



**FLORIDA DEPARTMENT OF
Environmental Protection**

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August 30, 2022
Via email

Mr. David Potts
Mr. Jason Henderson
Geomatrix Systems, LLC
114 Mill Rock Road East
Old Saybrook, Connecticut 06475

This letter constitutes Version 1.2 of the innovative system permit (ISP) approval between the Florida Department of Environmental Protection (Department) and Geomatrix Systems, LLC (Geomatrix). This version includes more information about three soil or fill systems tested under Version 1.0 of the ISP that did not function properly. These systems are discussed further below in section A.c.

On November 21, 2018, the Department granted Geomatrix a petition for temporary variance parts of Rules 62 (formerly 64E)-6.008(5), 6.009(3)(d), .009(3)(e), .014(5)(b), .014(5)(g), .026(1), .028(3), and .028(4) of the Florida Administrative Code (F.A.C.) to allow innovative system evaluation of the Geomatrix GeoMat™ Leaching Systems GeoMat 3900 and GeoMat™ 1200. The Department is currently processing GeoMatrix's request to renew that petition. The GeoMat is a low-profile leaching system. It consists of a one-inch thick nylon core of fused, entangled filaments covered by a hygroscopic geotextile fabric that is bonded to one side of the core and contains the distribution pipe. The core is either 12 inches (GeoMat 1200) or 39 inches (GeoMat 3900) wide. The installation can have different variations. The variations for the GeoMat proposed for Florida are characterized by several parameters: domestic sewage without SoilAir or commercial strength sewage with SoilAir; trench or bed; GeoMat Flat or GeoMat Edge; GeoMat in a system sand bed, GeoMat in soil or fill, or GeoMat in soil or fill with a two-inch system sand veneer below the GeoMat; GeoMat with gravity, lift-dosed or pressure dosed distribution; GeoMat with septic tank effluent or pretreated effluent; GeoMat edge to edge or with some spacing between edges. This letter grants the ISP approval with the following conditions.

A. Limitations

- a. This ISP (version 1.2) will expire when the temporary 120 variance order expires.
- b. This ISP allows the installation of a maximum of fifty innovative systems upon approval of site-specific construction applications by the respective County Health Department offices (CHD) and the Department's Onsite Sewage Program Office (OSP). At least ten and up to fifty of these systems shall be single family residential installations.

The ISP has the objective to evaluate the systems for drainfield performance as indicated by ponding depths and more qualitative observations in accordance with the monitoring protocol

(Attachment III). This ISP distinguishes between domestic sewage applications without SoilAir and commercial strength sewage applications with SoilAir. The performance evaluation will separate between installations for commercial strength sewage incorporating SoilAir and installations for domestic sewage without SoilAir. Soil type and system variation must vary among the installed systems. GeoMat Edge in soil or fill and for systems with pretreatment in moderately limited soils, shall each be evaluated with at least fifteen systems. GeoMat in system sand, GeoMat flat in soil or fill, and GeoMat flat in soil or fill with a veneer of two inches of system sand below the GeoMat, shall each be evaluated with ten systems, with at least one system each for trench and bed configurations, one system each in slightly limited and moderately limited soils, and one system each as standard subsurface or mound systems. Geomatrix can choose to prioritize evaluation of some system variations over others. The performance criterion is that none of the systems will fail. Not all of these variations must be evaluated, but only evaluated variations that meet the number of evaluated systems and pass system monitoring can be reclassified. At this time, GeoMatrix has not requested evaluation of treatment performance.

- c. The experience so far in Florida includes three GeoMat flat systems in soil or fill that have not worked as designed and showed surfacing effluent (Eagle Lane, Palomino Court, Timberlee Road). For the first two sites, evaluations contracted for by Geomatrix indicated that the soils were consistent with the site evaluations and contained a higher fraction of material passing the #200 sieve than typically specified by Geomatrix. This experience resulted in the addition of the variation GeoMat in soil or fill with a two-inch system sand veneer below the GeoMat to the ISP. The Palomino Court system was replaced with a different system. The two other systems were reported to have been repaired. These have continued to be monitored and ponding was not reported. They are not, however, documented to fall into the variation categories established by the ISP. One of them (Eagle Lane) was repaired by replacing soil and fill with about 24 inches of system sand underneath the GeoMat and twelve inches on the sides of the GeoMat. This resulted in a slightly larger drainfield than required for the GeoMat in soil or fill and a much larger drainfield than required for the GeoMat in system sand variation. The other (Timberlee Road) was reported in an email from the maintenance entity to be repaired with a different fine sand, but documentation is missing of this repair installation being inspected and final approved by the county health department, nor was there any documentation of the sand that was used or as-built drawing provided. Note that the addition of system sand beneath the GeoMat would require that the distance to the water table would need to be measured from the bottom of the system sand rather than the bottom of the GeoMat material.
- d. Effluent discharging to the innovative disposal system may come from septic tanks or treatment receptacles providing higher treatment.
 1. For septic tank effluent: A primary tank sized in accordance with Table II of Rule 62-6.008, F.A.C. Dual compartment tanks or multiple tanks in series are required for all new systems and recommended for existing systems to be repaired or modified. The tanks shall be approved treatment receptacles in Florida. Septic tank effluent filters are required on all new systems on the outlet end of the septic tank.
 2. For effluent pretreated to higher levels: Aerobic treatment units in compliance with Rule 62-6.012, F.A.C., or PBTS with performance specifications of at least baseline treatment standards and secondary treatment standards for five-day carbonaceous biochemical oxygen demand (CBOD₅) and total suspended solids (TSS) (annual average of 20 mg/L). For the purposes of permitting according to this ISP, aerobic treatment units will be described as PBTS with minimum performance specifications of baseline treatment standards and secondary treatment standards for five-day carbonaceous biochemical oxygen demand (CBOD₅) and total suspended solids (TSS) (annual average of 20 mg/L).

- e. Application for reclassification as an alternative drainfield system component in accordance with Rules 62-6.0295 and 62-6.009(7), F.A.C., shall include observations from a visit three months (10-16 weeks) after placing the system into service, and at least one year of maintenance entity visits in accordance with the site-specific required frequency and the monitoring protocol (Attachment III) for the systems included in monitoring.
- f. All systems will be designed, constructed and installed in accordance with this ISP, Chapter 62-6, F.A.C., “Standards for Onsite Sewage Treatment and Disposal Systems” and the aforementioned variance.
- g. The systems included in this ISP will be permitted as performance-based treatment systems (PBTS) with design criteria of baseline treatment standards or higher treatment standards based on the performance of a pretreatment system discharging to the GeoMat drainfield (Rule 62-6.025(3), F.A.C.).
- h. This ISP may be revised or amended, with prior approval from the Department’s OSP office, to address the experiences and new information gathered in the field during the evaluation period.
- i. This approval does not include a Geomatrix manual. The Department and Geomatrix will address approval of a Florida-specific product manual during the reclassification process.

B. System Components

- a. A septic tank, aerobic treatment unit, or PBTS designed to meet at least baseline treatment standards plus secondary treatment standards for five-day carbonaceous biochemical oxygen demand (CBOD₅) and total suspended solids (TSS) (annual average of 20 mg/L).
- b. Gravity flow or an additional dosing tank sized in accordance with Table II of Rule 62-6.008, F.A.C., to allow lift-dosing or low-pressure dosing, as required by Florida regulations.
- c. For commercial strength sewage applications, a SoilAir unit. The SoilAir unit components are described in the department’s letter of no objection as alternative repair method of August 5, 2009. The SoilAir may include a separate perforated air-supply pipe next to the effluent distribution pipe. SoilAir requires lift- or low-pressure dosing.
- d. A network of GeoMat runs. A run is a continuous linear length of GeoMat material including drainlines (or distribution pipes) that are directly connected to a distribution box, header pipe, or header manifold of a low pressure dosing system starting from where the pipe enters the GeoMat from the header or distribution box, and ending at a turn up or connecting pipe that establishes a continuous circuit (required for gravity-fed or lift-dosed beds or mounds). Several variations are distinguished by surrounding media, by orientation, by spacing, and by configuration:
 1. Surrounding media: GeoMat can be installed in three types of surrounding media: soil or fill; soil or fill with a veneer of system sand (two inches of system sand below the GeoMat); or in system sand. The variation of GeoMat in soil or fill with a two-inch veneer of system sand beneath it only applies to the GeoMat 1200 or 3900 flat variations. For the system sand variations, system sand shall surround the GeoMat six inches below, 12 inches to the sides and two inches above the distribution pipe. If used, the combination of system sand and GeoMat will be the evaluated drainfield system. The system sand must meet the requirements of ASTM C-33 or FDOT 902-2 sand. Horizontal and vertical setback or separation distances shall be measured from the edge of the system sand.
 2. Orientation: GeoMat Flat (1200 or 3900) is installed flat. GeoMat Edge (1200 only) is installed upright. For GeoMat Edge, lift-dosing or low-pressure dosing is required.
 3. Spacing: Flat installations can be installed edge to edge (no spacing) only in system sand. They can also be installed with a minimum four-inch spacing in system sand, or in soil or fill, or in soil or fill with a two-inch veneer of system sand under the GeoMat. GeoMat Edge (1200 only) in system sand is installed with a minimum spacing of six inches center

to center, and in soil or fill is installed with a minimum spacing of twelve inches between (13 inches center to center).

4. Configuration: GeoMat can be installed as trench or bed configuration. The variations that can be considered in trench configuration are: a single run of GeoMat 1200 flat in soil or fill or in soil or fill with a veneer of two inches of system sand below the GeoMat, each with at least twelve inch separation edge to edge from an adjacent GeoMat 1200 flat; a single run of GeoMat 1200 Flat in system sand with exactly 12 inches system sand on each side, with at least 24 inches of separation between sidewalls of system sand of adjacent trenches; a single run of GeoMat 1200 Edge in soil or fill with at least twelve inches separation edge to edge (13 inches on center) to an adjacent GeoMat 1200 Edge; up to two runs of GeoMat 1200 Edge with a six to eleven inch spacing on center in up to 36 inch-wide system sand, with at least 24 inches of separation between sidewalls of system sand of adjacent trenches. All other, wider variations are considered bed configurations.
- e. Perforated distribution pipes to distribute effluent over and into GeoMat runs. The designing engineer shall specify pipes and perforations subject to the following requirements. For gravity or lift-dosed flow, these pipes shall be two-inch Schedule 40 PVC pipe with minimum 1/2 -inch perforations, 3- or 4-inch SDR35 (ASTM D 3034) perforated pipe. For low-pressure distribution systems, the designing engineer shall specify pipe and perforation to meet low-pressure distribution criteria (Rule 62-6.014(3), F.A.C.). These pipes are inserted into the hygroscopic geotextile fabric on one side of the GeoMat runs. For GeoMat Edge, the pipe is then attached to the top side of the GeoMat 1200 with preformed metal clamps. Low-pressure distribution systems shall utilize GeoGuard orifice shields over each orifice location.
- f. The distal ends of low-pressure distribution lines shall include sweep elbows or two 45 degree elbows or turn ups. The open (upward) end shall be closed off with either a ball valve or threaded plug or cap and shall be accessible. The distal ends of gravity-fed or lift-dosed systems in beds and mounds shall be connected to establish a continuous circuit. Gravity-fed and lift-dosed subsurface or fill trenches can use either option.
- g. Drainfield inspection ports for systems using system sand shall be installed at the beginning and end of the trench, bed or mound for systems. These ports are used to monitor the effluent ponding in the system sand. The inspection port shall be brought to grade and have a slotted or perforated section at the bottom of the pipe. The slotted or perforated section shall be four to eight inches in length starting at the bottom of the pipe. The bottom of the pipe shall be wrapped with fabric covering the slots or perforations. The bottom of the inspection ports shall be placed at the bottom of the system sand.

C. Construction Permitting

- a. Engineers licensed in the state of Florida shall design, sign and seal site-specific system construction permit applications in accordance with Rule 62-6.026(2), F.A.C. The application shall be submitted to the CHD responsible for each site and shall indicate that Geomatrix approves the site selection and design specifications. The application shall include the completed form DH3144 and a blank form DH3145 (see Attachment IV).
- b. The CHD shall review the application for rule compliance and within 15 days, the CHD will forward the application and completed forms DH3144 and DH3145 to the OSP office for final review of each of the innovative systems, together with any CHD questions that may need additional information or clarification from the applicant. The OSP office will review the application in accordance with Chapter 120, Florida Statutes, and will copy the system agent on communications with the CHD regarding documentation or observations needed to complete review of the application or system installation.

- c. Specified performance level per Rule 62-6.026(2)(a), F.A.C., for septic tank effluent systems will be baseline system standards. For systems where more highly pretreated effluent discharges into a drainfield with GeoMat the level will be baseline treatment standards and at least secondary treatment standards for five-day carbonaceous biochemical oxygen demand (CBOD₅) and total suspended solids (TSS) (annual average of 20 mg/L). This ISP evaluates a larger reduction in drainfield size for variations in soil or fill beyond those in accordance with Rule 62-6.028(4), F.A.C.
- d. Setback and separation distances of the GeoMat installed in soil or fill shall be measured from the edge of the GeoMat. Setback and separation distances of the GeoMat installed in soil or fill with a two-inch system sand veneer or in system sand shall be measured from the edge of the system sand.
- e. GeoMat can be used for gravity, lift-dosing, and low-pressure dosing drainfields. Dosing requirements based on drainfield size of Rule 62-6.014, F.A.C. shall be evaluated based on mineral aggregate size requirements. The design shall show that Geomatrix' limits on dosing volume is met (0.25 gal/LF GeoMat 1200, 0.75 gal/LF GeoMat 3900).
- f. To determine the proposed size of a GeoMat system installed in soil or fill or soil or fill with the two-inch veneer of system sand below the GeoMat, use the following steps:
 - 1. For the proposed configuration and soil or fill texture, calculate the required absorption surface in square feet of mineral aggregate.
 - 2. For effluent pretreated to higher levels, reduce the required absorption surface by up to 77%.
 - 3. To determine the required total linear length of the proposed GeoMat runs, divide the required absorption surface of mineral aggregate by the comparability rating per linear foot of the applicable GeoMat variation in Attachment I, Table I-1 (for soil or fill installations) or Table I-2 (for mound installations).
 - 4. Divide the required total linear length into the proposed number of runs.
- g. To determine the proposed size of a GeoMat systems installed in system sand, use the following steps:
 - 1. The bottom of the system sand shall constitute the absorption surface and shall be level or with a downward slope not exceeding one inch per 10 feet. While six inches of system sand below the lower edge of the GeoMat is required, additional system sand is acceptable, if the bottom of the system sand meets separation requirements.
 - 2. For the proposed configuration and soil or fill texture, calculate the required absorption surface in square feet of mineral aggregate.
 - 3. To determine the required absorption surface of the system sand, divide the required absorption surface of mineral aggregate by the comparability rating of the applicable system sand configuration in Attachment I, Table I-3 (for soil or fill installations) or Table I-4 (for mound installations).
 - 4. To determine the required length of GeoMat material for the drainfield divide the estimated sewage flow by the GeoMat linear foot rating in system sand for the orientation and spacing proposed (Table I-5 for septic tank effluent, Table 1-6 for pretreated effluent). Divide the total length into suitable lengths and spacings of laterals.
 - 5. To determine the system sand area for the proposed system geometry, calculate the length of the bottom area of the system sand by adding one foot on each end (two foot total) to the length of the GeoMat runs. Calculate the width of the bottom area by adding 12 inches to each side of a bed or trench, the width of the GeoMat laterals and the spacing between the GeoMat laterals (if within a single bed or trench). Calculate the system sand bottom area by multiplying the lengths and the widths of the system sand.

6. Pick the larger of steps 2 and 5. If step 2 has resulted in the larger drainfield size, either add additional GeoMat and system sand, or additional system sand around the GeoMat while maintaining the configuration and keeping the GeoMat centered.
- h. For all gravity systems, the maximum length of GeoMat runs shall not exceed 50 feet. For all lift-dosed systems, the maximum length of a GeoMat run shall not exceed 100 feet. Where two or more GeoMat laterals are used, these laterals shall be, as near as practical, the same length (Rule 62-6.014(5)(i), F.A.C.), that is, within ten feet.
- i. If the total required mineral aggregate area is greater than 1000 square feet but not more than 2000 square feet, the design engineer can choose to build a low-pressure dosing drainfield or split the required drainfield area into two drainfields, equal in size, each having no more than 1000 square feet, with each drainfield being alternately lift-dosed.
- j. An example of bed system calculation in system sand is provided with the Example 1 in the Attachment II.
- k. When the elevation of the absorption surface compared to undisturbed native soil on the site results in a mound or filled system, the soil cap will consist of material in accordance with Rule 62-6.009(3)(g), F.A.C., and shall be no less than six inches thick.
- l. Schematic cross sections are shown in Attachment II.
- m. A construction inspection by the Department shall occur after installation of system sand (if used) and GeoMat runs, and before the system is covered with soil or fill. All inspections beyond the first construction inspection shall be considered and charged as a re-inspection. For recording of measurements, see Attachment VI for the Supplemental GeoMat Measurements Table.
- n. Prior to or concurrent with the department's construction inspection, the installer shall provide to the department a bill of lading and grain size distribution results obtained within one year of sand delivery to the installer. These shall document that the supplier provided system sand meeting ASTM C-33 specifications (designated by "ASTM C33" on the bill of lading) or FDOT 902-2 sand, see Attachment VII).
- o. As-built drawings will be completed and submitted by someone under the responsible charge of the system design engineer within thirty days of installation. The as-built documents provided to the department shall at a minimum document variation of the system (configuration, orientation, spacing, dosing); extent of system sand (if present); location of GeoMat runs relative to system sand; elevations relative to a common reference point of absorption surface, estimated wet season high water table, top of the GeoMat run, top of system sand; and location, construction and elevation of top of casing of the drainfield inspection ports and turn ups.
- p. Geomatrix must identify the maintenance entity and the principal investigator for each system with each application.

D. Operation, Maintenance and Monitoring

- a. Geomatrix shall identify to the OSP Office and to the permitting CHD at least one maintenance entity that has been certified by Geomatrix and permitted in Florida before the construction permit of the first system is approved, and provide the OSP Office with a copy of the operation and maintenance manual issued to the maintenance entity per Rule 62-6.027(6)(e)1., F.A.C.
- b. An operating permit in accordance with Rule 62-6.027(6), F.A.C., will be required for the performance-based, innovative treatment system installed under this permit.
- c. Geomatrix shall identify to the OSP the principal investigator and any additional persons performing GeoMat system evaluations in the field.
- d. The principal investigator and GeoMat system evaluators shall:

1. Collect information on ponding depth in the inspection ports and surfacing data for drainfield system evaluation as indicated in the hydrologic monitoring protocol (Attachment III).
 2. Collect ancillary field data during site visits, including information on water use, if the establishment has a water meter, and effluent flow if the system is lift-dosed or pressure-dosed with a flow measurement device, and whether there are any saturated conditions in or near the drainfield, or other indicators of failure.
 3. Report quarterly on the results of monitoring to the OSP Office and the appropriate CHD.
- e. Failures are indicated by: sewage surfacing or backing up into the establishment plumbing system; for domestic sewage applications use of an alternative repair method, such as SoilAir; saturation of the drainfield; excessive ponding; or a drainfield repair. For installations in soil or fill, saturation is indicated by saturation of the soil over the drainfield or by filled distribution lines after dosing. For installations in system sand, failure is indicated by ponding levels of more than six inches in the inspection port above the bottom of the system sand or by filled drainlines after dosing. If more than six inches of ponding is observed in the inspection port, the system shall be re-inspected within maximum two weeks. A system shall be considered failed if another failure condition is observed during the re-inspection, or if at least two observations require a reinspection. Geomatrix may propose that a system failure is due to extenuating circumstances, in which case the OSP Office will assess the system failure and issue a final determination regarding if the system will be repaired and permitted remain in the pool of the monitored systems, or if the number of monitored systems must be changed.
- f. The maintenance entity shall:
1. Perform maintenance and monitoring per Geomatrix's Operation and Maintenance Manual.
 2. Perform any additional monitoring as required due to site-specific permit conditions.
 3. Copy the OSP Office on maintenance and monitoring reports sent to the CHDs.
- g. The CHDs in the respective counties will inspect the systems annually for compliance with the operating permit and will use the inspection form (Attachment III) to record their observations.
- h. If a system fails by not meeting site-specific applicable performance standards, or fails as a drainfield system, the system must, at Geomatrix' expense, either be reengineered, which may require a new or modified innovative system construction permit or be replaced with a system approved by the department.

E. Reclassification or expiration of the ISP:

- a. To apply for reclassification, the monitoring information indicated under Section D. and the required information for reclassification in accordance with Rules 62-6.0295 and 62-6.009(8), F.A.C., shall be gathered and submitted by the principal investigator.
- b. It is anticipated that not all site and construction conditions will be equally represented in the sample of systems. Correspondingly, some variations may have insufficient information, while others may have sufficient information.
- c. After reclassification of the innovative system, the installed innovative systems may remain in place if they function without failure. If the site-specific permit conditions only require GeoMat to function as a drainfield, no further operating permit and maintenance contract will be required.
- d. Upon expiration of the ISP, should Geomatrix fail to request reclassification, any GeoMat systems that are not properly functioning shall be removed and replaced with approved onsite sewage systems at Geomatrix' expense.

If we may be of further assistance or should you have any additional questions regarding this letter, please contact Eberhard Roeder at (850) 245-8402.

Sincerely,

Eberhard Roeder, PhD, PE, CPM
Program Administrator
Onsite Sewage Programs

Enclosures

NOTICE OF RIGHTS

This action is final and effective on the date filed with the Clerk of the Department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the hearing process may result in a modification of the agency action or even denial of the request for a variance or waiver.

Petition for Administrative Hearing

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Unless otherwise provided by statute, and except for agency enforcement and disciplinary actions that shall be initiated under Rule 28-106.2015, F.A.C., pursuant to Rule 28-106.201, F.A.C., a petition for an administrative hearing must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, telephone number, and any e-mail address of the petitioner; the name, address, telephone number, and any e-mail address of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;
- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
- (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. The Agency Clerk's email is agency_clerk@FloridaDEP.gov. Also, a copy of the petition shall be mailed to the applicant at the address indicated above at the time of filing.

Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing must be filed within 21 days of receipt of this written notice. The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Mediation

Mediation is not available in this proceeding.

Judicial Review

Once this decision becomes final, any party to this action has the right to seek judicial review pursuant to Section 120.68, F.S., by filing a Notice of Appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, M.S. 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this action is filed with the Clerk of the Department.

Attachment I
Sizing Parameters for Geomatrix Leaching System GeoMat 1200 and GeoMat 3900

1. Use as Alternative Drainfield Material in Soil or Fill (all orientations) or in Soil or Fill with a Two-inch Veneer of System Sand below the GeoMat (flat only).

Table I-1 Comparability Ratings of Runs compared to Mineral Aggregate Absorption Surface Requirements (square foot mineral aggregate per linear foot of run) as a function of soil texture and geometry in subsurface and fill installations.

Soil Texture Classification	Soil Texture Limitation (Percolation Rate)	Configuration	Trench	Trench	Bed	Bed	Bed
		GeoMat	1200	1200	1200	1200	3900
		Orientation	flat	edge	flat	edge	flat
		Spacing	12" min. spacing between	13" min. spacing on center	4" -<12" spacing between	12" -<13" spacing on center	4" min. spacing between
Sand; coarse sand not associated with a seasonal water table of less than 48 inches; and loamy coarse Sand	Slightly limited (less than 2 min/inch)		1.16	2.08	1.55	2.77	4.56
Loamy sand; sandy loam; coarse sandy loam; and fine sand	Slightly limited (2 - 4 min/inch)		1.16	2.08	1.55	2.77	4.56
Loam; fine sandy loam; silt loam; very fine sand; very fine sandy loam; loamy fine sand; loamy very fine sand; and sandy clay loam	Moderately limited (5 - 10 min/inch)		1.16	2.08	2.15	3.86	6.35
Clay loam; silty clay loam; sandy clay loam; sandy clay; silty clay; and silt	Moderately limited (greater than 15 min/inch, but not exceeding 30 min/inch)		1.16	2.08	2.03	3.64	5.99

Table I-2 Comparability Ratings of Runs compared to Mineral Aggregate Absorption Surface Requirements (square foot mineral aggregate per linear foot of run) as a function of fill and geometry in mound installations.

Fill Material (62-6.009(3)(d))	Configuration	Trench	Trench	Bed	Bed	Bed
	GeoMat	1200	1200	1200	1200	3900
	Orientation	flat	edge	flat	edge	flat
	Spacing	12" min. spacing between	13" min. spacing on center	4" -<12" spacing between	12" -<13" spacing on center	4" min. spacing between
Sand; coarse sand; and loamy coarse sand		1.16	2.08	1.55	2.77	4.56
Fine sand		1.16	2.08	1.55	2.77	4.56
Sandy loam; coarse sandy loam; and loamy sand		1.43	2.56	2.32	4.16	6.84
Fine sandy loam; very fine sand; loamy fine sand; and loamy very fine sand		2.15	3.86	3.02	5.41	8.89

Notes:

1. To determine the total length of GeoMat, divide the required mineral aggregate area by the appropriate comparability rating.
2. In variance from Rule 62-6.028(4) of the Florida Administrative Code, drainfield size reduction by up to 77% is allowed in all of the above soil conditions for PBTS designed to meet secondary treatment standards for CBOD5 and TSS (20 mg/L) before discharge to the GeoMat.

2. Use as Alternative Drainfield Material in System Sand Configurations

Table I-3. Hydraulic Loading Rates and Comparability Ratings for System Sand in Standard Subsurface and Fill Systems

Soil Texture Classification	Soil Texture Limitation (Percolation Rate)	Loading Rate (GPD/ft ²)		Comparability Rating (ft ² required mineral aggregate/ft ² system sand)	
		Trench	Bed	Trench	Bed
Sand; coarse sand not associated with a seasonal water table of less than 48 inches; and loamy coarse sand	Slightly limited (less than 2 min/inch)	1.60	1.25	2.00	2.08
Loamy sand; sandy loam; coarse sandy loam; and fine sand	Slightly limited (2 - 4 min/inch)	1.60	1.25	2.00	2.08
Loam; fine sandy loam; silt loam; very fine sand; very fine sandy loam; loamy fine sand; loamy very fine sand; and sandy clay loam	Moderately limited (5 - 10 min/inch)	0.97	0.52	1.49	1.49
Clay loam; silty clay loam; sandy clay loam; sandy clay; silty clay; and silt	Moderately limited (greater than 15 min/inch, but not exceeding 30 min/inch)	0.52	0.3	1.49	1.49
Clay; organic soils; hardpan; and bedrock	Severely limited (greater than 30 min/inch)	n/a	n/a	n/a	n/a

Table I-4. Hydraulic Loading Rates and Comparability Ratings for System Sand in Mound Systems.

Fill Material (62-6.009(3)(d))	Loading Rate (GPD/ft ²)		Comparability Rating (ft ² required mineral aggregate/ft ² system sand)	
	Trench	Bed	Trench	Bed
Sand; coarse sand; and loamy coarse sand	1.60	1.25	2.00	2.08
Fine sand	1.60	1.25	2.00	2.08
Sandy loam; coarse sandy loam; and loamy sand	1.60	1.25	2.46	3.13
Fine sandy loam; very fine sand; loamy fine sand; and loamy very fine sand	0.97	0.52	2.77	2.08

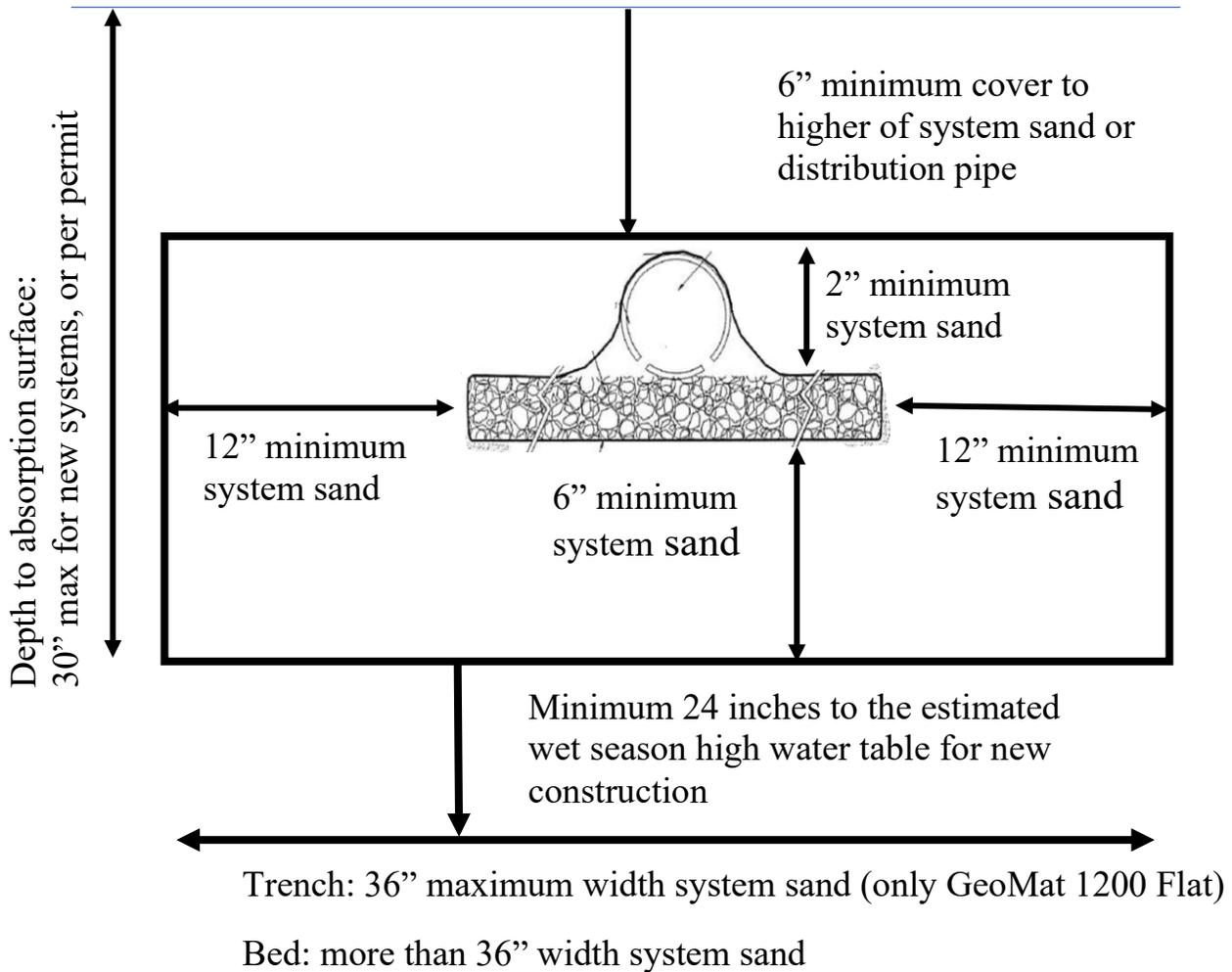
Table I-5 GeoMat Run Linear Loading Rates in System Sand as a Function of Soil Texture Classification and Variation for Septic Tank Effluent (gpd/LF).

Soil Texture Classification	Soil Texture Limitation (Percolation Rate)	GeoMat	1200	1200	1200	3900	3900
		Orientation	flat	flat	edge	flat	flat
		Spacing	edge-to-edge	4" min. spacing between	6" min. spacing on center	edge-to-edge	4" min. spacing between
Sand; coarse sand not associated with a seasonal water table of less than 48 inches; and loamy coarse sand	Slightly limited (less than 2 min/inch)		1.50	1.74	3.12	4.88	5.13
Loamy sand; sandy loam; coarse sandy loam; and fine sand	Slightly limited (2 - 4 min/inch)		1.50	1.74	3.12	4.88	5.13
Loam; fine sandy loam; silt loam; very fine sand; very fine sandy loam; loamy fine sand; loamy very fine sand; and sandy clay loam	Moderately limited (5 - 10 min/inch)		0.75	0.87	1.56	2.44	2.57
Clay loam; silty clay loam; sandy clay loam; sandy clay; silty clay; and silt	Moderately limited (greater than 15 min/inch, but not exceeding 30 min/inch)		0.51	0.59	1.06	1.66	1.74

Table I-6 GeoMat Run Linear Loading Rates in System Sand as a Function of Soil Texture Classification and Variation for Pretreated Effluent (secondary standards for CBOD5 and TSS) (gpd/LF).

Soil Texture Classification	Soil Texture Limitation (Percolation Rate)	GeoMat	1200	3900	1200	3900	1200
		Orientation	flat	flat	Flat	flat	edge
		Spacing	edge-to-edge	edge-to-edge	4" min. spacing between	4" min. spacing between	6" min. spacing on center
Sand; coarse sand not associated with a seasonal water table of less than 48 inches; and loamy coarse sand	Slightly limited (less than 2 min/inch)		3.5	11.375	4.06	11.97	7.28
Loamy sand; sandy loam; coarse sandy loam; and fine sand	Slightly limited (2 - 4 min/inch)		3.5	11.375	4.06	11.97	7.28
Loam; fine sandy loam; silt loam; very fine sand; very fine sandy loam; loamy fine sand; loamy very fine sand; and sandy clay loam	Moderately limited (5 - 10 min/inch)		3.1	10.075	3.596	10.602	6.448
Clay loam; silty clay loam; sandy clay loam; sandy clay; silty clay; and silt	Moderately limited (greater than 15 min/inch, but not exceeding 30 min/inch)		1.5	4.875	1.74	5.13	3.12

Attachment II: Schematic Cross Sections
GeoMat Flat in System Sand



Example 1: Bed in System Sand

Single family residence: 3 bedrooms, septic tank;

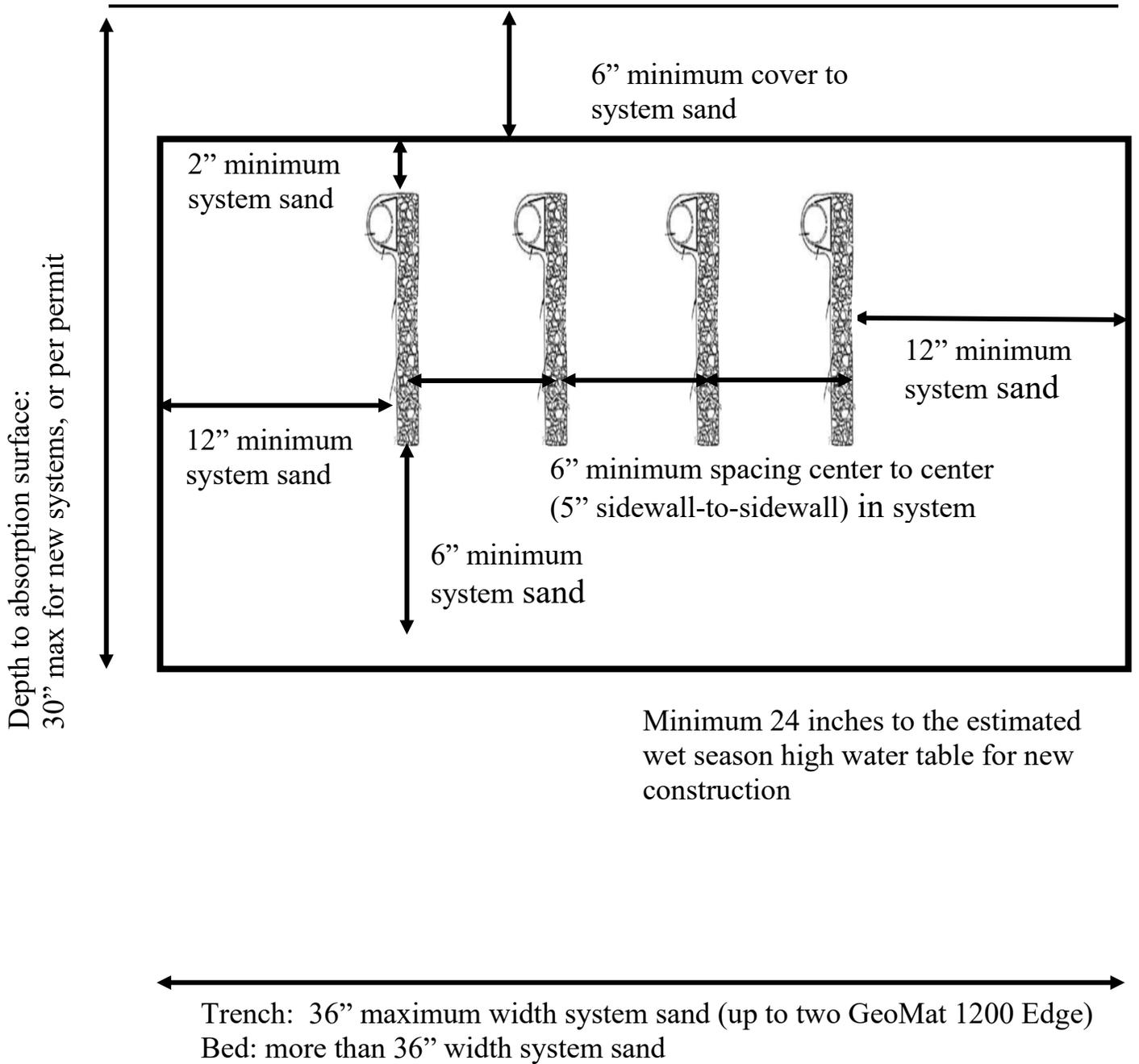
Estimated flow: 300 gpd;

Soil Texture: Sand; subsurface system

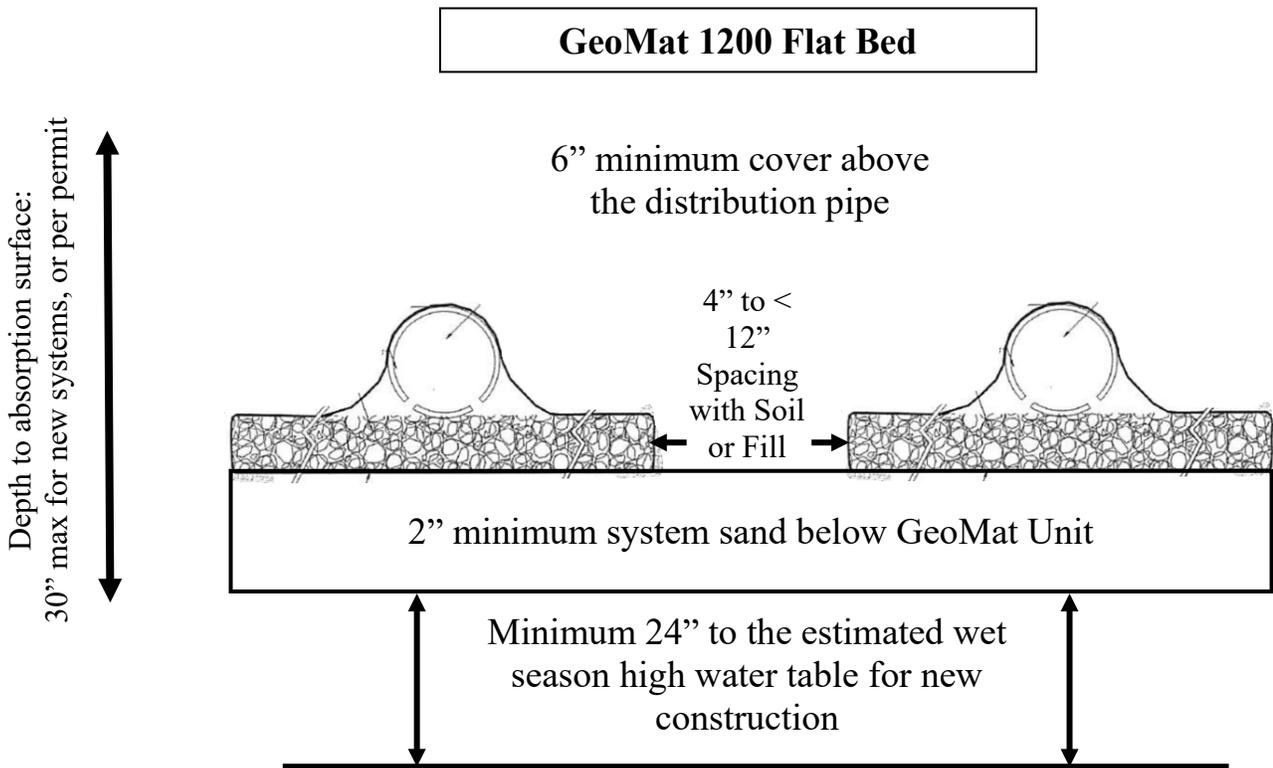
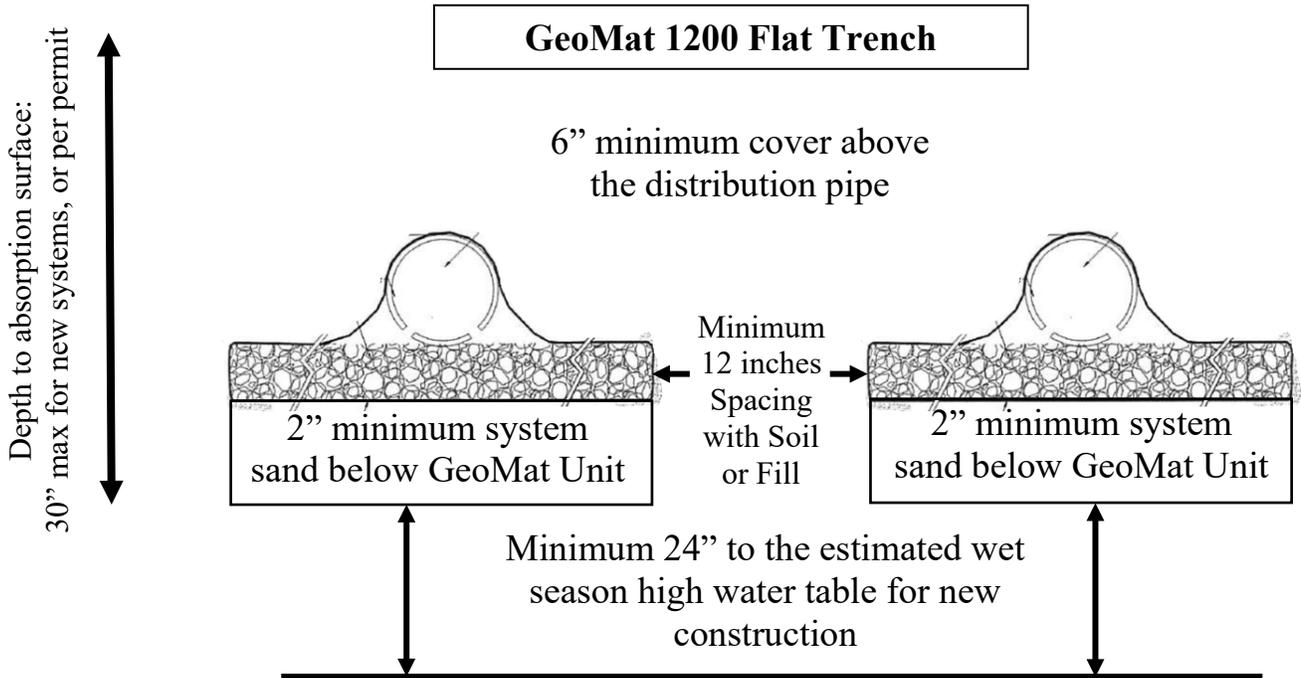
System variation: bed, GeoMat 3900 Flat edge-to-edge, in system sand;

- i) Mineral aggregate area required: $300 \text{ gpd} / 0.6 \text{ gpd/SF} = 500 \text{ SF}$ mineral aggregate
- ii) System sand area required (comparability rating 2.08, Table I-3): $500 \text{ SF} / 2.08 = 241 \text{ SF}$
- iii) Linear Length of GeoMat 3900 Flat spaced edge-to-edge (Table I-5): $300 \text{ gpd} / 4.88 \text{ GPD/LF} = 62 \text{ ft}$, pick two runs of 31 ft (for example)
- iv) System Sand Area provided based on GeoMat: Length 31 ft + $2 * 1 \text{ ft} = 33 \text{ ft}$ Width $2 * 39 \text{ inches} + 2 * 1 \text{ ft} = 8.5 \text{ ft}$
System Sand Area: $33 \text{ ft} * 8.5 \text{ ft} = 280.5 \text{ SF}$
- v) Pick larger number of System Sand Area: 241 SF required vs 280.5 SF provided, ok

GeoMat Edge in System Sand



GeoMat Flat in Soil/Fill with a Two-Inch Veneer of System Sand



**Attachment III
Hydrologic (Drainfield) Monitoring Protocol**

Total Systems: up to 50 Systems

System Description: Systems of GeoMat 1200 and GeoMat 3900 are characterized by:

- Pretreatment: (Septic tank effluent; pretreatment to baseline +secondary for CBOD5 and TSS)
- Surrounding Media: (system sand vs soil or fill)
- Orientation: Flat or Edge (only GeoMat 1200, lift or low pressure dosing required)
- Spacing: edge-to-edge (only GeoMat Flat in system sand), spaced with minimum spacing (4 in GeoMat Flat in system sand or sand or fill, 5 in (6 in on center) GeoMat Edge in system sand, 12 in (13 in on center) GeoMat Edge in soil or fill.
- Supply: gravity, lift-dosed, low pressure dosing

Evaluate with at least fifteen systems.

- GeoMat Edge in soil/fill
- GeoMat in soil/fill with higher treatment in moderately limited soils

Evaluate with at least ten systems each (at least one in each trench and bed configuration; at least one in each slightly and moderately limited soils; at least one each as subsurface or mound system)

- GeoMat in system sand
- GeoMat flat in soil/fill,
- GeoMat flat in soil/fill on two-inch veneer of system sand,

Systems can fall into more than one of these grouping. More than one variation shall be included in each group.

No inspection shall occur if 1" of rainfall occurred in the last 24 hours. Record water usage from structure, and effluent flow as available at this site.

Observation locations:

All systems: distal turn ups and drainfield surface:

System Sand Systems Inspection ports and distal turn ups, and drainfield surface: Pass / Fail

Criteria

The water level is not observed and the drainfield is not saturated: pass.

If effluent is less than 6" in the observation port: pass

If the effluent is above 6" in the observation port:

Re-inspect in one week, but not more than 2 weeks. If water level still exists above 6": fail

Re-inspections shall be conducted on a different day of the week during a different time period (morning, afternoon, evening) if the initial inspection did not pass.

Attachment IV
Innovative Construction Permitting Forms of the Department
(<http://www.floridahealth.gov/healthy-environments/onsite-sewage/forms-publications/index.html>)

DH 3144 (http://www.floridahealth.gov/healthy-environments/onsite-sewage/forms-publications/_documents/dh3144.pdf)

(date)

County Health Department

**Attention: Environmental Health Director or
OSTDS Program Coordinator**

I, _____, owner of the residence or business property located at (give physical location or street address) _____ understand that the proposed Onsite Sewage Treatment and Disposal System to serve my property is permitted as an innovative system by the Department of Health.

I agree to allow agents of the Florida Department of Health, the manufacturer and the local County Health Department to enter my property at reasonable hours for the purpose of monitoring this system.

I agree that I will not hold DOH or the _____ CHD responsible if this innovative system malfunctions.

I agree that I will notify _____ CHD of any problems or malfunctions with this innovative system.

I also understand that if the innovative system fails within the five year testing period, the manufacturer will be responsible for providing a certified installer who will provide contractor equipment, material and labor necessary to modify the system or repair the system with an DOH approved system at no additional cost to me. For the purposes of this evaluation, failure of a system shall be defined as any system that meets one or more of the following criteria: 1) systems that have been increased in size after installation for reasons other than erroneous application information; 2) systems that experience effluent surfacing and sewage backing up into the house plumbing; and 3) systems described by homeowner as having a sluggish performance during wet weather or observed to have soggy, waterlogged soils above the drainfield attributed to sewage effluent. The failure definition shall include persistent electrical or mechanical device malfunctions. It is also my understanding that I will be responsible for landscape restoration.

Sincerely,

Property Owner



**INNOVATIVE ONSITE SEWAGE TREATMENT AND DISPOSAL
SYSTEM REVIEW INFORMATION FORM**

TO BE COMPLETED BY COUNTY HEALTH DEPARTMENT

CONSTRUCTION PERMIT APPLICATION NUMBER: _____

Property Owner: _____
(Last, First, M.I. or Business Name)

Property Address: _____
(Physical Location or Street Location)

Mailing Address: _____
(Street Address or P.O. Box)

Owner's Agent: _____

Mailing Address: _____
(Last, First, M.I. or Business Name)

(Street Address or P.O. Box)

(City) (State) (Zip)

**PROVIDE THE FOLLOWING INFORMATION FROM SITE EVALUATION AND
PROPOSED CONSTRUCTION PERMIT AND ATTACH A COPY OF THE SITE PLAN:**

Septic tank(s): _____ gal. Public water supply: _____ Y / N

Estimated sewage flow: _____ gpd Dosing tank(s): _____ gal.

Aerobic treatment Unit(s): _____ Lot size: _____ sq. ft.

DESCRIPTION OF INNOVATIVE SYSTEM AND COMPONENTS:

FOR STATE HEALTH OFFICE REVIEW ONLY

Date received: _____ Review form complete: _____ Y / N

Additional information requested: _____ Y / N Date: _____

Brief explanation of information requested: _____

Application: Approve Disapprove Reason: _____

Reviewed by: _____

Site Number _____ of _____ approved sites. Date: _____

Attachment V

Supplemental GeoMat Flat with Two-inch System Sand Veneer Measurements Table

Supplemental GeoMat Measurements Table (All Elevations Relative to Benchmark)

Variation: GeoMat Flat 1200/3900

Item	Description	Elevation	Above or Below Benchmark
A	Final grade (if measured)		
B	Top of GeoMat Core		
C	Top of Distribution Pipe		
D	Thickness of System Sand below GeoMat Measure is it at least two inches	-----	
E	Absorption Surface (bottom of system sand)		

A: Final Grade: _____"
(Above/Below Benchmark)

B: Top of System Sand: _____"
(Above/Below Benchmark)

B: Top of GeoMat Core: _____"
(Above/Below Benchmark)

C: Top of Distribution Pipe _____"
(Above/Below Benchmark)

D: Thickness of System Sand _____"

E: Absorption Surface (Bottom of System Sand): _____, _____, _____, _____, _____, _____"
(Above/Below Benchmark)

Absorption Surface (Bottom of System Sand) Level: _____

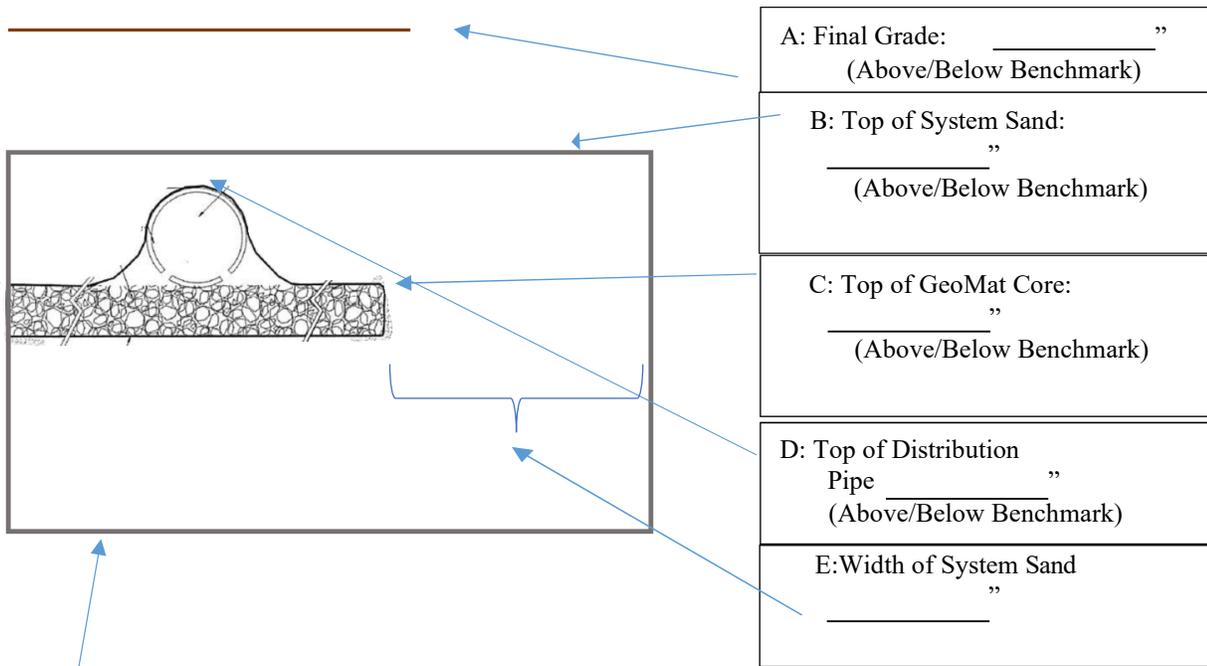
Note: Absorption Surface (Bottom of System Sand) must be validated by a minimum of six measurements, two of which may be made at the inspection ports.

Supplemental GeoMat In System Sand Measurements Table

Supplemental GeoMat Measurements Table (All Elevations Relative to Benchmark)

Variation: GeoMat Flat 1200/3900

Item	Description	Elevation	Above or Below Benchmark
A	Final grade (if measured)		
B	Top of System Sand		
C	Top of GeoMat Core		
D	Top of Distribution Pipe		
E	Width of System Sand on the Side of the GeoMat (12 inch minimum)		
F	Absorption Surface (bottom of system sand)		
G	Length and Width of System Sand (ft)	Length	Width
	Thickness of system sand below GeoMat is at least six inches (C-F-1 inch)	Yes/No	



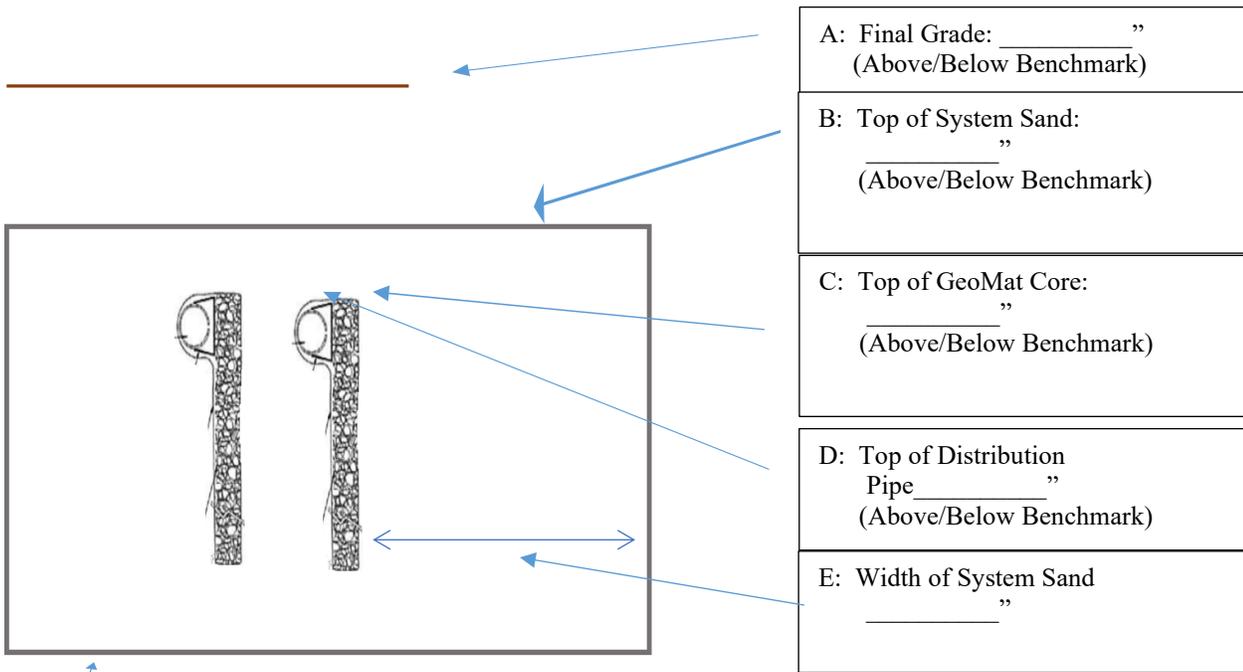
F: Absorption Surface (Bottom of System Sand): _____, _____, _____, _____, _____, _____”
(Above/Below Benchmark)

Absorption Surface (Bottom of System Sand) Level: _____

Note: Absorption Surface (Bottom of System Sand) must be validated by a minimum of six measurements, two of which may be made at the inspection ports.

Variation: GeoMat Edge 1200

Item	Description	Elevation	Above or Below Benchmark
A	Final grade (if measured)		
B	Top of System Sand		
C	Top of GeoMat Core		
D	Top of Distribution Pipe		
E	Width of System Sand on the Side of the GeoMat (12 inch minimum)		
F	Absorption Surface (bottom of system sand)		
G	Length and Width of System Sand (ft)	Length	Width
	Thickness of system sand below GeoMat is at least six inches (C-F-12 inch)	Yes/No	



A: Final Grade: _____”
(Above/Below Benchmark)

B: Top of System Sand: _____”
(Above/Below Benchmark)

C: Top of GeoMat Core: _____”
(Above/Below Benchmark)

D: Top of Distribution Pipe _____”
(Above/Below Benchmark)

E: Width of System Sand _____”

F: Absorption Surface (Bottom of System Sand): _____, _____, _____, _____, _____, _____”
(Above/Below Benchmark)

Absorption Surface (Bottom of System Sand) Level: _____

Note: Absorption Surface (Bottom of System Sand) must be validated by a minimum of six measurements, two of which may be made at the inspection ports.

Attachment VI

System Sand Documentation Requirements

1. ASTM C-33 sand. Needed:
 - a. Bill of lading referring to ASTM C-33 sand and naming supplier
 - b. Sieve analysis within one year of delivery showing compliance with ASTM C-33
2. FDOT 902-2 sand. Needed:
 - a. Bill of lading
 - b. Sieve analysis within one year of delivery showing compliance with FDOT 902-2
 - c. Both documents name the same product
3. If the system sand documentation is not available, a Geomatrix-designated representative must be notified for evaluation of the sand to determine if the material meets the requirements of the ISP. Geomatrix will provide a copy of the notification, evaluation and determination to the OSP office.
4. Requirements for ASTM C-33 sand and FDOT 902-2 sand are below:

ASTM C33 SAND SPECIFICATION		
Sieve Size	Sieve Square Opening Size	Specification Percent Passing (Wet Sieve)
3/8 inch	9.52 mm	100
No. 4	4.76 mm	95 - 100
No. 8	2.38 mm	80 - 100
No. 16	1.19 mm	50 - 85
No. 30	590 µm	25 - 60
No. 50	297 µm	5 - 30
No. 100	149 µm	0 - 10
No. 200	75 µm	0 - 3

FDOT 902-2 SAND SPECIFICATION		
Sieve Size	Sieve Square Opening Size	Specification Percent Passing (Wet Sieve)
3/8 inch	9.52 mm	100
No. 4	4.76 mm	95 - 100
No. 8	2.38 mm	85 - 100
No. 16	1.19 mm	65 - 97
No. 30	590 µm	25 - 70
No. 50	297 µm	5 - 30
No. 100	149 µm	0 - 7
No. 200	75 µm	0 - 4