



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

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

DEVAL L. PATRICK  
Governor

TIMOTHY P. MURRAY  
Lieutenant Governor

RICHARD K. SULLIVAN JR.  
Secretary

KENNETH L. KIMMELL  
Commissioner

August 22, 2013

David Lentz  
Infiltrator Systems Inc.  
6 Business Park Road, P.O. Box 768  
Old Saybrook, CT 06475

Re: Massachusetts Title 5 – Innovative/Alternative Technologies Program  
Revised General Use Certification for Alternative Soil Absorption Systems  
Technologies: **BioDiffuser Chambers** and **Infiltrator Chambers**  
DEP Transmittal Numbers: **X235253** and **X228042**

Dear Mr. Lentz:

The Department of Environmental Protection has received Dick Bachelder's email dated August 5, 2013 with attached letter requesting changes to the above referenced Approvals. After review the Department is pleased to issue the enclosed modified Approvals for both the Certification for General Use for BioDiffuser Chambers and Infiltrator Chambers.

Revisions are as follows:

1. The deed notice requirement in section II condition 3 of the Special Conditions within the General Use Certification has been deleted.
2. Revisions have been made to the *Standard Conditions for Alternative Soil Absorption Systems with General Use Certification and/or Approved for Remedial Use*, dated June 6, 2013 as follows:
  - section II, 18(d)(ii) and section IV (1) have been deleted.
  - section II, 23(d)(ii) has been revised.

Please note that the Deed Notice requirement applies for technologies with Remedial Use Approval only and both **BioDiffuser Chambers** and **Infiltrator Chambers** are under General Use Certifications.

Revised General Use Approvals for Alternative SAS  
Technologies: BioDiffuser Chambers and Infiltrator Chambers

If you have any questions concerning these revisions, please contact Sanh Tran at 617-556-1036 or Dana Hill at 617-292-5867 of my staff. Thank you for your attention to this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "D Ferris". The signature is fluid and cursive, with a large initial "D" and a long, sweeping underline.

David Ferris, Director  
Wastewater Management Program

Enclosures:

1. Revised General Use Approval for BioDiffuser Chambers; Transmittal#: X235253, dated August 22, 2013
2. Revised General Use Approval for Infiltrator Chambers; Transmittal#: X228042, dated August 22, 2013
3. the *Standard Conditions for Alternative Soil Absorption Systems with General Use Certification and/or Approved for Remedial Use*- Revised August 22, 2013



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## **Standard Conditions for Alternative Soil Absorption Systems with General Use Certification and/or Approved for Remedial Use**

Revised: **August 22, 2013**

These Standard Conditions apply to Alternative Soil Absorption System (Alt. SAS) technologies for disposal-only as well as for technologies providing both treatment and disposal. Currently these approved alternative technologies include the following,

### Alt. SAS Disposal-Only,

- **Contactor, Field Drain Contactor, and Recharger Chambers**, by Cultec, Inc.
- **Biodiffuser & ARC Chambers**, by Infiltrator Systems, Inc.
- **Infiltrator Chambers**, by Infiltrator Systems, Inc.
- **Eljen Mantis M5**, by Eljen Corp.

### Alt. SAS Treatment with Disposal - Patented Sand Filters,

- **Eljen GSF Geotextile Sand Filter System**, by Eljen Corp.
- **Enviro-Septic Leaching System**, by Presby Environmental, Inc.
- **GEO-flow Pipe Leaching System**, by ADS, Inc.

An alternative SAS may be appropriate for new construction, increases in flow, or for the upgrade of an existing failing, failed, or nonconforming system where reducing the disturbance of the site is desired.

Alternative Disposal-Only technologies approved by the Department may be substituted for conventional SAS's allowed under Title 5. The alternative Chamber technologies, when compared to conventional Title 5 chambers, provide options from some of the Title 5 requirements such as offering plastic instead of concrete chambers and eliminating the need for stone aggregate around the chamber while allowing higher loading rates and reduced effective leaching area. Other options include Chambers installed with aggregate meeting the requirements of Title 5, however Alternative Chambers used with aggregate are not allowed higher loading rates which must remain the same as required by Title 5 for conventional chambers with aggregate. In addition to alternative Chambers, disposal-only approved Alt. SAS technologies also include the Mantis M5 pipe and sand System design.

Alternative Treatment with Disposal technologies approved by the Department refer to alternative leaching systems that have demonstrated higher removal of organics and suspended matter prior to the percolation of wastewater into underlying unsaturated pervious soils when compared to conventional leaching systems. Higher loading rates are allowed than would be permissible with a conventional design and additional relief from other design standards is permissible for upgrades.

A System approved under these Standard Conditions consists of a septic tank conforming to the requirements of Title 5, either conventional or I/A approved, followed by the Alt. SAS which may provide for a reduced effective leaching area.

The use of an approved Alt. SAS, subject to these Standard Conditions, requires, among other things:

- A Disclosure Notice in the Deed to the property for systems installed under Remedial Use Approval (310 CMR 15.287(10)) (A Deed Notice template is available from the Department);
- Certifications by the Designer and the Installer (310 CMR 15.021(3));
- Notification within 24 hours by the System Owner to the Local Approving Authority (LAA) of any System failure;
- When pumping is required to discharge to the SAS, 24-hour emergency wastewater storage capacity above the elevation of the high level alarm;
- System Owner Acknowledgement of Responsibilities, in accordance with these standard conditions and the Technology Approval's Special Conditions.

This Approval **does not** address the use of the following alternative SAS's, which are covered under separate Title 5 I/A Program Approvals:

- a) Drip Dispersal Systems
- b) Bottomless Sand Filters

## **Definitions and References**

The term "System" refers to the approved technology in combination with the other components of an on-site treatment and disposal system that may be required to serve a facility in accordance with 310 CMR 15.000.

The term "Approval" or "Certification" refers to these Standard Conditions; the Special Conditions contained in the Technology Approval, the General Conditions of 310 CMR 15.287, and any Attachments.

The phrase "new construction" always refers to construction of a new facility or any increase in actual or design flow to any existing system above the approved capacity.

The phrase "upgrade of a system" or the term "upgrade" or the term "remedial site" refers to any repair, modification, or replacement of a whole system or a component of an

existing failing, failed or nonconforming system where there is no increase in the actual or design flow to the system.

The Conditions contained herein **MUST** be read in conjunction with any Special Conditions that are technology-specific.

## **I. Purpose**

1. These Standard Conditions shall apply to all Alt. SAS technologies identified in a General Use Certification or a Remedial Use Approval as either a Disposal-Only technology or a Treatment with Disposal technology as listed above. In addition to the Special Conditions contained in the technology-specific Approvals, the System shall comply with all these "Standard Conditions for Alternative Soil Absorption Systems", except where stated otherwise in the Special Conditions.
2. The sale, design, installation, and use of the System shall be subject to these requirements for all systems that submit a complete Disposal System Construction Permit (DSCP) application after the effective date of these Standard Conditions. Existing systems and systems for which a complete DSCP application was submitted prior to the effective date of these requirements shall not be subject to the design and installation requirements, however, the System Owner, the Service Contractor, and the Company shall be subject to all other requirements contained herein.
3. With the other applicable permits or approvals that may be required by Title 5, the Approval authorizes the installation and use of the System in Massachusetts. All the provisions of Title 5, including the General Conditions for Alternative Systems (310 CMR 15.287), apply to the sale, design, installation, and use of the System, except those provisions that specifically have been varied by this Approval.
4. Provided that the Local Approving Authority (LAA) approves the System in conformance with the Department's Approval for the System, Department review and approval of the site-specific System design and installation is not required unless the Department determines on a case-by-case basis, pursuant to its authority at 310 CMR 15.003(2)(e), that the proposed System requires Department review and approval.

## **II. Design and Installation Requirements**

1. Where any contradiction may exist in design standards between the Company guidance and the requirements of Title 5 or this Approval, the design shall meet the standards of Title 5 and this Approval unless the Company guidance is more stringent.
2. In accordance with 310 CMR 15.240(6), absorption trenches should be used whenever possible. Accordingly, approved Disposal-Only and Treatment with

- Disposal Alt. SAS Systems shall be used in trench configuration whenever possible, unless a different configuration is allowed by the Approval(s) Special Conditions.
3. The Alternative System shall include a properly sized and constructed septic tank, designed in accordance with 310 CMR 15.223–15.229 or approved as an Alternative technology per 15.280-15.288, connected to the building sewer and followed in series by the approved Alternative Soil Absorption System.
  4. The Alternative System shall be installed in a manner which does not intrude on, replace, or adversely affect the operation of any other component of the subsurface sewage disposal system.
  5. The Designer shall be a Massachusetts Registered Professional Engineer or a Massachusetts Registered Sanitarian, including when designing systems for repair, provided that such Sanitarian shall not design a system with a discharge greater than 2,000 gallons per day.
  6. For new construction or increases in flow, the System shall be subject to the following:
    - a) The System may only be installed in soils with a percolation rate of up to 60 minutes per inch (MPI);
    - b) A site evaluation, in compliance with 310 CMR 15.100 through 15.107, must be approved by the Approving Authority and the site must meet the siting requirements for new construction;
    - c) The record drawings, approved by the LAA, must clearly indicate an area for a full-sized conventional primary SAS and a full-sized conventional reserve area that are for the sole purpose of on-site sewage disposal;
    - d) Where the System has reduced the effective leaching area, as allowed by the Standard Conditions, the installation shall not disturb the site in any manner that would preclude the future installation of the conventional full-sized primary SAS without encroaching on the reserve area; and
    - e) Except for the installed SAS, the System Owner shall not construct any permanent buildings or structures or disturb the site in any manner that would encroach on the area approved for a full-sized conventional primary SAS or the area approved for a full-sized conventional reserve SAS.
  7. For the upgrade of a system, the installation of the proposed System shall be subject to the following:
    - a) The System may only be installed in soils with a percolation rate of up to 90 minutes per inch (MPI);
    - b) The LAA must determine there is no increase in the actual or proposed design flow, and also that a conventional system with a reserve area, designed in accordance with the standards for new construction cannot feasibly be built on-site;

- c) The proposed System must include the approval by the LAA for the upgrade or replacement of all other existing components, as necessary, to comply with the standards of Maximum Feasible Compliance (MFC) of 310 CMR 15.404.
  - d) The record drawings, approved by the LAA, must clearly indicate an area for the best feasible replacement system that could be installed in the event that the proposed Alternative Soil Absorption System fails or it is determined that it is not capable of providing equivalent environmental protection;
  - e) When evaluating the best feasible replacement system that could installed in the event that the proposed Alternative Soil Absorption System fails or it is determined that it is not capable of providing equivalent environmental protection, the Designer shall consider these options in the following order:
    - i. a conventional system designed in accordance with the standards of 310 CMR 15.100 through 15.255 that can be built feasibly, with the exception of providing a reserve area (15.248);
    - ii. a conventional system that can only be built feasibly under a Local Upgrade Approval (LUA);
    - iii. where a conventional system cannot be built feasibly under a LUA, a Bottomless Sand Filter, in conjunction with a Secondary Treatment Unit;
    - iv. where a System can only be built feasibly with variances, a System that has been demonstrated to vary the design requirements of 310 CMR 15.000 to the least degree necessary and have the least effect on public health, safety, welfare and the environment (the System may be an Alternative System with variances); or
    - v. a tight tank;
  - f) The installation of the proposed System shall not disturb the site in any manner that would preclude the future installation of the best feasible replacement system that could be installed to replace the proposed System. Components of the proposed System may be sited in an area for the future installation of the best feasible replacement system, provided that it does not render the area unusable for a potential future replacement system; and
  - g) Except for the installed SAS, the System Owner shall not construct any permanent buildings or structures in the area for the best feasible replacement system that could be installed to replace the proposed System and the System Owner shall not disturb the site in any other manner that would preclude the future installation of the best feasible replacement system.
8. Alternative Design Standard to 310 CMR 15.242(1)(a) Effluent Loading Rates  
For new construction or increases in flow, the required effective leaching area may be reduced up to 40 percent when using the loading rates for gravity systems of 310 CMR 15.242(1)(a), provided that:
- a) no variance is granted for a reduction in depth to groundwater;

- b) no variance is granted for a reduced depth of pervious material; and
- c) a minimum of 400 square feet of effective leaching area shall be installed if any proposed reduction in the leaching area would result in less than 400 square feet of effective leaching area; (Facilities with small flows that would not require 400 sq.ft. of effective leaching area, when designed in accordance with Title 5, may be built with less than 400 sq. ft. provided that no reduction in effective leaching area is taken).

9. Alternative Design Standard to 310 CMR 15.242(1)(a) and 15.245(4),  
Effluent Loading Rates

For the upgrade of a system: the System shall be subject to the following:

- a) For soils with a percolation rate of 60 minutes or less per inch, the size of the SAS may be sized with 40 percent less effective leaching area than required when using the loading rates for gravity systems of 310 CMR 15.242(1)(a);
- b) For soils with a percolation rate of between 60 and 90 minutes per inch, the size of the SAS may be sized with 40 percent less effective leaching area than required when using the loading rate of 0.15 gpd/square foot as specified by 310 CMR 15.245(4);
- c) Unless allowed under the Special Conditions for the Technology, no additional reduction in the effective leaching area is allowed under an LUA or a variance that would result in a reduction greater than 40% of that which would be required under 310 CMR 15.242(1)(a) and 15.245(4), respectively. Any other deviations to design standards, except the effective leaching area, may be granted under LUA or a variance; and
- d) A minimum of 400 square feet of effective leaching area shall be provided if any proposed reduction in the leaching area would result in less than 400 square feet of effective leaching area. Where 400 square feet of effective leaching is not feasible, the greatest effective leaching area shall be installed provided that no more than a 40 percent reduction is taken.

10. Specific Conditions for Treatment with Disposal Alt. SAS Technologies

- a) The use of aggregate as specified in 310 CMR 15.247 is not allowed with Patented Sand Filters.
- b) Unless determined necessary by the Designer or Company, the System shall not be used with pressure distribution for any design flow. When installed for a facility with a design flow of 2,000 gpd or greater, approved Patented Sand Filter Systems are exempt from the requirement for pressure distribution under 310 CMR 15.231.
- c) Patented Sand Filters shall not be installed in a Nitrogen Sensitive Area (NSA) to serve facilities with actual or design flows of 2,000 GPD or greater since those facilities require installation of a Recirculating Sand Filter (RSF) or equivalent



technology. Patented Sand Filters may be installed as a disposal-only alternative technology when used in addition to an approved Secondary Treatment Unit (reduction of BOD/TSS). When a Patented Sand Filter is used in this type of septic system design, only the reductions permitted in the Secondary Treatment Unit's (STU) alternative technology approval, such as a reduction in SAS size, depth of naturally occurring pervious material or depth to groundwater, are allowed.

11. Specific Conditions for Disposal-Only Alt. SAS Technologies

- a) In a NSA, as defined in 310 CMR 15.215, Alternative Systems serving facilities with actual or design flows of 2,000 GPD or greater must include treatment with a RSF or equivalent technology, as required by 310 CMR 15.202(1). Under this Approval, Disposal-Only Alt. SAS technologies shall not be installed in an NSA to serve facilities with actual or design flows of 2,000 GPD or greater unless installed in conjunction with a RSF or equivalent technology.
- b) For new construction or upgrades, a reduction in the effective leaching area may be taken in accordance with the conditions and limitations imposed by the approval of the Secondary Treatment Unit employed. (approved Alternative Chambers may be installed with or without aggregate for the disposal of effluent from an approved Secondary Treatment Unit, see paragraph 11(e) below.) For upgrades only, a reduction in the depth to groundwater and/or a reduction in the pervious material may be taken in accordance with the conditions and limitations imposed by the Remedial Use Approval of the Secondary Treatment Unit employed. In no case, shall the reductions allowed under the Secondary Treatment Unit approval be made less stringent. In no case, shall the reductions allowed under the Secondary Treatment Unit approval be combined with any reduction provided by this Approval or combined with any reduction that may be allowed under the procedures of Local Upgrade Approval or the variance procedures of 310 CMR 15.401-415.
- c) For the upgrade of a system, installations without secondary treatment are entitled to reductions in depth to groundwater or depth of naturally occurring pervious material only to the limits that may be allowed by the LAA under the procedures of Local Upgrade Approval or the variance procedures of 310 CMR 15.401-415.
- d) The use of aggregate as specified in Title 5, 310 CMR 15.247 is not required.

Chambers Specific Standard Conditions,

- e) The installation of approved Alternative Chambers with aggregate is allowed provided that it complies with the aggregate requirements of 310 CMR 15.247. However, when approved Alternative Chambers are installed with aggregate the reduction in effective leaching area provided by Standard Conditions II (8) and (9) is not allowed. Only when upgrading a system, approved Alternative Chambers installed with aggregate may be allowed a reduction in effective

- leaching area (up to 25%) under the limitations and procedures of a Local Upgrade Approval (310 CMR 15.401-405).
- f) Effluent pressure distribution shall be provided for actual or design flows of 2,000 gpd or greater and shall be designed in accordance with Department guidance. The effluent loading rates provided in 310 CMR 15.242(1)(b) for pressure distribution may be utilized, but no reduction in the effective leaching area as may be provided under this Approval may be taken when using the loading rates for pressure distribution, as stated in the regulation.
12. All System control units, valve boxes, distribution piping, conveyance lines and other System appurtenances shall be designed and installed to prevent freezing.
  13. When pumping is required to discharge to the SAS, the System shall be equipped with sensors and high-level alarms to protect against high water due to pump failure, pump control failure, loss of power, system freeze ups, backups, etc. Emergency storage shall be provided when pumping to discharge is employed, including but not limited to, pressure distribution. Emergency storage capacity for wastewater above the high level alarm shall be provided equal to the daily design flow of the System including an additional allowance for the volume of all drainage which may flow back into the System when pumping has ceased.
  14. For systems requiring pumping, the System control panel including alarms and controls shall be mounted in a location always accessible to the operator (Service Contractor). System malfunction and high water alarms shall be readily visible and audible for the facility occupants and the Service Contractor and shall be connected to circuits separate from the circuits serving the operating equipment and pumps.
  15. The System shall not include any relief valve or outlet for the discharge of wastewater to prevent flooding of the system, back up or break out.
  16. Any System structures with exterior piping connections located within 12 inches of or lower than the Estimated Seasonal High Groundwater elevation shall have the connections made watertight with neoprene seals or equivalent.
  17. In compliance with 310 CMR 15.240(13), a minimum of one (1) inspection port shall be provided within the SAS consisting of a perforated four inch pipe placed vertically down to the elevation of the SAS interface with the underlying unsaturated pervious soils to enable monitoring for ponding. The pipe shall be capped with a screw type cap and accessible to within three inches of finish grade. (A locking cap at-grade is preferred) Facilities with multiple SAS's shall have an inspection port in each.
  18. Upon submission of an application for a Disposal System Construction Permit (DSCP), the Designer shall provide to the Local Approving Authority:

- a) proof that the Designer has satisfactorily completed any required training by the Company for the design and installation of the Technology;
  - b) certification of the design by the Company for any residential system with a design of 2,000 gpd or more or for any proposed non-residential system or if required by the Special Conditions for an approved Technology;
  - c) certification by the Designer that the design conforms to the Approval, any Company Design Guidance, and 310 CMR 15.000; and
  - d) a certification, signed by the Owner of record for the property to be served by the Technology, stating that the property Owner:
    - i. has been provided a copy of the Title 5 I/A technology Approval, the Owner's Manual, and the Operation and Maintenance Manual, and the Owner agrees to comply with all terms and conditions;
    - ii. for Systems installed under a Remedial Use Approval, the owner agrees to fulfill his responsibilities to provide written notification of the Approval to any new Owner, as required by 310 CMR 15.287(5);
    - iii. if the design does not provide for the use of garbage grinders, the restriction is understood and accepted; and
    - iv. whether or not covered by a warranty, the System Owner understands the requirement to repair, replace, modify or take any other action as required by the Department or the LAA, if the Department or the LAA determines the System to be failing to protect public health and safety and the environment, as defined in 310 CMR 15.303.
19. The System Owner and the Designer shall not submit to the LAA a DSCP application for the use of a Technology under this Approval if the Approval has been revised, reissued, suspended, or revoked by the Department prior to the date of application. The Approval continues in effect until the Department revises, reissues, suspends, or revokes the Approval.
20. The System Owner shall not authorize or allow the installation of the System other than by a locally approved Installer and, if required by the Company, a person certified or trained by the Company to install the System.
21. Prior to the commencement of construction, the System Installer must certify in writing to the Designer, the LAA, and the System Owner that (s)he is a locally approved System Installer and, if required by the Company, is certified by or has received appropriate training by the Company.
22. The Installer shall maintain on-site, at all times during construction, a copy of the approved plans, the Owner's manual, the O&M manual, and a copy of the Approval.
23. Prior to the issuance of a Certificate of Compliance the following shall be provided:

- a) the System Installer and Designer must provide certification in writing to the LAA that the System has been constructed in compliance with the terms of the Approval; and
- b) For System upgrades installed under a Remedial Use Approval the System Owner shall provide a copy of record and/or register the Deed Notice required by 310 CMR 15.287(10), to the LAA. The Deed Notice shall be completed as follows:
  - i. a certified Registry copy of the Deed Notice bearing the book and page/or document number; and
  - ii. if the property is unregistered land, a copy of the System Owner's deed to the property as recorded at the Registry, bearing a marginal reference on the System Owner's deed to the property.

The Notice to be recorded shall be in the form of the Notice provided by the Department.

24. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sanitary sewer system.
  - a) If it is feasible to connect a new or existing facility to the sewer, the Designer shall not propose an Alternative System to serve the facility and the facility Owner shall not install or use an Alternative System; and
  - b) When a sanitary sewer connection becomes feasible after an Alternative System has been installed, the System Owner shall connect the facility served by the System to the sewer within 60 days of such feasibility and the System shall be abandoned in compliance with current Code requirements, unless a later time is allowed in writing by the Department or the LAA.

### III. Operation and Maintenance

1. For Systems with design flows of 2,000 gpd or greater where the effective leaching area installed is less than 75% of that required by Title 5 (310 CMR 15.240(4)), measurement of the depth of ponding within the SAS above the interface with the underlying unsaturated pervious soils shall be performed once per year by means of the inspection port(s) and any other available access to the distribution system. Inspector must be an Approved System Inspector.
2. Whenever an Alt. SAS system's inspection port ponding depth is measured and indicates the ponding level within the SAS is above the invert of the distribution system, an additional measurement shall be made 30 days later. If the subsequent reading indicates the elevation of ponding within the SAS is above the invert of the

distribution system, the System Owner shall be responsible for the submittal to the LAA within 60 days of the follow-up inspection, a written evaluation of the System with recommendations for changes in the design, operation, and/or maintenance. The written evaluation with recommendations shall be prepared by a Designer and the submission shall include all monitoring data and inspection reports for the previous 3 years.

Recommendations shall be implemented, as approved by the LAA, in accordance with an approved schedule, provided that all corrective measures are implemented consistent with the limitations described in Paragraph IV.5.

3. For Systems less than 2,000 gpd or facilities where the effective leaching area installed meets the requirements of Title 5, the System shall not be required to be inspected at any greater frequency than would be required if the facility was served by a conventional system, unless the LAA, Company, or Designer requires more frequent inspection.
4. If at any time a septic system with an Alt. SAS is inspected by a System Inspector, the following shall be recorded, at a minimum:
  - a) date, time, air temperature, and weather conditions;
  - b) observations for objectionable odors;
  - c) observations for signs of breakout of sanitary sewage in the vicinity of the Alternative System;
  - d) depth of ponding within the SAS;
  - e) identification of any apparent violations of the Approval;
  - f) since the last inspection, whether the system had been pumped with date(s) and volume(s) pumped;
  - g) sludge depth and scum layer thickness, if measured;
  - h) when responding to alarm events, the cause of the alarm and any steps taken to address the alarm and to prevent or reduce the likelihood of future similar alarm events;
  - i) field testing results when performed as part of the site visit;
  - j) samples taken for laboratory analysis and results of previous samples, if any
  - k) any cleaning and lubrication performed;
  - l) any adjustments of control settings, as recommended or deemed necessary;
  - m) any testing of pumps, switches, alarms, as recommended or deemed necessary;
  - n) identification of any equipment failure or components not functioning as designed;
  - o) parts replacements and reason for replacement, whether routine or for repair; and
  - p) further corrective actions recommended, if any.

4. If the Company requires trained or certified Designers, Installers, or Service Contractors, the Company or its authorized agent shall make available programs of training and continuing education, as necessary. The Company or its authorized agent shall maintain, annually update, and make available by February 15<sup>th</sup> of each year, lists of trained or certified Designers, Installers, and Service Contractors. If training or certification is required, the Company shall not sell the Technology to an Installer unless the Installer is trained or certified to install the System by the Company. Similarly, if training is required, the Company shall ensure distributors and resellers of the Technology shall not sell the Technology to an Installer unless the Installer is trained or certified to install the System by the Company.
5. As part of any training programs for Designers, Installers, or Service Contractors, the Company or its authorized agent shall provide each trainee with a copy of this Approval with the design, installation, O&M, and owner's manuals that were submitted as part of the Approval.
6. The Company shall provide, in printed or electronic format, the System design, installation, O&M, and Owner's manuals, and any updates associated with this System Approval, to the System Owners, Designers, Installers, Service Contractors, vendors, resellers, and distributors of the System. Prior to publication or distribution in Massachusetts, the Company shall submit to the Department for review a copy of any proposed changes to the manual(s) with reasons for each change, at least 30 days prior to issuance. The Company shall request Department approval for any substantive changes which may require a modification of the Approval.
7. Prior to its sale of any System that may be used in Massachusetts, the Company shall provide the purchaser with a copy of this Approval with the System design, installation, O&M, and Owner's manuals. In any contract for distribution or sale of the System, the Company shall require the distributor or seller to provide the purchaser of a System for use in Massachusetts with copies of these documents, prior to any sale of the System.
8. To determine whether cause exists for modifying, revoking, or suspending the Approval or to determine whether the conditions of the Approval have been met, the Company shall furnish the Department any information that the Department requests regarding the Technology within 21 days of the date of receipt of that request.
9. Within 60 days of issuance by the Department of these Conditions and any other revisions to the Approval, the Company shall provide written notification of changes to the Approval to all distributors and resellers of the System.
10. The Company shall provide written notification to the Department's Director of the Wastewater Management Program at least 30 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. Said notification shall include the name and address of the proposed owner containing a

specific date of transfer of ownership, responsibility, coverage and liability between them. All provisions of this Approval applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.

11. The Company shall maintain copies of:
  - a) the Approval;
  - b) the installation manual specifically detailing procedures for installation of its System;
  - c) an owner's manual and, if alarms are required, including alarm response procedures;
  - d) a copy of the Company's warranty; and
  - e) if training or certification is required, lists of qualified Designers and Installers.
  
12. By April 15th of each year, the Company shall submit a report to the Department, signed by a corporate officer, general partner or Company owner that identifies the specific alternative technology approval for which the annual report is being filed and contains, for the previous calendar year, the following information with the date and address of each event:
  - a) all known violations of the Approval, including Systems not designed, installed, or serviced by qualified contractors;
  - b) any System failures or malfunctions; and
  - c) corrective actions taken, including but not limited to: design changes; installation changes; operation/maintenance changes; monitoring changes; and/or changes in roles and responsibilities for the manufacturer, vendors, designers, installers, operators, and owners.

In the absence of any system failures, system malfunctions, or violations, the Company shall submit a letter certifying, to the best of their knowledge, all installed Systems are in compliance.
  
13. The Company shall maintain the following additional information for 'Treatment with Disposal' Systems installed in Massachusetts, and make it available to the Department within 30 days of a request by the Department:
  - a) the address of each facility where the System was installed, the Owner's name and mailing address (if different), the type of use (e.g. residential, commercial, institutional, etc.), the design flow, the model installed; and
  - b) the installation date, start-up date, current operational status.

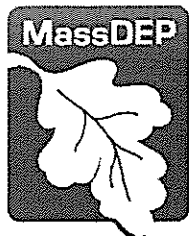
14. The Approval shall be binding on the Company and its officers, employees, agents, contractors, successors, and assigns, including but not limited to dealers, distributors, and resellers. Violation of the terms and conditions of the Approval by any of the foregoing persons or entities, respectively, shall constitute violation of the Approval by the Company unless the Department determines otherwise.

## **VI. General Requirements**

1. Any System for which a complete Disposal System Construction Permit (“DSCP”) Application is submitted while the Approval is in effect, may be permitted, installed, and used in accordance with the Approval, unless and until:
  - a) the Department issues modifications or amendments to the Approval which specifically affect the installation or use of a System installed under the Approval for the System; or
  - b) the Department, the local approval authority, or a court requires the System to be modified or removed or requires discharges to the System to cease.
2. All notices and documents required to be submitted to the Department by the Approval shall be submitted to:

Director  
Wastewater Management Program  
Department of Environmental Protection  
One Winter Street - 5th floor  
Boston, Massachusetts 02108
3. The Department may suspend, modify or revoke the Approval for cause, including, but not limited to, non-compliance with the terms of the Approval, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to the Approval and/or the System against the Company, a System Owner, a Designer, an Installer, and/or Service Contractor.





Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

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

DEVAL L. PATRICK  
Governor

TIMOTHY P. MURRAY  
Lieutenant Governor

RICHARD K. SULLIVAN JR.  
Secretary

KENNETH L. KIMMELL  
Commissioner

### APPROVAL FOR GENERAL USE

Pursuant to Title 5, 310 CMR 15.000

#### Name and Address of Applicant:

Infiltrator Systems, Inc.  
P.O. Box 768  
6 Business Park Road  
Old Saybrook, CT 06475

Trade name of technology and model: High Capacity chamber, Quick4 High Capacity chamber, Quick4 Plus High Capacity chamber (8-inch invert), Quick4 Plus High Capacity chamber (13-inch invert), Standard chamber, Quick4 Standard chamber, Quick4 Plus Standard chamber (5.3-inch invert), Quick4 Plus Standard chamber (8.0-inch invert), Quick4 Plus Standard LP (Low Profile) chamber (3.3-inch invert), Quick4 Plus Standard LP (Low Profile) chamber (8-inch invert), Infiltrator 3050 (Storm Tech SC-740) chamber, Equalizer 24 chamber, Quick4 Equalizer 24 chamber, Equalizer 36 chamber, Quick4 Equalizer 36 chamber, Quick4 Equalizer 24 LP (Low Profile) chamber (6 inch invert), and Quick4 Equalizer 24 LP (Low Profile) chamber (2 inch invert) (hereinafter the "System"). Schematic drawings of the System and a design and installation manual are a part of this Certification.

Transmittal Number: **X228042**  
Date of Issuance: June 6, 2013  
Date of Revision: **August 22, 2013**

#### Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Certification to: Infiltrator Systems, Inc., P.O. Box 768, 6 Business Park Road, Old Saybrook, CT 06475 (hereinafter "the Company"), for General Use of the System described herein. The sale, design, installation, and use of the System are conditioned on compliance by the Company, the Designer, the Installer and the System Owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

David Ferris, Director  
Wastewater Management Program  
Bureau of Resource Protection

August 22, 2013  
Date

**I. Design Standards**

1. The models listed in Table 1 are covered under this Certification.

**Table 1. Chamber Dimensions**

<b>Model</b>	<b>Dimensions W x L x H Inches</b>	<b>Invert Height Inches</b>
Equalizer 24	15 x 100 x 11	6
Quick4 Equalizer 24	16 x 48 x 11	6
Quick4 Equalizer 24 LP (6-inch invert)	16 x 48 x 8	6 <sup>1</sup>
Quick4 Equalizer 24 LP (2-inch invert)	16 x 48 x 8	2
Equalizer 36	22 x 100 x 13.5	6
Quick4 Equalizer 36	22 x 48 x 12	6
Standard Chamber	34 x 75 x 12	6.5
Quick4 Standard	34 x 48 x 12	8
Quick4 Plus Standard (5.3-inch invert)	34 x 48 x 12	5.3
Quick4 Plus Standard (8-inch invert)	34 x 48 x 12	8
Quick4 Plus Standard LP (3.3-inch invert)	34 x 48 x 8	3.3
Quick4 Plus Standard LP (8-inch invert)	34 x 48 x 8	8 <sup>2</sup>
Infiltrator 3050 or StormTech SC-740	51 x 85.4 x 30	22.25 <sup>3</sup>
High Capacity Chamber	34 x 75 x 16	11
Quick4 High Capacity	34 x 48 x 16	11.5
Quick4 Plus High Capacity (8-inch invert)	34 x 48 x 14	8
Quick4 Plus High Capacity (13-inch invert)	34 x 48 x 14	13 <sup>4</sup>

<sup>1</sup> Includes Infiltrator Multiport™ invert adapter attached to the side of the end cap.

<sup>2</sup> Includes Quick4 Plus Periscope adapter attached to the top of the Quick4 Plus All-in-One 8 Endcap.

<sup>3</sup> Only systems installed with this invert height shall be allowed to use the effective leaching area associated with this model in Table 2

<sup>4</sup> Includes Quick4 Plus Periscope adapter attached to the top of the Quick4 Plus All-in-One 12 Endcap.

2. The System is an open-bottom leaching unit molded from polyolefin resin. It can be installed without aggregate or distribution pipe as an absorption trench in accordance with the requirements in 310 CMR 15.251 or as a bed or field in accordance with the requirements in 310 CMR 15.252.
3. The total effective leaching area for any Chamber Model shall be calculated by multiplying the Effective Leaching Area per square foot of chamber times the total length of chamber from end cap to end cap including end caps.
4. For new construction, the applicant can size the System in a trench configuration without aggregate, using the effective leaching areas presented in Table 2.

**Table 2. Effective Leaching Area in Trench Configuration for New Construction and Remedial Sites<sup>5</sup>**

Model	Effective Leaching <sup>6</sup> Area SF/LF	Effective Leaching <sup>7</sup> Area SF/LF
Equalizer 24	3.76	NA
Quick4 Equalizer 24	3.90	NA
Quick4 Equalizer 24 LP (6-inch invert)	3.90	NA
Quick4 Equalizer 24 LP (2-inch invert)	2.78	NA
Equalizer 36	4.73	NA
Quick4 Equalizer 36	4.73	NA
Standard Chamber	6.53	NA
Quick4 Standard	6.96	NA
Quick4 Plus Standard (5.3-inch invert)	6.20	NA
Quick4 Plus Standard (8-inch invert)	6.96	NA
Quick4 Plus Standard LP (3.3-inch invert)	5.65	NA
Quick4 Plus Standard LP (8-inch invert)	6.96	NA
Infiltrator 3050 or StormTech SC-740	NA	6.71 <sup>8</sup>
High Capacity Chamber	7.79	NA
Quick4 High Capacity	7.93	NA
Quick4 Plus High Capacity (8-inch invert)	6.96	NA
Quick4 Plus High Capacity (13-inch invert)	7.93	

<sup>5</sup>. Effective April 21, 2006, 310 CMR 15.251(1)(b) maximum trench width is 3 feet.

<sup>6</sup>. Effective leaching area is equal to 1.67 (bottom width + (2x invert height)) for Systems 3 feet or less in width.

<sup>7</sup>. Effective leaching area is equal to 1.0 (3 + (2x invert Height)) for Systems with a width greater than 3 feet.

<sup>8</sup>. The maximum trench width allowed to calculate effective leaching area is 3 feet.

5. Systems installed on remedial sites shall be allowed to utilize the effective leaching areas presented in Table 2 above or additional reductions in soil absorption leaching area approved by the approving authority in accordance with 310 CMR 15.284. In no instance shall the reduction in the soil absorption system required in 310 CMR 15.242 exceed the maximum reduction allowed for alternative systems approved in accordance with 310 CMR 15.284.
6. For new construction, the applicant can size the System in bed or field configuration without aggregate, using the effective leaching areas presented in Table 3.
7. In accordance with 310 CMR 15.240 (6) absorption trenches should be used whenever possible. When the System is installed for new construction without

aggregate in a bed or field configuration, as defined in 310 CMR 15.252, the System shall be designed using the effective leaching area for the bottom width presented in Table 3.

**Table 3. Effective Leaching Area for Bed or Field Configuration New Construction and Remedial Sites**

Model	Effective Leaching <sup>9</sup> Area SF/LF
Equalizer 24	2.09
Quick4 Equalizer 24	2.23
Quick4 Equalizer 24 LP (6-inch invert)	2.23
Quick4 Equalizer 24 LP (2-inch invert)	2.23
Equalizer 36	3.06
Quick4 Equalizer 36	3.06
Standard Chamber	4.73
Quick4 Standard	4.73
Quick4 Plus Standard (5.3-inch invert)	4.73
Quick4 Plus Standard (8-inch invert)	4.73
Quick4 Plus Standard LP (3.3-inch invert)	4.73
Quick4 Plus Standard LP (8-inch invert)	4.73
Infiltrator 3050 or StormTech SC-740	7.10
High Capacity Chamber	4.73
Quick4 High Capacity	4.73
Quick4 Plus High Capacity (8-inch invert)	4.73
Quick4 Plus High Capacity (13-inch invert)	4.73

<sup>9</sup>. Effective Leaching area is equal to 1.67 times bottom width only.

- The System, when installed in a bed or field configuration without aggregate on remedial sites, shall utilize the effective leaching areas presented in Table 3 above or additional reductions in soil absorption system area approved by the approving authority in accordance with 310 CMR 15.284. In no instance shall the reduction in the soil absorption system area required in 310 CMR 15.242 exceed the maximum reduction allowed for alternative systems approved in accordance with 310 CMR 15.284.

## II. Special Conditions

1. The System is an approved Alternative Chamber for use as an Alternative Soil Absorption System. In addition to the Special Conditions contained in this Approval, the System shall comply with all the "Standard Conditions for Alternative Soil Absorption Systems" ("Standard Conditions"), except where stated otherwise in these Special Conditions.
2. New Construction This Certification is for the installation of a System to serve new construction or an existing facility with a proposed increase in flow, for which a site evaluation in compliance with 310 CMR 15.000 has been approved by the Approving Authority and the site meets the siting requirements for new construction, as provided in Paragraph 6 (b) in section II Design and Installation Requirements of the Standard Conditions.
3. Remedial Site This **General Use Certification also applies** to the installation of a System for the **upgrade or replacement** of an existing failed or nonconforming system, provided that the facility meets the siting requirements for upgrades, as provided in Paragraph 7 and 9 in section II Design and Installation Requirements of the Standard Conditions
4. When installed without aggregate, the System shall be exempt from the minimum inlet spacing requirements of 310 CMR15.253. (Systems installed with aggregate are not exempt from this requirement.).
5. When installed without aggregate, the System shall have a minimum of one inspection port through the top of one of the chambers. The inspection port shall be capped with a screw type cap and accessible to within three inches of finish grade.  
When installed with aggregate in trench, bed, or field configuration, the System shall have a minimum of one inspection port consisting of a perforated four inch pipe placed vertically down into the stone to the naturally occurring soil or sand fill below the stone. The inspection port shall be capped with a screw type cap and accessible to within three inches of finish grade.  
When installed with aggregate in accordance with the design specifications of 310 CMR 15.253(1)(a)(c) for Pits, Galleries, or Chambers, the System shall comply with the inspection access requirements of 310 CMR 15.253(3).
6. Whether installed with or without aggregate, when installed in trench configuration, the System must be installed in accordance with the trench requirements of 310 CMR 15.251, except 15.251(5)-(9) which pertain to effluent distribution piping requirements and 15.251(1)(b) which limits trench width to 3 feet maximum. The system shall comply with these requirements:
  - a) Length (each trench) 100 feet maximum (310 CMR 15.251(1)(a));

- b) Width (each trench) 2 feet minimum (310 CMR 15.251(1)(b)) - Chambers greater than 3 feet wide, when specifically approved, are subject to other Special Conditions and limitations;
  - c) Effective Depth: shall be equal to the depth of the trench below the invert of the chamber inlet with a minimum of six inches up to a maximum of two feet (310 CMR 15.251(1)(c));
  - d) The minimum separation distance between any two trenches shall be two times the effective width or depth of each trench, whichever is greater, or where the area between trenches is designated as reserve area, three times the effective width or depth of each trench, whichever is greater (310 CMR 15.251(1)(d));
  - e) The effective leaching area shall be calculated using the bottom area and a maximum of two feet (per side) of side wall area for each trench (310 CMR 15.251(1)(e));
  - f) Trenches shall be situated, where possible, with their long dimension perpendicular to the slope of the natural soil. Where possible they shall follow the contour lines (310 CMR 15.251(2));
  - g) Trenches constructed at different elevations shall be designed to prevent effluent from the higher trench(es) flowing into the lower trench(es) (310 CMR 15.251(3));
  - h) The area between trenches may be designated as system reserve area only where the separation distance between the excavation sidewalls of the primary trenches is at least three times the effective width or depth of each trench, whichever is greater (310 CMR 15.251(4)) - Chambers greater than 3 feet wide, when specifically approved, shall be separated by three times the actual width and are subject to other Special Conditions and limitations; and
  - i) Effluent distribution lines exceeding 50 feet in length shall be connected and venting provided in accordance with 310 CMR 15.241 (310 CMR 15.251(11)).
7. When approved Alternative Chambers are installed surrounded by aggregate in trench configuration, the effective leaching area required by Title 5 for a conventional system shall apply to the System and shall not be reduced, as provided in the Standard Conditions. The System shall also meet the following requirements when installed with aggregate in trench configuration:
- a) the maximum effective depth shall be 2 feet, measured from the invert of the chamber inlet to the bottom elevation of the aggregate
  - b) the total maximum effective width, including the width of the chamber plus the aggregate, shall be 3 feet; and
  - c) with the use of aggregate, the minimum inlet spacing requirements (20 feet) of 310 CMR 15.253(6) shall apply.

8. When installed without aggregate in trench configuration, approved Alternative Chambers greater than 3 feet wide:
  - a) shall be installed with a minimum separation distance between any two trenches of two times the actual width of the chamber, or where the area between trenches is designated as reserve area, three times the actual width of the chamber; and
  - b) shall only be entitled to a maximum effective width of 3 feet for the purposes of calculating total effective leaching area.
  
9. Approved Alternative Chambers greater than 3 feet wide shall not be installed with aggregate in trench configuration and shall only be installed with aggregate:
  - a) in a "bed or field configuration" in accordance with the Special Conditions pertaining to all Alternative Chambers and the Special Conditions which reference "bed or field configuration". No credit for sidewall area is allowed in this configuration; or
  - b) in accordance with the design specifications of 310 CMR 15.253 (1) (a)-(c), the Special Conditions which apply to such designs, and the Special Conditions which apply to all Alternative Chambers.
  
10. Whether installed with or without aggregate, when installed in a bed or field configuration, the System may be installed without distribution piping, but must comply with the following requirements in 310 CMR 15.252:
  - a) the use of leaching beds or fields is restricted to systems with a calculated design flow of less than 5,000 gpd per leaching bed or field (310 CMR 15.252(1));
  - b) the maximum length of chambers in series shall be 100 feet (310 CMR 15.252(2)(b));
  - c) Separation distance between adjacent beds/fields shall be ten feet (310 CMR 15.252(2)(f));
  - d) The effective leaching area shall include only the bottom area, not the sidewalls (310 CMR 15.252(2)(i)).
  
11. When approved Alternative Chambers are installed with aggregate in a bed or field configuration the effective leaching area required by Title 5 for a conventional system shall apply to the System and shall not be reduced, as provided under the Standard Conditions. The System shall also meet the following requirements:
  - a) the aggregate base under the chambers shall have a minimum depth of 6 inches and maximum depth of 12 inches.
  - b) the area between chambers shall be filled with aggregate meeting the requirements of 310 CMR 15.247 up to the crown of the chambers with a minimum of 1 foot of aggregate to the outer edge of the bed;

- c) to prevent the intrusion of fines the System shall comply with 310 CMR 15.247(2);
  - d) the maximum distance between chambers shall be 4 feet; and
  - e) the horizontal distance from a chamber to the outer edge of the bed shall be 4 feet maximum.
12. The System, when installed with aggregate, may be installed in accordance with the design specifications of 310 CMR 15.253 (1) (a)-(c) for Pits, Galleries, or Chambers, which state:
- a) Effective Depth - A maximum of two feet of sidewall depth below the invert of the inlet of the unit shall be used when calculating the effective leaching area;
  - b) Surrounding Aggregate -1 foot minimum per side. 4 feet maximum per side; and
  - c) Separation Distance Between Units -two times the effective width or depth, whichever is greater.
13. When installed with aggregate and installed in accordance with 310 CMR 15.253(1)(a)-(c), the effective leaching area required by Title 5 for conventional chambers shall apply to approved Alternative Chamber Systems and shall not be reduced, as provided under the Standard Conditions. The System shall also meet the following requirements:
- a) The Alternative Chambers must be installed on an aggregate base of at least six inches deep. The maximum allowed total effective sidewall depth shall be two feet when calculating the effective sidewall leaching area and shall be measured from the invert of the chamber to the bottom elevation of the aggregate;
  - b) The effective width of the Alternative Chamber or Alternative Chambers in series shall include at least one foot of surrounding aggregate per side, up to 4 feet per side. The effective bottom area will be increased by two to eight SF/LF with the corresponding addition of one to four feet of aggregate per side;
  - c) The area between adjacent units may not be used as reserve area when the System is installed in accordance with 310 CMR 15.253 (1) (a)-(c); and
  - d) Adjacent units (Alternative Chambers with surrounding aggregate), separated by undisturbed soils of less than two times the effective width, shall be considered a multiple bed configuration and shall not be entitled sidewall area when calculating the effective leaching area.



14. For Systems constructed in fill and installed without aggregate, the System shall be installed as specified in 310 CMR 15.255. Construction in Fill, except the minimum 15 foot horizontal separation distance to be provided between the soil absorption area and the adjacent side slope shall be measured horizontally from the top of the chamber.