



Albert Frick Associates, Inc.

Soil Scientists & Site Evaluators

95A County Road Gorham, Maine 04038
(207) 839-5563 FAX (207) 839-5564

Albert Frick SS, SE
James Logan SS, SE
Matthew Logan SE

*Received
30/APR/99*

85-M-6

April 28, 1999

Donald & Gretchen Steere
97 New Island Avenue
Peaks Island, ME 04108

Re: Donald & Gretchen Steere property (formerly Timothy Friel property), Sand Piper Road
(Map 85, Lot M-6), Peaks Island, Portland

Dear Mr. & Mrs. Steere:

We conducted an on-site investigation on February 19, 1999 for the purpose of evaluating the status of the existing disposal system and the potential for expansion.

The existing disposal system appeared to be functioning properly on the day of the field review with no apparent signs of malfunction.

Maine Law, Title 30-A, Section 4211, Subsection 3B states:

No person may expand a structure using a subsurface wastewater disposal system until documentation has been provided to the municipal officers and a notice of the documentation recorded in the appropriate registry of deeds that, in the event of a future malfunction of the system, the disposal system can be replaced and enlarged to comply with the rules promulgated under Title 22, Section 42 and ordinances promulgated under this section. No requirements of these rules may be waived for an expanded structure. The department shall prescribe the form of the notice to be recorded in the registry of deeds. The notice shall include a site plan showing the exact location of the replacement system, the appropriate location of lot lines and the exact location of existing wells serving the lot on which the replacement system will be located and those located on abutting lots. The person seeking to expand a structure shall send copies of the notice by certified mail, return receipt requested, to all owners of abutting lots. After the notice required by this paragraph is recorded, no abutting landowner may install a well on that landowner's property in a location which would prevent the installation of the replacement septic system. The owner of the lot on which the replacement system will be installed may not erect any structure on the proposed site of the replacement system or conduct any other activity which would prevent the use of the designated site for the replacement system.

The attached disposal plan shows the existing location of the disposal area.

The system is designed for 3 bedrooms at 270 gallons/day. If your building permit is not increasing the number of bedrooms beyond three, then the existing system is adequate. Also, the building footprint shall not be expanded toward the disposal area.

Respectfully,



Albert Frick

AF/nd

cc. Samuel Hoffses, Code Enforcement Officer



Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators



ANGUS S. KING, JR.
GOVERNOR

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

KEVIN W. CONCANNON
COMMISSIONER

March 11, 1999

Kirk Goodhue
Port Island Realty
14 Welch Street
Peaks Island ME 04108

SUBJECT: Friel property, Sandpiper Road, Peaks Island

Dear Mr. Goodhue:

The Division has received a Replacement System Variance Request for an After-the-Fact variance for the subject property. The request is to allow the existing system to continue to be utilized although the setback distance from the structure is 5 feet rather than the required 15 feet and the vertical separation at the first row of chambers is 12 inches to bedrock rather than the required 24 inches. The variance was submitted as a replacement system variance as the system is in place, and has been in place since 1992. The original installation was a New System.

As stated in the Division's letter dated 2/9/99, although the system was inspected and approved by the City of Portland's Local Plumbing Inspector at the time of installation, the Division found the installation of the septic system to be in violation of the Rules. Therefore, in accordance with the "possible options to resolve this issue" as stated in that letter, Matt Logan of Albert Frick Associates re-visited the site. His findings were that due to the slope of the property, Option 1 - moving the uppermost row of chambers to the lower area of the system - was not feasible. He then moved on to Option 2 - backhoe determination of the separation distance between the bedrock and the bottom of the chambers. He found that the uppermost row of chambers (the row which is 5 feet from the structure) had a separation distance of 12 inches to bedrock. The other rows had upwards to 23" to bedrock. Therefore, an After-the-Fact Variance Request was made for the reduction in vertical separation to bedrock and reduction in separation distance to the structure.

Based on the site work performed by Matt Logan, the basis that the structure and the system have been in use since 1992, and that Mr. Logan did not find any signs of system failure, the Division approves the After-the-Fact Variance Request.

This approval does not imply that the Division condones the installation and approval of a system which is contradictory to the system design and in conflict with the Rules.

Because of the non-conforming installation, the Division makes no representation or guarantee as to the efficiency and/or operation of the system, particularly to the respect to groundwater contamination in the bedrock.

Should you or others have any questions regarding the review and/or approval of the After-the-Fact Variance, please feel free to contact me at 287-5687.

Sincerely,

Linda S. Robinson
Wastewater & Plumbing Control Program
Division of Health Engineering
e-mail: linda.robinson@state.me.us



PRINTED ON RECYCLED PAPER

/lsr
cc: Matthew Logan, Albert Frick Assoc.
P. Samuel Hoffses, Portland LPI

Replacement System Variance Request

VARIANCE CATEGORY	VARIANCE REQUESTED		LIMIT OF LPI'S APPROVAL AUTHORITY		VARIANCE REQUESTED TO:	
SOILS						
Soil Profile	Ground Water Table		to 7"		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	Less Than 1000 gpd	1000 to 2000 gpd	To	To
Wells with water usage of 2000 or more gpd	300 ^a ft	300 ^a ft	100 ^a ft	100 ^a ft		
Owner's wells	100 down to 50 ft	200 down to 100 ft	100 ^b down to 50 ft	100 down to 50 ft		
Neighbor's wells	100 ^b down to 60 ft	200 ^b down to 120 ft	100 ^b down to 50 ft	100 ^b down to 75 ft		
Water supply line	10 ft ^a	20 ft ^a	10 ft ^a	10 ft ^a		
Water course, major - for replacements only, see Table 400.4 for exempted expansions	100 down to 60 ft	200 down to 120 ft	100 down to 50 ft	100 down to 50 ft		
Water course, minor	50 down to 25 ft	100 down to 50 ft	50 down to 25 ft	50 down to 25 ft		
Drainage ditches	25 down to 12 ft	50 down to 25 ft	25 down to 12 ft	25 down to 12 ft		
Coastal wetlands, special freshwater wetlands, great ponds, rivers, streams (edge of fill extension)	25 ft ^d	25 ft ^d	25 ft ^d	25 ft ^d		
Slopes greater than 3:1	10 ft	18 ft	N/A	N/A		
No full basement [e.g. slab, frost wall, columns]	15 down to 7 ft	30 down to 15 ft	8 down to 5 ft	14 down to 7 ft	5' (AS BUILT)	
Full basement [below grade foundation]	20 down to 10 ft	30 down to 15 ft	8 down to 5 ft	14 down to 7 ft		
Property lines	10 down to 5 ft	18 ft down to 9 ^c ft	10 ft down to 4 ^c ft	15 ft down to 7 ^c ft		
Burial sites or graveyards, measured from the down toe of the fill extension	25 ft	25 ft	25 ft	25 ft		

OTHER

1. Fill extension Grade - to 3:1 _____

2. SEPARATION TO BEDROCK 12" - 23" (AS BUILT) _____

3. _____

Footnotes:

- This setback distance cannot be reduced by the LPI, but may be considered for reduction by State variance.
- Written Permission from the owner of a well is required when a replacement system will be located less than 100 (or 200 ft. for 1000-2000 gpd) feet and closer to that well than the system it is replacing.
- Sufficient distance shall be maintained to assure that the toe of the fill does not extend to the 3:1 slope or property line.
- Natural Resources Protection Act requires a 25 foot setback on slopes with less than 20% from the edge of disturbance and 100 feet on slopes greater than 20% except for the repair or installation of a replacement system when no practical alternative exists.

Albert Feick

SITE EVALUATOR'S SIGNATURE

3/9/99

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.

Linda S. Robinson

SIGNATURE OF THE DEPARTMENT

3/11/99

DATE

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. 1903)
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 PORTLAND (PEAKS ISLAND)
Permit No. _____ Date Permit Issued _____
Property Owner's Name: TIM FRIEL Tel. No.: _____
System's Location: 17 SANDPIPER ROAD
Property Owner's Address: _____
(if different from above) _____

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:

It 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.

SIGNATURE OF OWNER

DATE

LOCAL PLUMBING INSPECTOR

I, _____, 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, she shall state his reasons in Comments Section below as to why the proposed replacement system is not being recommended.

Comments: _____

LPI SIGNATURE

DATE

Replacement System Variance Request

VARIANCE CATEGORY	VARIANCE REQUESTED		LIMIT OF LPI'S APPROVAL AUTHORITY		VARIANCE REQUESTED TO:	
SOILS						
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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	Less Than 1000 gpd	1000 to 2000 gpd	To	To
Wells with water usage of 2000 or more gpd	300 ^a ft	300 ^a ft	100 ^a ft	100 ^a ft		
Owner's wells	100 down to 50 ft	200 down to 100 ft	100 ^b down to 50 ft	100 down to 50 ft		
Neighbor's wells	100 ^b down to 60 ft	200 ^b down to 120 ft	100 ^b down to 50 ft	100 ^b down to 75 ft		
Water supply line	10 ft ^a	20 ft ^a	10 ft ^a	10 ft ^a		
Water course, major - for replacements only, see Table 400.4 for exempted expansions	100 down to 60 ft	200 down to 120 ft	100 down to 50 ft	100 down to 50 ft		
Water course, minor	50 down to 25 ft	100 down to 50 ft	50 down to 25 ft	50 down to 25 ft		
Drainage ditches	25 down to 12 ft	50 down to 25 ft	25 down to 12 ft	25 down to 12 ft		
Coastal wetlands, special freshwater wetlands, great ponds, rivers, streams (edge of fill extension)	25 ft ^d	25 ft ^d	25 ft ^d	25 ft ^d		
Slopes greater than 3:1	10 ft	18 ft	N/A	N/A		
No full basement [e.g. slab, frost wall, columns]	15 down to 7 ft	30 down to 15 ft	8 down to 5 ft	14 down to 7 ft	5' (AS BUILT)	
Full basement [below grade foundation]	20 down to 10 ft	30 down to 15 ft	8 down to 5 ft	14 down to 7 ft		
Property lines	10 down to 5 ft	18 ft down to 9 ^c ft	10 ft down to 4 ^c ft	15 ft down to 7 ^c ft		
Burial sites or graveyards, measured from the down toe of the fill extension	25 ft	25 ft	25 ft	25 ft		

OTHER

1. Fill extension Grade - to 3:1

2. SEPARATION TO BEDROCK 12" - 23" (AS BUILT)

3.

Footnotes:

- a. This setback distance cannot be reduced by the LPI, but may be considered for reduction by State variance.
- b. Written Permission from the owner of a well is required when a replacement system will be located less than 100 (or 200 ft. for 1000-2000 gpd) feet and closer to that well than the system it is replacing.
- c. Sufficient distance shall be maintained to assure that the toe of the fill does not extend to the 3:1 slope or property line.
- d. Natural Resources Protection Act requires a 25 foot setback on slopes with less than 20% from the edge of disturbance and 100 feet on slopes greater than 20% except for the repair or installation of a replacement system when no practical alternative exists.

Albert Feick

SITE EVALUATOR'S SIGNATURE

3/9/99

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
(207) 287-5672 FAX (207) 287-4172

PROPERTY LOCATION	
Town or Plantation	PORTLAND
Street Subdivision Lot *	PEAKS ISLAND
	SANDPIPER ROAD
PROPERTY OWNER'S NAME	
Last: N/F FRIEL	First: TIM
Applicant's Name	
Mailing Address of Owner	
Daytime Tel. *	

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.

Owner 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: Inspection Required

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

Local Plumbing Inspector Signature

Date Approved

Municipal Tax Map * 85 Lot * M-6

PERMIT INFORMATION

TYPE OF APPLICATION:

AS BUILT DESIGN

- First Time System
- Replacement System
Type Replaced CHAMBER
Year Installed 1992
- Expanded System
 - a. one time exempted
 - b. non exempted
- Experimental System
- Seasonal Conversion

THIS APPLICATION REQUIRES:

- No Rule Variance
- First Time System Variance
 - a. Local Plumbing Inspector approval
 - b. State & Local Plumbing Inspector approval
- Replacement System Variance
 - a. Local Plumbing Inspector approval
 - b. State & Local Plumbing Inspector approval
- Minimum Lot Size Variance
- Seasonal Conversion Approval

DISPOSAL SYSTEM COMPONENT(S)

- Non-Engineered System
- Primitive System (graywater & alt toilet)
- Alternative Toilet _____
- Non-Engineered Treatment Tank
- Holding Tank _____ Gallons
- Non-Engineered Disposal Area (only)
- Separated Laundry System
- Engineered System (*2000 gpd)
- Engineered Treatment Tank (only)
- Engineered Disposal Area (only)
- Pretreatment

SIZE OF PROPERTY

23,887 S.F.

DISPOSAL SYSTEM TO SERVE:

- Single Family Dwelling Unit
- Multiple Family Dwelling: Number of Units _____
- Other _____

TYPE OF WATER SUPPLY

PUBLIC WATER

SHORELAND ZONING

Yes No

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

EXISTING TREATMENT TANK

- Concrete
 - a. Regular
 - b. Low Profile
- Plastic
- Other _____

SIZE 1000 Gallons

DISPOSAL AREA TYPE / SIZE

- Bed _____ Sq. Ft.
- Proprietary Device 1050 Sq. Ft.
 - Cluster Linear
 - Regular H-20
- Trench
- Other _____

21 PLASTIC CHAMBERS

GARBAGE DISPOSAL UNIT

- No
- Yes
 - Multi-compartment tank
 - Tank in series
 - Increase in tank capacity
 - Filter on tank outlet

(IF DISPOSAL IS TO BE INSTALLED)

CRITERIA USED FOR DESIGN FLOW
(Show Calculations)

SINGLE FAMILY DWELLING (3 BEDROOM)

DESIGN FLOW: 270
(Gallons/Day)

PROFILE & DESIGN CLASS

PROFILE FILL OVER DESIGN A

DEPTH TO MOST LIMITING FACTOR 40-56"

DISPOSAL AREA SIZING

- Small - 2.00
- Medium - 2.60
- Medium-Large - 3.30
- Large - 4.10
- Extra-Large - 5.20

PUMPING

- Not required
- May be required
- Required

DOSE _____ Gallons

SITE EVALUATOR'S STATEMENT

On 2/19/99 (date) I completed a site evaluation on this property and state that the data reported is accurate and that the proposed system is in compliance with the Subsurface Wastewater Disposal Rules.

Albert Frick
Site Evaluator Signature

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SE *

3/1/99
Date

ALBERT FRICK ASSOC., INC.
Site Evaluator Name Printed

839-5563
Telephone

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

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

Town, City, Plantation
PORTLAND PEAKS ISLAND SANDPIPER ROAD

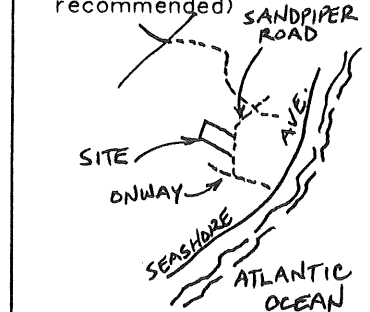
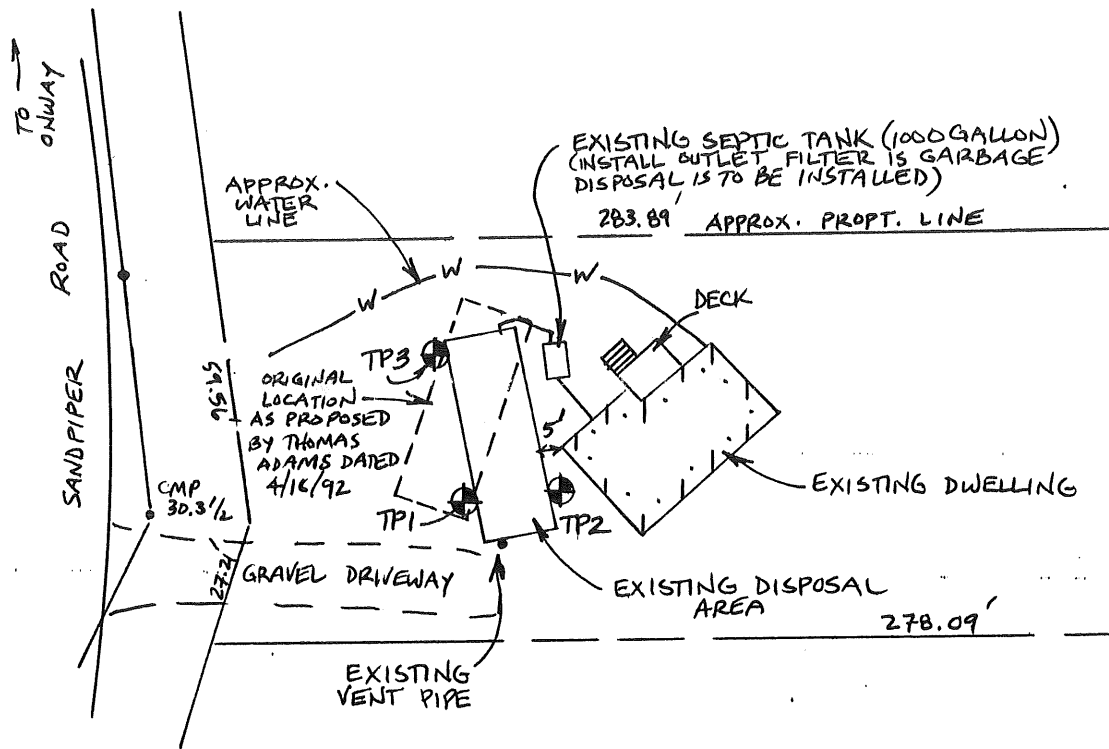
Street, Road Subdivision
N/F FRIEL, TIM

Owner's Name
N/F FRIEL, TIM

SITE PLAN

Scale 1" = 40 ± Ft.
or as shown

SITE LOCATION PLAN
(Map from Maine Atlas recommended)



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

Observation Hole TP1 Test Pit Boring
" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
CHANNERY SANDY LOAM (FILL)		VARIABLE BROWN	
EXISTING CHAMBER Row #3	FRIABLE	LIGHT OLIVE BROWN	NONE EVIDENT
SANDY LOAM		YELLOWISH BROWN	
WEATHERED BEDROCK			
FILL OVER			

Soil Classification: 2 Profile, A Condition
Slope: _____ %
Limiting Factor: 40 "
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Observation Hole TP2 Test Pit Boring
" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
(FILL) LOAMY SAND & SANDY LOAM		VARIABLE BROWN	
EXISTING CHAMBER Row #1	FRIABLE		▲▲▲ FREE WATER
SANDY LOAM			
(WEATHERED BEDROCK AT 56")			
FILL OVER			

Soil Classification: 2 Profile, A Condition
Slope: _____ %
Limiting Factor: _____ "
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Albert Frick
Site Evaluator Signature

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SE

3/1/99
Date

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

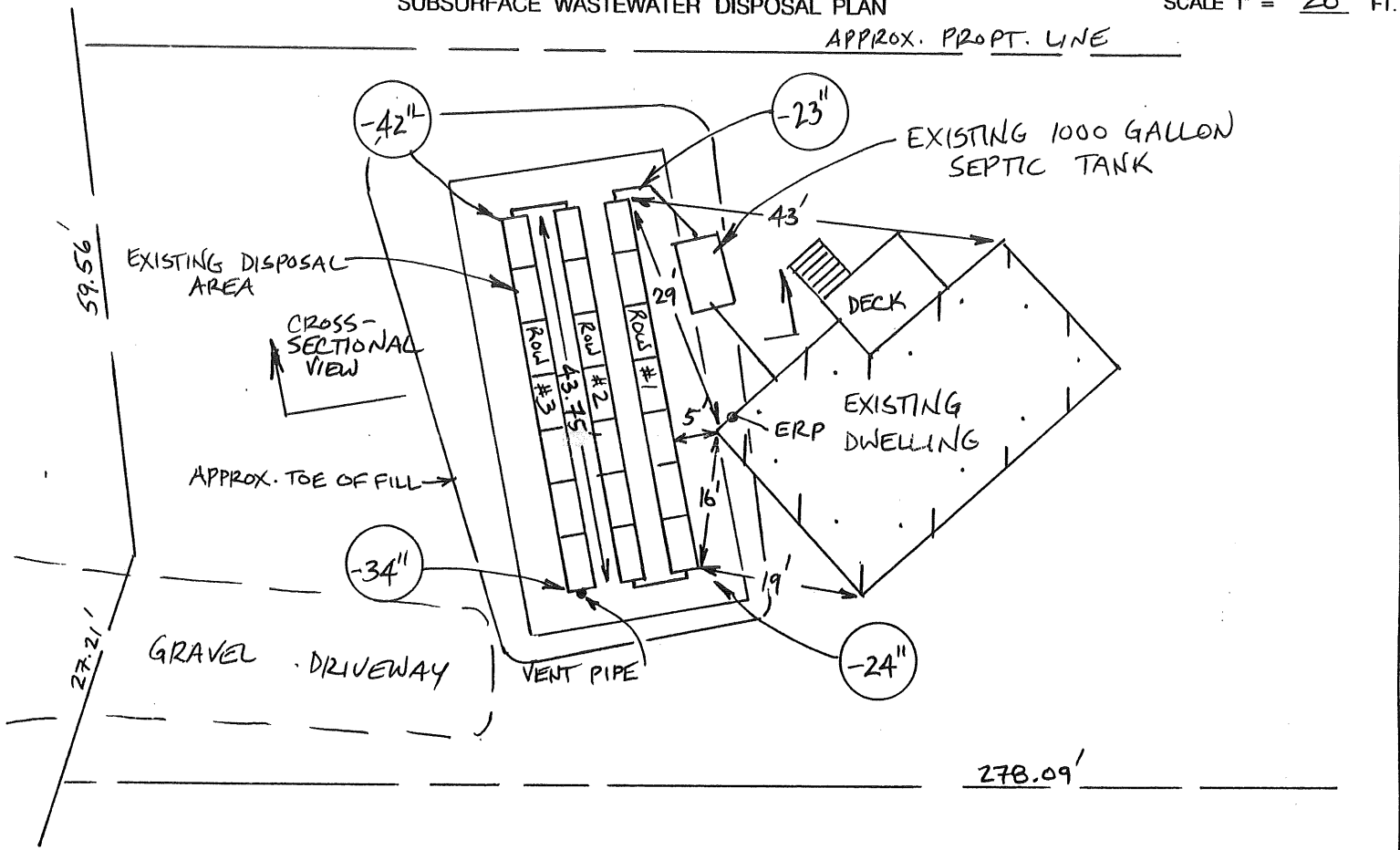
Department of Human Services
Division of Health Engineering
(207) 287-5672 FAX (207) 287-4172

Town, City, Plantation: **PORTLAND PEAKS ISLAND** Street, Road, Subdivision: **SANDPIPER ROAD** Owner's Name: **N/F FRIEL, TIM**

SUBSURFACE WASTEWATER DISPOSAL PLAN

SCALE 1" = 20 FT.

APPROX. PROP. LINE



FILL REQUIREMENTS

Depth of Fill (Upslope)	36" ±
Depth of Fill (Downslope)	28" ±

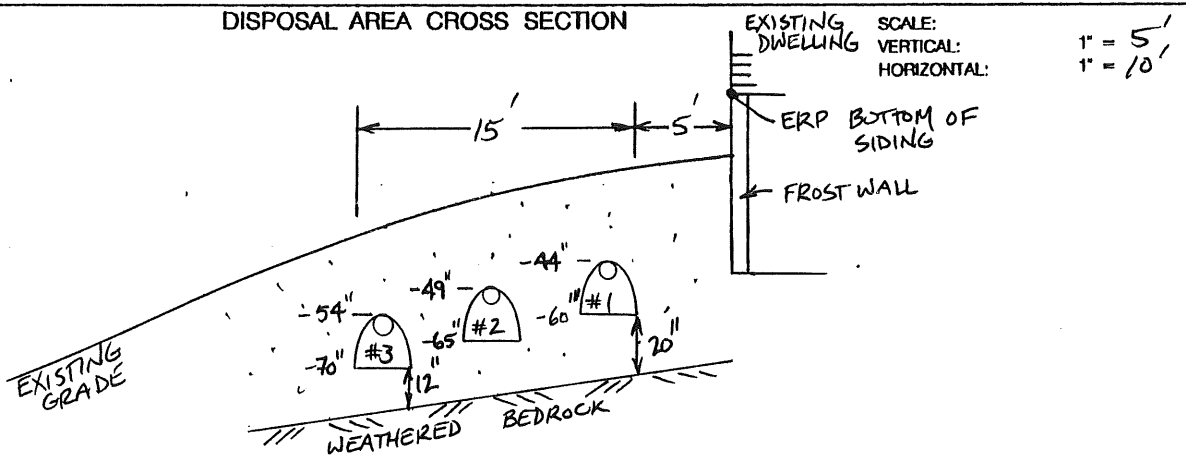
CONSTRUCTION ELEVATIONS

Finished Grade Elevation	SEE
Top of Distribution Pipe or Proprietary Device	DETAIL
Bottom of Disposal Area	BELOW

ELEVATION REFERENCE POINT

Location & Description: **BOTTOM OF SIDING AT CORNER OF DWELLING**
Reference Elevation: **00"**

DISPOSAL AREA CROSS SECTION



Albert Friel
Site Evaluator Signature

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SE

3/1/99
Date

ATTACHMENT TO SUBSURFACE WASTEWATER DISPOSAL APPLICATION

Portland - Peaks Island Sandpiper Rd Friel, Tim
TOWN LOCATION APPLICANT'S NAME

- 6) The septic tank should be pumped within two years of installation and subsequently as recommended by the pump service, but in no event should the septic tank be pumped less often than once every three years.
- 7) The actual water flow or number of bedrooms shall not exceed the design criteria indicated on this application without a re-evaluation of the system as proposed. If the system is supplied by public water or a private service with a water meter, the water consumption per period should be divided by the number of days to calculate the average daily water consumption (water usage (cu.ft.) x 7.48 cu.ft.(gallons per cu.ft.) + # of days in period).
- 8) The general minimum setbacks between a well and septic system serving a single family residence is 100-300 feet, unless the local municipality has a more stringent requirement. A well installed by an abutter within the minimum setback distances prior to the issuance of a permit for the proposed disposal system may void this design.
- 9) When a gravity system is proposed: **BEFORE CONSTRUCTION/INSTALLATION BEGINS**, the system installer or building contractor shall review the elevations of all points given in this application and the elevation of the existing and/or proposed building drain and septic tank inverts for compatibility to minimum slope requirements. In gravity systems, the invert of the septic tank(s) outlet(s) shall be at least 4 inches above the invert of the distribution box outlet at the disposal area. When an effluent pump is required, provisions shall be made to make certain that surface ground water does not enter the septic tank or pump station. An alarm device warning of a pump failure shall be installed. Also, when pumping is required to a chamber system, install a "T" connection in the distribution box and place 3 inches of stone or a splash plate in the first chamber. Insulate gravity pipes, pump lines and the distribution box as necessary to prevent freezing.
- 10) On all systems, remove the vegetation, organic duff and old fill material from under the disposal area and any fill extension. On sites where the proposed system is to be installed in natural soil, scarify the bottom and sides of the excavated disposal area with a rake. Do not use wheeled equipment on the scarified soil surface. For systems installed in fill, scarify the native soil by roto-tilling to a depth of at least 8 inches over the entire disposal and fill extension area to prevent glazing and to promote fill bonding. Place fill in loose layers no deeper than 8 inches and compact thoroughly before placing more fill (this ensures that voids and loose pockets are eliminated to minimize the chance of leakage). Do not use wheeled equipment on the scarified soil area until after 12 inches of fill is in place. Keep equipment off the chambers. Divert the surface water away from the disposal area by ditching or shallow swales.
- 11) Unless noted otherwise, fill shall be gravelly coarse sand which contains no more than 5% fines (silt and clay).
- 12) Do not install systems on loamy, silty, or clayey soils during wet periods since soil smearing/glazing may seal off the soil interface.
- 13) Seed all filled and disturbed surfaces with perennial grass seed, then mulch with hay or equivalent material to prevent erosion.

