Green Seal Environmental, LLC
114 State Road, Bldg. B, Sagamore Beach, MA 02562
T: 508.888.6034 **F:** 508.888.1506
www.gseenv.com

MassDOT Certified

August 30, 2024

Jordan Velozo - Chief Regulatory Officer
CAPE COD COMMISSION
3225 Main Street
Barnstable, MA 02630

RE: Request For Information [RFI]
Canal Street Crossing
DRI Minor Modification Type 2 Submittal
CCC File No. 19007

Ms. Velozo,

Green Seal Environmental, LLC, on behalf 21 Hunter's Brook Road, Inc., is pleased to submit additional information in support of our request to the Cape Cod Commission (CCC) for a Type 2 Minor Modification to the original Development of Regional Impact (DRI) approval referenced above. On August 21, 2024, GSE representatives (Greg Wirsen and Stuart Clark) had a conference call with Jordan Velozo (Chief Regulatory Officer) and Tim Pasakarnis (Water Resource Analyst) of the CCC. Based on the call, the CCC requested the following supplemental information:

1. Provide a breakdown comparison of impervious areas compared to the original approval.
2. Provide copies of previously approved MassDEP "pilot" approvals for this IA technology. The request was to determine the conditions set forth in the MassDEP approvals specifically with respect to total nitrogen effluent limitations and any supporting data.

Impervious Areas:

The table presented below outlines the net changes to onsite impervious areas as a result of the redesign.

Impervious Type	Canal Street Crossing - Presently Proposed - Impervious Areas in Acres	Canal Street Crossing - Previously Approved - Impervious Areas in Acres
Roofs	*1.523*	*1.411*
Paved and Concrete Surfaces	*2.936*	*3.400*
Total Impervious Surfaces	***4.459***	***4.811***

Based on the redesign, the impervious areas have been reduced by approximately 0.352 acres. Please refer to page 11 of Exhibit 25 that identifies the reduction of impervious areas by 0.33 acres (although the reduction is slightly larger than what GSE presented within the report).

MassDEP IA "Pilot' Approvals:

GSE obtained two pilot approvals for this technology for CCC's reference. They are:

1. College Light Opera located at 54 Chapoquoit Road in Falmouth MA
2. The Village Brick Kiln located at 511 Brick Kiln road in Falmouth, MA

The total nitrogen effluent limitation set for by MassDEP for the College Light Opera is 10 mg/l. The total nitrogen effluent limitation set for by MassDEP for The Village Brick Kiln is 11mg/l. GSE has attached both approvals within Attachment 1 of this submittal.

GSE is also providing within Attachment 2 some supporting NitROE data for Cape Cod Cape and Martha's Vineyard installations. The data represent sampling results up to December of 2023 and this data has been previously shared with the MassDEP as well as the Town of Falmouth. The 14th facility within these tables represents the College Light Opera installation (Identified as #14 – Cape 786). Additionally, the table presented below represents the sampling results collected at the facility since 2021.

Total Nitrogen Effluent Results
3.97 mg/l
5.24 mg/l
5.22 mg/l
11.67 mg/l
9.76 mg/l
3.25 mg/l
1.96 mg/l
13.17 mg/l
3.73 mg/l
2.65 mg/l
Average = 6.06mg/l

We believe the information provided herein coupled with the supporting attachments satisfies the request for additional information. Please feel free to reach out with comments or questions.

Respectfully submitted,

Gregory C. Wirsen

Gregory, C. Wirsen, MSc.
Vice President
Green Seal Environmental, LLC

Attachments as noted

CC: Eliza Cox, Nutter -
Robert Gendron, 21 Hunter's Brook Road, Inc.

ATTACHMENT 1

MASSDEP IA PILOT APPROVALS

MassDEP
Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

November 15, 2019

Amy Lowell, Wastewater Superintendent
416 Gifford Street
Falmouth, MA 02540

RE: Approval of Alternative Technology for Site Specific Piloting Use - BRPWP64b
Technology: **SanTOE**™ system.
System Location: College Light Opera Co Inc. 54 Chapoquoit Rd Falmouth, MA 02574
DEP Transmittal Number: X283837

Dear Ms. Lowell:

The Department (MassDEP) has reviewed your application dated August 28, 2019, to install an alternative technology known as SanTOE™ system (the "System") at the above referenced facility for Nitrogen reduction, in accordance with 310 CMR 15.000.

The System includes an Enhanced Settling Tank (EST) for settling of solids equipped with baffles at the tank outlet for additional solids settling; Submerged Aerated Beds (SAB) with an air blower installed; Denitrification Beds (DB) that provide the carbon source from the natural wood chips; a Pump Chamber (PC) with an alternating duplex pump; and a Soil Absorption System (SAS). The wastewater will first flow through the EST then to the SAB then through the DB for Nitrogen reduction and finally to the SAS for discharge.

The applicant requests approval for piloting the System for College Light Opera Company, Inc. located at 54 Chapoquoit Road in Falmouth, Massachusetts.

The submittal includes nine plans prepared by Reid Silva, Hoadley Martinez Architects of Falmouth MA, titled "*College Light Opera Company 54 Chapoquoit Road West Falmouth, MA 02574.*"; date June 3, 2019. The proposed septic system is designed for 6 buildings serving 90 students and staff during the summer months of June, July and August. Buildings include an existing Inn, four student housing cottages, and one proposed rehearsal barn with total of 5,850 gallons per day (gpd) capacity. The old grease trap for the kitchen in the Inn will also be removed and replaced with a new 1,500 gallon grease trap. The new system includes:

- one 12,000 gallon EST with baffle;
- two parallel sets of a 5,000 gallon SAB and a 6,000 gallon DB;
- a PC with alternating duplex pump;

- a distribution box (D-box) located before the two parallel sets of SAB and DB; and a valve chamber located before the SAS; and
- 8,000ft^2 area (12 – Leaching Trenches: 2.5-feet wide, 2-feet deep and 100-feet long) for the SAS including a full size reserve area.

Wastewater from each septic tank will flow by gravity through the D-box; split to two parallel set of SAB and DB, then flow to PC, and then to the SAS. Two sampling ports will be installed at the EST for an influent sample and at the PC for an effluent sample.

The application also includes the Town of Falmouth Board of Health's approval letter dated August 20, 2019.

The septic system is not located in a DEP defined nitrogen sensitive area and the facility is served by town water. The applicant seeks to demonstrate that the SanTOE™ system will reduce nitrogen in the effluent to less than 12 mg/l.

The Department has reviewed the application in accordance with 310 CMR 15.285, "Approval for Piloting", and has determined that the above referenced location will be a suitable testing facility to evaluate the SanTOE™ system technology. The Department **approves** the application as submitted subject to the following conditions:

1. Installation and operation of the System shall be in strict conformance with this approval and the requirements of 310 CMR 15.285. In the event of a conflict between terms and conditions of this System approval, 310 CMR 15.285, and any future Department Approval for the SanTOE™ system technology, if issued, the conditions of this approval shall prevail.
2. The System is limited to a design flow of 5,850 gpd. No increase in System design flow is allowed without written approval from the Department.
3. Prior to the commencement of construction, the System Installer must certify in writing to the Designer, the local approving authority (LAA), and the System Owner that (s)he is a locally approved installer and has received appropriate training for the installation of a SanTOE™ system by CES Clean Water LLC.
4. The frame and covers of access manholes of all System conveyance and treatment units shall be of durable material and shall be installed and maintained at or above finish grade, to allow for regular sampling access and necessary operation, sampling and maintenance.
5. Any treatment unit or other System structures with exterior piping connections located within 6 inches or below the Estimated Seasonal High Groundwater shall have the invert made waterproof with neoprene seal or equivalent.
6. Prior to field installation, the SanTOE™ system will be water tested and the Department and LAA notified of the results.
7. The System shall not be constructed until the LAA has issued a Disposal System Construction Permit and the System shall not be operated until the LAA issues a Certificate of Compliance.

8. An as-built plan of the System shall include the location of sampling ports, the volume of SAB and DB, and will be submitted to the Department and the LAA within 60 days of the completion of the System installation.

9. The mechanical/electrical equipment for this system is an air blower with power of 21 cubic-feet per min connected to a 120V electrical outlet, and Zoeller Model pump or equivalent in pump chamber with design flow of 305 gallon per min (gpm). To insure that electrical power is continuously available, the air blower and the pump shall have an indicator light. The aeration blower shall be located above ground and indicator light shall be located in the visible area and always accessible to the System operator for servicing as appropriate.

10. The Pumping chamber shall be equipped with sensors and high-level alarms. The System control panel, including alarms and controls, shall be mounted in location that is always accessible to the operator. Any system malfunction and high water alarms shall be readily visible and audible for the facility occupants and the service contractors. The alarm circuits will be connected separate from the circuits serving the operating equipment and pumps.

11. Within 30 days of the date of this approval, the System owner and CES Clean Water personnel shall submit to the Department and the LAA an Operation & Maintenance (O&M) manual and Contingency Plan for the System providing detailed operating instructions for the System and procedures to be followed in case of a System failure or alarm event, including corrective measures to be taken and procedures for notifying the LAA and the Department within five days of an alarm event or equipment failure.

12. CES Clean Water personnel, or a CES Clean Water-trained operator, responsible for the O&M shall have the System maintained in accordance with the O&M manual and must submit a copy of the DEP Approved Inspection and O&M Form for Title 5 I/A Treatment and Disposal Systems and the SanTOE™ system technology Inspection Checklist to the Department and the LAA within 45 days of each inspection.

13. Throughout its life, the System shall be operated and maintained by a certified wastewater operator with the oversight provided by CES Clean Water personnel. The operator will be an appropriate Massachusetts certified Grade-4M wastewater operator(s), as required by 257 CMR 2.00; and, will be competent in providing services consistent with the System's specifications, with applicable operation and maintenance requirements established by CES Clean Water and the System designer, and with any applicable requirements established by the Department.

14. No changes may be made to the approved plan or the System without the prior written approval of the Department. Prior to use of the System, the System owner shall comply with the provisions of Title 5, 310 CMR 15.021.

15. The System is not designed to accommodate garbage disposals. As such, garbage disposals shall not be used or installed at this facility.

16. Prior to the issuance of a Certificate of Compliance for the System, the CES Clean Water or its designee shall submit to the LAA and the System owner a signed certification that the System has been installed in accordance with the CES Clean Water's requirements, the approved plan and this approval.

17. The use of this System shall comply with the General Conditions for use of alternative systems contained in 310 CMR 15.287. The applicant shall allow the Department and the LAA access to inspect the system, as needed.

18. Prior to the LAA's issuance of a Certificate of Compliance, the System owner shall submit to the Department and the LAA a copy of the initial inspection and sampling agreement with CES Clean Water, or its designated contractor, including a sampling schedule. The following influent and effluent sampling and testing schedule and effluent limits apply:

pH (influent & effluent)	Monthly for the first 12 months and quarterly after that	6 to 9	Grab
INFLUENT: Alkalinity, Total suspended solids (TSS), Total Kjeldahl nitrogen (TKN), Biochemical oxygen demand - BOD_5	Monthly for the first 6 months	Record	Grab
EFFLUENT: Biochemical oxygen demand – BOD	Monthly for the first 12 months and quarterly after that	≤30 mg/l	Composite
Total suspended solids (TSS)	Monthly for the first 12 months and quarterly after that	≤30 mg/l	Composite
Total nitrogen (TN): (TN=TKN + NO2 + NO3)	Monthly for the first 12 months and quarterly after that	≤ 10 mg/l	Composite
Flow (water meter(s))	Monthly for the first 12 months and quarterly after that	record	Read
Alkalinity (effluent)	Monthly for the first 12 months and quarterly after that.	record	Grab

a. If the facility contains more than one water meter, all meters shall be reported with a summary of water use.

b. The TN limit of 12 mg/l is LAA requirement.

c. Operator inspections shall be conducted monthly for the first year and quarterly after that or comply with inspection requirement from the LAA.

d. If the residence is used seasonally, sampling for all parameters shall be 3x during the season with one sample being a composite sample, and operator inspections shall be conducted 3x during the season.

e. All analysis shall be performed at a US EPA or Department certified laboratory using accredited methods approved in the latest update of 40CFR Part 136. All sampling

shall be performed in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater.

f. The System owner, in cooperation with the LAA, or the contracted wastewater operator, shall submit all monitoring data to the LAA and the Department within 45 days of the sampling date accompanied by the inspection form and checklist. The Department submittal shall be submitted to:

Department of Environmental Protection
Wastewater Management Program
One Winter Street - 5th Floor
Boston, MA 02108
Attn: Title 5 IA Program

19. After 24 months of monitoring, if the System owner wants to cease participation in this piloting for the SanTOE™ system technology, then they shall notify the Department and Local Authority Approval. The System owner can continue to use the SanTOE™ system technology as the soil absorption system for the septic system and comply with the monitoring requirement from the LAA. Any unused components like SAB shall be decommissioned in accordance with 314 CMR 15.354.

20. The System owner shall record in the appropriate Registry of Deeds a notice that discloses the existence of this Piloting Approval alternative system and the involvement of the Department in the approval of the System. The System owner shall record the notice in the registry and submit a certified registry copy of said notice showing book and page number to the Department and the LAA.

21. Prior to the sale of the facility, the owner shall notify the new owner of the presence of the Pilot Approved alternative system and provide a copy of this approval to the new owner.

If you have any questions on this matter, please contact Hersh Thakor, of my staff, at (617) 556-1036.

Sincerely,

Marybeth Chubb, Section Chief
Bureau of Water Resources
Wastewater Management Program

Cc: Brian Dudley – DEP-SERO

John R. Smith, Ph.D., P.E.
john.r.smith@solutions-by-ces.com

Scott McGann, BOH -Town of Falmouth
health@falmouthma.gov

Maureen Thomas, Water Resource Specialist
BUZZARDS BAY COALITION
thomas@savebuzzardsbay.org

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
One Winter Street Boston, MA 02108 • 617-292-5500

Maura Healey
Governor

Kim Driscoll
Lieutenant Governor

Rebecca Tepper
Secretary

Bonnie Heiple
Commissioner

June 2, 2023

Michael Solimando
Village at Brick Kiln, LLC
1094 Blue Hill Ave
Milton, MA 02186

RE: Approval of Alternative Technology for Site Specific Piloting Use - BRPWP64b
Technology: NitROE™ tank system.
System Location: 511 Brick Kiln Road, Falmouth, MA 02540
DEP Transmittal Number: 22-WP64B-0004-APP

Dear Mr. Solimando:

The Department (MassDEP) has reviewed your application dated December 20, 2022, to install an alternative technology known as NitROE™ tank system (the "System") at the proposed facility for nitrogen reduction, in accordance with 310 CMR 15.000. The System includes, with a septic tank, a NitROE™ 2 KM Wastewater Treatment System (WWTS), and soil adsorption system.

The submittal includes four (4) sheets as part of the site plan and septic system design prepared by Falmouth Engineering, of Falmouth, MA, titled "*SITE PLAN – 511 BRICK KILN ROAD*." The plans are dated January 21, 2021, and stamped by Michael Borselli Massachusetts P.E. (Designer). The application also includes the Town of Falmouth Board of Health's approval letter dated December 2, 2022.

The property at 511 Brick Kiln Road, Falmouth, MA (the "facility" or the "Site") consists of an open lot, where the proposed 28-unit development with 76-bedroom residential housing project will be constructed and is the subject of this Approval. There is no existing septic system on the site to serve the new construction. The proposed system will consist of a septic tank, the NitROE™ treatment train, and the soil adsorption system. The proposed NitROE™ system consists of a Submerged Aeration Chamber (SAC) and a Denitrification Chamber (DC). The SAC is equipped with an air pump (120V/20-amp power outlet) to continuously supply oxygen. The DC provides the carbon source from the natural wood chips within the tank. Wastewater first flows through a septic tank, then the SAC and then subsequently through the DC for Nitrogen reduction prior to a shared pump chamber (PC) before the leach field.

The design flow of the proposed system is 8,360 gpd and includes two treatment trains serving 28 units in total. Each individual treatment train consists of a 9,000-gallon enhanced settling septic tank, a 6,000-gallon SAC and an 8,000-gallon DC. The effluent from each 8,000-gallon DC for the two treatment trains will be gravity-fed to a shared 12,000-gallon pump chamber (PC). The Geomatrix

GST soil absorption system shall receive pressurized distribution of the effluent with diffusers installed over orifice. The pressure distribution systems shall be designed in accordance with 15.254 (2). Influent and effluent samples will be collected at the removable manhole covers at grade for the DC and PC respectively.

The BOH approved the proposed work to the facility, and the engineering plans on November 1, 2022 which includes the NitROE™ system. The revised plans dated January 21, 2023, to include the NitROE™ system and the Geomatrix GST soil adsorption system together were approved by the BOH on March 27, 2023. The variance was filed with the BOH on April 11, 2023. The septic system is not located in a DEP defined nitrogen sensitive area and the facility is served by town water.

The Department has reviewed the application in accordance with 310 CMR 15.285, "Approval for Piloting", and has determined that the above referenced location will be a suitable testing facility to evaluate the NitROE™ tank system technology. The Department **approves** the application as submitted subject to the following conditions:

1. The System shall be installed, operated, and maintained in strict conformance with this approval and all applicable requirements of 310 CMR 15.000. The Department may make modifications to this approval when necessary to maintain compliance with applicable requirements of 310 CMR 15.000, any future Department approval for the Nitrex™ System, or other appropriate requirements of state law.
2. The System is limited to a design flow of 8,360 GPD. No increase in System design flow is allowed without written approval from the Department.
3. Prior to the commencement of construction, the System Installer must certify in writing to the Designer, the local approval authority, and the System Owner that (s)he is a locally approved installer and has received appropriate training for the installation of a NitROE™ tank system by CES Clean Water LLC.
4. The frame and covers of access manholes of all System conveyance and treatment units shall be of durable material and shall be installed and maintained at or above finish grade, to allow for regular sampling access and necessary operation, sampling and maintenance.
5. Any treatment unit or other System structures with exterior piping connections located within 6 inches or below the Estimated Seasonal High Groundwater shall have the invert made waterproof with neoprene seal or equivalent.
6. The System shall not be constructed until the Local Approval Authority has issued a Disposal System Construction Permit and the System shall not be operated until the Local Approval Authority issues a Certificate of Compliance.
7. The mechanical/electrical equipment for this system is an aerator pump connected to a 120V electrical outlet. To ensure that electrical power is continuously available, and the aeration pump shall have an indicator light. The aeration pump shall be located above ground and indicator light shall be in the visible area and always accessible to the System operator for servicing as appropriate.
8. Within 30 days of the date of this approval, the Village at Brick Kiln, LLC personnel and CES Clean Water personnel shall submit to the Department and the Local Approval Authority an Operation & Maintenance (O&M) manual and Contingency Plan for the System providing detailed operating instructions for the System and procedures to be followed in case of a System failure or alarm event, including corrective measures to be

taken and procedures for notifying the Local Approval Authority and the Department within five days of an alarm event or equipment failure.

9. Village at Brick Kiln, LLC personnel and CES Clean Water personnel shall be responsible for the O&M shall have the System maintained in accordance with the O&M manual and must submit a copy of the DEP Approved Inspection and O&M Form for Title 5 I/A Treatment and Disposal Systems and the NitROE™ tank system technology Inspection Checklist to the Department and the Local Approval Authority within 45 days of each inspection.

10. Throughout its life, the System shall be operated and maintained by a certified wastewater operator with the oversight provided by CES Clean Water personnel. The operator will be an appropriate Massachusetts certified Grade-4M wastewater operator(s), as required by 257 CMR 2.00; and will be competent in providing services consistent with the System's specifications, with applicable operation and maintenance requirements established by CES Clean Water and the System designer, and with any applicable requirements established by the Department.

11. No changes may be made to the approved plan or the System without the prior written approval of the Department. Prior to use of the System, the System owner shall comply with the provisions of Title 5, 310 CMR 15.021: Certificates of Compliance.

12. The System is not designed to accommodate garbage disposals. As such, garbage disposals shall not be used or installed at this facility.

13. Prior to the issuance of a Certificate of Compliance for the System, the CES Clean Water or its designee shall submit to the Local Approval Authority and the System owner a signed certification that the System has been installed in accordance with the CES Clean Water's requirements, the approved plan and this approval.

14. The use of this System shall comply with the General Conditions for use of alternative systems contained in 310 CMR 15.287. The applicant shall allow the Department and the Local Approval Authority access to inspect the system, as needed.

15. Prior to the Local Approval Authority's issuance of a Certificate of Compliance, the designated Village at Brick Kiln, LLC personnel and CES Clean Water personnel shall submit to the Department and the Local Approval Authority a copy of the initial inspection and sampling agreement with the CES Clean Water or its designated contractor, including a sampling schedule. The following influent and effluent sampling and testing schedule and effluent limits apply:

Parameter	**Sampling Frequency**	**Effluent Limits**	**Sample Type**
pH (influent & effluent)	Monthly for the first 18 months	6 to 9	Grab
Alkalinity, Total suspended solids (TSS), Total Kjeldahl nitrogen (TKN), Biochemical oxygen demand - BOD_5 (influent)	Monthly for the first 6 months	Record	Grab

Parameter	Sampling Frequency	Effluent Limits	Sample Type
Biochemical oxygen demand – BOD (effluent)	Monthly for the first 18 months	≤30 mg/l	Composite
Total suspended solids (TSS) (effluent)	Monthly for the first 18 months	≤30 mg/l	Composite
Total nitrogen (TN): (TN=TKN + NO2 + NO3) (effluent)	Monthly for the first 18 months	≤ 11 mg/l	Composite
Flow (water meter(s))	Monthly for the first 18 months	record	Read
Alkalinity (effluent)	Monthly for the first 18 months	record	Grab

a. Sampling for effluent BOD, TSS and TN shall be quarterly after 18 months.

b. If facility contains more than one water meter, all meters shall be reported with a summary of water use.

c. The TN limit of 11 mg/l is Local Approval Authority requirement.

d. Operator inspections shall be conducted monthly for the first year and quarterly after that or comply with inspection requirement from the Local Approving Authority.

e. If the residence is used seasonally, sampling for all parameters shall be 3x during the season with one sample being a composite of 3 grab samples per day (Morning, Noon, Evening), and operator inspections shall be conducted 3x during the season.

f. After 24 months of monitoring, if Village at Brick Kiln, LLC wants to cease participation in this piloting for the NitROE™ tank technology then they will work with CES Clean Water and the LAA to install a septic system for the facility in compliance with Title 5. The system owner must comply with the LAA requirements for specific site piloting. All analysis shall be performed at a US EPA or Department certified laboratory using accredited methods approved in the latest update of 40CFR Part 136. All sampling shall be performed in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater.

g. Within 45 days of each site visit, all inspection data shall be submitted to the System Owner and the LAA with the O&M report and inspection checklist, and to the Department. Submittal to the Department will be through the Barnstable County Septic Management Program's IA Tracking Database: https://septic.barnstablecountyhealth.org/. The inspection results reported must include the information recorded/required on a DEP approved inspection form (https://www.mass.gov/lists/title-5-septic-system-forms#title-5-inspections-&-pumping-forms-) and the Company's technology inspection checklist approved by Department.

:

16. An as-built plan of the System along with the details of duplex pump for Pump chamber shall be submitted to the Department and the Local Approval Authority within 60 days of the completion of the System installation.
17. The System owner shall record in the appropriate Registry of Deeds a notice that discloses the existence of this Piloting Approval alternative system and the involvement of the Department in the approval of the System. The System owner shall record the notice in the registry and submit a certified registry copy of said notice showing book and page number to the Department and the Local Approval Authority.
18. Prior to the sale of the facility, the owner shall notify the new owner of the presence of the Pilot Approved alternative system and provide a copy of this approval to the new owner.
19. The existing system must be inspected and passed by the Title 5 inspector and a copy of the complete inspection report shall be submitted to the Local Approval Authority 60 days prior to issuance of the Certificate of Completion.
20. Any un-used treatment units/components shall be decommissioned in accordance with 314 CMR 15.354.
21. Prior to field installation, the NitROE™ tank system will be water tested with the Department and Local Approval Authority notified of the results.

If you have any questions on this matter, please contact Harsha Prasad, of my staff, at (857) 378-0935 or Harsha.Prasad@mass.gov.

Sincerely,

/s/ Marybeth Chubb

Marybeth Chubb, Section Chief
Bureau of Water Resources
Wastewater Management Program

Cc:

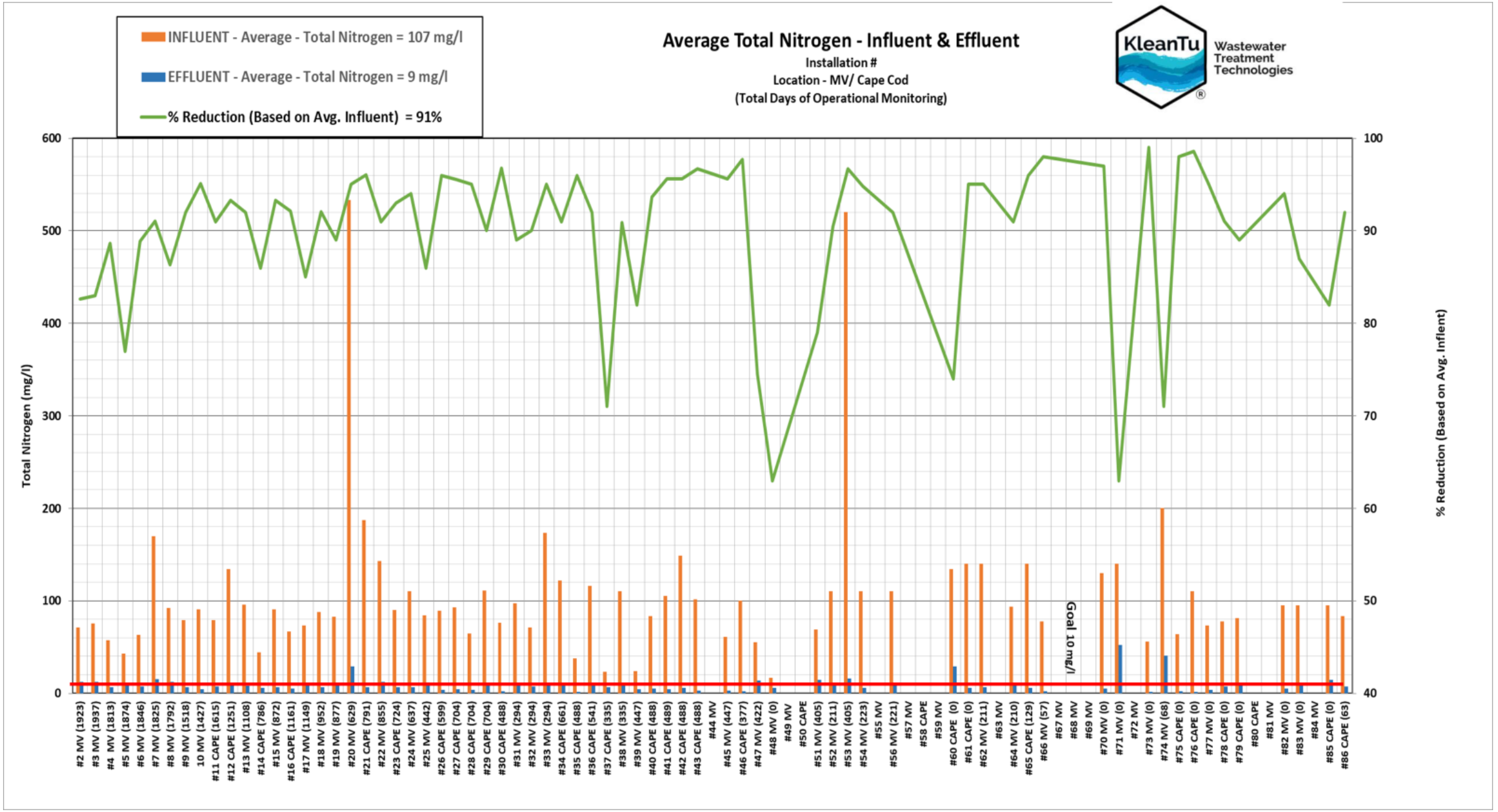
Michael Borselli, P.E.
Falmouth Engineering
Mike@falmouthengineering.com

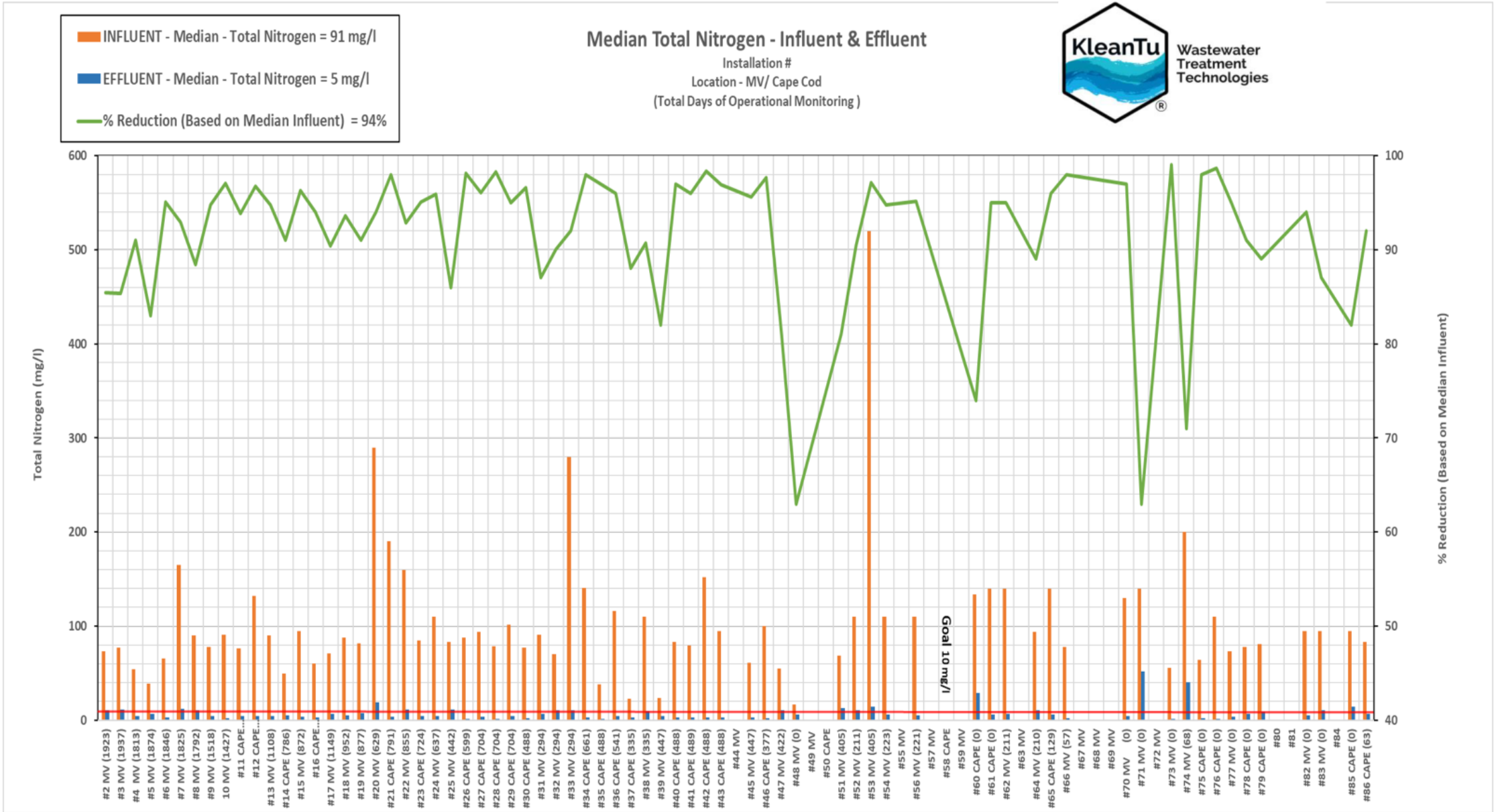
Maureen Thomas, Project Director
KleanTu LLC
mthomas@kleantu.com

Scott McGann, Health Agent
Health@falmouthmass.us

ATTACHMENT 2

IA SYSTEM MONITORING DATA


INFLUENT - Average - Total Nitrogen = 107 mg/l
EFFLUENT - Average - Total Nitrogen = 9 mg/l
% Reduction (Based on Avg. Influent) = 91%
Average Total Nitrogen - Influent & Effluent
Installation #
Location - MV/ Cape Cod
(Total Days of Operational Monitoring)
KleanTu
Wastewater Treatment Technologies
Total Nitrogen (mg/l)
% Reduction (Based on Avg. Inflent)
Goal 10 mg/l
0
100
200
300
400
500
600
40
50
60
70
80
90
100
#2 MV (1923)
#3 MV (1937)
#4 MV (1813)
#5 MV (1874)
#6 MV (1846)
#7 MV (1825)
#8 MV (1792)
#9 MV (1518)
10 MV (1427)
#11 CAPE (1615)
#12 CAPE (1251)
#13 MV (1108)
#14 CAPE (786)
#15 MV (872)
#16 CAPE (1161)
#17 MV (1149)
#18 MV (952)
#19 MV (877)
#20 MV (629)
#21 CAPE (791)
#22 MV (855)
#23 CAPE (724)
#24 MV (637)
#25 MV (442)
#26 CAPE (599)
#27 CAPE (704)
#28 CAPE (704)
#29 CAPE (704)
#30 CAPE (488)
#31 MV (294)
#32 MV (294)
#33 MV (294)
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#39 MV (447)
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#41 CAPE (489)
#42 CAPE (488)
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#44 MV
#45 MV (447)
#46 CAPE (377)
#47 MV (422)
#48 MV (0)
#49 MV
#50 CAPE
#51 MV (405)
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#54 MV (223)
#55 MV
#56 MV (221)
#57 MV
#58 CAPE
#59 MV
#60 CAPE (0)
#61 CAPE (0)
#62 MV (211)
#63 MV
#64 MV (210)
#65 CAPE (129)
#66 MV (57)
#67 MV
#68 MV
#69 MV
#70 MV (0)
#71 MV (0)
#72 MV
#73 MV (0)
#74 MV (68)
#75 CAPE (0)
#76 CAPE (0)
#77 MV (0)
#78 CAPE (0)
#79 CAPE (0)
#80 CAPE
#81 MV
#82 MV (0)
#83 MV (0)
#84 MV
#85 CAPE (0)
#86 CAPE (63)


INFLUENT - Median - Total Nitrogen = 91 mg/l
EFFLUENT - Median - Total Nitrogen = 5 mg/l
% Reduction (Based on Median Influent) = 94%
Median Total Nitrogen - Influent & Effluent
Installation #
Location - MV/ Cape Cod
(Total Days of Operational Monitoring)
KleanTu
Wastewater Treatment Technologies
Total Nitrogen (mg/l)
% Reduction (Based on Median Influent)
Goal 10 mg/l
0
100
200
300
400
500
600
40
50
60
70
80
90
100
#2 MV (1923)
#3 MV (1937)
#4 MV (1813)
#5 MV (1874)
#6 MV (1846)
#7 MV (1825)
#8 MV (1792)
#9 MV (1518)
10 MV (1427)
#11 CAPE...
#12 CAPE...
#13 MV (1108)
#14 CAPE (786)
#15 MV (872)
#16 CAPE...
#17 MV (1149)
#18 MV (952)
#19 MV (877)
#20 MV (629)
#21 CAPE (791)
#22 MV (855)
#23 CAPE (724)
#24 MV (637)
#25 MV (442)
#26 CAPE (599)
#27 CAPE (704)
#28 CAPE (704)
#29 CAPE (704)
#30 CAPE (488)
#31 MV (294)
#32 MV (294)
#33 MV (294)
#34 CAPE (661)
#35 CAPE (488)
#36 CAPE (541)
#37 CAPE (335)
#38 MV (335)
#39 MV (447)
#40 CAPE (488)
#41 CAPE (489)
#42 CAPE (488)
#43 CAPE (488)
#44 MV
#45 MV (447)
#46 CAPE (377)
#47 MV (422)
#48 MV (0)
#49 MV
#50 CAPE
#51 MV (405)
#52 MV (211)
#53 MV (405)
#54 MV (223)
#55 MV
#56 MV (221)
#57 MV
#58 CAPE
#59 MV
#60 CAPE (0)
#61 CAPE (0)
#62 MV (211)
#63 MV
#64 MV (210)
#65 CAPE (129)
#66 MV (57)
#67 MV
#68 MV
#69 MV
#70 MV (0)
#71 MV (0)
#72 MV
#73 MV (0)
#74 MV (68)
#75 CAPE (0)
#76 CAPE (0)
#77 MV (0)
#78 CAPE (0)
#79 CAPE (0)
#80
#81
#82 MV (0)
#83 MV (0)
#84
#85 CAPE (0)
#86 CAPE (63)