GeoMat™ Leaching Systems

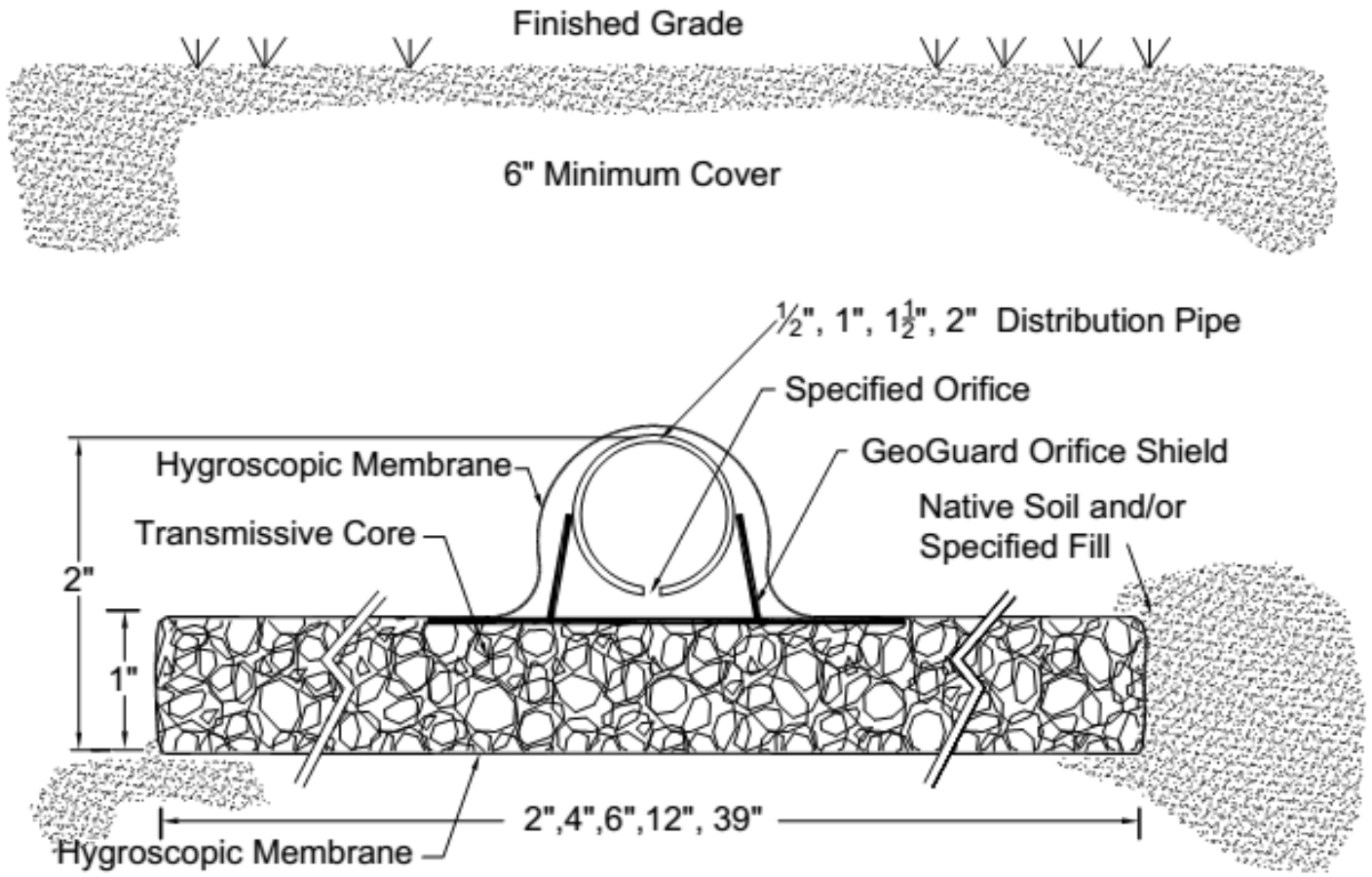
High performance, low profile, wastewater infiltration and reuse systems.

NSF Standard 40 Certified with 6” of Sand

GEOMATRIX

Patents: www.geomatrixsystems.com

GeoMat System

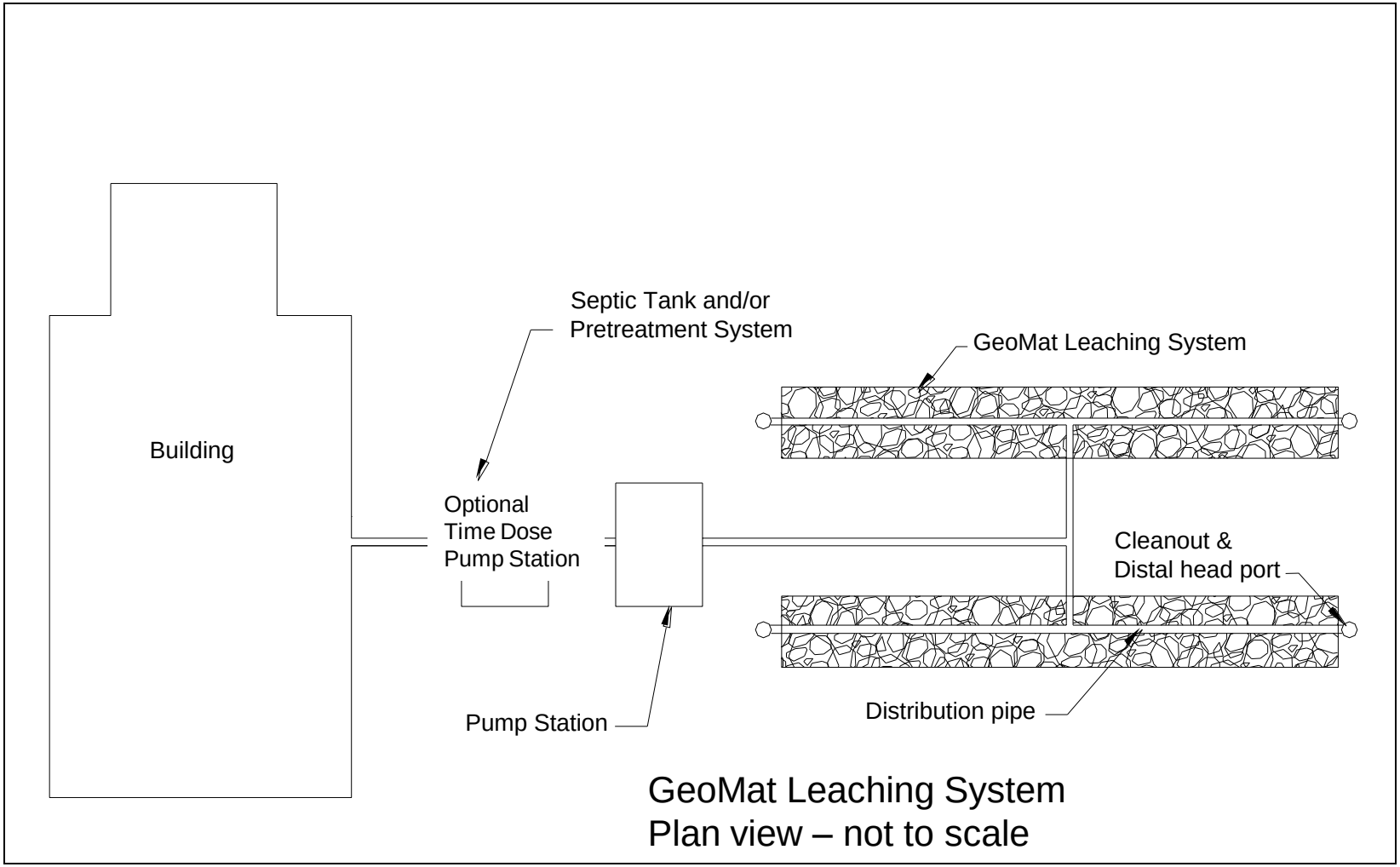


GeoMat Leaching System
Cross section – not to scale

GeoMat Systems

- Maximizes water transfer to soil & evapotranspiration
- Eliminates point loading
- Micro dosed water applied to Hygroscopic membrane
- Capillary action of soil moves water away from system
- LPD orifices serviceable
- STE and pretreated

GeoMat System



HyAir™ pump system and conventional pump system

HyAir system delivers micro doses with complete accuracy

Time dose pump system with filter, backwashes after every dose

Design flexibility

Conforms to contours, bends around obstacles and provides uniform application on steep slopes.

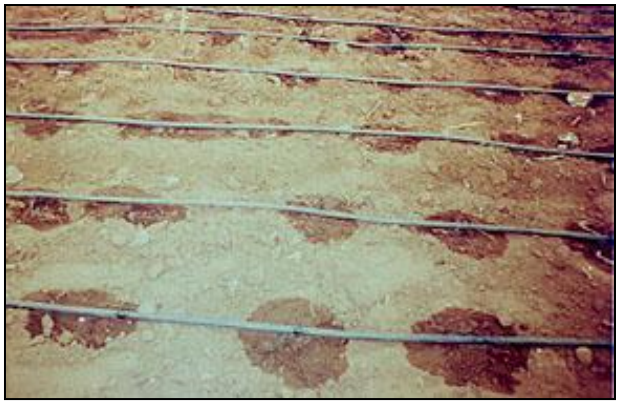
GeoMat variations

Pretreated prior to GeoMat

Anne Arundel County
May 2008

GeoMat enhanced distribution vs. traditional drip

Uniform and even



Plant growth is ultimate evidence.

Uniform but uneven

5 years at MASSTC

54% annual average total nitrogen removal without factoring in evapotranspiration

BARNSTABLE COUNTY
DEPARTMENT OF HEALTH AND THE ENVIRONMENT
SUPERIOR COURTHOUSE
POST OFFICE BOX 427
BARNSTABLE, MASSACHUSETTS 02630

MASSTC
The Massachusetts Alternative Septic System Test Center

March 18, 2016

David Potts
Geomatrix LLC
114 Mill Rock Road East
Old Saybrook, CT

Dave:

You have asked for a short report regarding the GeoMat™ as tested at the Massachusetts Alternative Septic System Test Center, and in particular the performance of the product to treat for Total Nitrogen in its installed setting.

By way of review, you will recall that the GeoMat™ product has been installed at a number of locations at the Test Center and for various purposes. This report covers the percolate from a system installed in 2011 and that was part of a study on the removal of pharmaceuticals and personal care product for further experiments in non-proprietary nitrogen removal strategies. In this configuration there is 18" of a loamy sand material beneath the GeoMat™ and all of the percolate is collected. There are six cells which drain to a common location. The hydraulic loading rate to the system is approximately 0.5 gal/sq. ft. /day. The system was continuously operated during the period noted and continues to this date.

Total nitrogen concentrations were calculated by the following means:

Total Nitrogen (TN) = Total Kjeldahl Nitrogen(TKN) + nitrate-nitrogen + nitrite-nitrogen

Influent nitrogen values were sometimes taken on different days. Percolate samples were taken from the common drain of the six test cells. Samples were assayed by laboratories certified by Massachusetts DEP for those assays.

Removal rate was calculated as follows:

1 – Average Percolate TN / Average Influent TN

The summary statistics are as follows:

	Influent TN	Percolate TN
Average TN (mg/L)	49.4	22.7
Std. Deviation	5.6	6.1
Observations	67	46
95% Confidence Interval	1.3	1.8
Upper CI $\alpha.05$	50.7	24.5
Lower CI $\alpha.05$	48.0	21.0
Maximum TN (mg/L)	69.1	37.3
Minimum TN (mg/L)	37.1	7.5
Geometric Mean TN (mg/L)	49.1	21.9
Removal Rate		54.0%

The removal rate does not represent the effect of any evapotranspiration which occurred and is thus a conservative measure of the reduction. The raw data table and a graphic representation of the data are presented below.

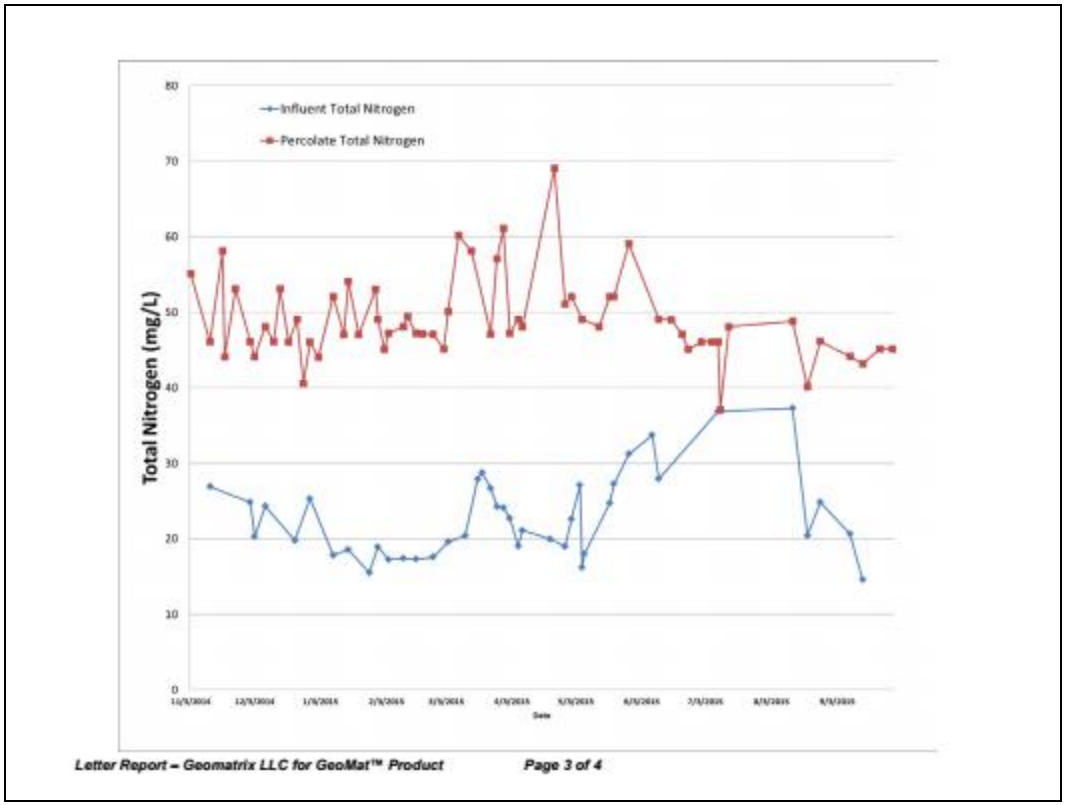
If you need any further information for comparative purposes, or if I can be of further assistance, please let me know.

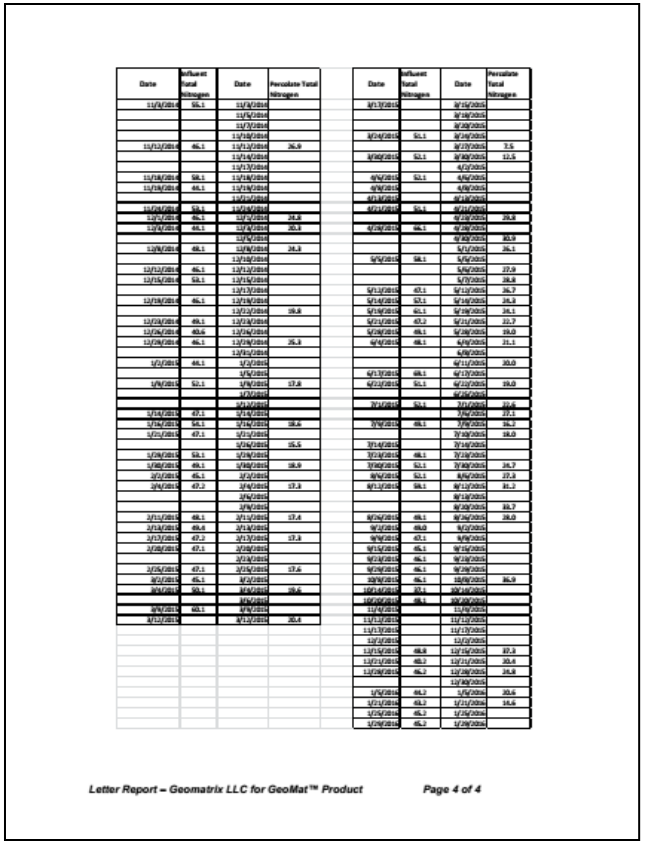
Sincerely,

George Heufelder

George Heufelder, M.S., R.S.
Director
Barnstable County Department of Health and Environment

54% annual average total nitrogen removal without factoring in evapotranspiration





All grass clippings remained on test plot

GeoMat Leaching System

- Low capital and operational costs
- Simple and fast to install
- Uniform & even application of water & nutrients
- Low mechanical complexity
- Serviceable LPD system
- Thank you for the opportunity to present