicated to an aerated recirculating filter media, a section dedicated to settling, and a pump chamber. The ratio of filter media volume to settling volume varies from model to model. The large volume units have separate pump tanks and integral septic tanks. The Clean Solution is designed for use with conventional onsite sewage disposal areas.

Claim

According to the information you provided, e. g, two testing reports. the Clean Solution provides significant reductions in BOD_5, TSS, and nitrogen compounds. In a meeting on December 14, 2004 Mr. Brighton and I discussed applying a 75 percent reduction to the product when used with stone and pipe trenches, consistent with a past Division approval for advanced treatment. We agreed this was mutually acceptable.

Determination

On the basis of the materials submitted, the Division has determined that the Clean Solution is acceptable for use in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacturer's directions, with the following conditions:

1. The disposal areas for onsite sewage disposal systems using the Clean Solution shall be sized in accordance with Table 603.1 of the Subsurface Wastewater Disposal Rules, except as allowed pursuant to Condition #2, below.

2. Stone trenches are allowed a 75 percent reduction in size, based upon the standard sizing requirements of the Rules, when used with the Clean Solution.

PHONE: (207) 287-5338
TTY: Deaf/Hard of Hearing (207) 287-5550

FAX: Admin./Plumbing/Eating & Lodging: (207) 287-3165
Drinking Water: (207) 287-4172
Radiation Control: (207) 287-3059

3. In the event that the product fails to perform as claimed by the applicant, use of the product in Maine, including all installations approved pursuant to Section 1801.7 of the Rules, shall cease. Use of the product shall not resume until the applicant and the Division have reached a mutually acceptable agreement for resolving the failure to perform as claimed.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of The Clean Solution. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar products.

This letter supersedes the letter dated September 14, 2004.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

xc: Clean Solution File

STATE OF MAINE
DEPARTMENT OF HEALTH AND HUMAN SERVICES
161 CAPITOL STREET
11 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0011

JOHN ELIAS BALDACCI
GOVERNOR

JOHN R. NICHOLAS
COMMISSIONER

December 6, 2004

To: Wastewater Alternatives-Clean Solution File

From: James Jacobsen, ES IV

xc: Russell Martin, Program Director

Re: Telephone conversation with Wesley Brighton

On Friday, December 3 I spoke with Wesley Brighton, concerning the status of his company's pending request for a 75 % sizing reduction for use of the Clean Solution System. I advised him that neither Russell Martin, Program Director nor I were in favor of such a reduction.

Mr. Brighton was politely insistent that the reduction is merited. He asked if we can meet to discuss it, and we have scheduled a meeting for the morning of December 14, 2004.

75% reduction with trenches

PHONE: (207) 287-5338
TTY: Deaf/Hard of Hearing (207) 287-5550

FAX: Admin./Plumbing/Eating & Lodging: (207) 287-3165
Drinking Water: (207) 287-4172
Radiation Control: (207) 287-3059

STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
BUREAU OF HEALTH, DIVISION OF HEALTH ENGINEERING
161 CAPITOL STREET
11 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0011

JOHN ELIAS BALDACCI
GOVERNOR

JOHN R. NICHOLAS
COMMISSIONER

September 14, 2004

Wastewater Alternatives, Inc.
Attn.: Wesley C. Brighton & Harold Davis
27 Kensington Road
Hampton Fall, NH 03488

Subject: Product Registration, The Clean Solution

Dear Mr. Brighton and Mr. Davis:

The Division of Health Engineering has completed a review of a registration application for your company's product. This information was submitted pursuant to Section 1802 of the Maine State Plumbing Code, Subsurface Wastewater Disposal Rules (Rules), for code registration, for use in Maine.

Product Description

The Clean Solution consists of a separate treatment tank which follows a conventional septic tank. The volume of the various models range from 1,000 gallons to 2,600 gallons. The volume is comprised of a section dedicated to an aerated recirculating filter media, a section dedicated to settling, and a pump chamber. The ratio of filter media volume to settling volume varies from model to model. The large volume units have separate pump tanks and integral septic tanks. The Clean Solution is designed for use with conventional onsite sewage disposal areas.

Claim

According to the information you provided, e. g, two testing reports. the Clean Solution provides significant reductions in BOD_5, TSS, and nitrogen compounds. In the supporting documents included with your application, you state that a "field as small as 3' wide x 25' long can meet the disposal needs of a single house". In your specifications spreadsheet, you specify disposal areas ranging from 75 square feet to 700 square feet. The Division is not persuaded that these are appropriate sizing criteria.

Determination

On the basis of the materials submitted, the Division has determined that the Clean Solution is acceptable for use in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacturer's directions, with the following conditions:

1. The disposal areas for all onsite sewage disposal systems using the Clean Solution shall be sized in accordance with Table 603.1 of the Subsurface Wastewater Disposal Rules, the applicant's product literature notwithstanding.

2. In the event that the product fails to perform as claimed by the applicant, use of the product in Maine, including all installations approved pursuant to Section 1801.7 of the Rules, shall cease. Use of the product shall not resume until the applicant and the Division have reached a mutually acceptable agreement for resolving the failure to perform as claimed.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of The Clean Solution. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar products.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

Enc: Page 6-2, CMR 241

xc: Product File

WASTEWATER ALTERNATIVES OF NEW ENGLAND LLC
27 Kensington Road
Post office box 155
Hampton Falls, New Hampshire 03844

Telephone: (603) 926-9053
1-866-926-9053

November 16, 2004

James A. Jacobsen Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health and Engineering
Department of Human Services
161 Capital Street
11 State House Station
Augusta, Maine 02333-0011

Dear Jim,

I want to thank you once again for your kind consideration and support of our efforts to gain State approval for the use of the Clean Solution System of Wastewater Alternatives in Maine. We are very excited about the opportunities which Maine holds for us now that our application has been approved. We will honor your confidence in this system by standing by our commitment to provide the highest quality wastewater treatment process to those individuals in need of this very effective method.

The surface area stipulation of the approval, which allows a fifty per cent (50%) reduction in leach field area, is problematic. Such a stipulation is, of course, important for conventional septic systems due to the area of the bio mat in the field, but the aerobic pre-treatment process of the Clean Solution accomplishes the biological function of a leach field in an appropriately sized subterranean tank which allows the use of a reduced dispersal field area. Wastewater Alternatives enjoys an approved reduction of seventy five per cent (75%) and more of a conventional field size in New Hampshire. This approval is based upon the process in which the effluent from the septic tank flows into the BioCon tank containing plastic media that provide an extended surface contact area for bacteria to collect and decontaminate the dissolved solids in the effluent. A continuously operating air pump provides oxygen to the bacteria by means of an airlift. The output from the BioCon flows by gravity into settling chambers and pump tanks where any remaining sludge is settled and the clear liquid flows by gravity or is pumped to the dispersal field.

The Clean Solution treats the effluent so that the BOD and the TSS are almost undetectable and reduces pathogens and viruses by about ninety five per cent (95%). The remaining five per cent (5%) of pathogens are filtered when sifted through the soil of a reduced field. We design each system with approximately ten per cent (10%) more

surface area within the tank than in a conventional leaching field. Furthermore, we design each system to allow twice as much residence time as is normally needed which allows far more time for treatment than either a drip filter or for the time it would take for the effluent to percolate into the soil in a regular leach field. It takes at least 30ppm BOD to form a bio mat. Our independent third party test results consistently show that there is no chance of ever forming a bio mat at the level of treated effluent that exits into the dispersal field. I believe that the application for approval contains verification of this result.

Based upon the above, we respectfully request further considerations from you for an amended approval, which would allow a seventy five per cent (75%) reduction in the stipulated size of the disposal area without the use of a pipe and stone trench. We would be pleased to continue to work closely with you to develop the appropriate guidelines to assure you of the effectiveness of the system at the reduced size. I will contact you to discuss this further.

In regards to design standards in connection with the engineering for a restaurant, it has been our accepted practice to base the reduced field size on the actual flow rate and soil loading rather then the traditional design which requires an additional sizing of the dispersal field by 1.8 times to accommodate their regular high levels of BOD. The Clean Solution process results in the discharge of a clear effluent and because of this, I would also like to explore with you the possibilities of obtaining State of Maine approval of a reduced field size for restaurant use based upon actual flow.

I would also like to review with you the possibility of gaining both the twenty points variance as well as the field reduction within the shore land protection zones of the Shore Land Protection Act. The Clean Solution has proven to be the most environmentally sound as well as the most cost effective option for these areas. This will, I believe, be of great benefit to the many residents of Maine who reside in these locations.

I will contact you soon to schedule a time to meet at your convenience to further discuss the substance of this letter. In the meantime, Jim, I want you to know how much I appreciate your willingness to spend the time with me to refine the approval parameters. As I am sure you can tell, I am passionate about my business and will make every effort to become a trusted participant with you and the State of Maine in this growing field.

Best personal regards.

Sincerely yours,

Wesley C. Brighton
Vice president

Enc. Testing Results

eastern analytical

professional laboratory services

Wes Brighton
Wastewater Alternatives
27 Kensington Road
Hampton Falls , NH 03844

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 43542
Client Identification: Existing Systems
Date Received: 8/4/2004

Dear Mr. Brighton :

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with the EPA document "Practical Guide for Ground-Water Sampling." Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:
Solid samples are reported on a dry weight basis, unless otherwise noted
< : "less than" followed by the reporting limit
TNR: Testing Not Requested
ND: None Detected, no established detection limit
RL: Reporting Limits
%R: % Recovery

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw — 8-18-04 — 2

Lorraine Olashaw, Lab Director | Date | # of pages (excluding cover letter)

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 43542

Client: **Wastewater Alternatives** Client Designation: **Existing Systems**

Sample ID:	Influent	Effluent	Units	Analysis Date	Time	Method	Analyst
Lab Sample ID:	43542.01	43542.02					
Matrix:	aqueous	aqueous					
Date Sampled:	8/4/04	8/4/04					
Date Received:	8/4/04	8/4/04					
Solids Suspended	35	< 5	mg/L	8/09/04	10:00	160.2	SEL
Nitrite	< 0.5	< 0.5	mg/L	8/06/04	18:41	353.2	KL
Nitrate	< 0.5	1.6	mg/L	8/05/04	18:13	353.2	KL
Ammonia	26	< 0.05	mg/L	8/09/04	17:00	350.3	KL
TKN	41	< 0.5	mg/L	8/12/04	16:30	351.4	AAB
Total Nitrogen	41	1.6	mg/L	8/17/04	16:45	4500-N	KL
Total Phosphorus	7	0.35	mg/L	8/05/04	14:00	365.3	SEL
BOD	60	< 6	mg/L	8/04/04	17:30	5210B	JL
E Coli	500000	< 2	MPN/100ml	8/04/04	17:45	9221F	AAB

REISSUED 10/26/2004 EJP

B.3c

CHAIN-OF-CUSTODY RECORD

eastern analytical
professional laboratory services

43542

B.3C

EAI Project ID

Matrix
A - Air
S - Soil
GW - Ground W.
SW - Surface W.
DW - Drinking W.
WW - Waste W.
Other

SampleID	Date/Time	Matrix	Parameters	Sample Notes	# of containers
Influent	8/4/04 10:55		AqTot/BOD/TSS/NO3/NO2/TKN/NH3/TPhos/EColi/TN		
Preservative: HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE				Field Filtered Metals Check here ☐	
Effluent	8/4/04 11:15		AqTot/BOD/TSS/NO3/NO2/TKN/NH3/TPhos/EColi/TN		
Preservative: HCL HNO$_3$ H$_2$SO$_4$ NaOH MEOH Na$_2$S$_2$O$_3$ ICE				Field Filtered Metals Check here ☐	

Project Name Existing Systems

EAI Batch #

State NH

Client (Pro Mgr) Wes Brighton

Customer Wastewater Alternatives

Address 27 Kensington Road

City Hampton Falls NH 03844

Phone 926-9053 Fax 926-9325

EmailAddress: wcbrighton@yahoo.com

Results Needed by: Preferred date _____

Notes about project

QC deliverables ☒ A ☐ B ☐ C

ReportingOptions

☒ HC ☐ EDD email

☐ NO FAX

☐ Partial Fax

☐ EDD Disk

PONumber: Credit App. Faxed

Quote No: 1002806

Temperature 26.2 °C

Ice present Yes ☐ No ☑

Samples Collected by: _____

Relinquished by	Date/Time	Received by
	8/4/04 17:05	
Relinquished by	Date/Time	Received by

REISSUED 10/26/2004 KJP

2

WASTEWATER ALTERNATIVES, Inc.

The Clean Solution

September 6, 1994

WAI Clean Solution™ System for the home of:
Bonnie and Matt Benner
Main Street
Rindge, N.H.

The Clean Solution

Wastewater Alternatives Inc. will provide the following:

A.) one 1600 gallon 2-compartment Eliminator™ treatment tank provided by Del Gilbert & Son, Laconia N.H. Mounted inside the tank will be:
1.) Biocon™ Biological Contactor
2.) automated intake system
3.) intake and output lines

B.) Pump System
1.) half-horsepower pump
2.) air induction system
3.) automatic valve for recycle and discharge

C.) Control System - provided by Buda Equipment, Syracuse , N.Y.
1.) 2 timers
2.) motor contactor
3.) relays and contactors
4.) high and high,high alarms
5.) elapsed cycle timer

D.) Installation:
1.) Excavation and installation of the 1600 gallon treatment tank between the existing septic tank and the existing leach field.
a.) feed will be by gravity from the septic tank
b.) the treatment tank will be installed so that it will work as additional septic capacity if the Clean Solution malfunctions.

2.) Pump System and Control System will be installed in the basement of your house - precise location will be with your approval. Electrical installation will be by licensed electrician.

3.) Connections
a.) There will be three 1 1/2 inch pipes connected to the pump system- 2 to the treatment tank and 1 to the existing leach field distribution box.
b.) Connections (4 inch diameter lines) from your septic tank to the treatment system and from the treatment tank to the leach field.

P.O. Box 403, Hadley Road, Jaffrey, N.H. 03452 (603) 532-4237

4.) Alarm Systems
The control box will have two visual level alarms. One will give about two days notice that unit attention is needed and the second will indicate the need for immediate correction. Failure to provide attention will cause the treatment tank to function only as a septic tank.

5.) Instruction manuals

Post -installation service:

WAI will check the system at least two (2) times per year and be on emergency call for a period of three (3) years at no charge. All repairs for one year will be at no cost. Repairs in years two and three will be at material and outside labor costs.

Title:

Title to the installed system at their home will be given to the Benners upon payment of one dollar ($1.00).

Rights to data and Access to the system:

Since this is a prototype system, WAI reserves the right of reasonable access to collect data, modify, maintain and repair the Clean Solution™ and its subsystems. WAI will retain all data collected and the rights to it.

Additional cost:

A.) The system will require approximately 800 watts of electricity for a period of 6 hours every time the system cycles. The number of cycles depends on use - design is once every day.

B.) The system will also have to be pumped in the same manner as the septic tank once approximately every two years. The home owner will be responsible for these costs.

Permits:

WAI will file a letter with Bill Evans, Head of Subsurface Disposal for DES. Bill says no formal permit or engineering is necessary.

Expected Performance:

The system will discharge clean, odor-free water to the leach field, equivalent or better in quality than that obtained from a municipal system with secondary treatment. It is hoped that injecting clean, aerated water to your leach field will improve its performance, but this is not a promise. If a new dispersal field is required it would be substantially smaller than your current leach field.

Liability:

Wastewater Alternatives, Inc. shall not be responsible for any damage, direct or consequential, caused directly or indirectly from the installation or operation of The Clean Solution™.

Trade Secrets:

The Clean Solution™ is the result of the expenditure of much effort and money. The precise design of the components and operational cycle are the intellectual property of Wastewater Alternatives, Inc. and may not be revealed without the written permission of WAI.

Accepted:

Bonnie Benner

Matt Benner

Wastewater Alternatives, Inc.
Harold E. Davis, President

Date: 9/6/94

RECEIVED
JUN 16 2004
WASTEWATER & PLUMBING PROGRAM

Bureau of Health
Division of Health Engineering
Wastewater & Plumbing Control Program

APPLICATION FOR REGISTRATION OF EXPERIMENTAL SYSTEM/INNOVATIVE TECHNOLOGY OR ONSITE SEWAGE DISPOSAL SYSTEM PRODUCT

Please complete the following Sections. Please print or type.

Applicant

Company Name: Wastewater Alternatives, INC.
Contact Person: Wesley C. Brighton & Harold Davis
Address: 27 Kensington Road
Town/City: Hampton Fall State/Province: N.H. Zip Code: 03488
Country: U.S.A.
Telephone: 603-926-9053 e-mail: wcbrighton@yahoo.com

Product

Product Name: The Clean Solution
Model: 250, 250pt, 250st3, 250st4, 600, 2000

Product Classification (choose one)

Primary or Secondary Treatment Unit

[ ] Septic Tank [✓] Extended Aerobic Treatment Unit [ ] Recirculating Aerobic Unit

[ ] Aerobic Fixed Film Unit [ ] Other (specify) Submerged aerobic bio-filter

Effluent Filter

[ ] Septic Tank Outlet Filter [✓] Post-Tank Filter [ ] Other (specify) _____

Disposal Device

[✓] Gravel-less Disposal Pipe [ ] Gravel-less Disposal Bed [ ] Chamber, Plastic

[ ] Chamber, Other [ ] Other (specify) _____

Miscellaneous

[ ] Pipe [ ] Effluent Flow Distribution Device [ ] Other (specify) _____

THEORY of THE CLEAN SOLUTION

Conventional small to mid- size sewage systems normally use a septic tank followed by a leach field to first provide anaerobic (without air) and then aerobic (with air) treatment of the effluent. Septic tanks work well for capturing and digesting the solids which are anaerobically fermented over a long period of time, dissolving the solids into the liquid waste. However, a septic tank is not designed to treat the contaminants which dissolve in the liquids. These are treated aerobically in the leach field. Municipal systems, which handle very large volumes of wastes, use much different equipment to accomplish the same biological functions: primary sedimentation tanks remove solids, and a subsequent aerobic system treats the contaminants dissolved in the liquids. Settled solids are removed from municipal primary and secondary facilities for further treatment.

All aerobic treatment systems, whether a conventional leach field, a municipal treatment plant, or *THE CLEAN SOLUTION*, depend on bacteria to purify the effluent from a solids settling system. In order for bacteria to reproduce, they require energy (food) and air. By using the contaminates in the effluent as food and atmospheric air, the bacteria metabolize the dissolved solids to carbon dioxide, water and sludge (colonies of bacteria). The aerobic bacteria also convert ammonia compounds to nitrates.

A large number of bacteria need to come in contact with the food sources in order to purify an effluent. Treatment systems utilize different methods to provide the large necessary population. A municipal system mechanically stirs up the bacteria in the secondary treatment process so that they will contact their food and not settle out of the effluent. In a leach field, the sludge (biomat) that forms at the ground interface is a large colony of bacteria through which the dissolved solid stream flows. In the *THE CLEAN SOLUTION* the bacteria collect in a thin film on the plastic media in **WAI'S** proprietary *BioCon*™ biological contactor, and the effluent is recirculated over them several times.

THE CLEAN SOLUTION uses the same biological process as a municipal secondary treatment plant using the activated sludge process. Solids are settled out, air is added for respiration for bacteria in the *BioCon*. This allows the bacteria to convert the carbonaceous dissolved solids to carbon dioxide, water and sludge and the urea and ammonia to nitrates and sludge. The sludge created is settled for periodic removal from the system, and a clean, odorless effluent is discharged to the dispersal field.

The major difference between a septic system and *THE CLEAN SOLUTION* is where the bacteria(sludge) collect. In a conventional system, the sludge forms in the bottom of the leach field and restricts the effluent flow enough so that the bacteria has time to act, This flow rate through the sludge determines the required field size. In *THE CLEAN SOLUTION*, the sludge is formed in the *BioCon*, and a clean effluent is discharged to the dispersal field. This field can be very small because there is no need for it to provide further treatment.

ChemServe

Wastewater Alternatives

Project Name: Rindge System Test
Project #: N/A
Collection Site: N/A

Group #: 02050324
Chain of Custody ID: 44174, 44175
Date Sampled: 05/30/02

METHOD #	ANALYTE	RESULTS	UNIT OF MEASURE	DATE COMPLETED	DETECTION LIMIT (PQL)	ANALYST
Sample#: 02050324-01						
Wastewater Alternatives ID: Influent						
160.2	Total Suspended Solids	24	mg/L	6/5/02	4 mg/L	BD
1664	Oil & Grease -total	13	mg/L	6/12/02	5.0 mg/L	KD
180.1	Turbidity	40.4	NTU	5/30/02	0.50 NTU	BD
350.2	Ammonia-N	27.1	mg/L	6/5/02	6.25 mg/L	BD
351.3	Kjeldahl-N	22.8	mg/L	6/7/02	12.5 mg/L	PF
360.1	Dissolved Oxygen	0	mg/L	5/30/02	0 mg/L	DR
365.2	Phosphorous-P	8.7	mg/L	6/10/02	1.25 mg/L	BD
405.1	BOD	85	mg/L	6/5/02	1 mg/L	DR
SM 9222B	Total Coliform MF	TNTC	Colonies/100 mls	5/31/02	0 Colonies/ 25 mls	HB
SM 9222D	Fecal Coliform	TNTC	Colonies/100 mls	5/31/02	0 Colonies/ 25 mls	HB
Sample#: 02050324-02						
Wastewater Alternatives ID: Effluent						
160.2	Total Suspended Solids	<4	mg/L	6/5/02	4 mg/L	BD
1664	Oil & Grease -total	<5.0	mg/L	6/12/02	5.0 mg/L	KD
180.1	Turbidity	<0.50	NTU	5/30/02	0.50 NTU	BD
300.0	Nitrite	<0.10	mg/L	5/31/02	0.10 mg/L	DR
300.0	No3-N: Nitrate-N	1.31	N/A	5/31/02	1.00 mg/L	DR
350.2	Ammonia-N	<0.250	mg/L	6/5/02	0.250 mg/L	BD
351.3	Kjeldahl-N	0.304	mg/L	6/7/02	0.250 mg/L	PF
365.2	Phosphorous-P	0.377	mg/L	6/10/02	0.050 mg/L	BD
405.1	BOD	<15*	mg/L	6/5/02	15 mg/L	DR
SM 9222B	Total Coliform MF	60	Colonies/100 mls	6/1/02	0 Colonies/ 50 mls	HB
SM 9222D	Fecal Coliform	8	Colonies/100 mls	5/31/02	0 Colonies/ 50 mls	HB
Sample#: 02050324-03						
Wastewater Alternatives ID: Effluent Filtered						
405.1	BOD	<15*	mg/L	6/5/02	15 mg/L	DR

TNTC = To numerous too count.
BOD - No oxygen loss at all dilutions, results less than the greatest dilution.

SCITEST
LABORATORY SERVICES

ANALYTICAL REPORT

P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6313
http://www.scitestlabs.com
email: info@scitestlabs.com

Integrated Systems Living
239 Indian Acres Road
Fairlee, VT 05045

Tim Price

Work Order No.: 0205-01489

Project Name: Woodstock Site
Customer Nos.: 089621

Date Received: 5/08/02
Date Reported: 5/17/02

Sample Desc.: ISL - In
Sample Nos: 001
Sample Date: 5/08/02
Collection Time: 13:55

Test Performed	Method	Results	Units	Analyst	Analysis Date
BOD5	SM18 5210D	238	mg/L	BAM	5/08/02
Total Suspended Solids	SM18 2540D	33	mg/L	BAM	5/10/02
Turbidity	EPA 180.1	44	NTU	RJM	5/09/02
Nitrite as N	EPA 353.2	0.005	mg/L	RJM	5/08/02
Nitrate as N	EPA 353.2	< 0.1	mg/L	RJM	5/08/02
TKN	EPA 351.3/350.1	63	mg/L	RJM	5/15/02
Total Phosphorus	EPA 365.1	8.5	mg/L	RJM	5/13/02
Oil & Grease Gravimetric	EPA 1664	11	mg/L	ALS	5/13/02
Dissolved Oxygen	SM18 4500G	< 1	mg/L	WHB	5/08/02
E. coli	SM18 9213D3 FMT	99000	CFU/100mL	KMA	5/08/02

Sample Desc.: WAI - In
Sample Nos: 002
Sample Date: 5/08/02
Collection Time: 13:25

Test Performed	Method	Results	Units	Analyst	Analysis Date
BOD5	SM18 5210D	222	mg/L	BAM	5/08/02
Total Suspended Solids	SM18 2540D	34	mg/L	BAM	5/10/02
Turbidity	EPA 180.1	40	NTU	RJM	5/09/02
Nitrite as N	EPA 353.2	0.010	mg/L	RJM	5/08/02
Nitrate as N	EPA 353.2	< 0.1	mg/L	RJM	5/08/02
TKN	EPA 351.3/350.1	62	mg/L	RJM	5/15/02
Total Phosphorus	EPA 365.1	8.6	mg/L	RJM	5/13/02
Oil & Grease Gravimetric	EPA 1664	12	mg/L	ALS	5/13/02
Dissolved Oxygen	SM18 4500G	1.2	mg/L	WHB	5/08/02
E. coli	SM18 9213D3 FMT	27000	CFU/100mL	KMA	5/08/02

Sample Desc.: WAI - Out
Sample Nos: 003
Sample Date: 5/08/02
Collection Time: 12:45

Test Performed	Method	Results	Units	Analyst	Analysis Date
BOD5	SM18 5210D	< 20	mg/L	BAM	5/08/02
Total Suspended Solids	SM18 2540D	3	mg/L	BAM	5/10/02
Turbidity	EPA 180.1	1.1	NTU	RJM	5/09/02
	(EPA 180.1	1.1	NTU)		

COMPLIED IN ACCORDANCE WITH

ANALYTICAL REPORT

Project Name: Woodstock Site
Project No.: 089621

Work Order No.: 0205-01489

Sample Desc.: WAI - Out
Sample Nos: 003

Sample Date: 5/08/02
Collection Time: 12:45

Test Performed	Method	Results	Units	Analyst	Analysis Date
Nitrite as N	EPA 353.2	4.1	mg/L	RJM	5/08/02
Nitrate as N	EPA 353.2	78	mg/L	RJM	5/08/02
TKN	EPA 351.3/350.1	14	mg/L	RJM	5/15/02
Total Phosphorus	EPA 365.1	8.4	mg/L	RJM	5/13/02
Oil & Grease Gravimetric	EPA 1664	< 5	mg/L	ALS	5/13/02
Dissolved Oxygen	SM18 4500G	3	mg/L	RJL	5/08/02
E. coli	SM18 9213D3 FMT	< 9000	CFU/100mL	KMA	5/08/02

Authorized by: Roderick Lamothe
Roderick J. Lamothe
Laboratory Director

SCITEST

Jacobsen, James

From: Jacobsen, James
Sent: Monday, August 02, 2004 4:16 PM
To: 'wcbrighton@yahoo.com'
Subject: clean solution application found

Mr. Brighton,

I wanted to let you know that I located the application for registration of the Clean Solution system. Unfortunately, it had been placed into one of my baskets (for things to file) without my knowledge rather than into the application's file folder. I apologize for this and will expedite my review.

James A. Jacobsen, Environmental Specialist IV
Department of Health and Human Services
Bureau of Health
Division of Health Engineering
Wastewater and Plumbing Control Program
SHS 11, 161 Capitol Street, Augusta, ME 04333

Phone: 207-287-5695 Fax: 207-287-3165
http://www.state.me.us/dhs/eng/plumb

STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
BUREAU OF HEALTH, DIVISION OF HEALTH ENGINEERING
161 CAPITOL STREET
11 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0011

JOHN ELIAS BALDACCI
GOVERNOR

JOHN R. NICHOLAS
COMMISSIONER

July 28, 2004

Wastewater Alternatives, Inc.
37 Champney Street
Groton, MA 01450

Subject: Incomplete Application, Product Registration, The Clean Solution

Dear Sirs:

On June 14, 2004 a copy of your company's product literature was hand delivered to this office. It was my understanding that it was your company's plan to pursue product registration in Maine for *The Clean Solution* advanced treatment unit. To date, we have not received the formal application.

A copy of the application form is enclosed. Please complete it and return it to us for processing. If we do not receive the application within two days of receipt of this letter, we will withdraw the proposal form our active files.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

Enc: Chapter 18, CMR 241
HHE-221 Form

xc: File

PHONE: (207) 287-5338
TTY: Deaf/Hard of Hearing (207) 287-5550

FAX: Admin./Plumbing/Eating & Lodging: (207) 287-3165
Drinking Water: (207) 287-4172
Radiation Control: (207) 287-3059

Maine Department of Health and Human Services
Bureau of Health
Division of Health Engineering
Wastewater and Plumbing Control Program

APPLICATION FOR REGISTRATION OF EXPERIMENTAL SYSTEM/INNOVATIVE TECHNOLOGY OR ONSITE SEWAGE DISPOSAL SYSTEM PRODUCT

Please complete the following Sections. Please print or type.

Applicant

Company Name: _____

Contact Person: _____

Address: _____

Town/City: _____ State/Province: _____ Zip Code: _____

Country: _____

Telephone: _____ e-mail: _____

Product

Product Name: _____

Model: _____

Product Classification (choose one)

Primary or Secondary Treatment Unit

[ ] Septic Tank [ ] Extended Aerobic Treatment Unit [ ] Recirculating Aerobic Unit

[ ] Aerobic Fixed Film Unit [ ] Other (specify) _____

Effluent Filter

[ ] Septic Tank Outlet Filter [ ] Post-Tank Filter [ ] Other (specify) _____

Disposal Device

[ ] Gravel-less Disposal Pipe [ ] Gravel-less Disposal Bed [ ] Chamber, Plastic

[ ] Chamber, Other [ ] Other (specify) _____

Miscellaneous

[ ] Pipe [ ] Effluent Flow Distribution Device [ ] Other (specify) _____

Claim

Describe the product's features (attach additional sheets if necessary).

Describe the product's performance (attach additional sheets if necessary).

Has the product received National Sanitation Foundation or Canadian Standards Authority approval?

[ ] No [ ] Yes (If "yes", enclose a copy of the certification.)

IMPORTANT NOTE!

Don't forget to enclose relevant product literature, engineering specifications, studies, and third party certifications with this application.

I, _____, am the [ ] applicant [ ] agent for the applicant of the subject product.
(print name)

I state that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department to deny registration for use of the product in Maine.

_____ _____

[ ] Signature of Applicant Date
[ ] Signature of Agent for Applicant

CHAPTER *18*

EXPERIMENTAL TECHNOLOGY AND PRODUCT REGISTRATION REQUESTS

SECTION *1800.*0 GENERAL

*1800.*1 **Scope:** This Chapter governs applications for new or experimental technology and requests for product registration.

*1800.*2 **Intent:** This Chapter provides a procedure to review the installation, operation, and long term requests for monitoring of experimental technologies and requests for new product registration.

SECTION *1801.*0 REQUIREMENTS FOR NEW OR EXPERIMENTAL TECHNOLOGY

*1801.*1 **General:** Any permit issued to allow an experimental technology system shall require, as a condition of issuance, the establishment of a monitoring program by which system performance can be demonstrated. At a minimum, all experimental technology systems shall be capable of operating at the same degree of efficacy and reliability as any authorized alternative appropriate for the site. Any variance issued will require that the system be altered if such efficacy and reliability are not obtained, in order to bring performance up to standard, or, if such alteration is not feasible, that the system shall be abandoned.

*1801.*2 **Applicants shall demonstrate:** Requests for the installation of experimental technology systems may be granted by Department if it is demonstrated that the conditions set forth in this Section can be met.

*1801.*3 **Backup design:** An authorized design can be installed on the property for which an experimental technology system is proposed. The backup system design shall be recorded with the county registry of deeds;

*1801.*4 **Meets the intent of this code:** The proposal is designed to protect public health, prevent the creation of any nuisance, and prevent environmental pollution to the same extent as the authorized system approved for the property;

*1801.*5 **Sound engineering principles:** The proposed design is shown to be based on sound engineering principles and can be expected to provide the same level of protection to public health and the environment as offered by the authorized system that could be installed on the property; and

*1801.*6 **System performance:** If the system does not perform so that it meets the purposes of this code, the applicant (or current owner) will expeditiously abandon the experimental system and install the backup system meeting all the requirements of this code.

SECTION *1802.*0 REQUIREMENTS FOR PRODUCT REGISTRATION

*1802.*1 **General:** Any manufacturer or distributor submitting new product (disposal system components, pre-filters or proprietary disposal devices) to the Department for code approval and registration shall demonstrate that the conditions set forth in this Section are met.

*1802.*2 **Meets the intent of this code:** The product is designed to protect public health, prevent the creation of any nuisance, and prevent environmental pollution to the same extent as comparable products presently authorized by the Department for use in this code;

*1802.*3 **Sound engineering principles:** The product is based on sound engineering principles and can be expected to provide the same level of protection to public health and the environment as offered by the authorized products presently authorized by the Department for use in this code. Sound engineering principles may be demonstrated by submitting a letter to the Department from a) a certifying organization, such as the International Association of Plumbing and Mechanical Officials (IAPMO), Building Officials and Code Administrators (BOCA), or other suitable organization stating their approval of the product, or b) the American Society for Testing and Materials (ASTM) indicating the requested product (used as indicated in the request) meets the ASTM standard as specifically listed in the appropriate section of any nationally recognized plumbing code, such as BOCA, IAPMO (same as International Plumbing Code), or equal.

6/24/04

THE CLEAN SOLUTION™

AN ALTERNATIVE SEPTIC SYSTEM

AN AEROBIC ALTERNATIVE DESIGNED SPECIFICALLY FOR SMALL TO MID-SIZED SYSTEMS

WASTEWATER ALTERNATIVES, INC.
The Clean Solution

37 CHAMPNEY STREET
GROTON, MA 01450

TEL NO 978-448-2415 FAX NO 978-448-2911 E-MAIL haroldddavis@mac.com

http://www.thecleansolution.com

March 03

WASTEWATER ALTERNATIVES, INC.

37 Champney St. Groton, MA 01450

Telephone: (978) 448-2415 **Fax: (978) 448-2911**

THE CLEAN SOLUTION™

There is now an affordable, ecologically sound alternative system available to replace the leach field currently required with septic systems. Developed in Jaffrey, N.H. by WASTEWATER ALTERNATIVES INC. *THE CLEAN SOLUTION* accomplishes the biological functions of a leach field in a subterranean tank the size of a septic tank. The discharge is a treated, odorless liquid which is cleaner than typical treated municipal sewage. Since the effluent is almost as clear as rain water, it can be dispersed into the ground via a field that is 5-10% the size of a conventional leach field. There are currently over 120 *CLEAN SOLUTION SYSTEMS* operating in New Hampshire that range in size from single houses to large systems treating flows 50 times greater than that from a house. It is approved for use in New Hampshire by NHDES.

In the typical *CLEAN SOLUTION* application, the effluent from the septic tank flows into the *BioCon*™ - a tank containing plastic media that provide an extended surface contact area for the bacteria to collect and decontaminate the dissolved solids in the effluent. A continuously operating air pump provides oxygen to the bacteria by means of an efficient air lift. The output from the *BioCon* flows by gravity into settling and pump tanks where any remaining sludge is settled, and the clear liquid either flows by gravity or is pumped to the dispersal field.

The attached drawings and specifications provide details on a few *CLEAN SOLUTION* models. Custom system designs are also available for specific difficult applications.

WHEN TO USE THE CLEAN SOLUTION

- **Expensive applications**
  If the total septic system cost is going to exceed $10,000, whether it's a 60 unit condominium or a house on a hillside lot next to a lake, *THE CLEAN SOLUTION* should be considered.
- **Difficult applications**
  Designed specifically for use in applications where installation of a standard leach field would be difficult. Examples include homes on shorelines and lake fronts, high water tables, ledge, small lots, slopes or next to wetlands. The *CLEAN SOLUTION* is an affordable completely in-ground system that is ideal for failed systems or new installations.

ADVANTAGES OF THE CLEAN SOLUTION

- **Environment friendly**
  - ◇ *THE CLEAN SOLUTION*, a tank that is installed after the septic tank, provides the same aerobic treatment that a leach field is supposed to. This means only a small field is required to disperse the clean, odorless water into the ground.
- **User friendly**
  - ◇ Garbage disposer and dish washer compatible
  - ◇ Simple - the only moving part is the air pump
  - ◇ Accommodates vacations, low flows and peak loads
  - ◇ Landscape friendly - completely in ground
  - ◇ Comprehensive 2 year warranty
- **Dispersal field - no leach field**
  - ◇ Since pollution is removed prior to discharge, only a dispersal method is required to prevent surface discharges. A field as small as 3' wide x 25' long can meet the disposal needs of a single house in all soils with percolation rates of 1" in 40 minutes or better. This is less than 5-10% of the area of a conventional leach field.
- **Low maintenance**
  - ◇ In most applications, simple maintenance is required only approximately every 2 1/2 years. Maintenance consists mainly of pumping the septic and settling tanks, rebuilding the air pump, and inspecting the system. This can all be accomplished in less than a day.

THEORY of THE CLEAN SOLUTION

Conventional small to mid- size sewage systems normally use a septic tank followed by a leach field to first provide anaerobic (without air) and then aerobic (with air) treatment of the effluent. Septic tanks work well for capturing and digesting the solids which are anaerobically fermented over a long period of time, dissolving the solids into the liquid waste. However, a septic tank is not designed to treat the contaminants which dissolve in the liquids. These are treated aerobically in the leach field. Municipal systems, which handle very large volumes of wastes, use much different equipment to accomplish the same biological functions: primary sedimentation tanks remove solids, and a subsequent aerobic system treats the contaminants dissolved in the liquids. Settled solids are removed from municipal primary and secondary facilities for further treatment.

All aerobic treatment systems, whether a conventional leach field, a municipal treatment plant, or *THE CLEAN SOLUTION*, depend on bacteria to purify the effluent from a solids settling system. In order for bacteria to reproduce, they require energy (food) and air. By using the contaminates in the effluent as food and atmospheric air, the bacteria metabolize the dissolved solids to carbon dioxide, water and sludge (colonies of bacteria). The aerobic bacteria also convert ammonia compounds to nitrates.

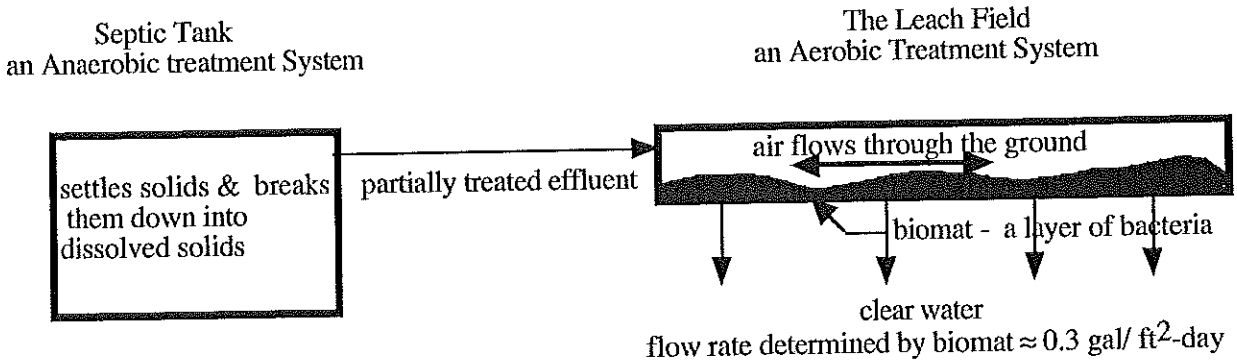
A large number of bacteria need to come in contact with the food sources in order to purify an effluent. Treatment systems utilize different methods to provide the large necessary population. A municipal system mechanically stirs up the bacteria in the secondary treatment process so that they will contact their food and not settle out of the effluent. In a leach field, the sludge (biomat) that forms at the ground interface is a large colony of bacteria through which the dissolved solid stream flows. In the *THE CLEAN SOLUTION* the bacteria collect in a thin film on the plastic media in **WAI'S** proprietary *BioCon*™ biological contactor, and the effluent is recirculated over them several times.

THE CLEAN SOLUTION uses the same biological process as a municipal secondary treatment plant using the activated sludge process. Solids are settled out, air is added for respiration for bacteria in the *BioCon.* This allows the bacteria to convert the carbonaceous dissolved solids to carbon dioxide, water and sludge and the urea and ammonia to nitrates and sludge. The sludge created is settled for periodic removal from the system, and a clean, odorless effluent is discharged to the dispersal field.

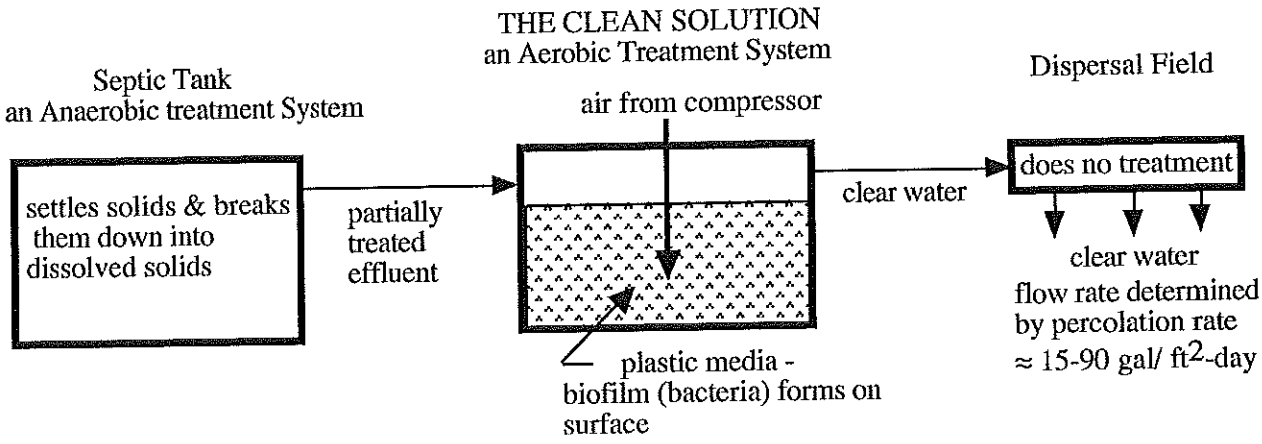
The major difference between a septic system and *THE CLEAN SOLUTION* is where the bacteria(sludge) collect. In a conventional system, the sludge forms in the bottom of the leach field and restricts the effluent flow enough so that the bacteria has time to act, This flow rate through the sludge determines the required field size. In *THE CLEAN SOLUTION*, the sludge is formed in the *BioCon,* and a clean effluent is discharged to the dispersal field. This field can be very small because there is no need for it to provide further treatment.

SIMPLIFIED OPERATIONAL SCHEMATIC OF IN-GROUND AEROBIC TREATMENT SYSTEMS

Conventional System



THE CLEAN SOLUTION System



In all aerobic treatment systems, bacteria does the cleansing of the effluent by using the carbon sources as food and air for oxidization thereby producing carbon dioxide, water and more bacteria. You see groups of this new bacteria as biomat or sludge. THE CLEAN SOLUTION™ performs exactly the same functions as the leach field - except it accomplishes them mechanically in a tank. The square footage of plastic media in THE CLEAN SOLUTION pretty much equals the square footage of a leach field for the same flow. Since THE CLEAN SOLUTION discharges clear water, just like the bottom of a leach field, the only purpose of the dispersal field is to disperse it into the ground for final pathogen removal.

CLEAN SOLUTION™ SYSTEM SPECIFICATIONS

Model	Max daily flow per NHDES(1) gal/day	Max o2 req'd(3) #/day	Compressor rating - free flow scfm	Compressor flow @ 3.5' head scfm	Max o2 transferred @5% eff(4) #/day	Power consumption watts	Volume of plastic media in BioCon cu ft	Approx area of media in BioCon sq ft	Minimum dispersal field size sq ft
1,2, or 3 BEDROOM HOUSE									
250	450	0.33	3.0	2.8	3.0	80	30	900	75
	uses a 1000 gal 2 compartment cement tank								
250PT	450	0.33	3.0	2.8	3.0	80	30	900	75
	uses a 1050 gal 2 compartment plastic tank								
250ST3	450	0.33	3.0	2.8	3.0	80	30	900	75
includes septic tank	uses a uses a 3 compartment cement tank that includes a 1250 gal septic tank, a 350 gal BioCon and a 500 gal pump/settling tank								
4 BEDROOM HOUSE									
250	600	0.50	3.0	2.8	3.0	80	30	900	100
	uses a 1000 gal 2 compartment cement tank								
250PT	600	0.50	3.0	2.8	3.0	80	30	900	100
	uses a 1050 gal 2 compartment plastic tank								
250ST4	600	0.50	3.0	2.8	3.0	80	30	900	100
includes septic tank	uses a uses a 3 compartment cement tank that includes a 1600 gal septic tank, a 450 gal BioCon and a 500 gal pump/settling tank								
TYPICAL LARGE SYSTEM DESIGNS									
600	1200	1.00	3.0	2.8	3.0	80	35	1050	200
	uses a 1000 gal 2 compartment cement tank plus a 500 gal pump tank [if required]								
2000	4000	3.30	3@3.0	8.4	9.6	240	150	4500	700

NOTES:

[1] Models 250 &250PT are identical for 3 & 4 bedroom homes except for the dispersal field size

[2] Specifications for Models 500 and 2000 are only typical values. <u>All models larger than Model 250 will be proposed on an individual basis - based on both flow and BOD.</u> WAI has provided single systems capable of accommodating over 60 houses.

(3) Assumes typical effluent from septic tank is 200ppm BOD.

(4) Assumes that 5% of the O2 available in the air input is transferred into the water.

WASTEWATER ALTERNATIVES, INC.
37 Champney St. Groton, MA 01450
978-448-2415

PRICES

Model	without sump pump	with sump pump (2)	comments
250	$4,600	$5,600	
250PT	$4,900	$5,900	plastic tank
250ST3	$5,700	$6,700	integral septic tank
250ST4	$5,900	$6,900	integral septic tank
600 (1)	$4,800	$6,400	uses separate pump tank
2000 (1)	$13,500	$14,900	uses separate pump tank

(1) These are typical prices for reference. Any system larger than a Model 250 is custom designed and priced.
(2) Prices include a standard sump pump - high head pumps for severe elevations are extra.

Prices include:

1. A BioCon aeration tank with plastic media, settling tank, tanks set in holes provided by the installer, all internal plumbing, and an installed air supply system,
2. If a sump pump is specified, an installed sump pump with necessary floats and alarms is provided. This includes wiring up to 50' to 2 empty circuit breakers in the existing house service. All wiring will be done by a NH licensed electrician.

Prices <u>do not include</u>:

The services of a designer or installer, a septic tank [unless integral to the system], excavation, dispersal field, connections from the septic tank to THE CLEAN SOLUTION and to the dispersal field, additional wiring, and drive on installations.

MAINTENANCE

The following maintenance is required every 2 1/2 years:

1. **Pump out both the settling and septic tanks**
2. **Rebuild compressor**
3. **Inspect and take corrective action, if necessary:**

a] media	**if plugged, backwash with air**
b] sludge in BioCon	**pump BioCon tank if excessive**
c] diffuser	**replace if pressure drop too great**

A maintenance agreement is available for performing items 2 and 3 from PUMP SYSTEMS INC. POB 6101, WEST FRANKLIN, NH 03235, TEL# 603-934-7100. You can obtain a sample agreement by contacting them directly. Their service will include a detailed inspection of your system, replacement of any failed items and either a new rebuilt compressor or an on site rebuild of yours [their option]. Tank pumping is not included in the price and must be arranged by you just prior to the scheduled maintenance appointment.

Based on the inspection findings at the first scheduled maintenance, the maintenance schedule may be modified by mutual consent and any changes will be reduced to writing. In the absence of a written modified maintenance schedule, the above schedule must continue to be performed by the buyer.

COMPREHENSIVE WARRANTY

For a period of 2 years, WAI will warrant the system and repair any malfunction, including parts and labor, at no cost to you. Your responsibility during this period is to perform the required maintenance and to notify WAI of any failure.

INSTALLATION RESPONSIBILITIES

The responsibilities for a *CLEAN SOLUTION* installation rest in a partnership between the owner, the installer, and Wastewater Alternatives.

The owner:

1. Retains a licensed designer to prepare a plan
2. Obtains all necessary permits and approvals
3. Executes a sales agreement with **WAI** at least 3 weeks prior to installation
4. Provides an electrical service panel with at least 2 circuits available
5. Hires a licensed installer

The installer:

1. Contacts **WAI** at least 3 weeks prior to installation to set date and discuss details
2. Provides the septic tank, if called for and not provided by the owner
3. Excavates for the septic tank and all *CLEAN SOLUTION* tanks
4. Constructs the dispersal field in accordance with the approved design
5. Installs the piping from the septic tank to *THE CLEAN SOLUTION*
6. Installs the piping from *THE CLEAN SOLUTION* to the dispersal field.
7. Seals all piping holes in all tanks
8. Digs a trench for the electrical conduit
9. Back fills
10. Covers up and cleans up the site
11. Obtains NHDES inspection

WAI:

1. Sets all *CLEAN SOLUTION* tanks in holes excavated by the installer
2. Installs plastic media in the BioCon tank
3. Provides an installed air supply system
4. Installs sump pump if specified
5. Provides necessary alarms
6. Does all electrical wiring including that from the customer's service to the tanks
7. Does all internal piping
8. Starts up and checks out the system
9. Performs any necessary repairs and/or maintenance of *THE CLEAN SOLUTION*

Typically, installation of a *CLEAN SOLUTION* takes 2 days. The 1st day the holes are dug, and the tanks set and back filled to the inverts. The 2nd day we install all *THE CLEAN SOLUTION* components and complete the wiring.

FOR ADDITIONAL INFORMATION

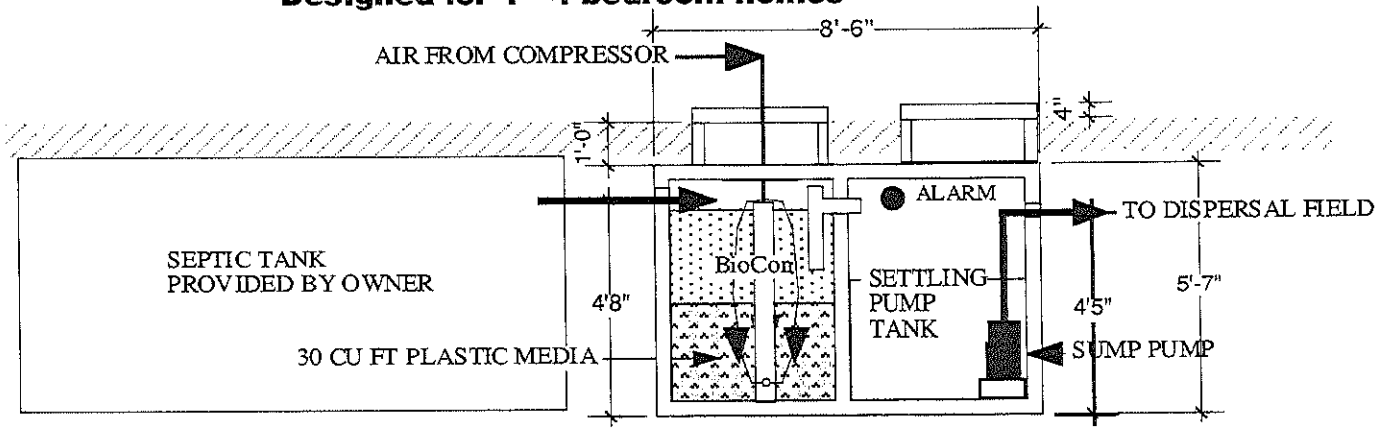
HAROLD DAVIS, WASTEWATER ALTERNATIVES, INC.
37 CHAMPNEY ST. GROTON, MA 01450

Tel No: (978) 448-2415 Fax No: (978) 448-2911 E-mail: harolddavis@mac.com

http://www.thecleansolution.com

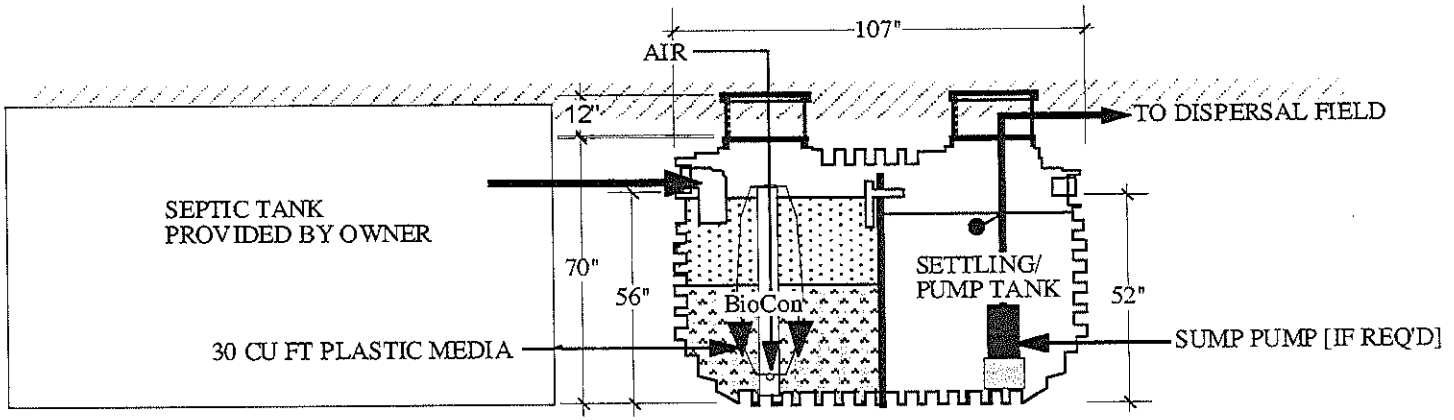
SINGLE HOME CLEAN SOLUTION™ SYSTEM - MODEL 250

Designed for 1 - 4 bedroom homes



1000 GAL ELIMINATOR TANK -4'10"WX8'6"LX5'7"H

CLEAN SOLUTION™ SYSTEM - MODEL 250PT

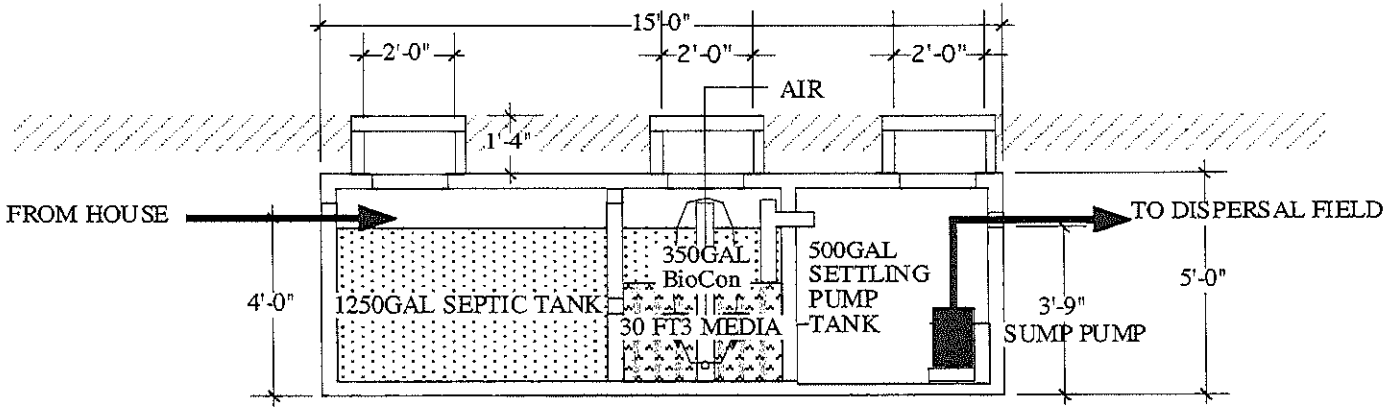


WEDCO 1050 GALLON 2 COMPRATMENT POLYETHYLENE TANK
107"[L] X 53"[W] X 70"[H]

SINGLE HOME CLEAN SOLUTION™ SYSTEMS **Designed for 1 - 4 bedroom homes**	date 6/20/02 **pg# 7**	**WASTEWATER ALTERNATIVES, INC.** 37 Champney St. Groton, MA 01450 978-448-2415

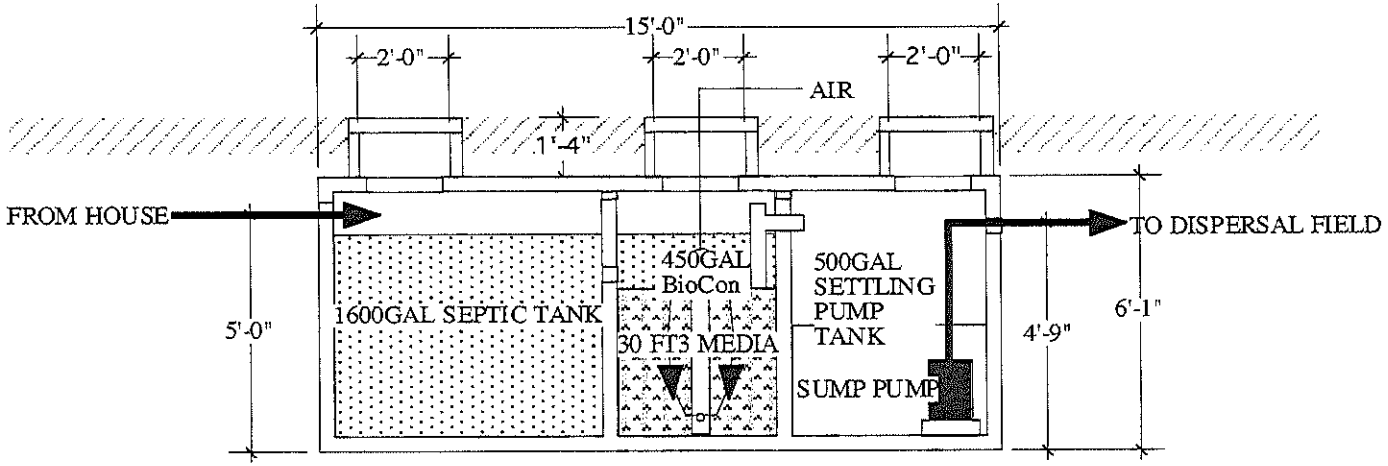
SINGLE HOME CLEAN SOLUTION™ SYSTEMS WITH INTREGAL SEPTIC TANKS

MODEL 250ST3 CLEAN SOLUTION™ SYSTEM - Designed for 1-3 bedrooms



USES FOSS 3 COMPARTMENT TANK - 15'LX6'6"WX5'H

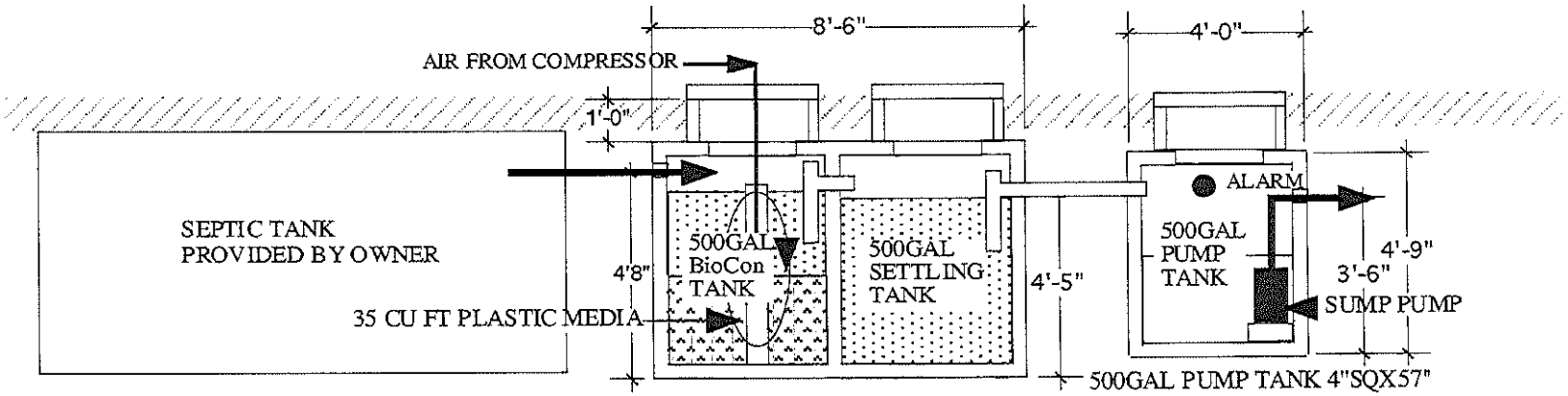
MODEL 250ST4 CLEAN SOLUTION™ SYSTEM - Designed for 4 bedrooms



USES PHOENIX 3 COMPARTMENT 2600GAL TANK - 15'LX6'6"WX6'1"H

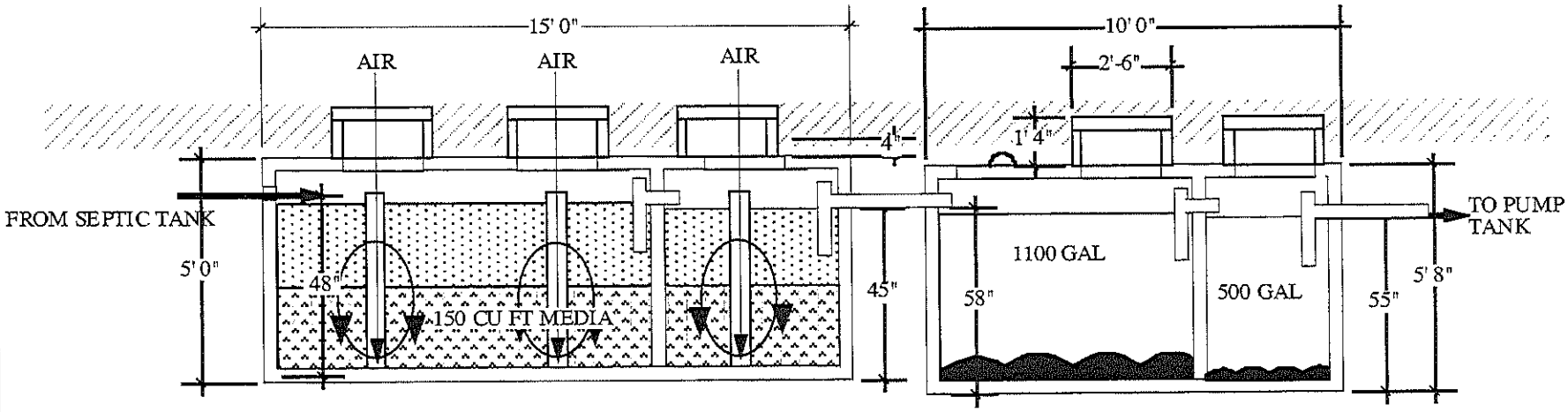
SINGLE HOME CLEAN SOLUTION™ SYSTEMS WITH INTREGAL SEPTIC TANKS	date 6/20/02	**WASTEWATER ALTERNATIVES, INC.** 37 Champney St. Groton, MA 01450 978-448-2415
	pg# 8	

6 BEDROOM SINGLE HOME SYSTEM – MODEL 600



1000 GAL ELIMINATOR TANK -4'10"WX8'6"LX5'7"H

MODEL 2000 DESIGNED FOR 4000GPD NHDES FLOWS



2500 GAL 2 COMPARTMENT TANK -7'WX14'3"LX5'6"H

BioCon TANK

1600 GAL 2 COMPARTMENT TANK -6'4"'WX10'0"LX5'8"H

SETTLING TANK

LARGER CLEAN SOLUTION™ SYSTEMS

Note: These are only typical designs. Any application larger than a 4 bedroom house is custom designed.

date 6/20/02

pg# 9

WASTEWATER ALTERNATIVES, INC.
37 Champney St.
Groton, MA 01450
978-448-2415

CLEAN SOLUTION INSTALLATIONS - FEB 03

TYPE	LOCATION	DAILY CAP
capacity is per NHDES standards		GPD
HOME	RINDGE	450
HOME	JAFFREY	450
RESTAURANT	WINCHESTER	2000
COMMERCIAL BLDG	ELKINS	600
LAKESIDE HOME	GRAFTON	450
APARTMENT HOUSE	RINDGE	1600
LAKESIDE HOME	SWANZEY	600
LAKESIDE COMPLEX	ELKINS	1250
LAKESIDE HOME	HARRISVILLE	600
TRUCK STOP	BOW	4000
RENTAL CABINS	KEENE	1600
OCEANSIDE HOME	DURHAM	600
HOME	DUBLIN	1000
LAKESIDE COMPLEX	SWANZEY	1000
NEW HOME	DURHAM	600
LAKESIDE HOME	SWANZEY	750
OCEANSIDE HOME	GREENLAND	600
LAKESIDE HOME	LAKE SUNAPEE	600
OCEANSIDE HOME	GREENLAND	600
HOME	NORTH HAMPTON	600
COMMERCIAL BLDG	GREENLAND	3000
CAMP	SWANZEY	12000
LAKESIDE COMPLEX	MUNSONVILLE	1500
APARTMENTS	NEWMARKET	6000
REHABILATION CENTER	KEENE	6000
RESTAURANT	NORTH HAMPTON	2000
LAKESIDE HOME	RINDGE	450
HOME	RINDGE	450
LAKESIDE HOME	LAKE SUNAPEE	450
LAKESIDE HOME	SPOFFORD LAKE	450
LAKESIDE HOME	BLAISDELL LAKE	600
LAKESIDE HOME	NEWFOUND LAKE	450
TRAILER PARK	ALTON	7600
CAMPGROUND	BARRINGTON	5000
CAMP	ALTON	4000
COMMERCIAL BLDG	NEW IPSWICH	1200
HOME	RYE	450
OCEAN HOME	RYE	600
LAKESIDE HOME	BRADFORD	450
HOME	DURHAM	450
HOME	MEREDITH	450
LAKESIDE HOME	SWANZEY	1000
ISLAND HOME	SQUAM LAKE	1000
ISLAND HOME	BEAR ISLAND	450

TYPE	LOCATION	DAILY CAP
capacity is per NHDES standards		GPD
HOME	DURHAM	450
LAKESIDE HOME	LAKE SUNAPEE	450
LAKESIDE HOME	ALSTEAD	450
HOME	RYE	450
LAKESIDE HOME	NORTHFIELD	450
CAMPGROUND	CLARKSVILLE	4000
LAKESIDE HOME	LAKE SUNAPEE	600
LAKESIDE HOME	LAKE WINNIPESAUKEE	450
LAKESIDE HOME	LAKE WINNIPESAUKEE	600
HOME	WOODSTOCK, VT	450
HOME	SUTTON MILLS	450
LAKESIDE HOME	BRADFORD	450
CABIN COMPLEX	LAKE SPOFFORD	4300
LAKESIDE HOME	BRADFORD	600
LAKESIDE HOME	LAKE WINNIPESAUKEE	450
HOME	DURHAM	450
HOME	LAKE WINNIPESAUKEE	450
BROOKSIDE HOME	HARRISVILLE	450
HOME	LAKE SPOFFORD	450
HOME	LAKE SUNAPEE	450
ISLAND HOME	LAKE WINNIPESAUKEE	450
SCHOOL	DUBLIN	12000
HOME	KEENE	600
DOUGHNUT SHOP	MEREDITH	6000
LAKESIDE HOME	GRANITE LAKE	600
APARTMENTS	NEW IPSWICH	2000
LAKESIDE HOME	LAKE WINNIPESAUKEE	450
LAKESIDE HOME	STODDARD	450
ISLAND HOME	LAKE WINNIPESAUKEE	450
LAKESIDE HOME	NOTTINGHAM	450
CAMPGROUND	BARRINGTON	6200
HOME	FAIRLEE, VERMONT	450
HOME	GONIC	450
LAKESIDE HOME	LAKE WINNIPESAUKEE	450
LAKESIDE HOME	LAKE WINNIPESAUKEE	600
LAKESIDE HOME	LAKE WINNISQUAM	450
HOME	STRATHAM	450
MOTEL	MOULTONBOROUGH	7200
LAKESIDE HOME	LAKE WINNIPESAUKEE	450
LAKESIDE HOME	PELHAM	450
NEW HOME	STRATHAM	600
NEW HOME	STRATHAM	600
HOUSING COMPLEX	DURHAM	25000
HOUSE	ALSTEAD	600

CLEAN SOLUTION INSTALLATIONS - FEB 03

TYPE	LOCATION	DAILY CAP
capacity is per NHDES standards		GPD
LAKESIDE HOME	LAKE SPOFFORD	600
LAKESIDE HOME	ACKWORTH	450
COMMERCIAL SITE	NEWMARKET	2000
ISLAND HOME	WINNIPESAUKEE	450
LAKESIDE HOME	ENFIELD	450
COMMERCIAL SITE	NOTTINGHAM	2000
HOUSE	TAMWORTH	450
COMMERCIAL SITE	GREENLAND	600
LAKESIDE HOME	LAKE SPOFFORD	600
HOME	GREENLAND	450
HOME	DURHAM	750
LAKESIDE HOME	WINNISQUAM	600
NEW HOME	STRATHAM	600
NEW HOME	STRATHAM	600
NEW HOME	STRATHAM	600
LAKESIDE HOME	SILVER LAKE	450
NEW HOME	NEWBURY	600
LAKESIDE HOME	PELHAM	450
LAKESIDE HOME	SUNAPEE	450
LAKESIDE HOME	SWANZEY LAKE	450
LAKESIDE HOME	ALSTEAD	450
LAKESIDE HOME	WAKEFIELD	450
LAKESIDE HOME	NEWFOUND LAKE	450
NEW HOME	STRATHAM	600
NEW HOME	STRATHAM	600
HOME	NEW LONDON	1000
SEASIDE HOME	RYE	600
ISLAND HOME COMPLEX	WINNIPESAUKEE	750

STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
DIVISION OF HEALTH ENGINEERING
10 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0010

March 14, 2002

ANGUS S. KING, JR.
GOVERNOR

KEVIN W. CONCANNON
COMMISSIONER

Water Tech Group
Attn.: Gerry Gerdes
1102C Montalona Raod
Dunbarton, NH 03046

Subject: Request for Product Registration and Review, Clean Solution Wastewater System

Dear Mr. Gerdes:

Thank you for your letter dated March 6, 2002 regarding the *Clean Solution Wastewater System*. Unfortunately, your letter and sales brochure do not provide sufficient details and data to support registration for use in Maine.

Under provisions of Section 1802 of the Rules (copy enclosed), any manufacturer or distributor submitting a new product for code registration needs to demonstrate that:

1. The product is designed to protect public health, prevent the creation of any nuisance, and prevent environmental pollution to the same extent as comparable products presently authorized by Department for use in this code, and

2. The product is based on sound engineering principles and can be expected to provide the same level of protection to public health and the environment as offered by the authorized products presently authorized by the Department for use in this code.

Such demonstration may be achieved by submitting a letter to the Division of Health Engineering from: a) a certifying organization, such as the National Sanitation Foundation (NSF), Canadian Standards Authority (CSA) or other suitable organization stating their approval of the product; or b) the American Society for Testing and Materials (ASTM) indicating the requested product (used as indicated in the request) meets the ASTM standard as specifically listed in the appropriate section of any nationally recognized plumbing code, such as BOCA, IAPMO (same as International Plumbing Code), or equal.

If such certifications are not available, we would accept collated test results for existing installations in other jurisdictions. This testing data must include five day Biochemical Oxygen Demand, Total Suspended Solids, Total Nitrogen, and coliform bacteria, for both influent and effluent, over a statistically significant period.

We would also need copies of any relevant manufacturing literature and engineering data, as well as any supporting plans and mechanical drawings. Any proprietary data would be treated as confidential.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

Enc: Chapter 18

xc: File

.....viable solutions for water and wastewater problems.

March 6, 2002

Jim Jacobsen
Maine Division of Health Engineering
10 State House Station
Augusta, ME 04333

Subject- Submittal of a Septic Tank Effluent Aeration Unit for Maine Environmental Approval

Dear Jim,

We submit the following informational details regarding the Wastewater Alternatives, Inc. (WAI) Clean Solution™ Wastewater System. Water Sciences, Inc. is the technical sales representative for WAI in Maine.

1. Manufacturer:
Wastewater Alternatives, Inc.
37 Champney Street
Groton, MA 01450

2. Contact:
Harold Davis, President
harolddavis@mac.com
P 978-448-2415
F 978-448-2911
www.thecleansolution.com

3. Process Description:
Septic tank effluent flows into the integrated Clean Solution™ system tank. The effluent first enters the BioCon™ compartment containing submerged plastic media. The media provide an extended surface contact area for bacteria to collect, grow, multiply and metabolize the dissolved organic compounds in the septic tank effluent. Ammonia is also nitrified. The surface area of the biological media is greater than the area of the appropriate leach field; the leach field biomat is replaced by the biomat grown on the media.
A continuously operating air pump provides ample amounts of oxygen to the bacteria. The output from the BioCon compartment flows by gravity into the settling compartment where excess sludge is clarified.
Clear liquid then flows by gravity or is pumped to the dispersal field for reintroduction into the watershed.
Clean Solution systems are guaranteed to produce < 30 mg/L BOD / 30 mg/LTSS effluent qualities.

4. Product Description:
The Clean Solution system tank is generally constructed from pre-cast concrete and is installed simultaneously with the septic tank. Plastic or fiberglass tanks have also been used. Some models of the Clean Solution system include the septic tank and treatment system in a single tank.
There is adequate open area in the BioCon media to allow for bacterial sloughing without fouling or plugging.
The air pump, which runs continuously, provides 3.0 cubic feet per minute of air at a power consumption of 60 watts for individual home installations. The noise level of the air pump is equal to that of a refrigerator when running. There are additional oxygen transfer details shown on page 5 of the enclosure.
A sump pump is provided if the application requires it.
All tank compartments contain 20 or 24 inch diameter inspection ports.
Optionally, the equipment can be incorporated to withstand "drive on "service.

5. Features / Environmental Benefits:
The Clean Solution system:
Greatly reduces the leach field area required to recharge the wastewater; New Hampshire DES requires a discharge field of 75 square feet for (3) bedrooms, 100 square feet for (4) bedrooms, and proportionally increased sizes for larger septic system flows.
Allows for economic installations in poor soil conditions, ledge, high water tables, sloping terrain, wetlands abutting, and waterfront locations. The small field is possible because an aerobic biomat is formed in the BioCon aeration compartment instead of the leachfield.
No spray nozzles to service. Biological activity takes place in a submersed, oxygenated zone.
Allows garbage grinders and dish washing machines to be fully utilized without damage to the dispersal field. The plastic media acts as a mechanical filter as well as a biological filter.
Installs below grade; does not restrict landscaping imagination.
Finished construction; all electrical connections are completed, and pumps tested, from the Clean Solution system to the building by a certified electrical contractor.

6. Product Acceptance:
NH DES Acceptance was in the fall of 1995
Please Contact:
Bill Evans@ the New Hampshire DES
PH 603-271-3304
e-mail- wevans@des.state.nh.us

7. Operational History:
(2) Systems were first installed in the fall of 1995.
As of 3/1/02 there have been (81) Clean Solution systems installed; flows range from a single bedroom house to 20,000 GPD.
There have been no problems with any of the Clean Solution home system installations.
Please see our installation list on page 9 of the enclosure.

8. Installation Procedures:
A detailed accounting of the installation responsibilities of the owner, the installer and the Clean Solution manufacturer are found on page 6 of the enclosure. Please note the completion of all electrical wiring as part of the scope of the installation.

9. Operating Requirements:
The system has no operating requirements associated with it beyond the provision of electrical power to operate the compressor.
The system's operating features and maintenance requirements are specified by means of the owner signing a sales agreement that details the required maintenance terms prior to installing.

10. Maintenance Schedules:
The Clean Solution completed sales agreement includes specific, practical, inexpensive, maintenance provisions that must be undertaken by the homeowner every 2½ years. The agreement also requires a legally binding transfer of the same maintenance agreement to subsequent homeowners.
The required maintenance consists of:

Rebuild the compressing air pump.
Pump out the septic tank and the Clean Solution settling/pump compartment.
Inspect the following and take action if necessary:

a) Make sure BioCon media is not plugged; backwash with air if necessary.
b) Make sure no sludge is on the BioCon compartment floor; pump sludge if necessary.
c) Make sure the air diffuser is functioning with no obstruction to flow; replace if pressure drop is too great.

11. Attachments:
A (9) page packet of information is enclosed as part of this submittal.

Thank you for the opportunity to present our Clean Solution™ system for your review and approval. Any additional information required will be promptly provided.

Cordially,
Gerry Gerdes
Gerry Gerdes

Water Sciences, Inc.
1102 C Montalona Road, Dunbarton, NH 03046
603-774-7900 FX 603-774-7901 mobile 603-491-8435
gerry@watertechgroup.com

A septic system designed to fit the odd lot

By Peter J. Howe
GLOBE STAFF

Brainstorms

For Harold E. Davis of Groton, necessity was truly the mother of invention.

Back in the late 1980s, Davis, a longtime process engineer who has worked on everything from refrigeration to fruit juice concentrates, decided to go in on a speculative real-estate investment with his brother. They built a house on a New Hampshire lot where it was particularly difficult to site an effective septic system leaching field.

"After putting in $17,000 worth of sand," Davis recalled last week, "I said there had to be a better way." So Davis, a 1963 University of New Hampshire graduate, turned his inventive mind to the question of how to build a better septic tank.

Earlier this month, he won patent 5,674,399 for his solution, which combines elements of the typical rural septic system with features of municipal sewage plants.

Even before winning the patent, however, Davis had set up his own business in Jaffrey, N.H., to sell what he calls "The Clean Solution," a tank that New Hampshire health officials agree can safely dispose of treated effluent in as little as 75 square feet of ground, a tenth the usual space. He has installed 12 so far in New Hampshire – they run about $8,000 to $10,000 for a one-family house – but hasn't yet sought approval in Massachusetts.

Septic tanks, leaching fields and municipal facilities all work by encouraging the growth of bacteria that feed on sewage. Municipal plants use an air-injecting fan to accelerate treatment after the sewage enters the first settling tank – a step Davis's system also adds in a smaller form.

What emerges from Davis's tank is clear, odorless, but not entirely pure water that can go into the ground without needing a huge leaching field where bacteria

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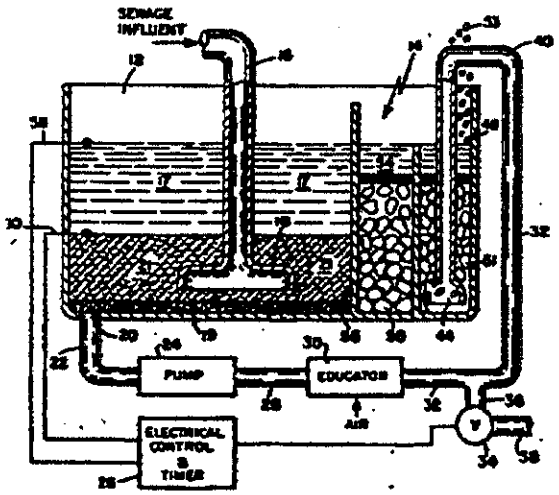


Continued from preceding page

can digest and purify it.

Another trick in Davis's tank is his use of plastic rocks in the secondary treatment area. They have twice the surface area of natural rocks and are twice as porous, meaning many more sewage-eating bacteria can form on them and water circulates over them faster to speed treatment.

Davis's invention is the kind of thing that raises red flags with environmentalists. It could allow "unbuildable" lots – such as those near the ocean or sensitive wetlands – to be developed, aggravating sprawl.

Davis has agreed with New Hampshire environmental officials not to use it on lots where a conventional system would be impossible. He finds there are still many "difficult lots" where his system is cheaper than building a full leaching field.

Among other patents won in the last three weeks by Massachusetts inventors:

■ Hugh McLaughlin of Dedham won

STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
DIVISION OF HEALTH ENGINEERING
11 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0011

December 5, 2002

ANGUS S. KING, JR.
GOVERNOR

KEVIN W. CONCANNON
COMMISSIONER

Wastewater Alternatives, Inc.
Attn. Harold Davis
37 Champney Street
Groton, MA 01450

Subject: Request for Product Registration and Review, Clean Solutions Advanced Treatment Unit

Dear Mr. Davis:

On October 2, 2002 I sent you a letter following up a meeting between Gerry Gerdes; Russell Martin, Program Director; and I met to discuss your application for product registration, for the Clean Solutions Advanced Treatment Unit ("Unit"). You submitted photographs, a list of installations in New Hampshire and Vermont, an informative packet, and a letter approval form the New Hampshire Department of Environmental Services, dated March 10, 1995.

You stated during the meeting that you desire the Division to waive its normal testing conditions for the Unit, and that you would submit a written request for this along with justification for waiving the testing. To date, we have not received this letter. To date we have not received this information.

Therefore, the Program has determined that your application is incomplete. We will take no further action on this application until it is complete.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

xc: File
Russell Martin, Program Director

WASTEWATER ALTERNATIVES OF NEW ENGLAND LLC
27 Kensington Road
Post office box 155
Hampton Falls, New Hampshire 03844

Telephone: (603) 926-9053
1-866-926-9053

November 4, 2004

James A. Jacobsen Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health and Engineering
Department of Human Services
161 Capital Street
11 State House Station
Augusta, Maine 02333-0011

Dear Jim,

You requested that, as a condition to achieving the approval for a reduced field size, a Clean Solution system be installed on three sites, which also could accommodate a conventional leach field. It is my understanding that this request was made to allow for a substitution of systems in the event that water mounding occurred with the Clean Solution system during this testing segment of the approval process. You further requested that the system(s) be monitored for such mounding over a six month period at which time, absent such mounding, the State of Maine would grant a blanket waiver to allow the seventy five per cent reduction using pipe and stone beds and the equally sized version of Infiltrator and Envirotube.

We have identified our first, second and now third site at Zip Cahill's lake house in the town of New Vineyard, which would allow for a substitution of septic systems as you require and are now in the process of arranging for the installation of a Clean Solution system at that location. We are also following up on other potential sites which comply with your dual accommodation requirement and will keep you informed of our progress.

I am confident that the Clean Solution system with its seventy five per cent field reduction will not experience any water mounding. We have successfully installed over five hundred systems in New Hampshire and look forward to an equally successful experience in the State of Maine.

Thank you Jim for your continued cooperation. In the mean time, should you have any questions or wish to discuss any of this, please do not hesitate to contact me.

Best personal regards.

Wesley C. Brighton

WASTEWATER ALTERNATIVES, INC.
37 Champney St. Groton, MA 01450

Telephone: (603) 926-9053 Fax: (603) 926-9053

SALES AGREEMENT

Oct. 26, 2005

BUYER:
James Cahill
59 Pond Road Strong, Maine
04983

SITE:
453 Lake Street
New Vineyard, Maine
04956

SELLER:
Wastewater Alternatives of New England, LLC.
27 Kensington Road
Hampton Falls, New Hampshire
03844

Wastewater Alternatives of New England LLC. (WANE) agrees to supply a **Model 250ST3 CLEAN SOLUTION^{tm}** Sewage Treatment System to the buyer installed at the above site in accordance with the attached specifications and the plan submitted. As approved by Maine Division of health and Engineering. The buyer is responsible for retaining the licensed designer, obtaining the approved plan and all necessary permits, and hiring a qualified installer. This sale is subject to two important conditions:

1. Should the above property be sold, this agreement should be transferred to the new buyer and will become binding on both the seller and the new owner[s].
2. This agreement contains a maintenance schedule. Failure to perform this maintenance could result in premature failure of the dispersal field. In this event it will be the owners responsibility to repair the field.

WANE will provide and install as shown in the accompanying sketch and specifications:
1. A 2100gal 3 compartment, STANDARD DUTY Foss tank to function as a septic tank, an aerobic treatment tank and a settling/pump tank tank
2. 30 cu ft of plastic media
3. A 3.0 scfm compressor
4. All necessary internal components
5. The price does not include excavation, dispersal field, or connections from the house to THE CLEAN SOLUTION and from the CLEAN SOLUTION to the dispersal field.

Placement of the compressor will be mutually determined by the owner and WANE. A 115 volt outlet capable of supplying 1 amp [about the equivalent of a 100 watt light bulb] continuously will be required near the compressor. Should an external housing be required to protect the compressor and alarm panel, it will also be billed at direct costs.

Should a drive-on installation be required, the additional costs for H-20 tanks and steel man hole covers will be billed at direct costs.

MAINTENANCE

WASTEWATER ALTERNATIVES, INC.
37 Champney St. Groton, MA 01450

The following maintenance is required every 2.5 years:

1. **Pump out both the settling and septic tanks**
2. **Rebuild compressor**
3. **Inspect and take corrective action, if necessary:**
   - **a] media** — **if plugged, backwash with air**
   - **b] sludge in BioCon** — **pump BioCon tank if excessive**
   - **c] diffuser** — **replace if pressure drop too great**

A maintenance agreement is available for performing items 2 and 3 from PUMP SYSTEMS INC. POB 6101, WEST FRANKLIN, NH 03235, TEL# 603-934-7100. You can obtain a sample agreement by contacting them directly. Their service will include a detailed inspection of your system, replacement of any failed items and either a new rebuilt compressor or an on site rebuild of yours [their option]. Tank pumping is not included in the price and must be arranged by you just prior to the scheduled maintenance appointment.

Based on the inspection findings at the first scheduled maintenance, the maintenance schedule may be modified by mutual consent and any changes will be reduced to writing. In the absence of a written modified maintenance schedule, the above schedule must continue to be performed by the buyer.

For a period of 2 years, WANE will warrant the system and repair any malfunction, including parts and labor, at no cost to you. Your responsibility during this period is to perform the required maintenance and to notify WAI of any failure. Failure to perform either of these items will void this warranty and result in you being billed for repair costs. This warranty also does not cover damage caused by unreasonable use or acts of God.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY OR OTHERWISE, APPLICABLE TO THE SEWAGE TREATMENT SYSTEM SHALL BE LIMITED IN DURATION TO ONE YEAR.

WASTEWATER ALTERNATIVES SHALL NOT BE LIABLE FOR ANY DIRECT OR INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. NOR, SHALL WASTEWATER ALTERNATIVE'S LIABILITY UNDER THIS WARRANTY EXCEED THE PRICE PAID BY THE BUYER.

PERFORMANCE SPECIFICATIONS:

The system is warranted to discharge clean, odor free water to the dispersal field, equivalent or better than that obtained from a municipal system with secondary treatment (30ppm BOD5, 30ppm SS).

PAYMENT

The agreed upon price for the WAI equipment and services detailed in this agreement is $5900.

Payment is requested as follows:

WASTEWATER ALTERNATIVES, INC.
37 Champney St. Groton, MA 01450

$3000.00 upon signing this agreement
$2900.00 immediately upon state inspection or start-up; whichever occurs later.
Ownership will transfer to the buyer upon final payment.

THIS PRICE IS VALID FOR 60 DAYS FROM THE DATE OF THIS DOCUMENT.

DELIVERY

WAI will be prepared to install the system about 3 weeks after you have chosen an installer and returned a signed copy of this agreement, along with the initial payment, to me. It is important that I be able to coordinate with the installer, so I should be notified of his name and telephone number.

RIGHTS TO DATA AND ACCESS TO THE SYSTEM

WAI reserves the right of reasonable access to collect data, modify, maintain and repair THE CLEAN SOLUTION and its subsystems. WAI will retain all data collected and the rights to it.

TRADE SECRETS

THE CLEAN SOLUTION is the result of the expenditure of much effort and money. The design of the components and operational cycle are the intellectual property of WAI and may not be revealed without written permission.

ACCEPTED:

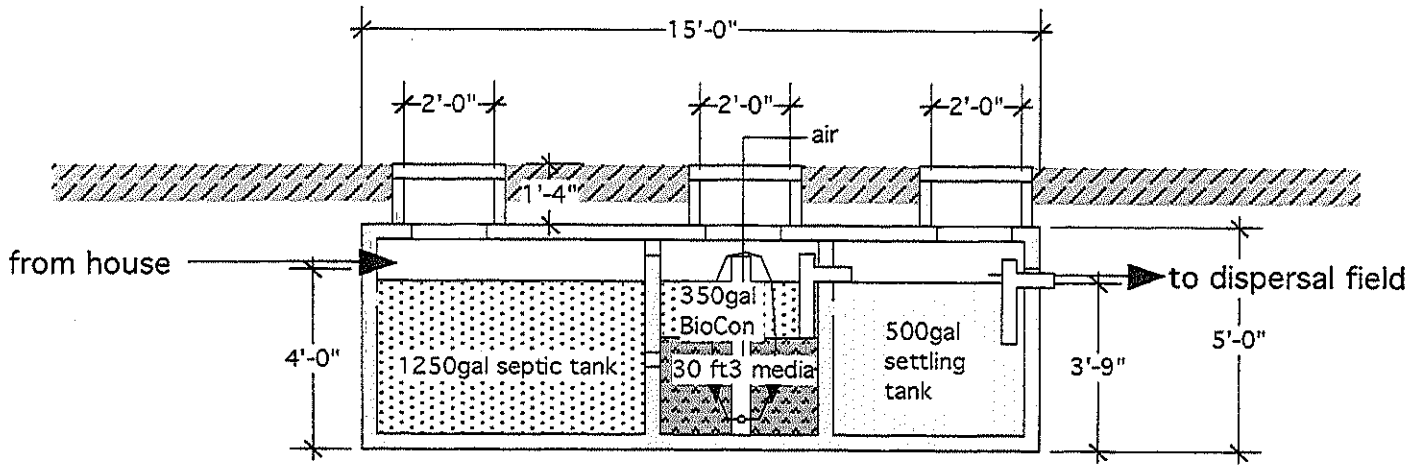
BUYER:

SELLER:
Harold E Davis
Wastewater Alternatives of New England, LLC.
Harold E. Davis, President

Date:

Date: Oct 26, 2005

MODEL 250ST3 CLEAN SOLUTION™ SYSTEM



Uses A J Foss 3 compartment tank - 15'lx6'6"wx5'h

Tank from:
A. J. Foss Inc.
Farmington, NH 03835
Tel# 603-755-2515

NOTES:
1. SETTLING TANK MUST BE PUMPED PUMPED EVERY 2.5 YEARS
2. TANK IS NOT SUITABLE FOR DRIVE ON INSTALLATION
3. RISERS WILL BE PROVIDED TO SUIT SITE - PLASTIC PREFERRED

TITLE	date	
Model 250ST3 Single Tank Clean Solution	10/25/05	WASTEWATER ALTERNATIVES, INC. 37 Champney St. Groton, MA 01450 978-448-2415
	rev standard	

REPLACEMENT SYSTEM VARIANCE REQUEST

THE LIMITATIONS OF THE REPLACEMENT SYSTEM VARIANCE REQUEST

This form shall be attached to an application (HHE-200) for the proposed replacement system which requires a variance to the Rules. The LPI shall review the Replacement System Variance Request an HHE-200 and may approve the Request if all of the following requirements can be met, and the variance(s) requested fall within the limits of LPI's authority.

1. The proposed design meets the definition of a Replacement System as defined in the Rules (Sec. 2006)
2. There will be no change in use of the structure except as authorized for one-time exempted expansions outside the shoreland zone of major waterbodies/courses.
3. The replacement system is determined by the Site Evaluator and LPI to be the most practical method to treat and dispose of the wastewater.
4. The BOD5 plus S.S. content of the wastewater is no greater than that of normal domestic effluent.

GENERAL INFORMATION Town of New Vineyard

Date Permit Issued _____

Permit No. _____

Property Owner's Name: ~~Zip~~ Cahill JAMES Tel. No.: 207 652 2010

System's Location: 453 Lake St

Property Owner's Address: 59 Pond Rd

(if different from above) Strong, ME 04983

SPECIFIC INSTRUCTIONS TO THE:

LOCAL PLUMBING INSPECTOR (LPI):

If any of the variances exceed your approval authority and/or do not meet all of the requirements listed under the Limitations Section above, then you are to send this Replacement System Variance Request, along with the Application, to the Department for review and approval consideration before issuing a Permit. (See reverse side for Comments Section and your signature.)

SITE EVALUATOR:

If after completing the Application, you find that a variance for the proposed replacement system is needed, complete the Replacement Variance Request with your signature on reverse side of form.

PROPERTY OWNER:

If has been determined by the Site Evaluator that a variance to the Rules is required for the proposed replacement system. This variance request is due to physical limitations of the site and/or soil conditions. Both the Site Evaluator and the LPI have considered the site/soil restrictions and have concluded that a replacement system in total compliance with the Rules is not possible.

PROPERTY OWNER

I understand that the proposed system requires a variance to the Rules. Should the proposed system malfunction, I release all concerned provided they have performed their duties in a reasonable and proper manner, and I will promptly notify the Local Plumbing Inspector and make any corrections required by the Rules. By signing the variance request form, I acknowledge permission for representatives of the Department to enter onto the property to perform such duties as may be necessary to evaluate the variance request.

J E Cahill — SIGNATURE OF OWNER

11-9-05 — DATE

LOCAL PLUMBING INSPECTOR

I, Harold Haggan, the undersigned, have visited the above property and have determined to the best of my knowledge that it cannot be installed in compliance with the Rules. As a result of my review of the Replacement Variance Request, the Application, and my on-site investigation, I **(check and complete either a or b)**:

☒ a. (☒ approve, ☐ disapprove) the variance request based on my authority to grant this variance. Note: If the LPI does not give his approval, he shall list his reasons for denial in **Comments** Section below and return to the applicant. **--OR--**

☐ b. find that one or more of the requested Variances exceeds my approval authority as LPI. I (☐ recommend, ☐ do not recommend) the Department's approval of the variances. Note: If the LPI does not recommend the Department's approval, the reasons shall be stated in Comments Section below as to why the proposed replacement system is not being recommended.

Comments: _____

H Haggan — LPI SIGNATURE

11-9-05 — DATE

HHE-204 Rev 10/02

Replacement System Variance Request

VARIANCE CATEGORY	LIMIT OF LPI'S APPROVAL AUTHORITY						VARIANCE REQUESTED TO:	
SOILS								
Soil Profile	Ground Water Table			to 7"			2	inches
Soil Condition	Restrictive Layer			to 7"				inches
from HHE-200	Bedrock			to 12"				inches
SETBACK DISTANCES (in feet)	Disposal Fields			Septic Tanks			Disposal Fields	Septic Tanks
From	Less than 1000 gpd	1000 to 2000 gpd	Over 2000 gpd	Less than 1000 gpd	1000 to 2000 gpd	Over 2000 gpd	To	To
Wells with water usage of 2000 or more gpd or public water supply wells	300 ft [a]	300 ft [a]	300 ft [a]	100 ft [a]	100 ft [a]	100 ft [a]		
Owner's wells	100 down to 60 ft	200 down to 100 ft	300 down to 150 ft	100 down to 50 ft [b]	100 down to 50 ft	100 down to 50 ft	67'	
Neighbor's wells	100 down to 60 ft [b]	200 down to 120 ft [b]	300 down to 180 ft [b]	100 down to 50 ft [b]	100 down to 75 ft [b]	100 down to 75 ft [b]		
Water supply line	10 ft [a]	20 ft [a]	25 ft [a]	10 ft [a]	10 ft [a]	10 ft [a]		
Water course, major - for replacements only, see Table 400.4 for major expansions	100 down to 60 ft	200 down to 120 ft	300 down to 180 ft	100 down to 50 ft	100 down to 50 ft	100 down to 50 ft	93'	
Water course, minor	50 down to 25 ft	100 down to 50 ft	150 down to 75 ft	50 down to 25 ft	50 down to 25 ft	50 down to 25 ft		
Drainage ditches	25 down to 12 ft	50 down to 25 ft	75 down to 35 ft	25 down to 12 ft	25 down to 12 ft	25 down to 12 ft		
Edge of fill extension -- Coastal wetlands, special freshwater wetlands, great ponds, rivers, streams	25 ft [d]	25 ft [d]	25 ft [d]	25 ft [d]	25 ft [d]	25 ft [d]		
Slopes greater than 3:1	10 ft	18 ft	25 ft	N/A	N/A	N/A		
No full basement [e.g. slab, frost wall, columns]	15 down to 7 ft	30 down to 15 ft	40 down to 20 ft	8 down to 5 ft	14 down to 7 ft	20 down to 10 ft		
Full basement [below grade foundation]	20 down to 10 ft	30 down to 15 ft	40 down to 20 ft	8 down to 5 ft	14 down to 7 ft	20 down to 10 ft		
Property lines	10 down to 5 ft [c]	18 down to 9 ft [c]	20 down to 10 ft [c]	10 down to 4 ft [c]	15 down to 7 ft [c]	20 down to 10 ft [c]		
Burial sites or graveyards, measured from the down toe of the fill extension	25 ft	25 ft	25 ft	25 ft	25 ft	25 ft		

OTHER

1. Fill extension Grade - to 3:1

2.

3.

Footnotes: [a.] Single-family well setbacks may be reduced as prescribed in Section 701.2.
[b.] This distance may be reduced to 25 feet, if the septic or holding tank is tested in the plumbing inspector's presence and shown to be watertight or of monolithic construction .
[c.] Additional setbacks may be needed to prevent fill material extensions from encroaching onto abutting property.
[d.] Additional setbacks may be required by local Shoreland zoning.
[e.] Natural Resource Protection Act requires a 25 feet setback, on slopes of less than 20%, from the edge of soil disturbance and 100 feet on slopes greater than 20%. See Chapter 15.
[f.] May not be any closer to neighbors well than the existing disposal field or septic tank unless written permission is granted by the neighbor. This setback may be reduced for single family houses with Department approval. See Section 702.3.
[g.] The fill extension shall reach the existing ground before the 3:1 slope or within 100 feet of the disposal field.
[h.] See Section 1402.10 for special procedures when these minimum setbacks cannot be achieved.

E

SITE EVALUATOR'S SIGNATURE

10-10-05 (Rev.)

DATE

FOR USE BY THE DEPARTMENT ONLY

The Department has reviewed the variance(s) and (☐ does ☐ does not) give its approval. Any additional requirements, recommendations, or reasons for the Variance denial, are given in the attached letter.

SIGNATURE OF THE DEPARTMENT

DATE

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Human Services
Division of Health Engineering, Station 10
(207) 287-5672 FAX (207) 287-4172

PROPERTY LOCATION

City, Town or Plantation	New Vineyard
Street or Road	453 Lake Street
Subdivision Lot #	

OWNER/APPLICANT INFORMATION

Name(last,first, MI) Cahill, ~~Zip~~ JAMES ■ Owner ■ Applicant

Name and mailing address of: ■ Owner ■ Applicant	59 Pond Road Strong, ME 04983
Daytime Tel. #	207-652-2010

Caution : Permit Required

The Subsurface Wastewater Disposal System shall not be installed until a Permit is attached HERE by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # _____ Lot # _____

Owner or Applicant Statement

I state that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.

Signature of Owner/ Applicant _____ Date _____

Caution : Inspections Required

I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.

Date Approved _____

Local Plumbing Inspector Signature _____ Date Approved _____

PERMIT INFORMATION

THIS APPLICATION IS FOR:

1. ☐ First Time System
2. ■ Replacement System
   Type Replaced steel tank
   Year Installed _____
3. ☐ Expanded System
   a. ☐ Minor expansion
   b. ☐ Major expansion
4. ■ Experimental System
5. ☐ Seasonal Conversion

THIS APPLICATION REQUIRES:

1. ☐ No Rule Variance
2. ☐ First Time System Variance
   a. ☐ Local Plumbing Inspector approval
   b. ☐ State & Local Plumbing Inspector approval
4. ■ Replacement System Variance
   a. ☐ Local Plumbing Inspector approval
   b. ■ State & Local Plumbing Inspector approval
5. ☐ Minimum Lot Size Variance
6. ☐ Seasonal Conversion Approval

DISPOSAL SYSTEM COMPONENT(S)

1. ■ Complete Non-Engineered System
2. ☐ Primitive System (graywater and alt toilet)
3. ☐ Alternative Toilet, specify: _____
4. ☐ Non- Engineered Treatment Tank (only)
5. ☐ Holding Tank _____ Gallons
6. ☐ Non-Engineered Disposal Field (only)
7. ☐ Separated Laundry System
8. ☐ Complete Engineered System (2000 gpd or more)
9. ☐ Engineered Treatment Tank (only)
10. ☐ Engineered Disposal Field (only)
11. ☐ Pretreatment: specify:
12. ☐ Miscellaneous components

SIZE OF PROPERTY

18000 +/- ■ sq. ft ☐ acres

DISPOSAL SYSTEM TO SERVE:

1. ■ Single Family Dwelling Unit, No. of Bedrooms 2
2. ☐ Multiple Family Dwelling No. of Units:
3. ■ Other Bunkhouse (SPECIFY)

Current use: ☐ Seasonal ■ Year Round ☐ Undeveloped

TYPE OF WATER SUPPLY

☐ 1. Drilled Well ■ 2. Dug Well ■ 3. Private
☐ 4. Public ☐ 5. Other: _____

SHORELAND ZONING

■ Yes ☐ No

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

1. ☐ Concrete
   ☐ a. Regular
   ☐
2. ☐ Plastic 250ST3 'Clean Solution' aerobic
3. ■ Other

CAPACITY 1250 Gallons

DISPOSAL FIELD TYPE & SIZE

1. ☐ Stone Bed 2. ☐ Stone Trench
3. ■ Proprietary Device
   ☐ Cluster array ■ Linear
   ■ Regular load ☐ H-20 load
4. ☐ Other

SIZE 200 ■ ft2 ☐ lin.ft.

GARBAGE DISPOSAL UNIT

1. ■ No 2. ☐ Yes 3. ☐ Maybe

If Yes or Maybe, specify one below:
☐ Multi-compartment tank
☐ _____ Tanks in series
☐ Increase in tank capacity
■ Filter on tank outlet

DESIGN FLOW

242 gallons per day

BASED ON:

1. ■ Table 501.1 (dwelling units)
2. ☐ Table 501.2 (other facilities)
   SHOW CALCULATIONS
   - for other facilities -

Experimental- 75 % reduction in field due to aerobic tank

3. ☐ Section 903.0 (meter readings)
   ATTACH WATER METER DATA

SOIL DATA & DESIGN CLASS

PROFILE	CONDITION	DESIGN
3	D	3

at observation hole# 1

Depth 7 "

Of Most Limiting Soil Factor

DISPOSAL FIELD SIZING

1. ☐ Small 2.00 sq. ft./ gpd
2. ☐ Medium 2.60 sq. ft./ gpd
3. ■ Medium - Large 3.30 sq.ft. / gpd
4. ☐ Large 4.10 sq. ft. / gpd
5. ☐ Extra - Large 5.00 sq. ft / gpd

EFFLUENT / EJECTOR PUMP

1. ☐ Not Required
2. ☐ May be required
3. ■ Required

Specify only for engineered systems:
DOSE _____ Gallons

I Certify that On 6 / 24 / 05 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules(10-144A CMR 241).

Site Evaluator Signature	336 SE #	10 - 10 - 05 Rev. Date
Elizabeth A. Flynn Site Evaluator Name Printed	207-864-5161 Telephone #	ncsoils@earthlink.net E-mail address

NOTE: Changes to or deviations from the design shall be confirmed with the Site Evaluator.

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10
(207) 287-5672 FAX (207) 287-3165

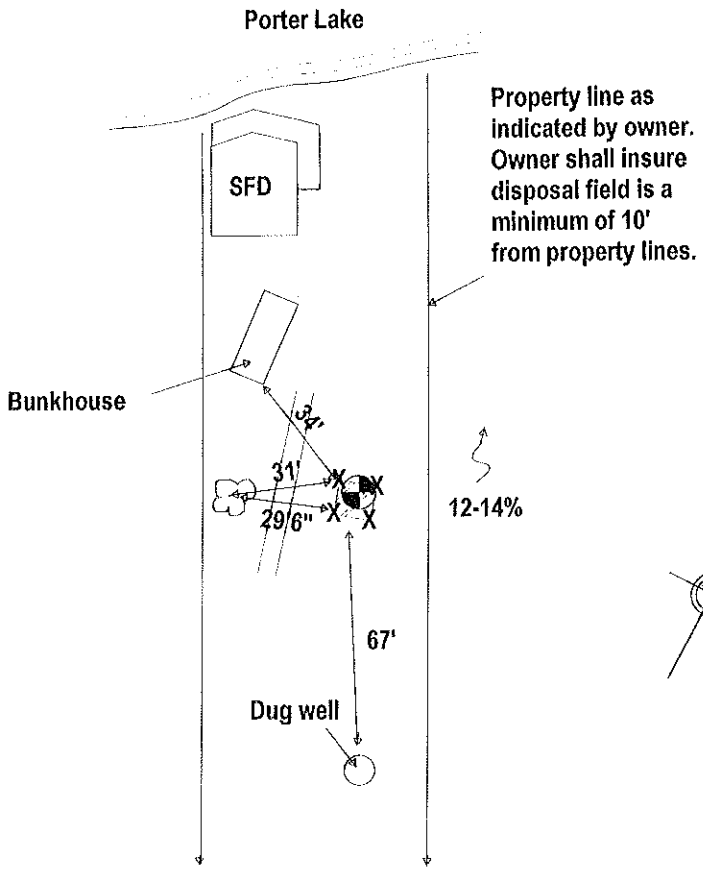
Town, City, Plantation: **New Vineyard**

Street, Road, Subdivision: **453 Lake Street**

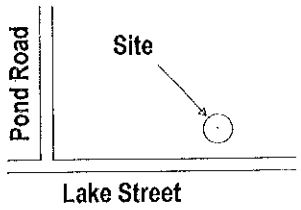
Owner or Applicant Name: **Zip Cahill**

SCALE 1" = 50 FT

SITE PLAN



SITE LOCATION PLAN
(Attach map from Maine Atlas for First Time System Variance)



Site is located at 453 Lake Street

N

- Elevation reference point
- Property line
- Test pit/ boring
- X Flagged stake

MAP IS NOT A SURVEY

SOIL PROFILE DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole #1 ■ Test Pit ■ Boring

2" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0	Stoney Fine Sandy Loam	Friable	Dk Brown	None Ev
6				Com Prom
10			Dk Yel Br / Dk Olive Gray	
12				
20		Firm		Many Prom
30				
40				
50				

Soil Classificaton		Slope	Limiting Factor	
3	D	12-14	7	"
Profile	Condition	Percent	Depth	

■ Ground Water
| Restrictive Layer
| Bedrock

Observation Hole ☐ Test Pit ☐ Boring

Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0				
6				
10				
12				
20				
30				
40				
50				

Soil Classificaton		Slope	Limiting Factor	
				"
Profile	Condition	Percent	Depth	

☐ Ground Water
| Restrictive Layer
| Bedrock

Site Evaluator Signature

336
SE #

10 - 10 - 05 Rev.
Date

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Human Services
Division of Health Engineering

Town, City, Plantation: New Vineyard

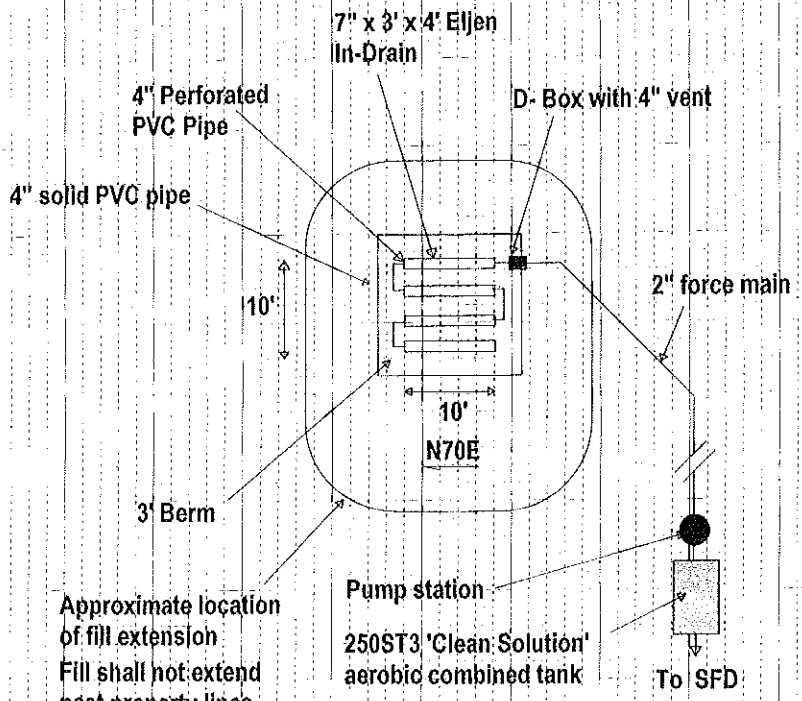
Street, Road, Subdivision: 453 Lake Street

Owners Name: Zip Cahill

SUBSURFACE WASTEWATER DISPOSAL PLAN

Scale: 1" = 20 Ft.

System shall be constructed in accordance with current Maine Subsurface Wastewater Disposal Rules.



System shall be constructed as per Enviro-Septic design manual.

Septic tank shall be a minimum of:
- 8' from dwelling
- 10' from all property lines
- 100' from neighbors wells

Divert surface water away from disposal area.

Existing tank shall be pumped and filled with clean fill or removed. All wastewater from dwelling shall be piped to new system.

Remove vegetation and large stones under disposal field and fill extensions.

10' x 10' Disposal Area
4 rows of 1
Enviro-Septic Pipe
Serially Distributed

Mix 6" fill material with original soils to create transitional horizon under disposal field and fill extensions

FILL REQUIREMENTS

Depth of backfill (Upslope) 36"+

Depth of backfill (Downslope) 48"+

DEPTHS AT CROSS SECTION (shown below)

	Bottom of Row	Top of Pipe
Row 1	- 38"	- 26"
Row 2	- 42"	- 30"
Row 3	- 46"	- 34"
Row 4	- 50"	- 38"

Bottom of rows shall be level (Maximum tolerance shall be 2" : 100')

Loam, seed and mulch following construction to prevent erosion.

CONSTRUCTION ELEVATIONS

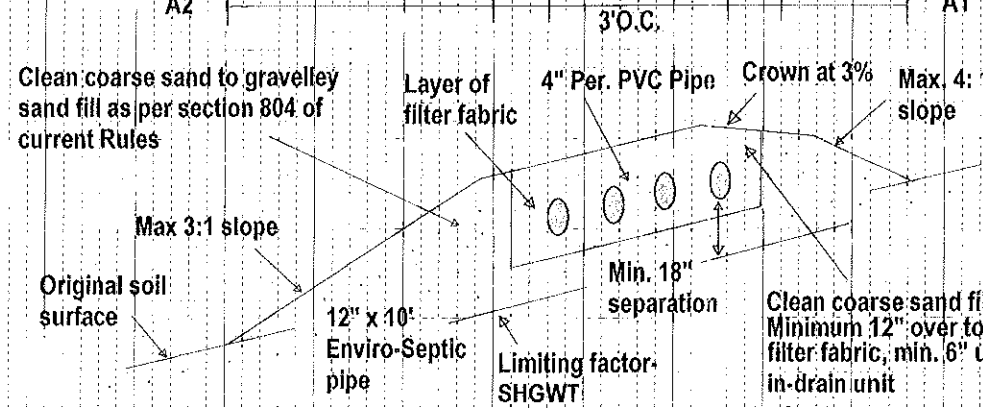
Reference Elevation is	Assumed	0' 0"
Finished Grade Elevation		top of pipe + 12"
Top of Distribution Pipe or proprietary device		see below
Bottom of Disposal Field		see below

ELEVATION REFERENCE POINT LOCATION & DESCRIPTION

Flagged nail in 13" DBH pine
72" above ground surface
Reference Elevation is assumed 0'0"

DISPOSAL AREA CROSS SECTION

Scale:
Vertical: 1 inch = 5 Ft.
Horizontal: 1 inch = 10 Ft.



Site Evaluator Signature

336
SE #

10 - 10 - 05 Rev.
Date

STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
DIVISION OF HEALTH ENGINEERING
11 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0010

ANGUS S. KING, JR.
GOVERNOR

KEVIN W. CONCANNON
COMMISSIONER

October 2, 2002

Wastewater Alternatives, Inc.
Attn. Harold Davis
37 Champney Street
Groton, MA 01450

Subject: Request for Product Registration and Review, Clean Solutions Advanced Treatment Unit

Dear Mr. Davis:

On September 12, 2002 you; Gerry Gerdes; Russell Martin, Program Director; and I met to discuss your application for product registration, for the Clean Solutions Advanced Treatment Unit ("Unit"). You submitted photographs, a list of installations in New Hampshire and Vermont, an informative packet, and a letter approval from the New Hampshire Department of Environmental Services, dated March 10, 1995.

You stated during the meeting that you desire the Division to waive its normal testing conditions for the Unit, and that you would submit a written request for this along with justification for waiving the testing. To date, we have not received this letter.

Absent completion of the application, we may have no alternative but to return it to you unprocessed.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

xc: File
Russell Martin, Program Director
Gerry Gerdes

July 24, 2002

Russell Martin
Maine Division of Health Engineering
10 State House Station
Augusta, ME 04333

Subject- Submittal of a Septic Tank Effluent Aeration Unit for Maine Environmental Approval

Dear Russell,

Here are the test results for several Wastewater Alternatives, Inc. installations. We trust that this information plus the previously submitted information will be sufficient to gain acceptance from the state.

We shall promptly submit any additional relevant details that you require.

Performance Results of Wastewater Alternatives Clean Solution Aeration Systems

Test	Units	Jaffrey Inlet (1)	Jaffrey Outlet	Rindge Inlet	Rindge Outlet	Woodstock Inlet	Woodstock Outlet
BOD 5	mg/L	(1)	5	85	<15	222	<20
BOD 5 (Filtered)	mg/L	(1)	3	(2)	<15	(2)	(2)
COD	mg/L	(1)	40	(2)	(2)	(2)	(2)
TSS	mg/L	(1)	8	24	<4	34	3
Turbidity	NTU	(1)	(2)	40.4	<0.50	40	1.1
Ammonia-N	mg/L	(1)	14	27.1	<0.25	(2)	(2)
TKN	mg/L	(1)	16	22.8	0.30	62	14
Nitrite-N	mg/L	(1)	(2)	(2)	<0.10	0.01	4.1
Nitrate-N	mg/L	(1)	26.7	(2)	1.31	<0.1	78
Total Phosphorus	mg/L	(1)	(2)	8.7	0.377	8.6	8.4
Oil & Grease	mg/L	(1)	(2)	13	<5	12	<5
DO	mg/L	(1)	8.57	0	(2)	1.2	3
Total Coliform	CFU/100mL	(1)	(2)	TNTC	60	(2)	(2)
E Coliform	CFU/100mL	(1)	(2)	(2)	(2)	27000	<9000
Fecal Coliform	CFU/100mL	(1)	(2)	TNTC	8	(2)	(2)

(1) This sample was taken from the sewer leading into the Municipal Wastewater Treatment Plant and represented a raw sewage source to be treated in the Clean Solution Aeration prototype aeration system. No input values were analyzed since the quality of

Water Sciences, Inc.
603-774-7900 FX 603-774-7901 mobile 603-491-8435
gerry@watertechgroup.com

raw sewage is known. Hydraulic retention time in the prototype aeration unit was 24 hours.

(2) No tests were performed.

Original laboratory test results are attached.

We look forward to hearing from you soon.

Cordially,

Gerry Gerdes

Water Sciences, Inc.
603-774-7900 FX 603-774-7901 mobile 603-491-8435
gerry@watertechgroup.com

ChemServe

WASTEWATER ALTERNATIVES

JOB NAME : N/A
JOB # : N/A
LOCATION : N/A

LABORATORY # : E25-95-02
CONTROL # : 15584
DATE SAMPLED : 05/25/95

TEST PARAMETER	RESULTS	DATE/TIME COMPLETED	EPA METHOD #	DETECTION LIMIT	ANALYST
SAMPLE IDENTITY: JAFFREY SEWER					
GRAB(S)					
AMMONIA-N	14	06/02/95	350.2	0.10	MS/MC
BOD-5	5.	05/31/95	405.1	1.	DR
BOD-5 (FILTERED)	3.	05/31/95	405.1	1.	DR
COD	40.	06/01/95	410.4	8.	MC
DO	8.57	05/25/95	360.1	N/A	DR
TSS	8.	05/26/95	160.2	4.	MS
KJELDAHL-T	16.	06/02/95	351.3	0.10	MS
NITRATE	26.7	05/26/95	4500-NO_3D SM	1.00	MS

ALL RESULTS ARE IN (mg/L) EXCEPT AS NOTED.

Note- The above results are samples from The Clean Solution aeration system effluent. The source of the wastewater is the influent sewer to the Jaffrey, NH WWTP.

Water Sciences, Inc.
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gerry@watertechgroup.com

ChemServe

Wastewater Alternatives

Project Name: Rindge System Test
Project #: N/A
Collection Site: N/A

Group #: 02050324
Chain of Custody ID: 44174, 44175
Date Sampled: 05/30/02

METHOD #	ANALYTE	RESULTS	UNIT OF MEASURE	DATE COMPLETED	DETECTION LIMIT (PQL)	ANALYST
Sample#: 02050324-01						
Wastewater Alternatives ID: Influent						
160.2	Total Suspended Solids	24	mg/L	6/5/02	4 mg/L	BD
1664	Oil & Grease -total	13	mg/L	6/12/02	5.0 mg/L	KD
180.1	Turbidity	40.4	NTU	5/30/02	0.50 NTU	BD
350.2	Ammonia-N	27.1	mg/L	6/5/02	6.25 mg/L	BD
351.3	Kjeldahl-N	22.8	mg/L	6/7/02	12.5 mg/L	PF
360.1	Dissolved Oxygen	0	mg/L	5/30/02	0 mg/L	DR
365.2	Phosphorous-P	8.7	mg/L	6/10/02	1.25 mg/L	BD
405.1	BOD	85	mg/L	6/5/02	1 mg/L	DR
SM 9222B	Total Coliform MF	TNTC	Colonies/100 mls	5/31/02	0 Colonies/ 25 mls	HB
SM 9222D	Fecal Coliform	TNTC	Colonies/100 mls	5/31/02	0 Colonies/ 25 mls	HB
Sample#: 02050324-02						
Wastewater Alternatives ID: Effluent						
160.2	Total Suspended Solids	<4	mg/L	6/5/02	4 mg/L	BD
1664	Oil & Grease -total	<5.0	mg/L	6/12/02	5.0 mg/L	KD
180.1	Turbidity	<0.50	NTU	5/30/02	0.50 NTU	BD
300.0	Nitrite	<0.10	mg/L	5/31/02	0.10 mg/L	DR
300.0	No3-N: Nitrate-N	1.31	N/A	5/31/02	1.00 mg/L	DR
350.2	Ammonia-N	<0.250	mg/L	6/5/02	0.250 mg/L	BD
351.3	Kjeldahl-N	0.304	mg/L	6/7/02	0.250 mg/L	PF
365.2	Phosphorous-P	0.377	mg/L	6/10/02	0.050 mg/L	BD
405.1	BOD	<15*	mg/L	6/5/02	15 mg/L	DR
SM 9222B	Total Coliform MF	60	Colonies/100 mls	6/1/02	0 Colonies/ 50 mls	HB
SM 9222D	Fecal Coliform	8	Colonies/100 mls	5/31/02	0 Colonies/ 50 mls	HB
Sample#: 02050324-03						
Wastewater Alternatives ID: Effluent Filtered						
405.1	BOD	<15*	mg/L	6/5/02	15 mg/L	DR

TNTC = To numerous too count.
BOD - No oxygen loss at all dilutions, results less than the greatest dilution.

SCITEST
LABORATORY SERVICES

P.O. Box 339
Randolph, Vermont 05060-0339
(802) 728-6319
http://www.scitestlabs.com
email: info@scitestlabs.com

ANALYTICAL REPORT

Integrated Systems Living
239 Indian Acres Road
Fairlee, VT 05045

Tim Price

Work Order No.: 0205-01489

Project Name: Woodstock Site
Customer Nos.: 089621

Date Received: 5/08/02
Date Reported: 5/17/02

Sample Desc.: ISL - In — Sample Date: 5/08/02
Sample Nos: 001 — Collection Time: 13:55

Test Performed	Method	Results	Units	Analyst	Analysis Date
BOD5	SM18 5210D	238	mg/L	BAM	5/08/02
Total Suspended Solids	SM18 2540D	33	mg/L	BAM	5/10/02
Turbidity	EPA 180.1	44	NTU	RJM	5/09/02
Nitrite as N	EPA 353.2	0.005	mg/L	RJM	5/08/02
Nitrate as N	EPA 353.2	< 0.1	mg/L	RJM	5/08/02
TKN	EPA 351.3/350.1	63	mg/L	RJM	5/15/02
Total Phosphorus	EPA 365.1	8.5	mg/L	RJM	5/13/02
Oil & Grease Gravimetric	EPA 1664	11	mg/L	ALS	5/13/02
Dissolved Oxygen	SM18 4500G	< 1	mg/L	WHB	5/08/02
E. coli	SM18 9213D3 FMT	99000	CFU/100mL	KMA	5/08/02

Sample Desc.: WAI - In — Sample Date: 5/08/02
Sample Nos: 002 — Collection Time: 13:25

Test Performed	Method	Results	Units	Analyst	Analysis Date
BOD5	SM18 5210D	222	mg/L	BAM	5/08/02
Total Suspended Solids	SM18 2540D	34	mg/L	BAM	5/10/02
Turbidity	EPA 180.1	40	NTU	RJM	5/09/02
Nitrite as N	EPA 353.2	0.010	mg/L	RJM	5/08/02
Nitrate as N	EPA 353.2	< 0.1	mg/L	RJM	5/08/02
TKN	EPA 351.3/350.1	62	mg/L	RJM	5/15/02
Total Phosphorus	EPA 365.1	8.6	mg/L	RJM	5/13/02
Oil & Grease Gravimetric	EPA 1664	12	mg/L	ALS	5/13/02
Dissolved Oxygen	SM18 4500G	1.2	mg/L	WHB	5/08/02
E. coli	SM18 9213D3 FMT	27000	CFU/100mL	KMA	5/08/02

Sample Desc.: WAI - Out — Sample Date: 5/08/02
Sample Nos: 003 — Collection Time: 12:45

Test Performed	Method	Results	Units	Analyst	Analysis Date
BOD5	SM18 5210D	< 20	mg/L	BAM	5/08/02
Total Suspended Solids	SM18 2540D	3	mg/L	BAM	5/10/02
Turbidity	EPA 180.1	1.1	NTU	RJM	5/09/02
	(EPA 180.1	1.1	NTU)		

ANALYTICAL REPORT

ject Name: Woodstock Site
roject No.: 089621

Work Order No.: 0205-01489

Sample Desc.: WAI - Out
Sample Nos: 003

Sample Date: 5/08/02
Collection Time: 12:45

Test Performed	Method	Results	Units	Analyst	Analysis Date
Nitrite as N	EPA 353.2	4.1	mg/L	RJM	5/08/02
Nitrate as N	EPA 353.2	78	mg/L	RJM	5/08/02
TKN	EPA 351.3/350.1	14	mg/L	RJM	5/15/02
Total Phosphorus	EPA 365.1	8.4	mg/L	RJM	5/13/02
Oil & Grease Gravimetric	EPA 1664	< 5	mg/L	ALS	5/13/02
Dissolved Oxygen	SM18 4500G	3	mg/L	RJL	5/08/02
E. coli	SM18 9213D3 FMT	< 9000	CFU/100mL	KMA	5/08/02

Authorized by: Roderick Lamothe
Roderick J. Lamothe
Laboratory Director

SCITEST

Thursday, September 12, 2002

To: File

From: James Jacobsen, ES IV

Re: Meeting

Russ Martin, Program Director & I met today with Gerry Gerdes and Harold ~~Clark~~ Davis to discuss the application for product approval for the "Clean Solutions" ATU.

They provided a copy of product specifications, a list of systems installed in New Hampshire, and a copy of Vermont's environmental rules.

Mr. ~~Clark~~ Davis wishes the Division to waive the testing requirements for product approval. In support of this desire, he stated that the State of New Hampshire approved SeptiTech with no testing requirements; that he has 100 +/- trouble free installations in New Hampshire; and that the cost of testing is too expensive.

Mr. ~~Clark~~ Davis also stated that in New Hampshire, a 75 square foot bed is required for a 3 bedroom single family dwelling, and a 100 square foot bed is required for a 4 bedroom dwelling. However, he did not specifically ask for such sizing. Russ explained that Maine's sizing varies with soil type.

I advised Mr. ~~Clark~~ Davis to submit a written basis for waiving the testing requirements, and suggested that this office will need a compelling argument from him in favor of such a waiver. Mr. ~~Clark~~ Davis indicated that he would prepare such a letter. He also indicated that he would contact us later to set up an inspection of a system installation.

STATE OF MAINE
DEPARTMENT OF HUMAN SERVICES
DIVISION OF HEALTH ENGINEERING
10 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0010

March 14, 2002

ANGUS S. KING, JR.
GOVERNOR

KEVIN W. CONCANNON
COMMISSIONER

Water Tech Group
Attn.: Gerry Gerdes
1102C Montalona Raod
Dunbarton, NH 03046

Subject: Request for Product Registration and Review, Clean Solution Wastewater System

Dear Mr. Gerdes:

Thank you for your letter dated March 6, 2002 regarding the *Clean Solution Wastewater System*. Unfortunately, your letter and sales brochure do not provide sufficient details and data to support registration for use in Maine.

Under provisions of Section 1802 of the Rules (copy enclosed), any manufacturer or distributor submitting a new product for code registration needs to demonstrate that:

1. The product is designed to protect public health, prevent the creation of any nuisance, and prevent environmental pollution to the same extent as comparable products presently authorized by Department for use in this code, and

2. The product is based on sound engineering principles and can be expected to provide the same level of protection to public health and the environment as offered by the authorized products presently authorized by the Department for use in this code.

Such demonstration may be achieved by submitting a letter to the Division of Health Engineering from: a) a certifying organization, such as the National Sanitation Foundation (NSF), Canadian Standards Authority (CSA) or other suitable organization stating their approval of the product; or b) the American Society for Testing and Materials (ASTM) indicating the requested product (used as indicated in the request) meets the ASTM standard as specifically listed in the appropriate section of any nationally recognized plumbing code, such as BOCA, IAPMO (same as International Plumbing Code), or equal.

If such certifications are not available, we would accept collated test results for existing installations in other jurisdictions. This testing data must include five day Biochemical Oxygen Demand, Total Suspended Solids, Total Nitrogen, and coliform bacteria, for both influent and effluent, over a statistically significant period.

We would also need copies of any relevant manufacturing literature and engineering data, as well as any supporting plans and mechanical drawings. Any proprietary data would be treated as confidential.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen

James A. Jacobsen, Environmental Specialist IV
Wastewater and Plumbing Control Program
Division of Health Engineering
e-mail: james.jacobsen@state.me.us

/jaj

Enc: Chapter 18

xc: File