

Enviro-Septic® Wastewater Treatment System DESIGN CRITERIA WORKSHEET

Manufactured by Presby Environmental, Inc. (800) 473-5298
Distributed in Indiana exclusively by Environmental Septic Solutions, Inc. (812) 457-3144

DESIGNED BY:	INSTALLED BY:
Name: Company: Address: Telephone: PEI Cert. #	Name: Company: Address: Telephone: PEI Cert. #
SYSTEM OWNER(S):	SITE IDENTIFICATION:
Name: Address: Telephone:	Address: Town: Map/Lot: Permit #: County:

Note: Presby Environmental, Inc. and Environmental Septic Solutions, Inc. strongly recommend the completion of these worksheets for all system designs to assure proper design criteria are utilized. Completed documentation to be retained by Designer, with copies provided to the Installer, system owner and the local health officer.

Instructions to Designer: Complete all white sections by filling in blanks or circling

Soil Class (circle one)	A* B C D E F G <small>*installations in A soils req. ISDH approval</small>	Attach Site/Soil Evaluation Report. Refer to Soil Class Chart in manual.
Number of Bedrooms (determines system size)	Sizing charts assume 150 gallons per day per bedroom # of bedrooms x 150 gallons per day = Daily Design Flow (Add 1 bedroom for each jetted tub 125 gal.+ capacity)	_____ # Bedrooms x 150 gpd = _____ Daily Design Flow
Required Minimum Separation Distance to SHWT or Limiting Layer (circle 24 in. or 30 in.)	24 INCHES (Design Flow <450 gpd) 30 INCHES (Design Flow ≥ 450 gpd) PER BED) PER BED) Note: It is acceptable to divide flows greater than or equal to 450 gpd into multiple beds in order to use 24 in. separation distance.	Measured from the infiltrative surface (sand bed bottom/soil interface).
Vertical Orientation of System (circle one)	SUBSURFACE (infiltrative surface 4 in. or more below orig. grade) ELEVATED (infiltrative surface < 4 in. below original grade)	It is <i>always</i> preferable to raise the bed when a SHWT is encountered; however, a perimeter drain may still be required.
Type of System (circle one)	GRAVITY FED FLOOD DOSED	Flood dose frequency: minimum=design flow ÷ 6 Maximum design flow ÷ 8 (per day)
Configuration (circle one)	BASIC SERIAL (req'd. E-G soils) COMBINATION NON-CONVENTIONAL (A-D soils only)	
Site Slope/System Slope	LEVEL (0-1/2%) SLOPING _____ %	6% max. slope for elevated systems 15% max. slope for subsurface systems
Depth to Limiting Layer	_____ inches Depth to SHWT	_____ ft.
Perimeter Drain included? <i>(req'd. if SHWT is less than 24 in. from infiltrative surface)</i>	YES NO (circle one)	Dispersal Area Width (req'd. in E, F, G soils) Note: No structures permitted in this area.
Minimum Drain Depth	_____ in.	Bed Bottom at highest elevation of orig. grade _____ in. below grade.
High Vent from d-box?	YES NO (circle one)	Flood dosed: High vent off d-box is req'd. Gravity: House (roof) vent is the high vent; no vent off d-box. Low vent req'd. for ALL systems. Note: 10 ft. min. differential btwn. High and Low vent inlets.

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Distribution Box included?	YES NO (circle one)	<i>D-box to be installed on stable, compacted base. Insulate d-box in pumped systems to prevent freezing. Flow equalizers req'd. if dividing flow to multiple sections or beds.</i>
Minimum Enviro-Septic® pipe required	_____ FT. OF ENVIRO-SEPTIC® PIPE REQ'D. <i>(From Table A for A-D soils or Table D for E-G soils)</i>	<i>Amount of pipe req'd. is based on the # of bedrooms.</i>
Minimum Row (Line) Length <i>(Maximum row length is 100 ft.)</i>	_____ FT. MINIMUM ROW (LINE) LENGTH <i>(A&B soils 30 ft., C soils 40 ft., D soils 50 ft. See Table D for minimum row/line lengths in E-G soils. If result is greater than 100 ft., multiple beds are req'd.)</i>	<i>Ideal system shape is as long & narrow as the site will allow. All rows (lines) w/in a bed must be equal in length in E-G soils.</i>
Total Number of Rows (Lines)	_____ FT. PIPE REQ'D. ÷ MIN. ROW LENGTH _____ = _____ MIN. NUMBER OF ROWS <i>(Round UP if result is not a whole number) (Refer to Table C for A-D soils or Table D for E-G soils)</i>	<i>All systems/beds require a minimum of 2 rows (lines). Easiest to work with 10 ft. increments.</i>
Determine System Sand bed length	_____ FT. MIN. + 2 FT. = _____ FT. SYSTEM SAND ROW LENGTH BED LENGTH	<i>Bed length is always 2 ft. more than min. row (line) length.</i>
Determine System Sand bed width	E-G Soils: Refer to Table D, BED WIDTH IS _____ FT. A-D Soils: Refer to Table C: _____ FT. SYSTEM + 2 FT. = _____ FT. SYSTEM WIDTH SAND BED WIDTH	<i>System Sand always extends 1 ft. horizontally beyond pipe ends.</i>
Determine Center- to-Center Spacing	E-G Soils: SPACING IS FIXED AT 1.5 FT. A-D Soils: Refer to Table B, SPACING IS _____ FT. <i>(minimum spacing varies by soil class & slope)</i>	<i>Distance from the center of one row to the center of the adjacent row.</i>
Determine if Multiple Beds are required <i>(Note: each bed must receive an equal amount of effluent. Total ft. of pipe in each bed can vary if necessary due to soil class variations)</i>	<i>Multiple beds can be used to accommodate site constraints. Bed loading limit is 750 gpd; divide daily design flow by 750 to determine number of beds. Multiple beds req'd in E-G soils if Minimum Line Length exceeds 100 ft. It is acceptable to divide flows greater than 450 gpd into multiple beds in order to use 24 in. req'd. separation distance rather than 30 in.</i>	YES NO (circle one) If "Yes": _____ # of Beds Req'd.
If Multiple Beds are required, determine layout	END-TO-END SIDE-TO-SIDE (circle one) <i>Note: End-to-End configurations are preferred</i>	<i>End-to-End beds separated by a min. of 4ft. undisturbed soil. Side-to-Side beds separated by a minimum of 20 ft.</i>
Determine depth of System Sand req'd. below pipes	12 INCHES 6 INCHES (if elevated) (if subsurface) (circle one)	<i>Elevated systems require an additional 6 in. of System Sand below the pipes.</i>

PROPOSED SYSTEM SUMMARY OF DESIGN CRITERIA :

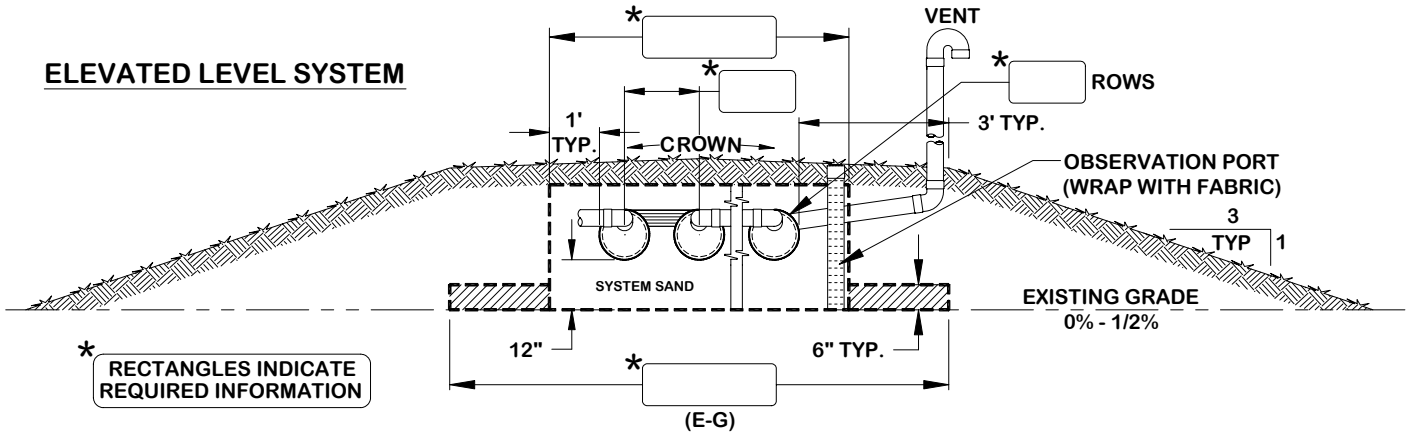
DESIGN CRITERIA:	REQUIRED MINIMUM	ACTUAL PROVIDED IN DESIGN
Total Enviro-Septic® Pipe (in ft.)	_____ FT.	_____ FT.
Row (Line) Lengths	_____ FT.	_____ FT.
Numbers of Rows (Lines)	_____	_____
Center-to-Center Spacing	_____ FT.	_____ FT.
Number of Beds	_____	_____

By signing below, Designer confirms dimensions have been written in on the appropriate (one) cross section on the attached page and a copy of the plan or a sketch of the plan is attached to this worksheet. Designer further confirms that a copy of the completed worksheet has been provided to the installer, system owner, and local health officer.

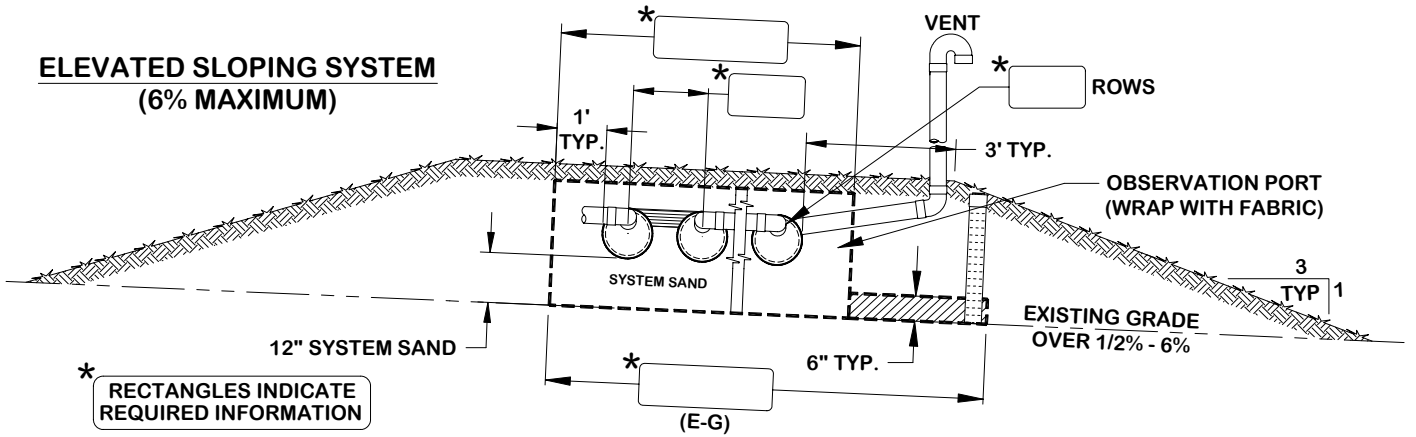
Signed: _____ Dated: _____
 (Print Name Here: _____) PEI Cert. #: _____

CHOOSE CROSS-SECTION THAT APPLIES AND PROVIDE REQUIRED INFORMATION

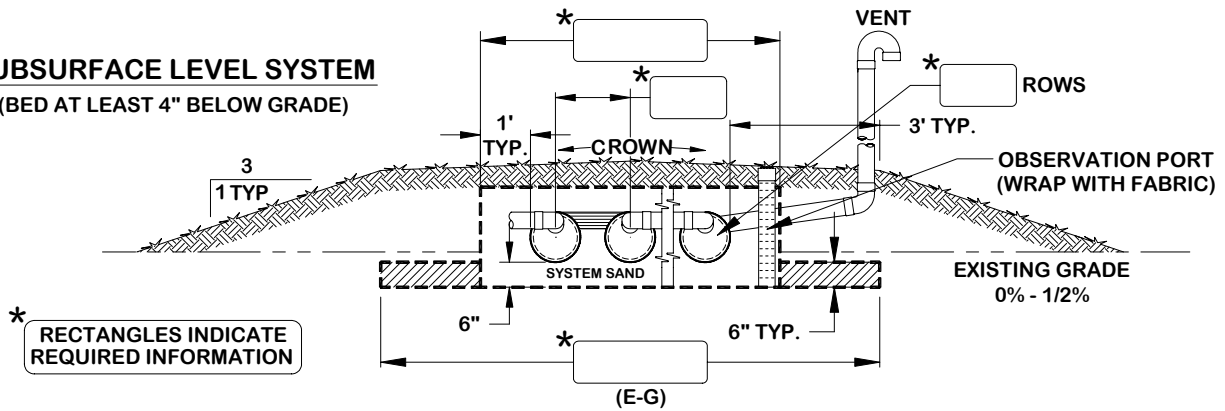
ELEVATED LEVEL SYSTEM



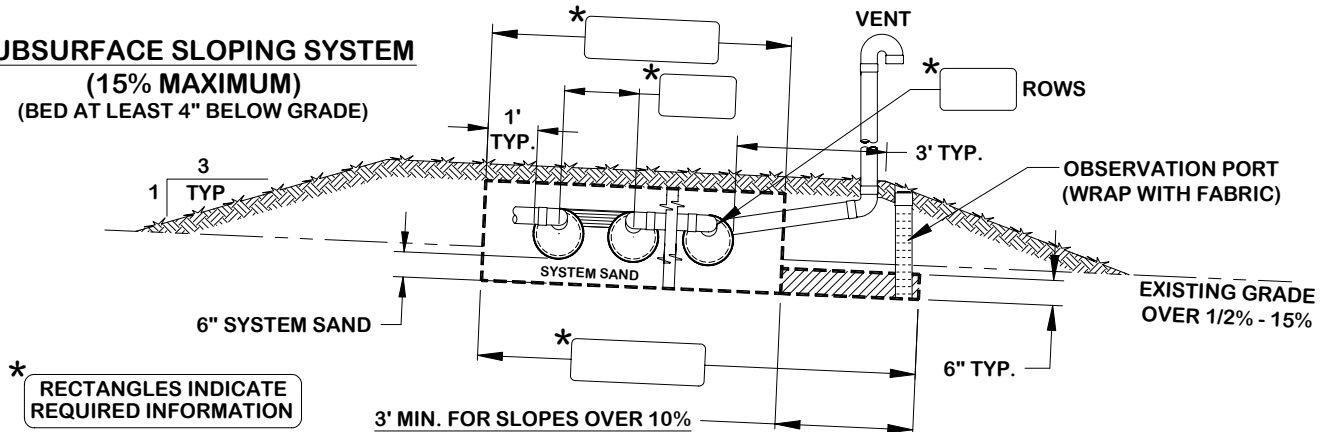
ELEVATED SLOPING SYSTEM (6% MAXIMUM)



SUBSURFACE LEVEL SYSTEM (BED AT LEAST 4" BELOW GRADE)

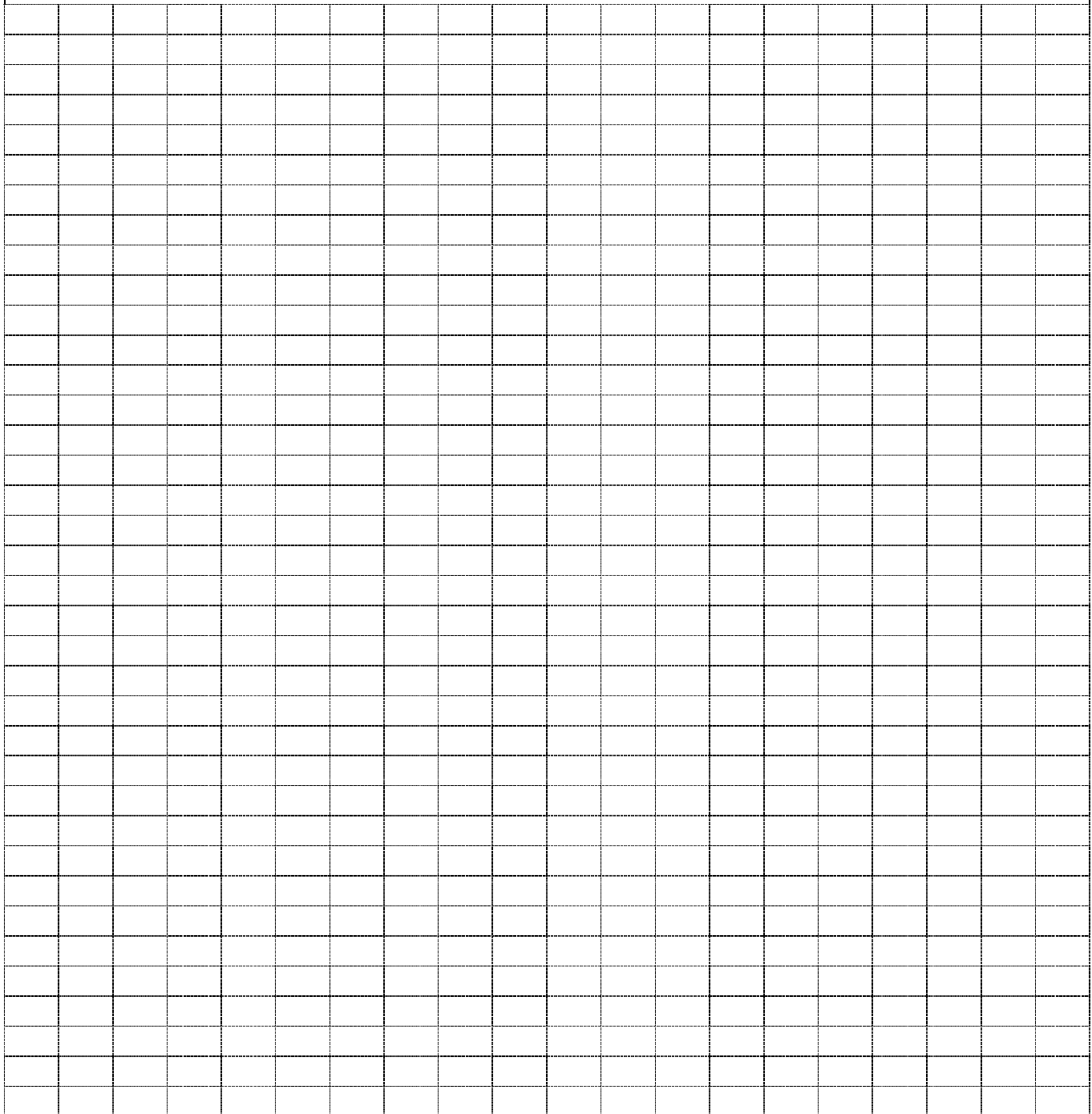


SUBSURFACE SLOPING SYSTEM (15% MAXIMUM) (BED AT LEAST 4" BELOW GRADE)



In the space below, sketch the Enviro-Septic® System design, including references to structures or other benchmarks to indicate system location on the site. Indicate "As Built" changes. Retain a copy with system documentation and provide a copy to the System Owner.

Site Address: _____ System Owner(s): _____
Installer's Name: _____ Date of Installation: _____



* NOT TO SCALE UNLESS NOTED*

Enviro-Septic® Wastewater Treatment System - Indiana Installation Checklist

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System Owner: _____ **Site Address:** _____

Instructions to Installer: Check box in left column to confirm each installation requirement has been met. After completion, provide a copy of this form to Designer, System Owner and Local Health Officer.

√	INSTALLATION REQMTS.	COMMENTS	REFERENCE
	Installation performed during appropriate weather conditions	Not installed on wet or frozen ground; protect against freezing; system covered with System Sand and cover material immediately after inspection.	Revised Sect. E, 3/2007, p. 19
	Proper site preparation before installation	No heavy equipment on system area and dispersal area; no scraping, compacting or smearing of receiving soils; excavated using toothed bucket only; organics removed. Elevated systems: till 7-14 in. deep, parallel to contour; install 6 in. System Sand, mix to create transition layer. Subsurface systems: rake furrows 2-6 in. deep w/ toothed bucket in entire bed area.	Revised Sect. E, 3/2007, p. 18-20
	Trees/Stumps in system location	Use mechanical "thumb" to minimize soil disturbance. Fill voids with System Sand. Elevated systems: remove all stumps 3 in. or larger, cut stumps less than 3 in. flush w/ original grade. Subsurface systems: remove all stumps/roots below grade.	Revised Sect. E, 3/2007, p. 21
	Correct System location	Confirm elevations and set-backs per plan; not located where surface or ground waters converge; designed and installed along contour; note any discrepancies or changes approved by local health department on "as built" plan; sketch system location on sheet provided, making reference to structures or benchmarks and indicating any "as-built" changes; provide copy of sketch to system owner.	Manual p. 11, p. 14
	System Sand meets specs.	IN DOT Specification 23 OR ASTM C-33 w/ less than 2% fines	Manual, p. 13
	Correct Amount of System Sand installed	6 in. below pipes (if subsurface) 12 in. below pipes (if elevated) 6 in. minimum between rows 6 in. above pipes 12 in. horizontally beyond ends of pipes Incorporate System Sand extensions if req'd 6 in. deep in System Sand extensions	Manual, p. 13
	Offset Adapters installed correctly	Hole in the 12 o'clock position	Manual, p. 7
	Raised Connections installed correctly	Extend no less than 2 in. and no more than 4 in. into pipes; angled so that top of Connection is level with top of pipe.	See Training Update 12/09 & Details
	Alignment of Enviro-Septic® pipes is correct	Approximately parallel (to within +/-1 in.) and level (to within +/- ½ in.)	Manual, p. 15
	D-Box installed correctly (if used/required)	On stable base; level; flow equalizers installed and adjusted; unused outlets plugged/mortared; seals watertight; minimum 2 in. drop in elevation from d-box to Enviro-Septic® pipes; tee baffle required in d-box	Manual, p. 16, p. 27
	Septic Tank installed properly	Sized sufficiently in relation to daily design flow; watertight; inlet and outlet baffles in place; all access covers, risers, etc. sealed; connecting PVC from tank to d-box or pipes slopes at least 1%.	Manual, p. 16 Also see Training Update 12/09
	Observation Port installed properly	One observation port req'd. at center edge of each bed, on downslope side if sloped; constructed of PVC, capped, wrapped in geotextile fabric; bottom of PVC at the infiltrative surface.	Manual, p. 11 Revised Sect. E, 3/2007, p. 17

√	INSTALLATION REQUIREMENTS	COMMENTS	REFERENCE
	Perimeter drain properly installed (if needed to lower SHWT)	Must encircle system completely on 4 sides; constructed of perforated minimum 4 in. approved drain pipe w/ geo-textile sleeve when required; located at least 3 ft. below infiltrative surface; minimum 10 ft. from outer edge of System Sand bed(s); aggregate to w/in 6 in. of final grade; installed with a positive slope of at least 0.2 ft. per 100 ft. with no sags in the line. Side-to-side beds require segment drain between beds; instruct system owner not to alter swales & explain importance of ongoing maintenance to ensure outlet is unobstructed.	Manual, Revised Sect. C Also see Training Update 12/09 & Details
	Venting Properly installed (if required)	Venting is REQUIRED for all systems. High vent off the d-box is required for flood dosed systems, 10 ft. differential req'd. between low & high vent inlets. House/roof vent will be "high" vent in gravity systems. Low vent inlet to be min. 3 ft. above final grade. One 4 in. vent req'd. for every 500 ft. of pipe.	Manual, Section I, Venting pp. 37-39.
	No excess hydraulic loading	NO floor drains, roof drains, foundation drains, sump pumps, gutter systems, irrigation systems, etc. discharging in system area.	Manual, p. 14 See Training Update 12/09
	Discharges from water treatment systems, water softeners/purifiers, hot tubs, jetted tubs, etc.	Unless the system's daily design flow was calculated to include discharges from such appliances, seek an alternative means of dispersal.	See Training Update 12/09
	Sufficient cover material installed	Minimum 6 in. compacted loam (topsoil) capable of sustaining vegetative growth; immediately mulch/seed to prevent erosion. NO pavement or other hardscape above system; no trees w/in 10 ft. of system; plant only grass or wildflowers.	Manual, p. 14
	Cover material crowned	Crown from the center to direct surface water flows away from the system; minimum 3% finish grade slope.	See Training Update 12/09
	Surface diversions ("Swales") properly constructed	Located to intercept and divert surface water away from the system; located in undisturbed soil; min. 10 ft. away from bed (if no perimeter drain) or above/upslope of perimeter drain with a minimum positive slope of 0.2 ft. per 100 ft.; instruct system owner not to alter or remove swales.	See Training Update 12/09
	Cover extensions ("side slopes") properly installed	Req'd. if top of System Sand bed is above original grade; slopes 10% or less require 3 ft. extension beyond pipe in all directions before tapering; slopes greater than 10% require 5 ft. cover extension on down-slope side before tapering; tapering to be 3:1 or shallower.	Manual, p. 12, p. 13
	Flood Dosing schedule	Adjust pumps so that pumping frequency is a minimum of design flow ÷ 6 maximum of design flow ÷ 8 per day.	Manual, Section H Flood Dose System Requirements, p. 36.
	System Installation Form	Completed and mailed to Presby Environmental.	Manual p. 4
	Use & Care Instructions	Provide System Owner with Use & Care Instructions and copies of completed worksheets. Inform System Owner of availability of manual @ www.presbyeco.com .	Visit our website

By signing below, I confirm that I have followed the installation guidelines set forth above, I have received a completed Design Worksheet, and I have provided a copy of this completed form to the system owner, the designer and the local health officer:

Installed by: _____
(Print Name)

Date(s) of Installation: _____

Signed: _____

PEI Certification Number: _____