

1. Board Of Health Packet

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NANTUCKET HEALTH DEPARTMENT

3 EAST CHESTNUT STREET
NANTUCKET, MASSACHUSETTS 02554
Telephone 508.228.7200
Fax 508.325.6117

BOARD OF HEALTH REGULATION VARIANCE REQUEST \$20 per request

I am requesting: (Check one.)

A variance of a Local Board of Health Regulation

A variance of a State Public Health Regulation (310 CMR 15, 105 CMR 590, etc...)

Please write an explanation of the variance requested (use separate paper if needed): _____

Local Regulation 64.04.B. For the installation of an IA system on a cluster subdivision lot for loading that exceeds one-bedroom per 10,000-s.f. of lot area within a Nitrogen Sensitive Area (Nantucket Harbor & Wellhead Protection Districts). Please refer to the attached letter and supporting documentation.

Requestor Name: Southwater Realty Trust

Company Name: (if applicable) _____

Address: 2 Sheep Commons Lane _____ MAP: 54 _____ PARCEL: 270 _____

Phone No. c/o Nantucket Engineering & Survey, PC – 508-825-5053 _____

Email: c/o art@nantucketengineer.com _____

Requestor's Signature: Arthur D. Saubano Agent Date: 12/8/16

Please be advised that the Health Department accepts variance requests up to one week before a scheduled Board of Health meeting. Applications received after this deadline will be placed at the subsequent scheduled meeting.

Received by: _____

Date: _____



December 8, 2016

Nantucket Board of Health
3 East Chestnut Street
Nantucket, MA 02554

Re: 2 Sheep Commons Lane
Map 54 Parcel 270

Dear Members of the Board:

I am writing on behalf of the property owner, Southwater Realty Trust, to request permission to install a nitrogen-reducing Innovative/Alternative (IA) Technology Septic System with allowance for additional bedroom capacity on the property in compliance with the MassDEP SeptiTech Provisional Use approval letter and Title 5. Specifically proposed is a 4-bedroom IA system. A permit was issued in 2001 for the same size conventional system, however it was not installed. Systems of this size have been allowed throughout the same cluster subdivision.

Under the current application of the Town of Nantucket Board of Health Regulations, relief is required from Section 64.04.B. –

- 1. No system serving new construction in nitrogen sensitive areas as defined in Regulation 50.00 shall be designed to receive or shall receive more than 110 gallons of design flow per day per 10,000 square feet of lot area.*

The subject property has a lot area of approximately 27,016 s.f. and is within the Nantucket Harbor Watershed and Zone II Wellhead Protection Districts, nitrogen sensitive areas. The property is located approximately one mile from Nantucket Harbor as shown on the attached graphics.

We ask that the Board grant the Special Variance request pursuant to Section 64.07.B of the Nantucket Board of Health Regulations:

- 1. The person requesting the variance has established that enforcement of the provisions of these Regulations from which a variance is sought would be manifestly unjust, considering all the relevant facts and circumstances of the individual case; and*
- 2. The person requesting a variance has established that a level of environmental protection that is at least equivalent to that provided under these Regulations can be achieved without strict application of the provision of these Regulations from which a variance is sought.*

The difference in total nitrogen contributed from a 2-bedroom I/A system is negligible compared to nitrogen contribution from a 4-bedroom I/A system. Specifically, a 2-bedroom IA system would contribute 0.0257 pounds of total nitrogen (N) per day, compared to 0.0514 pounds N per day from a 4-bedroom I/A system based on design flow and a 2003 study document of the SeptiTech I/A System published by the US EPA as part of The Environmental Technology Verification Program (ETV). From the same study, “the SeptiTech System averaged a 64 percent reduction of TN for the entire test, with a median removal of 64 percent”.

The property is part of a cluster subdivision which set aside 31.55-acres (66% of the site) as common open space. Considering the large tract of land directly associated with the subject parcel justifies that the nitrogen loading increase to allow a modestly sized 4-bedroom capacity IA system.

Further, it should be noted that this I/A design is fully compliant with all aspects of Title 5. Considering the facts at hand, a 4-bedroom capacity I/A system should be allowed, and it would be manifestly unjust, given all of the facts and circumstances of this case, to not issue a variance for or otherwise allow for an I/A system at this location.

This request should not result in a bad precedent for the Board, as this is specific set of circumstances, as outlined above, which also meets the requirements for the Board to grant a Special Variance per Section 64.07.B.1 and 2.

I plan to attend your next meeting should you have any questions or concerns regarding this matter.

Sincerely,
Nantucket Engineering & Survey, P.C.
By: Arthur D. Gasbarro, PE, PLS, LEED AP

A handwritten signature in blue ink that reads "Arthur D. Gasbarro". The signature is written in a cursive style and is contained within a thin black rectangular border.

Cc: Southwater Realty Trust

Locus Map - 2 Sheep Commons Lane



Property Information

Property ID 54 270
Location 2 SHEEP COMMONS LN
Owner KENNELLY THOMAS F TRUSTEE



**MAP FOR REFERENCE ONLY
 NOT A LEGAL DOCUMENT**

Town and County of Nantucket, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated December, 2014
 Properties updated 12/08/2016

No. 64-01

BOARD OF HEALTH
TOWN OF NANTUCKET

Fee _____

APPLICATION FOR DISPOSAL WORKS CONSTRUCTION PERMIT

Application is hereby made for a Permit to Construct () or Repair () an Individual Sewage Disposal System at:

59 SHEEP COMMONS LANE
Location - Address

59/270
Assessors map and parcel no.

CARROLL T HUGHES
Owner

10 MILK ST PO. #1796
Address

MYLES REIG
Installer

57 SUBSIDE
Address

Type of Building _____ Dwelling No. of Bedrooms 4 Expansion Attic () _____ Size Lot 27,016 Sq. feet _____
Garbage Grinder () _____
Other _____ Type of Building _____ No. of persons _____ Showers () _____ Cafeteria () _____
Other fixtures _____

Design Flow 65 gallons per person per day. Total daily flow 440 gallons.
Septic Tank Liquid capacity 1500 gallons Length 10'-6" Width 5'-0" Diameter _____ Depth 5'-0"
3' Total Length 43' Total Leaching area 602 sq. ft.

Pink Copy-Board of Health

The Commonwealth of Massachusetts
BOARD OF HEALTH
Town Of Nantucket

No. 64-01

Disposal Works Construction Permit

Permission is hereby granted Myles Reig - Carroll Hughes
to Constructed () or Repaired () an Individual Sewage Disposal System located at:
No. _____ (Street Address)
as shown on the application for Disposal Works Construction Permit No. 64-01
Dated _____

Date _____

White Copy-Inspector • Yellow Copy-Owner
Pink Copy-Board of Health

The Commonwealth Of Massachusetts
BOARD OF HEALTH
Town Of Nantucket

No. 64-01

Disposal Works Construction Permit

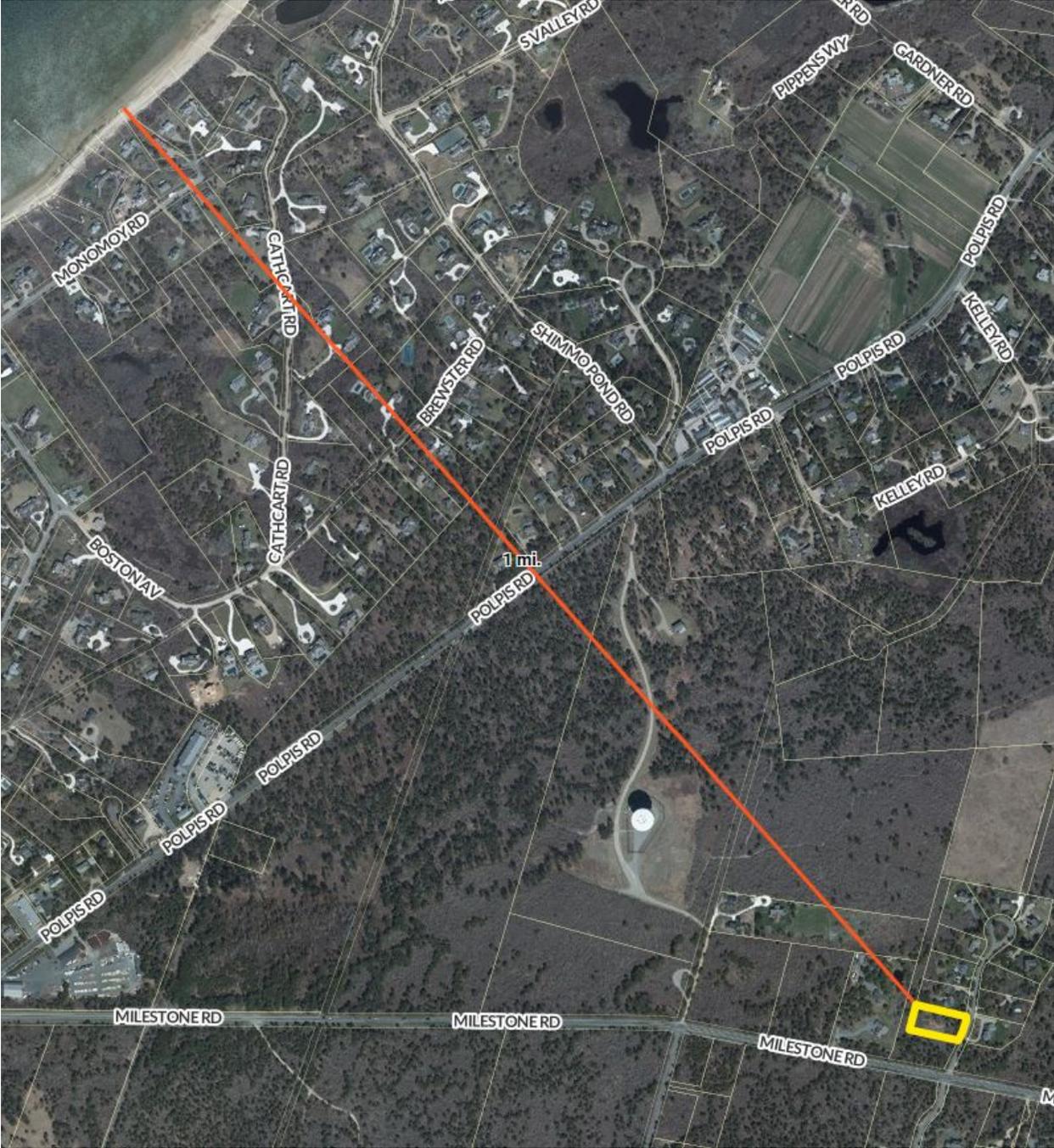
Permission is hereby granted Myles Reig - Carroll Hughes
to Constructed (✓) or Repaired () an Individual Sewage Disposal System located at:
No. map 59 parcel 270 Sheep Commons Lane (Street Address)
as shown on the application for Disposal Works Construction Permit No. 64-01
Dated 4-25-01

Date 4-30-01

Richard J. Flynn
Board of Health

Valid for three years from the date of issue.

Nantucket Harbor (1.0-miles) To Locus



Island Surveyors, LLC

Edward F. King Jr., PLS

Post Office Box 1197

Nantucket, MA 02554

(508)-228-2720

e-mail: acksurvey@hotmail.com

HEALTH DEPARTMENT

DEC 08 2016

RECEIVED

K-657

December 7, 2016

Mr. Artell Crowley III
Health Agent
Town of Nantucket
2 Fairgrounds Road
Nantucket, Ma 02554

Re: Pinkham Circle II, LLC, Cert. 22687
8 Pinkham Circle, Nantucket, Ma
Assessor Map 56-164

Dear Mr. Crowley:

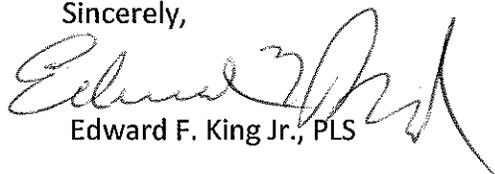
On behalf of the Pinkham Circle II, LLC at 8 Pinkham Circle, Assessor Map 56-164, I would like to submit this Proposed Septic Plan and request a waiver from the Town of Nantucket Board of Health Local Regulation 64.04B1.

The subject property is in Zone B of the Nantucket Harbor Watershed Protection District. We are proposing a 4 bedroom septic system with alternative technology on a lot with 32,885 S.F.

Thank you for your attention to this matter.

If you have any questions or need further information, please call me.

Sincerely,



Edward F. King Jr., PLS



NANTUCKET HEALTH DEPARTMENT
3 EAST CHESTNUT STREET
NANTUCKET, MASSACHUSETTS 02554
Telephone 508.228.7200
Fax 508.325.6117

BOARD OF HEALTH REGULATION
VARIANCE REQUEST
\$20 per request

I am requesting: (Check one.)

- A variance of a Local Board of Health Regulation
 A variance of a State Public Health Regulation (310 CMR 15, 105 CMR 590, etc...)

Please write an explanation of the variance requested (use separate paper if needed):

We are requesting to upgrade from a 3 bedroom septic system to a four bedroom system. This is a request for a credit through a IA. The surveyor for the project is Teddy King (508)228-8398 acksurvey@holmail.com and the architect is Steve Thoreaux at Nantucket Architectural Group, 508-648-3389. As the future home owners, we acknowledge, as does our team on the project, that a sewer through the town will be addressing this land in the coming years and we are aware of the expectations of us as home owners at that time.

Full Set of Required Plans to be submitted nlt 12/9 or 12/12/2016

RELIEF FROM REGULATION 64.04B1

Requestor Name: Lisa and Daniel Donovan
Company Name: (if applicable) _____
Address: 8 Pinkham circle MAP: _____ PARCEL: LOT 54 14830-P
Phone No. 703-727-9160 Fax No. _____
Email: ldonovan@linden.org

Requestor's Signature: *Daniel J. Donovan* Date: 12/7/16

Please be advised that the Health Department accepts variance requests up to one week before a scheduled Board of Health meeting. Applications received after this deadline will be placed at the subsequent scheduled meeting.

Received by: _____ Date: _____

HOMEOWNER SEPTIC/SEWER ESTIMATE

- 1. Engineering soil evaluation and design: \$ 20,350.00 *Island Survey*
- 2. Estimated costs of repair, replacement or connection: \$ 25,024.80
- Total Loan Estimate: \$ 27,059.80

The undersigned, Homeowner, agrees to sign a Betterment Agreement with the Town of Nantucket (the "Town"), to pay for the required costs associated with the septic system repair, replacement and/or upgrade of a failed on-site septic system located on the undersigned's residential property or the connection to the Town sewer, and is aware that these costs will be treated as a municipal lien on the undersigned's property. The undersigned acknowledges and agrees that if the undersigned's gross annual income exceeds \$150,000, the Commonwealth of Massachusetts Department of Environmental Protection's approval is required in order for the undersigned to be eligible for a loan under the Town's Community Septic Management Program.

The undersigned further acknowledges and agrees that (i) a loan under the Town's Community Septic Management Program is contingent upon the Town determining that the undersigned's property lies within an environmentally sensitive area that is deemed to be fundable by the Town for that fiscal year; (ii) such loans are available on a first-come, first-serve basis, and is based on applicant(s) being in good tax standing with the Town of Nantucket; and (iii) such loan is to be used for the repair, replacement and/or upgrade of a failed on-site septic system of residential property only or to connect such property to the Town's sewer in order to comply with Title 5 and other applicable public health and environmental laws, and that such loan funding is to be used for existing flows only (no additional flows are to be paid for under this Loan Program).

The undersigned acknowledges that funding availability and approval may be based on a priority list established at the Town's Board of Health's sole discretion.

Mary E Egan
Homeowner

12/8/16
Date

Homeowner

Date

Board of Health Use Only:

Project Number _____
Watershed Protection District _____
Date Accepted: _____

P. & M. REIS TRUCKING, INC.

P.O. Box 113
NANTUCKET, MA 02554-0113
508-228-0998

QUOTE

Date	Estimate #
11/17/2016	1655

Name / Address
Betsy Egan 11 Dukes Road Nantucket, MA 02554

P.O. No.	
11 DUKESRD	SEWER

Description	Total
QUOTE TO PERFORM SITEWORK AT 11 DUKES ROAD TO CONNECT TO TOWN SEWER	25,024.80
SCOPE OF WORK INCLUDES:	
- PUMPING OF EXISTING SEPTIC SYSTEM AND ABANDON IN PLACE	
- SUPPLY AND INSTALL FLGYT 3068 GRINDER PUMP WITH 230 gallon TANK, MULTITRODE AND ALARM PANEL	
- SUPPLY LICENSED ELECTRICIAN TO WIRE PUMP AND ALARM PANEL	
- SUPPLY AND INSTALL 1 1/4" SDR11 PRESSURE LINE FROM PLYGT PUMP TO PRESSURE LINE	
- SUPPLY AND INSTALL CURB STOP WITH CHECK VALVE AT PROPERTY LINE	
- BACKFILL SYSTEM AFTER INSPECTION AND ASBUILT	
- HYDROSEEDING OF DISTURBED AREAS	
ITEMS NOT INCLUDED IN THE ABOVE QUOTE BUT MAY BE ADDED IF REQUIRED:	
- PERMIT OR FEES	

--

Signature

P. & M. REIS TRUCKING, INC.

P.O. Box 113
NANTUCKET, MA 02554-0113
508-228-0998

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11/17/2016	1655

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- PERMIT OR FEES	

--

Signature

Proposal

Submitted To: EGAN, BESTY

Date: Saturday, December 03, 2016

Address:

Job Name: SEWER TIE IN

City, State, Zip: Nantucket, MA 02554

Location: 11 DUKES RD.

Job Description:

JOBNO: 5005

THE COST TO:

- 1 - PUMP EXISTING SEPTIC TANK AND FILL WITH FLOWABLE FILL.
- 2 - INSTALL NEW GRINDER PUMP PER PLAN - PIPE TO EXISTING LINE FROM HOUSE.
- 3 - STREET OPENING - INSTALL NEW 1 - 1/4" PVC SEWER LINE FROM NEW PUMP TO MAIN IN DUKES RD.

NOT INCLUDED ITEMS:

- 4 - Disposal of any underground oil tanks.
- 5 - Disconnecting or reconnecting telephone, gas, electric or plumbing.
- 6 - Permits.
- 7 - Removal or replacement of any landscaping.
- 8 - Police Detail.
- 9 - Replacement cost of unsuitable soil.
- 10 - Brush disposal fees.

We Propose hereby to furnish material and labor in accordance with the above specifications for the sum of:

\$17,523.88

Payment is to be made as follows:

BILLING IS WEEKLY. PAYMENT IS DUE WITHIN TEN DAYS.

All material is guaranteed to be as specified. All work is to be completed in a professional manner according to standard practices. Any alteration or deviation from the above specifications involving extra costs will be executed only upon written orders and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner shall carry all risk property insurance, to include but not limited to, fire, windstorm and flood coverage. Our workers are fully covered by Workman's Compensation Insurance. We carry \$250,000 of care, custody and control legal liability insurance for of any building being moved. Coverage in excess of this amount is the sole responsibility of the Owner.

After ten (10) days, unpaid invoices accrue interest at a rate of 1 1/2% per month (18% per year). If Owner fails to make payment(s) as required under this Proposal or commits any other breach or default under this Proposal, Toscana shall have the right to immediately cease all work to be performed and to recover from Owner all moneys owed to Toscana for any work performed as well as any costs and expenses incurred by Toscana including reasonable attorney's fees, as a result of any default or non-payment.

Note: This proposal may be withdrawn by us if not accepted with 30 days.

Authorized Signature: _____

Acceptance of Proposal - The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Signature: _____ Date of Acceptance: _____

P. & M. REIS TRUCKING, INC.

P.O. Box 113
NANTUCKET, MA 02554-0113
508-228-0998

QUOTE

Date	Estimate #
11/17/2016	1655

Name / Address
Betsy Egan 11 Dukes Road Nantucket, MA 02554

P.O. No.	
11 DUKESRD	SEWER

Description	Total
- SURVEYING AND STAKING	
- DEWATERING	
- UTILITY RELOCATION OR REMOVAL	
- TRANSPLANTING OF TREES OR VEGETATION	
- WATERING OR MAINTENANCE OF HYDRSEEDED AREAS	
- DPW CONNECTION FEES	
**PLUS MASSACHUSETTS SALES TAX FOR ALL MATERIALS Sales Tax	0.00

THIS ESTIMATE EXPIRES 30 DAYS FROM ESTIMATE DATE

Signature _____

GLIDDEN & GLIDDEN, P.C.
ATTORNEYS AT LAW
P. O. Box 1079
37 CENTRE STREET
NANTUCKET, MASSACHUSETTS 02554
508-228-0771
FAX 508-228-6205
OFFICE@GLIDDENANDGLIDDEN.COM

RICHARD J. GLIDDEN
JESSIE M. GLIDDEN BRESCHER
JOHN B. BRESCHER

JAMES K. GLIDDEN
(1917 – 2009)

December 7, 2016

Via Hand Delivery
Roberto Santamaria, Health Director
Town of Nantucket
3 East Chestnut Street
Nantucket, MA 02554

RE: 31 Quidnet Road
Zeke Dog, LLC
Nantucket, Massachusetts

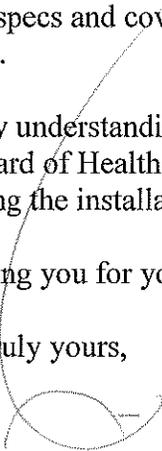
Dear Roberto,

My client owns 31 Quidnet Road (Map 21, Parcel 27.1). The lot is currently vacant but the former owner installed a 4-bedroom septic system which is grand-fathered. My client would like to remove the old pre-existing system and install a new Septi-Tech M550-D system. I enclose plans, specs and cover letter from Tetra-Tech, together with variance request and check for \$20.00.

It is my understanding that while this system is an improvement it still needs variance relief from the Board of Health. Therefore, request is hereby made for a variance from the Board of Health allowing the installation of a 5-bedroom M550-D Septi-Tech system.

Thanking you for your time and consideration, I remain,

Very truly yours,



Richard J. Glidden

RJG:jl
enclosures



NANTUCKET HEALTH DEPARTMENT

3 EAST CHESTNUT STREET

NANTUCKET, MASSACHUSETTS 02554

Telephone 508.228.7200

Fax 508.325.6117

BOARD OF HEALTH REGULATION VARIANCE REQUEST \$20 per request

I am requesting: (Check one.)

A variance of a Local Board of Health Regulation

A variance of a State Public Health Regulation (310 CMR 15, 105 CMR 590, etc...)

Please write an explanation of the variance requested (use separate paper if needed):

Applicant wishes to remove a grand-fathered 4 bedroom pit system
on a 33,000± sq foot lot and install a 5 bedroom Septi-Tech M-550-D
system on this 33,000± sq foot lot.

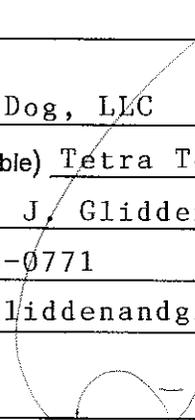
Requestor Name: Zeke Dog, LLC

Company Name: (if applicable) Tetra Tech

Address: c/o Richard J. Glidden MAP: 21 PARCEL: 27.1

Phone No. (508) 228-0771 Fax No. (508) 228-6250

Email: richard@gliddenandglidden.com

Requestor's Signature:  Date: 12/7/2016

R.J. Glidden, Attorney duly authorized

Please be advised that the Health Department accepts variance requests up to one week before a scheduled Board of Health meeting. Applications received after this deadline will be placed at the subsequent scheduled meeting.

Received by: _____

Date: _____



TETRA TECH

November 23, 2016

Bruce Poor
7 Old Jetty Road
South Dartmouth, MA 02748

Re: Septic System for 31 Quidnet Road, Nantucket

Dear Mr. Poor:

We are pleased to submit to you a septic system design for the subject property in accordance with Massachusetts Department of Environmental Protection (MassDEP) state regulations and the Town of Nantucket local regulations. The subject site is located within a nitrogen sensitive area (Sesachacha Pond) and the selected SeptiTech STAAR® Residential Filter System, Model M550-D will provide enhanced nitrogen removal to meet the Town of Nantucket's nitrogen loading limitations. This system is certified by MassDEP on a Provisional Use Approval.

The location of both the existing and proposed septic system fall within the 300-foot down gradient to the well on the adjacent Eger/McGoldrick site. We are submitting calculations that shows the comparative reduction in load in the new septic system for Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS) and Total Nitrogen (N). If questioned by the Board of Health, this argument can be made to show that the constituent loads in the proposed condition, which is designed for a five (bedroom) septic system with enhanced nitrogen removal, is a significant improvement over the existing septic system, which is designed as a leaching pit for a four (4) bedrooms.

In addition, there is at least 28-feet of unsaturated sands and gravels between this soil absorption system and the groundwater, which will provide aerobic bio-filtration of the effluent residuals. There will be almost zero solids in the effluent prior to reaching the groundwater.

Enclosed is a stamped plan and calculations to support the design. Please contact me if you have any questions at (508) 786-2200.

Very truly yours,
Tetra Tech

Miranda Volpicelli
Senior Project Engineer

Robert F. Robert E. Daylor, PE, PLS
Sr. Vice President

P:\162937\143-162937-1700\1\DOCS\REPORTS\QUIDNET SEPTIC SYSTEM.DOCX

Marlborough Technology Park
100 Nickerson Road, Marlborough, MA 01752
Tel 508.786.2200 Fax 508.786.2201 tetratech.com

COMPARATIVE TREATMENT REMOVALS

EXIST. 4 BDRM SYSTEM
LEACHING PIT INSTALLED 1990

FLOW¹: 440 GPD

PROP. 5 BDRM SYSTEM
SEPTTECH M550-D TRICKLING FILTER³

FLOW¹: 550 GPD

Constituent ²	INFLUENT (mg/L)	REMOVAL (%)	EFFLUENT (mg/L) [LOAD]	INFLUENT (mg/L)	REMOVAL (%)	EFFLUENT (mg/L) [LOAD]	REDUCED LOAD (mg/L)
BOD	220	50%	110 [183,436]	220	85%	33 [68,789]	114,647
TSS	220	80%	44 [13,374]	220	85%	33 [18,789]	4585
N	172	5%	40 [66,704]	42	70%	13 [27,099]	39,605

(EXIST. NITROGEN LOAD: $440 \text{ GPD} \times 3.794 \text{ gal} \times 40 \text{ mg/L} = 66,704 \text{ mg/DAY}$)

(PROP. NITROGEN LOAD: $550 \text{ GPD} \times 3.794 \text{ gal} \times 13 \text{ mg/L} = 27,099 \text{ mg/DAY}$)

REDUCTION = $39,605 \text{ mg/L} \approx 0.0916 \text{ /DAY NITROGEN}$

NOTES

1. FLOWS BASED ON 310 CMR TITLE 5 15.203 SYSTEM SEWAGE FLOW DESIGN CRITERIA FOR RESIDENTIAL, FAMILY DWELLING (110 GPD/BEDROOM)
2. CONSTITUENT LOAD RATES AND REMOVALS FOR TYPICAL SEPTIC SYSTEMS BASED ON "TECHNICAL EVALUATION OF TITLE 5 THE STATE ENVIRONMENTAL CODE 310 CMR 15.00" PREPARED BY DEFEO, WAITE & ASSOCIATES, INC, DATED MARCH 1991.
3. REMOVAL RATES FOR SEPTTECH SYSTEM PROVIDED BY MANUFACTURER REP. AND ARE THE MINIMUM REMOVAL EFFICIENCIES AND OFTEN GENERATE HIGHER REMOVAL EFFICIENCIES



TETRA TECH

One Grant Street
Framingham, MA 01701-9005
(508) 903-2000

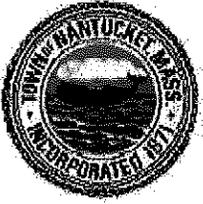
JOB 143-1162937-116X1 - BRUCE PODOL

SHEET NO. 1 OF 1

CALCULATED BY M.J. VOJTEK DATE 11/22/16

CHECKED BY RFD DATE 11/23/16

SCALE N/A



NANTUCKET HEALTH DEPARTMENT

3 EAST CHESTNUT STREET

NANTUCKET, MASSACHUSETTS 02554

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Please write an explanation of the variance requested (use separate paper if needed): _____

Local Regulation 64.04.B. For the installation of an IA system in place of a conventional system for loading that exceeds one-bedroom per 10,000-s.f. of lot area within a Nitrogen Sensitive Area (Hummock Pond Watershed District). Please refer to the attached letter and supporting documentation.

Requestor Name: Kimrick Farm LLC

Company Name: (if applicable) _____

Address: 128 Hummock Pond Road _____ MAP: 66 _____ PARCEL: 129 _____

Phone No. c/o Nantucket Engineering & Survey, PC - 508-825-5053 _____

Email: c/o art@nantucketengineer.com _____

Requestor's Signature:

Date: 11/25/16

Please be advised that the Health Department accepts variance requests up to one week before a scheduled Board of Health meeting. Applications received after this deadline will be placed at the subsequent scheduled meeting.

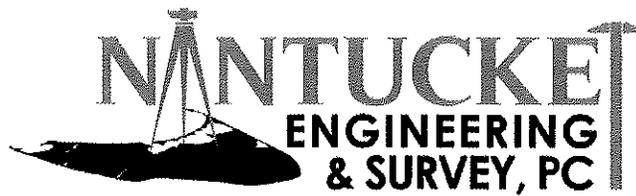
HEALTH DEPARTMENT

Received by: _____

NOV 30 2016

Date: _____

RECEIVED



November 25, 2016

Nantucket Board of Health
3 East Chestnut Street
Nantucket, MA 02554

Re: 128 Hummock Pond Road
Map 66 Parcel 129

Dear Members of the Board:

I am writing on behalf of the property owner, Kimarick Farm LLC, to request permission to install a nitrogen-reducing Innovative/Alternative (IA) Technology Septic System in place of a conventional system. The IA system would allow for additional bedroom capacity on the property in compliance with the MassDEP SeptiTech Provisional Use approval letter and Title 5. However, relief is required from Town of Nantucket Board of Health Regulations Section 64.04.B. –

- 1. No system serving new construction in nitrogen sensitive areas as defined in Regulation 50.00 shall be designed to receive or shall receive more than 110 gallons of design flow per day per 10,000 square feet of lot area.*

The subject property has a lot area of 105,891 s.f. and is the Hummock Pond Watershed Protection District, a nitrogen sensitive area. The property is located over 2,700-feet from the pond, as shown on the attached graphic.

We ask that the Board grant the Special Variance request pursuant to Section 64.07.B of the Nantucket Board of Health Regulations:

- 1. The person requesting the variance has established that enforcement of the provisions of these Regulations from which a variance is sought would be manifestly unjust, considering all the relevant facts and circumstances of the individual case; and*
- 2. The person requesting a variance has established that a level of environmental protection that is at least equivalent to that provided under these Regulations can be achieved without strict application of the provision of these Regulations from which a variance is sought.*

The use of an Innovative/Alternative Technology system will promote and provide a level of protection that is greater than the protection provided under the Regulations. **The total nitrogen contributed from a 9-bedroom conventional-type system, exceeds the nitrogen contribution from a 15-bedroom I/A system.** Specifically, an 9-bedroom conventional system would contribute 0.3222 pounds of total nitrogen (N) per day, compared to 0.1928 pounds N per day from a 15-bedroom I/A system based on design flow and a 2003 study document of the SeptiTech I/A System published by the US EPA as part of The Environmental Technology Verification Program (ETV). From the same study, “the SeptiTech System averaged a 64 percent reduction of TN for the entire test, with a median removal of 64 percent”.

Also, to be considered is that IA systems are subject to annual Operation & Maintenance (O&M) contracts, whereas conventional systems are not. The result of the O&M contracts are increased oversight and scrutiny of the function of the septic system. With an O&M contract in place any problems with the system are much more likely to be detected and remedied than with a conventional system.

Further, it should be noted that this I/A design is fully compliant with all aspects of Title 5. Considering the facts at hand, a 15-bedroom I/A system should be allowed, and it would be manifestly unjust, given all of the facts and circumstances of this case, to not issue a variance for or otherwise allow for a I/A system at this location.

This request should not result in a bad precedent for the Board, as this is specific set of circumstances, as outlined above, which also meets the requirements for the Board to grant a Special Variance per Section 64.07.B.1 and 2.

I plan to attend your next meeting should you have any questions or concerns regarding this matter.

Sincerely,
Nantucket Engineering & Survey, P.C.
By: Arthur D. Gasbarro, PE, PLS, LEED AP



Cc: Kimarick Farm LLC

Hummock Pond To Locus – 128 Hummock Pond Rd Distance Exceeds 2,700-feet



Main Office:
49 Herring Pond Road
Buzzards Bay, MA 02332
Tel (508) 833-0070
Fax (508)833-2282



Nantucket Office:
19 Old South Road
Nantucket, MA 02554
Tel (508) 325-0044
www.brackeneng.com

December 7, 2016

Malcolm MacNab, Chairman
Nantucket Board of Health
3 East Chestnut St
Nantucket, MA 02554

RE: Variance Request – 100 Sankaty Road, Map 49, parcel 2, Sankaty Head Golf Club, Inc.

Dear Mr. MacNab and Board Members:

Please accept this letter as a variance request to the State Environmental Code, Title V for the above referenced property.

The proposed project consists of expanding the existing soil absorption system to add two bedrooms to an existing cottage on the property. This will increase the design flow from 220 gallons per day (GPD) to 440 GPD.

The following variances are required:

State Environmental Code 310 CMR 15.221 General Construction Requirements for All System Components, Section (7)

To allow the installation of an additional trench 50” below finish grade rather than 36” minimum required.

Justification for Variances

- The existing trenches are already at this depth;
- The proposed chambers are structurally designed to have up to 96” of cover;
- Lowering the grades over the system is not an option because it would create a depression over the system;
- The system will include a vent to allow air into the system.

We look forward to presenting this request at the next available meeting.

Sincerely,
Bracken Engineering, Inc.

A handwritten signature in black ink, appearing to read 'Donald F. Bracken, Jr.', written in a cursive style.

Donald F. Bracken, Jr.



NANTUCKET HEALTH DEPARTMENT

3 EAST CHESTNUT STREET
NANTUCKET, MASSACHUSETTS 02554

Telephone 508.228.7200

Fax 508.325.6117

BOARD OF HEALTH REGULATION VARIANCE REQUEST

\$20 per request

I am requesting: (Check one.)

A variance of a Local Board of Health Regulation

A variance of a State Public Health Regulation (310 CMR 15, 105 CMR 590, etc...)

Please write an explanation of the variance requested (use separate paper if needed): _____

Local Regulation 64.04.B. For the installation of an IA system in place of a conventional system for loading that exceeds one-bedroom per 10,000-s.f. of lot area within a Nitrogen Sensitive Area (Wellhead Protection District). Please refer to the attached letter and supporting documentation.

Requestor Name: 106 Surfside Road LLC

Company Name: (if applicable) _____

Address: 106 Surfside Road _____ MAP: 67 _____ PARCEL: 80 _____

Phone No. c/o Nantucket Engineering & Survey, PC – 508-825-5053 _____

Email: c/o art@nantucketengineer.com _____

Requestor's Signature: 

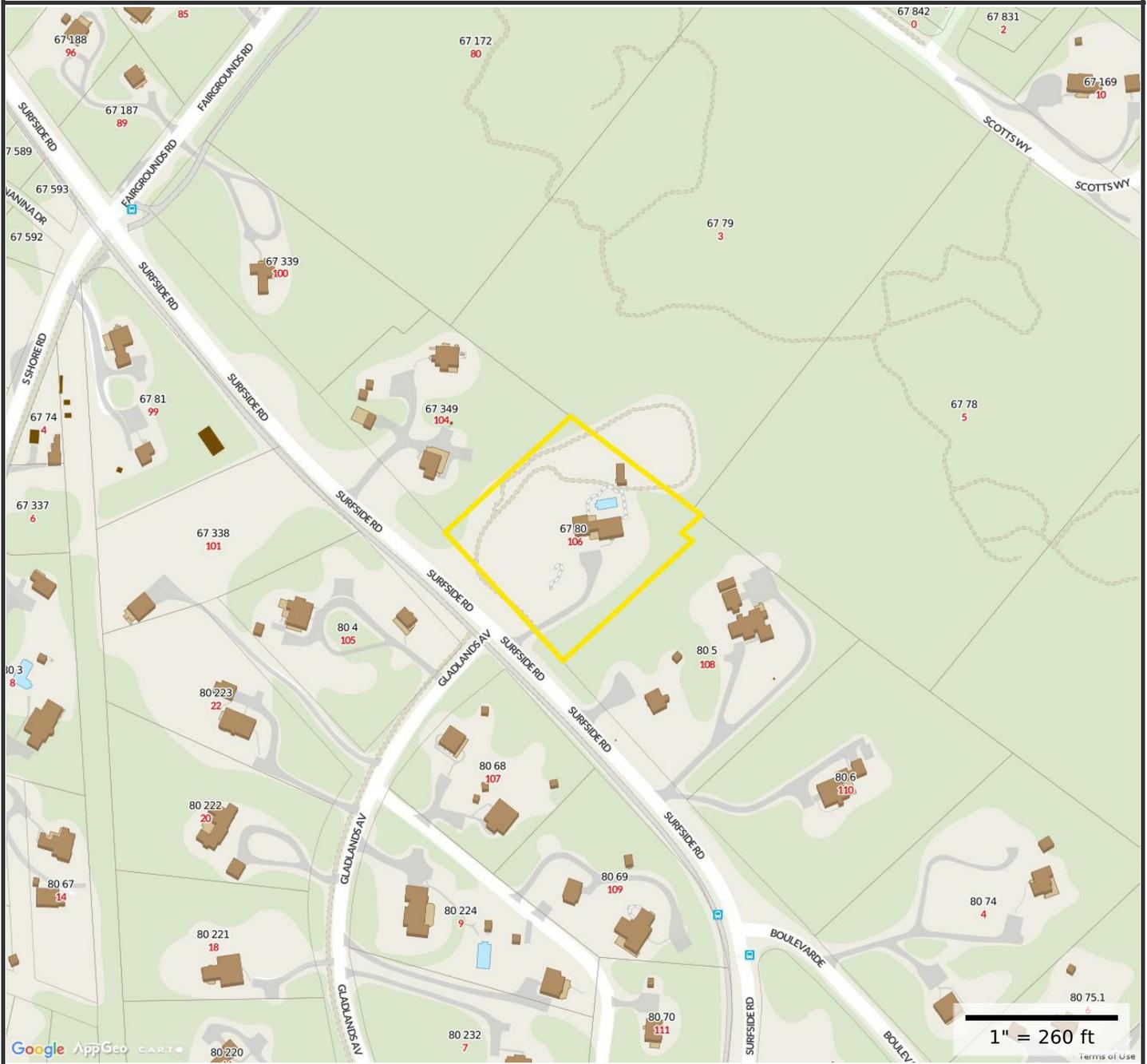
Date: 11/30/16 _____

Please be advised that the Health Department accepts variance requests up to one week before a scheduled Board of Health meeting. Applications received after this deadline will be placed at the subsequent scheduled meeting.

Received by: _____

Date: _____

Locus Map - 106 Surfside Road



Property Information

Property ID 67 80
Location 106 SURFSIDE RD
Owner GIFFORD WHITNEY A TRST



**MAP FOR REFERENCE ONLY
 NOT A LEGAL DOCUMENT**

Town and County of Nantucket, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated December, 2014
 Properties updated 11/16/2016



November 30, 2016

Nantucket Board of Health
3 East Chestnut Street
Nantucket, MA 02554

Re: 106A & 106B Surfside Road
Map 67 Parcel 80

Dear Members of the Board:

I am writing on behalf of the property owner, 106 Surfside Road LLC, to request permission to install a nitrogen-reducing Innovative/Alternative (IA) Technology Septic System in place of a conventional system on the two referenced properties. The IA systems would allow for additional bedroom capacity on the properties in compliance with the MassDEP SeptiTech Provisional Use approval letter and Title 5. However, relief is required from Town of Nantucket Board of Health Regulations Section 64.04.B. –

- 1. No system serving new construction in nitrogen sensitive areas as defined in Regulation 50.00 shall be designed to receive or shall receive more than 110 gallons of design flow per day per 10,000 square feet of lot area.*

The subject properties each have a lot area of approximately 55,100 s.f. and are within the Zone II Wellhead Protection District, a nitrogen sensitive area. The property is located more than 3,900-feet from the nearest Town Water Well (State Forest), 1.4-miles from Nantucket Harbor and 2.2-miles from Hummock Pond as shown on the attached graphics.

We ask that the Board grant the Special Variance request pursuant to Section 64.07.B of the Nantucket Board of Health Regulations:

- 1. The person requesting the variance has established that enforcement of the provisions of these Regulations from which a variance is sought would be manifestly unjust, considering all the relevant facts and circumstances of the individual case; and*
- 2. The person requesting a variance has established that a level of environmental protection that is at least equivalent to that provided under these Regulations can be achieved without strict application of the provision of these Regulations from which a variance is sought.*

The use of an Innovative/Alternative Technology system will promote and provide a level of protection that is greater than the protection provided under the Regulations. **The total nitrogen contributed from a 5-bedroom conventional-type system, exceeds the nitrogen contribution from a 8-bedroom I/A system.** Specifically, a 5-bedroom conventional system would contribute 0.3222 pounds of total nitrogen (N) per day, compared to 0.1028 pounds N per day from a 8-bedroom I/A system based on design flow and a 2003 study document of the SeptiTech I/A System published by the US EPA as part of The Environmental Technology Verification Program (ETV). From the same study, “the SeptiTech System averaged a 64 percent reduction of TN for the entire test, with a median removal of 64 percent”.

Also, to be considered is that IA systems are subject to annual Operation & Maintenance (O&M) contracts, whereas conventional systems are not. The result of the O&M contracts are increased oversight and scrutiny of the function of the septic system. With an O&M contract in place any problems with the system are much more likely to be detected and remedied than with a conventional system.

Further, it should be noted that this I/A design is fully compliant with all aspects of Title 5. Considering the facts at hand, an 8-bedroom capacity I/A system should be allowed, and it would be manifestly unjust, given all of the facts and circumstances of this case, to not issue a variance for or otherwise allow for a I/A system at this location.

This request should not result in a bad precedent for the Board, as this is specific set of circumstances, as outlined above, which also meets the requirements for the Board to grant a Special Variance per Section 64.07.B.1 and 2.

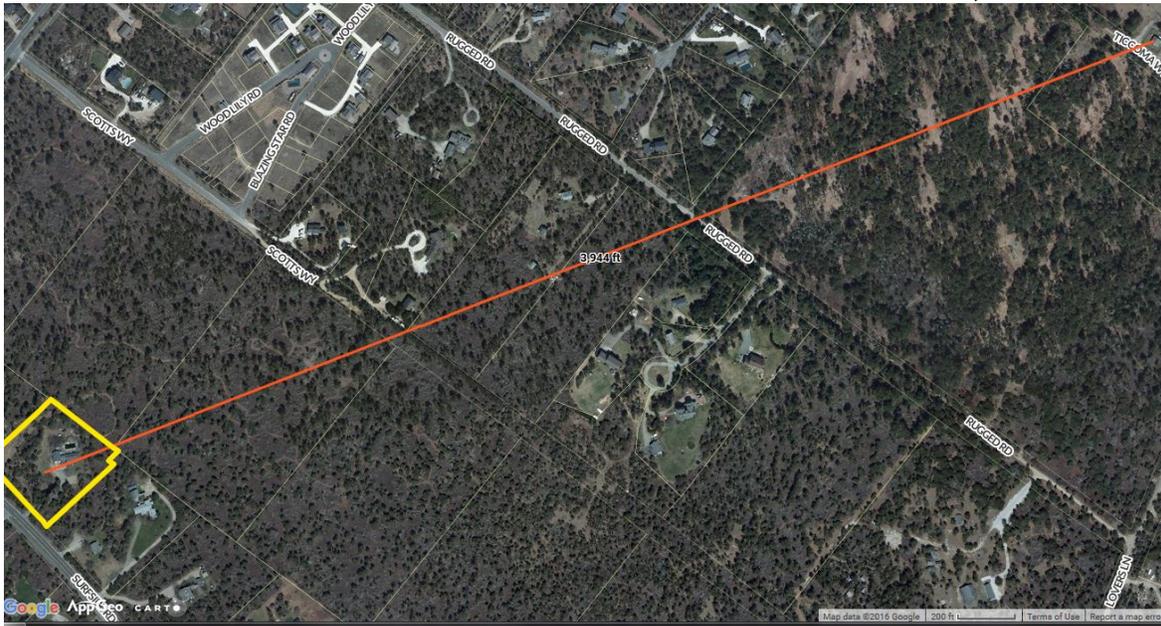
I plan to attend your next meeting should you have any questions or concerns regarding this matter.

Sincerely,
Nantucket Engineering & Survey, P.C.
By: Arthur D. Gasbarro, PE, PLS, LEED AP

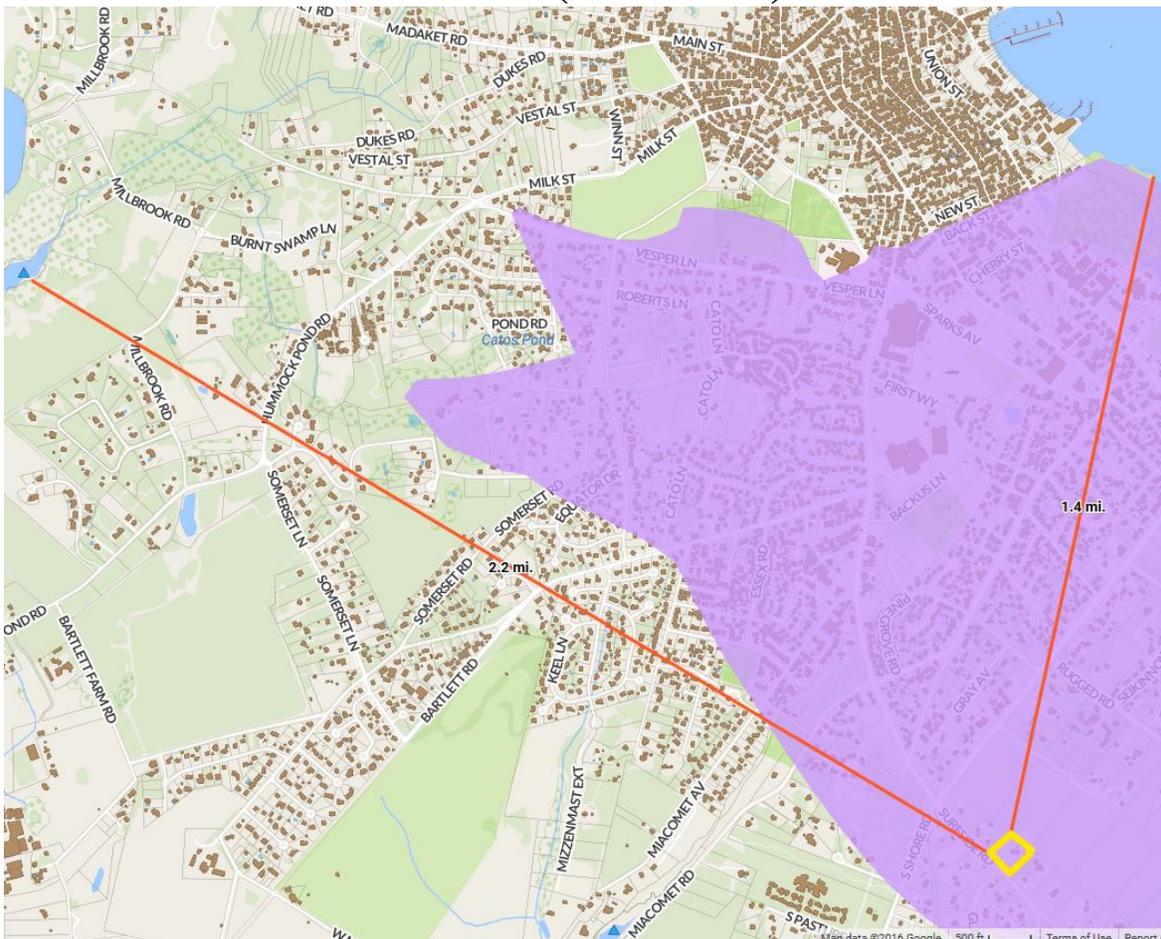
A handwritten signature in blue ink that reads "Arthur D. Gasbarro". The signature is written in a cursive style and is contained within a thin black rectangular border.

Cc: 106 Surfside Road LLC

State Forest Well to 106 Surfside Road – 3,900' +/-



Nantucket Harbor (1.4-miles) and Hummock Pond (2.2-miles) To Locus





NANTUCKET HEALTH DEPARTMENT

3 EAST CHESTNUT STREET
NANTUCKET, MASSACHUSETTS 02554
Telephone 508.228.7200
Fax 508.325.6117

BOARD OF HEALTH REGULATION VARIANCE REQUEST \$20 per request

I am requesting: (Check one.)

A variance of a Local Board of Health Regulation

A variance of a State Public Health Regulation (310 CMR 15, 105 CMR 590, etc...)

Please write an explanation of the variance requested (use separate paper if needed): _____

Local Regulation 64.04.B. For the installation of an IA system in place of a conventional system for loading that exceeds one-bedroom per 10,000-s.f. of lot area within a Nitrogen Sensitive Area (Hummock Pond Watershed District). Please refer to the attached letter and supporting documentation.

Requestor Name: Kimarick Farm LLC

Company Name: (if applicable) _____

Address: 128 Hummock Pond Road _____ MAP: 66 _____ PARCEL: 129 _____

Phone No. c/o Nantucket Engineering & Survey, PC – 508-825-5053 _____

Email: c/o art@nantucketengineer.com _____

Requestor's Signature: 

Date: 11/25/16 _____

Please be advised that the Health Department accepts variance requests up to one week before a scheduled Board of Health meeting. Applications received after this deadline will be placed at the subsequent scheduled meeting.

Received by: _____

Date: _____



November 25, 2016

Nantucket Board of Health
3 East Chestnut Street
Nantucket, MA 02554

Re: 128 Hummock Pond Road
Map 66 Parcel 129

Dear Members of the Board:

I am writing on behalf of the property owner, Kimarick Farm LLC, to request permission to install a nitrogen-reducing Innovative/Alternative (IA) Technology Septic System in place of a conventional system. The IA system would allow for additional bedroom capacity on the property in compliance with the MassDEP SeptiTech Provisional Use approval letter and Title 5. However, relief is required from Town of Nantucket Board of Health Regulations Section 64.04.B. –

- 1. No system serving new construction in nitrogen sensitive areas as defined in Regulation 50.00 shall be designed to receive or shall receive more than 110 gallons of design flow per day per 10,000 square feet of lot area.*

The subject property has a lot area of 105,891 s.f. and is the Hummock Pond Watershed Protection District, a nitrogen sensitive area. The property is located over 2,700-feet from the pond, as shown on the attached graphic.

We ask that the Board grant the Special Variance request pursuant to Section 64.07.B of the Nantucket Board of Health Regulations:

- 1. The person requesting the variance has established that enforcement of the provisions of these Regulations from which a variance is sought would be manifestly unjust, considering all the relevant facts and circumstances of the individual case; and*
- 2. The person requesting a variance has established that a level of environmental protection that is at least equivalent to that provided under these Regulations can be achieved without strict application of the provision of these Regulations from which a variance is sought.*

The use of an Innovative/Alternative Technology system will promote and provide a level of protection that is greater than the protection provided under the Regulations. **The total nitrogen contributed from a 9-bedroom conventional-type system, exceeds the nitrogen contribution from a 15-bedroom I/A system.** Specifically, an 9-bedroom conventional system would contribute 0.3222 pounds of total nitrogen (N) per day, compared to 0.1928 pounds N per day from a 15-bedroom I/A system based on design flow and a 2003 study document of the SeptiTech I/A System published by the US EPA as part of The Environmental Technology Verification Program (ETV). From the same study, “the SeptiTech System averaged a 64 percent reduction of TN for the entire test, with a median removal of 64 percent”.

Also, to be considered is that IA systems are subject to annual Operation & Maintenance (O&M) contracts, whereas conventional systems are not. The result of the O&M contracts are increased oversight and scrutiny of the function of the septic system. With an O&M contract in place any problems with the system are much more likely to be detected and remedied than with a conventional system.

Further, it should be noted that this I/A design is fully compliant with all aspects of Title 5. Considering the facts at hand, a 15-bedroom I/A system should be allowed, and it would be manifestly unjust, given all of the facts and circumstances of this case, to not issue a variance for or otherwise allow for a I/A system at this location.

This request should not result in a bad precedent for the Board, as this is specific set of circumstances, as outlined above, which also meets the requirements for the Board to grant a Special Variance per Section 64.07.B.1 and 2.

I plan to attend your next meeting should you have any questions or concerns regarding this matter.

Sincerely,
Nantucket Engineering & Survey, P.C.
By: Arthur D. Gasbarro, PE, PLS, LEED AP

A handwritten signature in blue ink, reading "Arthur D. Gasbarro", is enclosed in a thin black rectangular border.

Cc: Kimarick Farm LLC

Hummock Pond To Locus – 128 Hummock Pond Rd Distance Exceeds 2,700-feet



Main Office:
49 Herring Pond Road
Buzzards Bay, MA 02332
Tel (508) 833-0070
Fax (508)833-2282



Nantucket Office:
19 Old South Road
Nantucket, MA 02554
Tel (508) 325-0044
www.brackeneng.com

December 7, 2016

Malcolm MacNab, Chairman
Nantucket Board of Health
3 East Chestnut St
Nantucket, MA 02554

RE: Variance Request – 141 Polpis Road, Map 44, Parcel 7.3, Sarah Monaco

Dear Mr. MacNab and Board Members:

Please accept this letter as a variance request to the State Environmental Code, Title V for the above referenced property.

The proposed project consists of upgrading the septic system to install an Innovative/Alternative system in compliance with Nantucket Board of Health Regulation 64.04 F 2. It is also proposed to maintain the use of the existing leaching pit.

The following variances are required:

State Environmental Code 310 CMR 15.211 Minimum Setback Distances

To allow the existing leaching pit to remain 6.4' from the existing swimming pool rather than the 20' minimum required.

Justification for Variance

- The existing leaching pit has passed a recent Title V inspection;
- There are no signs of imminent migration of effluent toward the pool;
- The pool is constructed with a waterproof seal so effluent will not enter the pool.

We look forward to presenting this request at the next available meeting.

Sincerely,
Bracken Engineering, Inc.

A handwritten signature in black ink, appearing to read 'Donald F. Bracken, Jr.', written in a cursive style.

Donald F. Bracken, Jr.



BOARD OF HEALTH Meeting

Town of Nantucket
3 East Chestnut Street
Nantucket, Massachusetts 02554
www.nantucket-ma.gov

Commissioners: Malcolm MacNab, MD, PHD (chair), Stephen Visco (Vice chair), James Cooper, Helene Weld, RN, Rick Atherton

Staff: Roberto Santamaria, Artell Crowley, Kathy LaFavre, Hank Ross, Anne Barrett

-- MINUTES --

Thursday, November 17, 2016

4 Fairgrounds Road, Community Room - 4:00 pm

Called to order at 4:00 p.m.

Staff in attendance: R. Santamaria, Health Director; T. Norton, Town Minutes Taker

Attending Members: Stephen Visco; James Cooper; Helene Weld, RN; Rick Atherton, Board of Selectmen

Absent Members: Malcolm MacNab, MD, PHD

Agenda adopted by unanimous consent

I. ANNOUNCEMENTS

II. PUBLIC COMMENTS - ANY MEMBER OF THE PUBLIC MAY ADDRESS COMMISSIONERS AT THIS TIME

1. None

III. APPROVAL OF MINUTES

1. October 20, 2016: Motion to Approve. Check vote (made by:) (seconded by:) Carried 3-0//Atherton abstain

IV. BOH APPLICATIONS REVIEW

1. Swayze Drive - Administrative Consent Order (ACO)

Sitting Visco, Cooper, Weld, Atherton

Recused None

Documentation Supporting documents and plans, staff recommendations.

n

Discussion **Santamaria** - This is a compliant system; they are waiting for sewer. No issues.

(4:01)

Action **Motion to Approve.** (made by: Cooper) (seconded by: Weld)

Vote Carried unanimously

2. 36 Friendship Lane - Relief from setback - tank to foundation

Sitting Visco, Cooper, Weld, Atherton

Recused None

Documentation Supporting documents and plans, staff recommendations.

n

Discussion **Santamaria** - This is for relief from the setback; the tank is close to the foundation.

(4:01) They didn't get the notification to abutters out; also this is a retroactive variance issued about 10 years ago. This came to our attention when they were looking to build an addition; when they went to put in the addition, they learned the system was too close to the foundation. The foundation is a crawl space, not a full basement. Suggested the Board vote due to time constraints.

Action **Motion to Grant the variance.** (made by: Atherton) (seconded by: Cooper)

Vote

Carried unanimously

PROPOSED

3. 8 Upper Tawpawshaw - Variance Request from I/A requirement Regulation 64

Sitting Visco, Cooper, Weld, Atherton

Recused None

Documentation Supporting documents and plans, staff recommendations.

n

Discussion **Santamaria** - New construction required a Certificate of Occupancy and triggered the I/A requirement in the watershed district. The addition meets all the setbacks and separation requirements and does not increase the bedroom count. The system, however, is not I/A.

(4:05) **Ben Champoux**, owner - This is for a sunroom on south side of the house with 5-bedroom septic on north side; the system is fully functional and passed inspections. The addition is not increasing the bedroom count. Separation from groundwater is well beyond the minimum.

Cooper - When we granted the variance for the North Pasture system, that was a lot farther away from the watershed. If you grant this waiver, it sets a precedent for construction of any small addition within the watershed district.

Atherton - Concurs with Mr. Cooper.

Champoux - Asked why the waiver criteria are in the regulation.

Visco - Suggested it should be removed.

Action **Motion to Deny.** (made by: Cooper) (seconded by: Atherton)

Vote Carried unanimously

4. 104 Cliff Road - Setback (tank & pit) variance

Sitting Visco, Cooper, Weld, Atherton

Recused None

Documentation Supporting documents and plans, staff recommendations.

n

Discussion **Santamaria** - This is the same concept as Friendship Lane. They too didn't get the notification to abutters and is a retroactive variances issued about 10 years ago They are looking for maximum feasible compliance.

(4:11) Action **Motion to Grant the variance.** (made by: Atherton) (seconded by: Cooper)

Vote Carried unanimously

5. 147 Wauwinet Road - Variance from 64.03E and 64.03F

Sitting Visco, Cooper, Weld, Atherton

Recused None

Documentation Supporting documents and plans, staff recommendations.

n

Discussion
(4:12)

Santamaria - Looking for a variance to the setback within a wetland buffer. This is an I/A system.

Arthur D. Gasbarro , Nantucket Engineering & Survey - This system is a true upgrade of an existing system; the new system increases the vertical separation from ground water as well as being an I/A. The variance is being requested because this land is within a Massachusetts barrier beach and coastal dune area. It is a maximum feasible compliant system. An I/A is a viable alternative to tight tank; tight tanks are typically the method of last resort. The soil conditions are suitable for the infiltration of the water and sufficient separation from groundwater.

Atherton - Asked where it would drain: ocean or pond. He thinks a tight tank should be actively considered this close to the pond.

Gasbarro - Direction of drainage is a subject of debate; there is no definitive information about the direction of flow. The distance is greater than 200 feet from the harbor as well as the vertical separation from the harbor.

Atherton - Asked what types of systems the other houses have.

Gasbarro - 143 Wauwinet has an I/A system; there are a couple other I/A systems. In time this area would have all I/A systems and no tight tanks. The houses on the east side of the road are in the harbor watershed district.

Action

Motion to Grant the variance. (made by: Cooper) (seconded by: Weld)

Vote

Carried unanimously

6. 35 Tennessee Avenue - Release of Betterment

Sitting

Visco, Cooper, Weld, Atherton

Recused

None

Documentation

Supporting documents and plans, staff recommendations.

n

Discussion

Santamaria - The loan is paid off.

(4:23)

Action

Motion to Approve. (made by: Weld) (seconded by: Cooper)

Vote

Carried unanimously

V. BOH BUSINESS

1. Fertilizer Advisory Group Update (4:24)

Michael Misurelli, chair - The first meetings had to do with regulation overview and enforcement, then they worked on the advisory committee charter. Now they are focusing on education goals going forward. Members went to major manufacturers and worked to develop products that would be compliant with Nantucket regulations. We also worked with Island vendors to have compliant products available. The State is working on requirements as to how products are labeled for the general public. We're working on revising the licensing class and exam to be better geared toward laymen. **Cooper** - Asked if there are Spanish speaking instructors for the class and exam.

Santamaria - He sent a letter of interest in regards to a grant to translate the videos; he should hear back in December whether or not to apply for that grant. **Atherton** - Asked if there is a list of acceptable products for consumers to refer to. **Misurelli** - They are working on a list, which they will give it to Jeff Carlson, Director Natural Resources. The hope is that through education, people will use the compliant products and the non-compliant products will disappear from the shelves. They also made an effort to speak to homeowner associations. The message is getting around and people are asking about licensed applicators. Discussion about disseminating the list of compliant products to private consumers.

2. Venison Donation Program Update (4:36)

Santamaria - They now have a kitchen and processor for the donated venison. The flyers will be done the morning of November 18 then will be sent out. He is trying to get the information about the program into the "Inquirer & Mirror".

3. Director's Report (4:39)
 - a. Behavioral Health Task Group - They will be looking at epidemiological studies on Opioid abuse, substance abuse, alcohol abuse. He will be reviewing and collating this data, doing an analysis of causality data. The data can be broken down according to age, income, and social stratification, for use in grant applications. They are hoping to be able to apply next year for a large grant.
Atherton - Asked what are the sources for the raw data used in the survey. **Santamaria** - Data sources include: a private survey from the high school, the hospital, and Fairwinds. They can break the data down to types of incident and times of incidents and frequency. Discussion about use of Narcan and tracking private party purchases from pharmacies.
 - b. National Environmental Health Association - He is trying to get National spotlight on Nantucket. He's a member of the National Food Safety Committee; they are writing a national policy. Nantucket is ahead of the national curve on food safety work and water quality work; and fertilizer management has been unprecedented.
 - c. New Health Department website - It will have its own address; this will allow the department to spotlight work and make information easily available to the public.
 - d. Tick-borne Disease (4:54) - Been able to get exact number from doctors.
4. Food trucks - **Cooper** asked about a possible direction in permitting food trucks next season. **Santamaria** - He has received direction from the Board of Selectmen. Can't regulate a truck that is part of the catering program for a food establishment. If they want to do street vending, they have to go through the approval process.
5. Sewer - Discussion about status of sewer.

VI. ADJOURN

Adjourned by unanimous consent at 4:58 p.m.

Submitted by:
Terry L. Norton

Emily Anne Goldstein Murphy

(formerly Emily Anne Goldstein)

Curriculum Vitae

Education

- 2010-2014: **PhD in Ecology**. Supervisors: Dr Colin Lawton & Dr Fidelma Butler.
University College Cork: Cork, Ireland. Funding Body: Irish Research Council.
Title: "Ecology of frontier populations of the invasive grey squirrel (*Sciurus carolinensis*) in Ireland." Degree awarded with "no corrections" following an oral defense.
Date of graduation: Oct 30th 2014.
- 2008-2009: **M.Sc Ecosystem Conservation and Landscape Management**.
National University of Ireland, Galway.
Coursework in Ireland, The Netherlands, Finland.
Title: "Post-translocation monitoring of a red squirrel (*Sciurus vulgaris* L.) source population in Lough Key Forest Park, Co. Roscommon"
Date of graduation: Feb 6th 2010. *1st class honours*.
- 2003-2007: **B.A. Magna Cum Laude**. Major: Biological Sciences. Minor: Mathematics.
Mount Holyoke College; South Hadley, Massachusetts, USA
Date of graduation: May 27th 2007. GPA: 3.944 out of 4.0.
- 2005-2006: *University College Cork; Cork, Ireland*
Visiting American student.
- 1999-2003: *Wayland High School; Wayland, Massachusetts, USA*
High School degree.

Peer-Reviewed Publications

- Koprowski JL, **Goldstein EA**, et al. (*in prep*). Trends in international collaboration of authors in wildlife research.
 - **Goldstein EA**, Merrick MJ, Koprowski JL. (*in prep*). Survival and mortality hazard in a peripheral population.
 - **Goldstein EA**, Lawton C, Butler F, Quinn JL. (*in revision*). Fixed and labile reproductive states influence the expression of personality but do not contribute to individual differences in the grey squirrel (*Sciurus carolinensis*).
 - Flaherty M, **Goldstein EA**, Lawton CL. (*in press*). Predicting grey squirrel spread in Ireland for future management. In: Eds. Shuttleworth CM, Lurz PW, Gurnell J. The Grey Squirrel: Ecology & Management of an Invasive Species in Europe.
- 2017: **Goldstein EA**, Merrick MJ, Koprowski JL. (2017). Functional semelparity drives population dynamics and endangers a peripheral population. *Biological Conservation*. 205: 52-59. doi: 10.1016/j.biocon.2016.11.017
- 2016: Koprowski JL, **Goldstein EA**, Bennett KR, Pereira Mendes C. (2016). Scuridae. In: Eds. Wilson DE, Lacher Jr. TE, Mittermeier RA. Handbook of the Mammals of the World, Lagomorphs and Rodents I, Vol 6. Lynx.
- 2016: **Goldstein EA**, Butler F, Lawton C. 2016. Modeling future range expansion and management strategies for an invasive squirrel species. *Biological Invasions*. 18(5): 1431-1450. doi: 10.1007/s10530-016-1092-7
- 2015: **Goldstein EA**, Butler F, Lawton C. 2015. Frontier population dynamics of an invasive squirrel species: do introduced populations function differently than those in the native range? *Biological Invasions*. 17(4): 1181-1197. doi: 10.1007/s10530-014-0787-x

- 2014: **Goldstein EA**, Lawton C, Sheehy E, Butler F. 2014. Locating species range frontiers: a cost and efficiency comparison of citizen science and hair-tube survey methods for use in tracking an invasive squirrel. *Wildlife Research*. 41(1): 64-75. doi: 10.1071/WR13197

Published Reports

- 2016: Mckenna-Foster A, Perrotti L, Sorrows E, Laurenzano J, **Goldstein E**. 2016. American Burying Beetle (*Nicrophorus americanus*) Survey on Nantucket Island, Massachusetts, 2016. Report submitted to US Fish and Wildlife Service.
- 2015: Lawton C, Flaherty M, **Goldstein EA**, Sheehy E, Carey M. 2015. Irish Squirrel Survey 2012. *Irish Wildlife Manuals No. 89*. National Parks and Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Ireland. Available from: <http://www.npws.ie/sites/default/files/publications/pdf/IWM89.pdf>

Relevant Work and Experience

8/2016-present: **Director of Natural Science**

Maria Mitchell Association, Nantucket, MA, USA.

Supervisor: David Gagnon, Executive Director. Responsible for instituting new and maintaining long-term research programs of the science center. Curator for the biological collections, and responsible for the stocking, maintenance, and guest experience at the seasonal aquarium. A significant component of this position is focused on outreach to local and distant communities at all ages and levels of education.

11/2015- 7/2016: **Postdoctoral Research Associate I: Endangered species ecology and population management**

School of Natural Resources and the Environment, University of Arizona

Supervisor: Prof. John Koprowski. Responsible for performing sophisticated population modeling analyses on data collected during a long-term demographic study on an isolated endangered species population. Results shall be submitted to leading scientific journals for publication and presented at national and international conferences.

2015: **Programme Coordinator and Lecturer: Certificate/Diploma in Field Ecology**

School of Biological, Earth and Environmental Sciences, University College Cork

Supervisors: Prof. Sarah Culloty/ Dr Fidelma Butler. Responsible for coordinating lectures and field courses, establishing and maintaining lectures in small mammal surveying and ecology, laboratory techniques and ecological assessment. Duties also include arranging payment, recruitment and acting as liaison between students and the University department. Part-time position.

2015: **Manager: Aquaculture & Fisheries Development Centre**

School of Biological, Earth and Environmental Sciences, University College Cork

Supervisor: Prof. Sarah Culloty. Responsible for maintaining research and stocking records and ensuring ethical compliance as well as the website and twitter account of the research centre. Managed animal- and systems-care staff and graduate students availing of aquatic research facilities. Part-time position.

- 2014-2015: **Transition-Year Work Experience Coordinator**
School of Biological, Earth and Environmental Sciences, University College Cork
Supervisor: Prof. Sarah Culloty. Coordinator for the outreach program run by the university department for 72 highly motivated 4th year secondary school students (15-16 years old) in January/February 2015. This program is designed to give students a taste of practical and classroom zoology, ecology, plant science, and geology at the university level. Student numbers were more than doubled from previous years. Overwhelming positive feedback from student attendees, parents and university staff.
- 2011-2014: **Laboratory Demonstrator**
School of Biological, Earth and Environmental Sciences, University College Cork
Supervisor: Prof. Sarah Culloty. Responsibilities include the teaching and management of practical classes covering the subjects of microscopes, cells and tissues, genetics, animal dissection, invertebrate identification, research and planning, ecological data collection, analysis and presentation techniques in ecology. Also responsible for the correction and marking of course assessments.
- Autumn 2007: **Technical Disability Aide**
Disability Services, Wellesley College, Wellesley, MA, USA.
Supervisor: Jim Wice, Director of Disability Services, Wellesley College, MA, USA. Responsibilities included accompanying the visually impaired student to her organic chemistry and upper level math classes and practicals and making the material more accessible and relevant to her while assisting her with class notes, homework, acting as a scribe during exams, and making textbook recordings.
- 2004-2007: **Research Assistant in biomechanics**
Biology Department, Mount Holyoke College, South Hadley, MA, USA.
Supervisor: Prof. Gary Gillis, Mount Holyoke Biology Dept. Duties included animal handling/training, maintaining sterile conditions, performing surgery to implant electrodes and piezoelectric crystals in the hindlimbs of mice, guinea pigs, toads, frogs, goats, and sheep, data collection, data analysis, and figure design.
- 2006-2007: **Teaching Assistant for "Introductory Biology" and "Evolution"**
Biology Department, Mount Holyoke College, South Hadley, MA, USA.
Supervisor: Prof. Stan Rachootin, Mount Holyoke College Biology Dept. Assisted the professor during lab practicals and graded the lab work from students in my lab section. Provided extra help and tutoring to students who were struggling. I also attended all lectures and compiled a complete set of notes for the class that was available to students on request.
- Autumn 2006: **Ecology Tutor**
Biology Department, Mount Holyoke College, South Hadley, MA, USA.
Supervisor: Associate Prof. Martha Hoopes, MHC Biology Dept. Met weekly with a student in the ecology class and tutored her in the concepts covered in class and labs.

Conferences and Public Talks

- 2016: Oral Presentation: *Looking over the edge: functional semelparity and population dynamics of an endangered peripheral squirrel population*. **Emily A. Goldstein**, Melissa J. Merrick, John L. Koprowski. 14th-20th October, 2016. 23rd Annual Conference of The Wildlife Society. Raleigh, NC.
- 2016: Oral Presentation: *Looking over the edge: population dynamics of an endangered peripheral squirrel population*. **Emily A. Goldstein**, John L. Koprowski. 24th-28th June, 2016. 96th Annual Meeting of the American Society of Mammalogists. Minneapolis, MN.
- 2016: Oral Presentation: *Spatially explicit population models of peripheral squirrel populations inform management of both invasive and endangered populations*. **Emily A. Goldstein**, John L. Koprowski. 4th-6th February, 2016. 49th Joint Annual Meeting AZ/NM Wildlife Societies. Flagstaff, AZ.
- 2015: Poster Presentation: *2012 Irish squirrel survey*. Colin Lawton, Margaret Flaherty, **Emily A. Goldstein**, Emma Sheehy, Michael Carey. 7th-8th November 2015. All Ireland Mammal Symposium 2015. University College Cork, Cork, Ireland.
- 2015: Oral Presentation: *Comparing dynamics of frontier and established invasive grey squirrel (*Sciurus carolinensis*) populations*. **Emily A. Goldstein**, Fidelma Butler, Colin Lawton. 2nd June 2015. 7th International Colloquium on Arboreal Squirrels. The Finnish Museum of Natural History LUOMUS. Helsinki, Finland.
- 2015: Poster Presentation: *2012 Irish squirrel survey*. Colin Lawton, Margaret Flaherty, **Emily A. Goldstein**, Emma Sheehy, Michael Carey. 1st-5th June 2015. 7th International Colloquium on Arboreal Squirrels. The Finnish Museum of Natural History LUOMUS. Helsinki, Finland.
- 2015: Poster Presentation: *2012 Irish squirrel survey*. Colin Lawton, Margaret Flaherty, **Emily A. Goldstein**, Emma Sheehy, Michael Carey. 28th-29th March 2015. 61st Spring Conference, The Mammal Society at Lancaster University, UK.
- 2014: Oral Presentation: *A cost and efficiency comparison of novel citizen science methods and traditional hair-tube field surveys for tracking the range frontier of an invasive squirrel (*Sciurus carolinensis*)*. **Emily A. Goldstein**, Colin Lawton, Emma Sheehy, Fidelma Butler. 30th July 2014. 14th Rodens et Spatium International Conference on Rodent Biology at University of Lisbon, Portugal.
- 2014: Oral Presentation: *Comparative demography of an invasive squirrel (*Sciurus carolinensis*) populations: implications for modeling future expansion and control strategies*. **Emily A. Goldstein**, Fidelma Butler, Colin Lawton. 29th July 2014. 14th Rodens et Spatium International Conference on Rodent Biology at University of Lisbon, Portugal.
- 2013: Oral Presentation: *Personality traits of eastern grey squirrel populations at the invasion frontier in Ireland*. **Emily Goldstein**, Colin Lawton, Fidelma Butler, John L. Quinn. 12th August 2013. 11th International Mammalogical Congress at Queen's University, Belfast, Northern Ireland, UK.

- 2013: Poster Presentation: *Demise of the previously invasive grey squirrel (Sciurus carolinensis) in the Shannon Region, Ireland*. Margaret Flaherty, Michael Carey, **Emily Goldstein**, Emma Sheehy, Colin Lawton. 13th August 2013 at 11th International Mammalogical Congress, Queen's University, Belfast, Northern Ireland, UK.
- 2012: Poster presentation: *The southern range expansion of invasive grey squirrels in Ireland: Determining the frontier and surveying the population*. **Emily Goldstein**, Colin Lawton, Padraig Whelan, and Fidelma Butler. 26th October 2012. All Ireland Mammal Symposium at the National Botanic Gardens, Dublin, Ireland
- 2012: Poster presentation: *The southern range expansion of invasive grey squirrels in Ireland: Determining the frontier and surveying the population*. **Emily Goldstein**, Colin Lawton, Padraig Whelan, and Fidelma Butler. 28th August 2012. IUFRO: Second International Conference on Biodiversity in Forest Ecosystems and Landscapes at University College Cork, Ireland. **Awarded best student poster**.
- 2011: Public talk: *At the frontier: demography of grey squirrel populations at the edge of their range*. 16th June 2011. Zoology Research Colloquium, National University of Ireland, Galway.
- 2011: Public Talk: *An Introduction to Squirrels in Ireland*. 14th April 2011. A 50-minute public presentation to the Duhallow Environmental Group, James O'Keefe Institute, Newmarket, Co Cork, Ireland.
- 2010: Public Talk: *An Introduction to Squirrels in Ireland*. 18th November 2010. A 50-minute public presentation to the public in the Autumn/Winter series of illustrated talks for the National Parks and Wildlife Service, Malton Hotel, Killarney, Co Kerry, Ireland.

Professional Memberships:

American Society of Mammalogists, The Mammal Society (UK), National and AZ Chapter of The Wildlife Society, International Wildlife Management Working Group (The Wildlife Society)

Service

- 2015: **Assistant Conference Organiser**
All Ireland Mammal Symposium – University College Cork January-November 2015.
- 2015: **Female Biologist Presenter**
“*I Wish*” An event to encourage female secondary school students to pursue a career in STEM – Fota Wildlife Park 12th February 2015.
- 2014: **Mammal Identification Expert**
1st Intersarsity Bioblitz – University College Cork. 2nd May 2014.
- 2013: **Volunteer Exhibitor**
“*Prehistoric Colours*” *Discovery Science Festival – Cork*. 16th November 2013.
- 2013: **Student Conference Assistant**
11th International Mammalogical Congress. 11th -16th August 2013.
- 2012: **Student Conference Assistant**
IUFRO: Second International Conference on Biodiversity in Forest Ecosystems and Landscapes at University College Cork, Ireland. 28th- 31st August 2012.

Manuscript reviews for:

Biological Invasions (2), Biology and Environment: Proceedings of the Royal Irish Academy (1).
Mammalian Biology (1). Journal of Animal Ecology (1). Journal of Wildlife Management (1),
PLoS ONE (1), The Science of Nature (1).

Book chapter reviews for:

“The grey squirrel: ecology & management of an invasive species in Europe.” *Forthcoming*. Eds.
Shuttleworth CM, Lurz PWW, Gurnell J. (2)
“Red squirrels: ecology, conservation & management in Europe” 2015. Eds. Shuttleworth CM,
Lurz PWW, Hayward MW. (1)

Permits, Licences and Certifications

FETAC Level 5 “Occupational First Aid” with distinction. 10/2011 – 10/2015. (Ireland)
NPWS permits for the live trapping and tagging of red and grey squirrels in Ireland. 2011-2013.
Full United States/Arizona Drivers Licence (class D, car) as of 2001. (clean)
Full Irish Drivers Licence (class B, car) as of 2011. (clean)

Languages

English – native speaker
Italian – 1 year at university level, beginner level speaking and reading/writing
Latin – 5 years at secondary level, general understanding of written text

Honors, Grants and Awards

Professional: Travel Award for Early Career Professionals – American Society of Mammologists: \$600
Postgraduate: School of BEES/EMBS postgraduate conference attendance fund: €780
School of BEES/EMBS postgraduate conference attendance fund: €300
Best student poster: IUFRO 2012. £50
PhD studentship: Irish Research Council. 3 years funded research and stipend. €72,000
Undergraduate: Member of Phi Beta Kappa, the premier national (USA) undergraduate honour society
Associate member of Sigma Xi, an international honor society of scientific research
A. Elizabeth Adams Fellowship for Graduate Study in Biology (2007)
Sarah Williston Scholar (2005) for sophomore students in the top 15% of the class
Bernice MacLean Award for excellence in Biology (2004, 2005, 2007)
Mildred L Sanderson Prize in Mathematics (2004)

Skills and Abilities

I am very well organised, able to meet strict deadlines and prioritise. I can communicate effectively and persuasively orally or through written media. I am also highly proficient in the Microsoft Office Applications Word, Excel, and PowerPoint. I am experienced with the Mac operating system OS X. I have in depth experience with various ecological science programs and statistical packages including Program MARK, DENSITY 5.0, RAMAS GIS 6.0, ArcGIS 10.3, SPSS 23.0, and SigmaPlot 12.5.

