

An outline map of the state of New Hampshire, centered on the page. The map shows the state's irregular coastline and internal borders. A horizontal line is drawn across the upper portion of the state, and a vertical line runs down the right side, intersecting the horizontal line. A grey rectangular box with a black border is superimposed over the center of the map, containing the title text.

**Enviro-Septic[®] Wastewater Treatment
Systems Design and Installation Manual
New Hampshire State Attachment**



State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

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January 31, 2005

Mr. David Presby, President
Presby Environmental, Inc.
Innovative Septic Technologies
143 Airport Road
Whitefield, NH 03598

Subject: Enviro-Septic and Simple-Septic Leaching Systems Design and Installation Manual,
April, 2003

Dear Mr. Presby:

In 1995 and 2003 this office approved the *Enviro-Septic and Simple-Septic Leaching Systems Design and Installation Manual*. This letter approves the 2005 updated "New Hampshire State Attachment" used with this manual.

Specifically, we will allow the installation of the Enviro-Septic and Simple-Septic leaching systems as follows.

1. The Enviro-Septic and Simple-Septic leaching systems will require linear footage as specified by the linear footage tables in the "New Hampshire State Attachment."
2. The minimum spacing between Enviro-Septic and Simple-Septic pipes will be as shown in the pipe spacing tables in the "New Hampshire State Attachment."
3. The Enviro-Septic and Simple-Septic leaching systems shall be designed and installed as described in the manual and its State attachment.
4. Enviro-Septic Multi-Level systems are approved for use with the following conditions
 - a) The required spacing and linear footage shall be as described in the "New Hampshire State Attachment."
 - b) All designers and installers of Multi-Level systems must be certified through Presby Environmental, Inc. Prior to certification all designs must be approved and installations overseen by Presby Environmental, Inc.
5. The separation distance between the bottom of the Enviro-Septic pipe and the seasonal high water table or impermeable substratum will be three feet. This separation distance does not apply to Simple-Septic installations.

Sincerely,

William E. Evans, P.E.
Administrator
Subsurface Systems Bureau

Enviro-Septic[®] Wastewater Treatment System Design and Installation Manual New Hampshire State Attachment

Purpose The purpose of this attachment is to provide information specific to the State of New Hampshire for use in the design and installation of Enviro-Septic[®] wastewater treatment systems.

Certification required The State of New Hampshire requires all designers and installers of Multi-Level[™] systems to be certified. Certification is obtained by attending the “Enviro-Septic[®] Designer and Installer Certification Course” presented by Presby Environmental, Inc.

Presby Environmental, Inc., standards All leaching systems using Presby Environmental, Inc., products must be designed and installed in compliance with the procedures and specifications described in the *Enviro-Septic[®] & Simple-Septic[®] Leaching Systems Design and Installation Manual*.

This attachment is to be used in conjunction with the New Hampshire Department of Environmental Services Env-Ws 1000 rules and other State or local regulations regarding septic systems.

State standards take precedence While the Presby Environmental, Inc., standards form the basis for designing and installing Enviro-Septic[®] products, the information in this State attachment takes precedence in the event of conflicts.

In this attachment This attachment contains State specific information on the following subjects.

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Technical Support Presby Environmental, Inc., provides technical support to all individuals using our products. For questions about our products or the information contained in this manual, please contact us at 1-800-473-5298.

State Specific Information

Design flow	Design flow is defined under Env-Ws 1008.03.
Env-Ws 1000 exception	<p>For single level systems, the separation distance between the bottom of the Enviro-Septic[®] pipe and the SWHT or impermeable substratum will be three feet.</p> <p>Multi-Level[™] systems, by using the 50% rule, may place the bottom of the pipe in the lowest level of the system at 2 feet and the bottom of the pipe in the upper level at 3.5 feet from the SWHT and impermeable substratum.</p> <p><u>Note:</u> Multi-Level[™] systems, using the 50% rule, must also have an equal amount or greater number of linear feet of pipe in the upper level as is found in the lower level.</p>
High flow	<p>High flow is a flow of more than 900 GPD.</p> <p><u>Note:</u> High flow requires a combination system design.</p>
Loading limits	Each line of a distribution box system and each section of a combination system has a maximum limit design flow of 500 GPD.
Low flow	Low flow is a volume design flow of 900 GPD or less.
Raised systems fill requirements	Raised systems require 5' extensions of fill on each side (including system sand and sand fill) before tapering. Tapering is to be 3:1 (2:1 with waiver) and topped with a 3" layer of loam.
Sand fill and clean fill requirements	<p><u>Sand fill</u> With the exception of the 6 inches of system sand surrounding the Enviro-Septic[®] pipe, sand fill is defined by Env-Ws 1021.03.</p> <p><u>Clean fill</u> (Backfill) Clean fill is defined as clean, permeable fill material.</p>
Trench system spacing	Trench systems require a minimum of 4' center-to-center spacing.

New Hampshire Single Level Quick Reference Guide

Purpose The unique Enviro-Septic[®] design provides an infinite number of system configurations that vary in length, width, slope, and shape. The purpose of this guide is to help designers compare layouts for any site quickly and easily.

We recommend designers become familiar with the *Enviro-Septic[®] & Simple-Septic[®] Leaching Systems Design and Installation Manual* before using this Quick Reference Guide.

Exceptions require waiver Exceptions to any Env-Ws 1000 rule used in this quick reference guide require a DES waiver.

50% Rule Single level Enviro-Septic[®] systems can be designed in accordance with Env-Ws 1014.06 and take advantage of the 50% rule.

Distance measurements from outer edge of pipe The distances used in this guide, including minimum distances required by Env-Ws 1000 rules for SHWT, restrictive features, and setbacks, are measured from the outer edge of the Enviro-Septic[®] pipe.

Reference: See Env-Ws 1000 exception, page 3.

Procedure Complete these tasks to size a single level Enviro-Septic[®] leaching system.

Task 1: Determine the minimum linear feet of Enviro-Septic[®] pipe required.

Use the percolation rate and the number of bedrooms or the commercial GPD in Table A below to determine the minimum linear feet of Enviro-Septic[®] pipe required.

Table A: Minimum Linear Footage

Perc. rate Min/Inch	Number of Bedrooms					Add'l Room	Commercial Per 100 GPD
	2	3	4	5	6		
1-2	80	112	150	188	226	38	42
3-4	85	123	165	207	249	42	47
5-6	90	135	180	225	270	45	50
7-9	100	150	200	250	300	50	55
10-13	110	165	220	275	330	55	60
14-19	120	180	240	300	360	60	66
20-30	130	195	260	325	390	65	71
31-40	140	210	280	350	420	70	77
41-50	150	225	300	375	450	75	83
51-60	160	240	320	400	480	80	89

Example: A four-bedroom home with a 7 min/inch perc. rate requires 200 feet of pipe.

Note: Each bedroom has a design flow of 150 GPD.

Continued

Single Level Quick Reference Guide, Continued

Task 2: Determine the percentage of slope on the proposed system.

Note: The maximum slope for a single level system is 25%. However, the site slope may be greater if fill is used to keep the system slope within the maximum.

Do you know the percentage of slope on the proposed system?

If yes, go to Task 3.

If no, follow this procedure to determine the percentage of system slope.

Step	Action
1	Identify the highest elevation of the proposed location.
2	Identify the lowest elevation of the proposed location.
3	Subtract the lowest elevation from the highest elevation = elevation change.
4	Measure the horizontal distance between the two elevations = horizontal length.
5	Divide the elevation change by the horizontal length = percentage of site slope.
6	Choose a percentage of slope to be used for the system. <u>Note:</u> The system slope does not need to be the same as the site slope.
7	Go to Task 3.

Task 3: Determine the minimum center-to-center pipe spacing.

Use the perc. rate and the percentage of system slope in Table B below to determine the required minimum center-to-center pipe spacing.

Table B: Pipe Spacing

Percentage of System Slope	Percolation Rate					
	1-10	11-20	21-30	31-40	41-50	51-60
0-10%	1.5'	1.5'	1.75'	2.0'	2.5'	3.0'
11-15%	1.5'	1.75'	2.0'	2.25'	2.75'	3.25'
16-20%	1.75'	2.0'	2.25'	2.5'	3.0'	3.5'
21-25%	2.0'	2.25'	2.5'	2.75'	3.25'	3.75'

Example: A slope of ten percent or less with a 7 min/inch perc. rate requires pipe spacing of 1.5'.

Continued

Single Level Quick Reference Guide, Continued

Task 4: Determine system length and width.

IF...	THEN use Table C below to...
system length is most critical	<ul style="list-style-type: none"> find the system length in the left column follow that row across to a number equal to or greater than the required total linear feet of Enviro-Septic® follow that column down through the number of lines row and across left to the required center-to-center spacing.
system width is most critical	<ul style="list-style-type: none"> find the pipe spacing in the bottom left hand column and follow that row across to the desired width follow that column up through the number of lines row and up to the required total linear feet of Enviro-Septic® follow that row left to determine the system length.

Table C: Length and Width

System Length/Ft	Total Linear Feet of Enviro-Septic®													
20	40	60	80	100	120	140	160	180	200	220	240	260	280	300
25	50	75	100	125	150	175	200	225	250	275	300	325	350	375
30	60	90	120	150	180	210	240	270	300	330	360	390	420	450
35	70	105	140	175	210	245	280	315	350	385	420	455	490	525
40	80	120	160	200	240	280	320	360	400	440	480	520	560	600
45	90	135	180	225	270	315	360	405	450	495	540	585	630	675
50	100	150	200	250	300	350	400	450	500	550	600	650	700	750
55	110	165	220	275	330	385	440	495	550	605	660	715	770	825
60	120	180	240	300	360	420	480	540	600	660	720	780	840	900
65	130	190	260	325	390	455	520	585	650	715	780	845	910	975
70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050
75	150	225	300	375	450	525	600	675	750	825	900	975	1050	1125
80	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200
85	170	255	340	425	510	595	680	765	850	935	1020	1105	1190	1275
90	180	270	360	450	540	630	720	810	900	990	1080	1170	1260	1350
95	190	285	380	475	570	665	760	855	950	1045	1140	1235	1330	1425
100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
# of Lines	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Spacing														
1.50	2.50	4.00	5.50	7.00	8.50	10.00	11.50	13.00	14.50	16.00	17.50	19.00	20.50	22.00
1.75	2.75	4.50	6.25	8.00	9.75	11.50	13.25	15.00	16.75	18.50	20.25	22.00	23.75	25.50
2.00	3.00	5.00	7.00	9.00	11.00	13.00	15.00	17.00	19.00	21.00	23.00	25.00	27.00	29.00
2.25	3.25	5.50	7.75	10.00	12.25	14.50	16.75	19.00	21.25	23.50	25.75	28.00	30.25	32.50
2.50	3.50	6.00	8.50	11.00	13.50	16.00	18.50	21.00	23.50	26.00	28.50	31.00	33.50	36.00
2.75	3.75	6.50	9.25	12.00	14.75	17.50	20.25	23.00	25.75	28.50	31.25	34.00	36.76	39.50
3.00	4.00	7.00	10.00	13.00	16.00	19.00	22.00	25.00	28.00	31.00	34.00	37.00	40.00	43.00
3.25	4.25	7.50	10.75	14.00	17.25	20.50	23.75	27.00	30.25	33.50	36.75	40.00	43.25	46.50
3.50	4.50	8.00	11.50	15.00	18.50	22.00	25.50	29.00	32.50	36.00	39.50	43.00	46.50	50.00
3.75	4.75	8.50	12.25	16.00	19.75	23.50	27.25	31.00	34.75	38.50	42.25	46.00	49.75	53.50
4.00	5.00	9.00	13.00	17.00	21.00	25.00	29.00	33.00	37.00	41.00	45.00	49.00	53.00	57.00
4.25	5.25	9.50	13.75	18.00	22.25	26.50	30.75	35.00	39.25	43.50	47.75	52.00	56.25	60.50
4.50	5.50	10.00	14.50	19.00	23.50	28.00	32.50	37.00	41.50	46.00	50.50	55.00	59.50	64.00
4.75	5.75	10.50	15.25	20.00	24.75	29.50	34.25	39.00	43.75	48.50	53.25	58.00	62.75	67.50
5.00	6.00	11.00	16.00	21.00	26.00	31.00	36.00	41.00	46.00	51.00	56.00	61.00	66.00	71.00

System Width/Ft (Outermost surface of pipe)

New Hampshire Multi-Level™ Quick Reference Guide

Purpose The purpose of this guide is to help designers determine system layouts for any site quickly and easily. We recommend designers become familiar with the *Enviro-Septic® & Simple-Septic® Leaching Systems Design and Installation Manual* before using this Quick Reference Guide.

Restriction Simple-Septic® pipe may **not** be used in Multi-Level™ systems.

Distance measurements from outer edge of pipe The distances used in this guide, including minimum distances required by Env-Ws 1000 rules for SHWT, restrictive features, and setbacks, are measured from the outer edge of the Enviro-Septic® pipe.

50% Rule Multi-Level™ systems can be designed in accordance with Env-Ws 1014.06 and take advantage of the 50% rule.

Waivers required Multi-Level™ systems are currently approved for two levels. Systems over two levels require a DES waiver. Exceptions to any Env-Ws 1000 rule used in this quick reference guide require a DES waiver.

Reference: See Env-Ws 1000 exception, page 3.

Procedure Complete these tasks to size a Multi-Level™ Enviro-Septic® leaching system.

Task 1: Determine the total linear feet of Enviro-Septic® pipe required.

Use the percolation rate and the number of bedrooms or the commercial GPD in Table A below to determine the total linear feet of Enviro-Septic® pipe required.

Table A: Linear Footage

Perc. Rate Min/Inch	Non-Commercial and Residential Number of Bedrooms						Commercial Per 100 GPD
	2	3	4	5	6	Add'l Room	
1-2	88	124	165	207	249	42	47
3-4	94	136	182	228	274	47	52
5-6	99	149	198	248	297	50	55
7-9	110	165	220	275	330	55	61
10-13	121	182	242	303	363	61	66
14-19	132	198	264	330	396	66	73
20-30	143	215	286	358	429	72	79

Example: A six-bedroom home with a 6 min/inch perc. rate requires 297 feet of pipe.

Note: Each bedroom has a design flow of 150 GPD.

Continued

Multi-Level™ Quick Reference Guide, Continued

Procedure Continue these tasks.
(continued)

Task 2: Determine the percentage of slope on the proposed system.

Note: The maximum slope for a Multi-Level™ system is 25%. However, the site slope may be greater if fill is used to keep the system slope within the maximum.

Do you know the percentage of slope on the proposed system?

If yes, go to Task 3.

If no, follow this procedure to determine the percentage of system slope.

Step	Action
1	Identify the highest elevation of the proposed location.
2	Identify the lowest elevation of the proposed location.
3	Subtract the lowest elevation from the highest elevation = elevation change.
4	Measure the horizontal distance between the two elevations = horizontal length.
5	Divide the elevation change by the horizontal length = percentage of site slope.
6	Choose a percentage of slope to be used for the system. <u>Note:</u> The system slope does not need to be the same as the site slope.
7	Go to Task 3.

Task 3: Determine the minimum center-to-center pipe spacing.

Use the perc. rate and the percentage of system slope in Table B below to determine the required minimum center-to-center pipe spacing.

Table B: Pipe Spacing

Percentage of System Slope	Percolation Rate		
	1-10	11-20	21-30
1-10%	1.5'	1.75'	2.0'
11-15%	1.75'	2.0'	2.25'
16-20%	2.0'	2.25'	2.5'
21-25%	2.25'	2.5'	2.75'

Example: A slope of ten percent or less with a 6 min/inch perc. rate requires pipe spacing of 1.5'.

Continued

Multi-Level™ Quick Reference Guide, Continued

Task 4: Determine system length and width.

IF...	THEN use Table C below to...
system length is most critical	<ul style="list-style-type: none"> find the system length in the left column follow that row across to a number equal to or greater than the required total linear feet of Enviro-Septic® follow that column down through the number of lines row and across left to the required center-to-center spacing.
system width is most critical	<ul style="list-style-type: none"> find the pipe spacing in the bottom left hand column and follow that row across to the desired width follow that column up through the number of lines row and up to the required total linear feet of Enviro-Septic® follow that row left to determine the system length.

Table C: Multi-Level™ Length and Width

Length of lines in feet	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300
	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375
	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450
	35	70	105	140	175	210	245	280	315	350	385	420	455	490	525
	40	80	120	160	200	240	280	320	360	400	440	480	520	560	600
	45	90	135	180	225	270	315	360	405	450	495	540	585	630	675
	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750
	55	110	165	220	275	330	385	440	495	550	605	660	715	770	825
	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900
	65	130	195	260	325	390	455	520	585	650	715	780	845	910	975
	70	140	210	280	350	420	490	560	630	700	770	840	910	980	1050
	75	150	225	300	375	450	525	600	675	750	825	900	975	1050	1125
	80	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200
	85	170	255	340	425	510	595	680	765	850	935	1020	1105	1190	1275
	90	180	270	360	450	540	630	720	810	900	990	1080	1170	1260	1350
95	190	285	380	475	570	665	760	855	950	1045	1140	1235	1330	1425	
100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	
Lines	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Center-to-center pipe spacing in feet	1.5	1.75	2.50	3.25	4.00	4.75	5.50	6.25	7.00	7.75	8.50	9.25	10.00	10.75	11.50
	1.75	1.88	2.75	3.63	4.50	5.38	6.25	7.13	8.00	8.88	9.75	10.63	11.50	12.38	13.25
	2	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00
	2.25	2.13	3.25	4.38	5.50	6.63	7.75	8.88	10.00	11.13	12.25	13.38	14.50	15.63	16.75
	2.5	2.25	3.50	4.75	6.00	7.25	8.50	9.75	11.00	12.25	13.50	14.75	16.00	17.25	18.50
	2.75	2.38	3.75	5.13	6.50	7.88	9.25	10.63	12.00	13.38	14.75	16.13	17.50	18.88	20.25
	3	2.50	4.00	5.50	7.00	8.50	10.00	11.50	13.00	14.50	16.00	17.50	19.00	20.50	22.00
	3.25	2.63	4.25	5.88	7.50	9.13	10.75	12.38	14.00	15.63	17.25	18.88	20.50	22.13	23.75
	3.5	2.75	4.50	6.25	8.00	9.75	11.50	13.25	15.00	16.75	18.50	20.25	22.00	23.75	25.50
	3.75	2.88	4.75	6.63	8.50	10.38	12.25	14.13	16.00	17.88	19.75	21.63	23.50	25.38	27.25
	4	3.00	5.00	7.00	9.00	11.00	13.00	15.00	17.00	19.00	21.00	23.00	25.00	27.00	29.00
	4.25	3.13	5.25	7.38	9.50	11.63	13.75	15.88	18.00	20.13	22.25	24.38	26.50	28.63	30.75
	4.5	3.25	5.50	7.75	10.00	12.25	14.50	16.75	19.00	21.25	23.50	25.75	28.00	30.25	32.50
	4.75	3.38	5.75	8.13	10.50	12.88	15.25	17.63	20.00	22.38	24.75	27.13	29.50	31.88	34.25
	5	3.50	6.00	8.50	11.00	13.50	16.00	18.50	21.00	23.50	26.00	28.50	31.00	33.50	36.00

System Width/Ft (Outermost surface of pipe)

Table continues on next page.

Table C: Multi-Level™ Length and Width

Length of lines in feet	20	320	340	360	380	400	420	440	460	480	500	520	260	12.25	13.00	600	620	640	660	680	700	720
	25	400	425	450	475	500	525	550	575	600	625	650	325	14.13	15.00	750	775	800	825	850	875	900
	30	480	510	540	570	600	630	660	690	720	750	780	390	16.00	17.00	900	930	960	990	1020	1050	1080
	35	560	595	630	665	700	735	770	805	840	875	910	455	17.88	19.00	1050	1085	1120	1155	1190	1225	1260
	40	640	680	720	760	800	840	880	920	960	1000	1040	520	19.75	21.00	1200	1240	1280	1320	1360	1400	1440
	45	720	765	810	855	900	945	990	1035	1080	1125	1170	585	21.63	23.00	1350	1395	1440	1485	1530	1575	1620
	50	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	650	23.50	25.00	1500	1550	1600	1650	1700	1750	1800
	55	880	935	990	1045	1100	1155	1210	1265	1320	1375	1430	715	25.38	27.00	1650	1705	1760	1815	1870	1925	1980
	60	960	1020	1080	1140	1200	1260	1320	1380	1440	1500	1560	780	27.25	29.00	1800	1860	1920	1980	2040	2100	2160
	65	1040	1105	1170	1235	1300	1365	1430	1495	1560	1625	1690	845	29.13	31.00	1950	2015	2080	2145	2210	2275	2340
	70	1120	1190	1260	1330	1400	1470	1540	1610	1680	1750	1820	910	31.00	33.00	2100	2170	2240	2310	2380	2450	2520
75	1200	1275	1350	1425	1500	1575	1650	1725	1800	1875	1950	975	32.88	35.00	2250	2325	2400	2475	2550	2625	2700	
80	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000	2080	1040	34.75	37.00	2400	2480	2560	2640	2720	2800	2880	
85	1360	1445	1530	1615	1700	1785	1870	1955	2040	2125	2210	1105	36.63	39.00	2550	2635	2720	2805	2890	2975	3060	
90	1440	1530	1620	1710	1800	1890	1980	2070	2160	2250	2340	1170	38.50	41.00	2700	2790	2880	2970	3060	3150	3240	
95	1520	1615	1710	1805	1900	1995	2090	2185	2280	2375	2470	1235	40.38	43.00	2850	2945	3040	3135	3230	3325	3420	
100	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	1300	42.25	45.00	3000	3100	3200	3300	3400	3500	3600	
Center-to-center pipe spacing in feet	Lines	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
	1.5	12.25	13.00	13.75	14.50	15.25	16.00	16.75	17.50	18.25	19.00	19.75	20.50	21.25	22.00	22.75	23.50	24.25	25.00	25.75	26.50	27.25
	1.75	14.13	15.00	15.88	16.75	17.63	18.50	19.38	20.25	21.13	22.00	22.88	23.75	24.63	25.50	26.38	27.25	28.13	29.00	29.88	30.75	31.63
	2	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00	26.00	27.00	28.00	29.00	30.00	31.00	32.00	33.00	34.00	35.00	36.00
	2.25	17.88	19.00	20.13	21.25	22.38	23.50	24.63	25.75	26.88	28.00	29.13	30.25	31.38	32.50	33.63	34.75	35.88	37.00	38.13	39.25	40.38
	2.5	19.75	21.00	22.25	23.50	24.75	26.00	27.25	28.50	29.75	31.00	32.25	33.50	34.75	36.00	37.25	38.50	39.75	41.00	42.25	43.50	44.75
	2.75	21.63	23.00	24.38	25.75	27.13	28.50	29.88	31.25	32.63	34.00	35.38	36.75	38.13	39.50	40.88	42.25	43.63	45.00	46.38	47.75	49.13
	3	23.50	25.00	26.50	28.00	29.50	31.00	32.50	34.00	35.50	37.00	38.50	40.00	41.50	43.00	44.50	46.00	47.50	49.00	50.50	52.00	53.50
	3.25	25.38	27.00	28.63	30.25	31.88	33.50	35.13	36.75	38.38	40.00	41.63	43.25	44.88	46.50	48.13	49.75	51.38	53.00	54.63	56.25	57.88
	3.5	27.25	29.00	30.75	32.50	34.25	36.00	37.75	39.50	41.25	43.00	44.75	46.50	48.25	50.00	51.75	53.50	55.25	57.00	58.75	60.50	62.25
	3.75	29.13	31.00	32.88	34.75	36.63	38.50	40.38	42.25	44.13	46.00	47.88	49.75	51.63	53.50	55.38	57.25	59.13	61.00	62.88	64.75	66.63
4	31.00	33.00	35.00	37.00	39.00	41.00	43.00	45.00	47.00	49.00	51.00	53.00	55.00	57.00	59.00	61.00	63.00	65.00	67.00	69.00	71.00	
4.25	32.88	35.00	37.13	39.25	41.38	43.50	45.63	47.75	49.88	52.00	54.13	56.25	58.38	60.50	62.63	64.75	66.88	69.00	71.13	73.25	75.38	
4.5	34.75	37.00	39.25	41.50	43.75	46.00	48.25	50.50	52.75	55.00	57.25	59.50	61.75	64.00	66.25	68.50	70.75	73.00	75.25	77.50	79.75	
4.75	36.63	39.00	41.38	43.75	46.13	48.50	50.88	53.25	55.63	58.00	60.38	62.75	65.13	67.50	69.88	72.25	74.63	77.00	79.38	81.75	84.13	
5	38.50	41.00	43.50	46.00	48.50	51.00	53.50	56.00	58.50	61.00	63.50	66.00	68.50	71.00	73.50	76.00	78.50	81.00	83.50	86.00	88.50	

System Width/Ft (Outermost surface of pipe)

Table continues on next page.

Table C: Multi-Level™ Length and Width

Length of lines in feet	20	740	760	780	800	820	840	860	880	900	920	940	960	980	1000
	25	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200	1225	1250
	30	1110	1140	1170	1200	1230	1260	1290	1320	1350	1380	1410	1440	1470	1500
	35	1295	1330	1365	1400	1435	1470	1505	1540	1575	1610	1645	1680	1715	1750
	40	1480	1520	1560	1600	1640	1680	1720	1760	1800	1840	1880	1920	1960	2000
	45	1665	1710	1755	1800	1845	1890	1935	1980	2025	2070	2115	2160	2205	2250
	50	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500
	55	2035	2090	2145	2200	2255	2310	2365	2420	2475	2530	2585	2640	2695	2750
	60	2220	2280	2340	2400	2460	2520	2580	2640	2700	2760	2820	2880	2940	3000
	65	2405	2470	2535	2600	2665	2730	2795	2860	2925	2990	3055	3120	3185	3250
	70	2590	2660	2730	2800	2870	2940	3010	3080	3150	3220	3290	3360	3430	3500
	75	2775	2850	2925	3000	3075	3150	3225	3300	3375	3450	3525	3600	3675	3750
	80	2960	3040	3120	3200	3280	3360	3440	3520	3600	3680	3760	3840	3920	4000
	85	3145	3230	3315	3400	3485	3570	3655	3740	3825	3910	3995	4080	4165	4250
	90	3330	3420	3510	3600	3690	3780	3870	3960	4050	4140	4230	4320	4410	4500
95	3515	3610	3705	3800	3895	3990	4085	4180	4275	4370	4465	4560	4655	4750	
100	3700	3800	3900	4000	4100	4200	4300	4400	4500	4600	4700	4800	4900	5000	
Lines	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
Center-to-center pipe spacing in feet	1.5	28.00	28.75	29.50	30.25	31.00	31.75	32.50	33.25	34.00	34.75	35.50	36.25	37.00	37.75
	1.75	32.50	33.38	34.25	35.13	36.00	36.88	37.75	38.63	39.50	40.38	41.25	42.13	43.00	43.88
	2	37.00	38.00	39.00	40.00	41.00	42.00	43.00	44.00	45.00	46.00	47.00	48.00	49.00	50.00
	2.25	41.50	42.63	43.75	44.88	46.00	47.13	48.25	49.38	50.50	51.63	52.75	53.88	55.00	56.13
	2.5	46.00	47.25	48.50	49.75	51.00	52.25	53.50	54.75	56.00	57.25	58.50	59.75	61.00	62.25
	2.75	50.50	51.88	53.25	54.63	56.00	57.38	58.75	60.13	61.50	62.88	64.25	65.63	67.00	68.38
	3	55.00	56.50	58.00	59.50	61.00	62.50	64.00	65.50	67.00	68.50	70.00	71.50	73.00	74.50
	3.25	59.50	61.13	62.75	64.38	66.00	67.63	69.25	70.88	72.50	74.13	75.75	77.38	79.00	80.63
	3.5	64.00	65.75	67.50	69.25	71.00	72.75	74.50	76.25	78.00	79.75	81.50	83.25	85.00	86.75
	3.75	68.50	70.38	72.25	74.13	76.00	77.88	79.75	81.63	83.50	85.38	87.25	89.13	91.00	92.88
	4	73.00	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
4.25	77.50	79.63	81.75	83.88	86.00	88.13	90.25	92.38	94.50	96.63	98.75	100.88	103.00	105.13	
4.5	82.00	84.25	86.50	88.75	91.00	93.25	95.50	97.75	100.00	102.25	104.50	106.75	109.00	111.25	
4.75	86.50	88.88	91.25	93.63	96.00	98.38	100.75	103.13	105.50	107.88	110.25	112.63	115.00	117.38	
5	91.00	93.50	96.00	98.50	101.00	103.50	106.00	108.50	111.00	113.50	116.00	118.50	121.00	123.50	

System Width/Ft (Outermost surface of pipe)

SLOPE DESIGN CHART

SYSTEM SLOPE

	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%													
5.00'	5/8	0.050	1 3/16	0.100	1 13/16	0.150	2 3/8	0.200	3	0.250	3 5/8	0.300	4 3/16	0.350	4 13/16	0.400	5 3/8	0.450	6	0.500	6 5/8	0.550	7 3/16	0.600	7 13/16	0.650
4.75'	9/16	0.048	1 1/8	0.095	1 11/16	0.143	2 1/4	0.190	2 7/8	0.238	3 7/16	0.285	4	0.333	4 9/16	0.380	5 1/8	0.428	5 11/16	0.475	6 1/4	0.523	6 13/16	0.570	7 7/16	0.618
4.50'	9/16	0.045	1 1/16	0.090	1 5/8	0.135	2 3/16	0.180	2 11/16	0.225	3 1/4	0.270	3 3/4	0.315	4 5/16	0.360	4 7/8	0.405	5 3/8	0.450	5 15/16	0.495	6 1/2	0.540	7	0.585
4.25'	1/2	0.043	1	0.085	1 1/2	0.128	2 1/16	0.170	2 9/16	0.213	3 1/16	0.255	3 9/16	0.298	4 1/16	0.340	4 9/16	0.383	5 1/8	0.425	5 5/8	0.468	6 1/8	0.510	6 5/8	0.553
4.00'	1/2	0.040	15/16	0.080	1 7/16	0.120	1 15/16	0.160	2 3/8	0.200	2 7/8	0.240	3 3/8	0.280	3 13/16	0.320	4 5/16	0.360	4 13/16	0.400	5 1/4	0.440	5 3/4	0.480	6 1/4	0.520
3.75'	7/16	0.038	7/8	0.075	1 3/8	0.113	1 13/16	0.150	2 1/4	0.188	2 11/16	0.225	3 1/8	0.263	3 5/8	0.300	4 1/16	0.338	4 1/2	0.375	4 15/16	0.413	5 3/8	0.450	5 7/8	0.488
3.50'	7/16	0.035	13/16	0.070	1 1/4	0.105	1 11/16	0.140	2 1/8	0.175	2 1/2	0.210	2 15/16	0.245	3 3/8	0.280	3 3/4	0.315	4 3/16	0.350	4 5/8	0.385	5 1/16	0.420	5 7/16	0.455
3.25'	3/8	0.033	3/4	0.065	1 3/16	0.098	1 9/16	0.130	1 15/16	0.163	2 5/16	0.195	2 3/4	0.228	3 1/8	0.260	3 1/2	0.293	3 7/8	0.325	4 5/16	0.358	4 11/16	0.390	5 1/16	0.423
3.00'	3/8	0.030	3/4	0.060	1 1/16	0.090	1 7/16	0.120	1 13/16	0.150	2 3/16	0.180	2 1/2	0.210	2 7/8	0.240	3 1/4	0.270	3 5/8	0.300	3 15/16	0.330	4 5/16	0.360	4 11/16	0.390
2.75'	5/16	0.028	11/16	0.055	1	0.083	1 5/16	0.110	1 5/8	0.138	2	0.165	2 5/16	0.193	2 5/8	0.220	3	0.248	3 5/16	0.275	3 5/8	0.303	3 15/16	0.330	4 5/16	0.358
2.50'	5/16	0.025	5/8	0.050	7/8	0.075	1 3/16	0.100	1 1/2	0.125	1 13/16	0.150	2 1/8	0.175	2 3/8	0.200	2 11/16	0.225	3	0.250	3 5/16	0.275	3 5/8	0.300	3 7/8	0.325
2.25'	1/4	0.023	9/16	0.045	13/16	0.068	1 1/16	0.090	1 3/8	0.113	1 5/8	0.135	1 7/8	0.158	2 3/16	0.180	2 7/16	0.203	2 11/16	0.225	3	0.248	3 1/4	0.270	3 1/2	0.293
2.00'	1/4	0.020	1/2	0.040	3/4	0.060	15/16	0.080	1 3/16	0.100	1 7/16	0.120	1 11/16	0.140	1 15/16	0.160	2 3/16	0.180	2 3/8	0.200	2 5/8	0.220	2 7/8	0.240	3 1/8	0.260
1.75'	3/16	0.018	7/16	0.035	5/8	0.053	13/16	0.070	1 1/16	0.088	1 1/4	0.105	1 1/2	0.123	1 11/16	0.140	1 7/8	0.158	2 1/8	0.175	2 5/16	0.193	2 1/2	0.210	2 3/4	0.228
1.50'	3/16	0.015	3/8	0.030	9/16	0.045	3/4	0.060	7/8	0.075	1 1/16	0.090	1 1/4	0.105	1 7/16	0.120	1 5/8	0.135	1 13/16	0.150	2	0.165	2 3/16	0.180	2 5/16	0.195

DIFFERENCE IN ELEVATION BETWEEN LINES OF ENVIRO-SEPTIC® PIPE IN INCHES AND FEET

	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%	25%												
5.00'	8 3/8	0.700	9	0.750	9 5/8	0.800	10 3/16	0.850	10 13/16	0.900	11 3/8	0.950	12	1.000	12 5/8	1.050	13 3/16	1.100	13 13/16	1.150	14 3/8	1.200	15	1.250
4.75'	8	0.665	8 9/16	0.713	9 1/8	0.760	9 11/16	0.808	10 1/4	0.855	10 13/16	0.903	11 3/8	0.950	12	0.998	12 9/16	1.045	13 1/8	1.093	13 11/16	1.140	14 1/4	1.188
4.50'	7 9/16	0.630	8 1/8	0.675	8 5/8	0.720	9 3/16	0.765	9 3/4	0.810	10 1/4	0.855	10 13/16	0.900	11 5/16	0.945	11 7/8	0.990	12 7/16	1.035	12 15/16	1.080	13 1/2	1.125
4.25'	7 1/8	0.595	7 5/8	0.638	8 3/16	0.680	8 11/16	0.723	9 3/16	0.765	9 11/16	0.808	10 3/16	0.850	10 11/16	0.893	11 1/4	0.935	11 3/4	0.978	12 1/4	1.020	12 3/4	1.063
4.00'	6 3/4	0.560	7 3/16	0.600	7 11/16	0.640	8 3/16	0.680	8 5/8	0.720	9 1/8	0.760	9 5/8	0.800	10 1/16	0.840	10 9/16	0.880	11 1/16	0.920	11 1/2	0.960	12	1.000
3.75'	6 5/16	0.525	6 3/4	0.563	7 3/16	0.600	7 5/8	0.638	8 1/8	0.675	8 9/16	0.713	9	0.750	9 7/16	0.788	9 7/8	0.825	10 3/8	0.863	10 13/16	0.900	11 1/4	0.938
3.50'	5 7/8	0.490	6 5/16	0.525	6 3/4	0.560	7 1/8	0.595	7 9/16	0.630	8	0.665	8 3/8	0.700	8 13/16	0.735	9 1/4	0.770	9 11/16	0.805	10 1/16	0.840	10 1/2	0.875
3.25'	5 7/16	0.455	5 3/4	0.488	6 1/4	0.520	6 5/8	0.553	7	0.585	7 7/16	0.618	7 13/16	0.650	8 3/16	0.683	8 9/16	0.715	9	0.748	9 3/8	0.780	9 3/4	0.813
3.00'	5 1/16	0.420	5 3/8	0.450	5 3/4	0.480	6 1/8	0.510	6 1/2	0.540	6 13/16	0.570	7 3/16	0.600	7 9/16	0.630	7 15/16	0.660	8 1/4	0.690	8 5/8	0.720	9	0.750
2.75'	4 5/8	0.385	4 15/16	0.413	5 1/4	0.440	5 5/8	0.468	5 15/16	0.495	6 1/4	0.523	6 5/8	0.550	6 15/16	0.578	7 1/4	0.605	7 9/16	0.633	7 15/16	0.660	8 1/4	0.688
2.50'	4 3/16	0.350	4 1/2	0.375	4 13/16	0.400	5 1/8	0.425	5 3/8	0.450	5 11/16	0.475	6	0.500	6 5/16	0.525	6 5/8	0.550	6 7/8	0.575	7 3/16	0.600	7 1/2	0.625
2.25'	3 3/4	0.315	4 1/16	0.338	4 5/16	0.360	4 9/16	0.383	4 7/8	0.405	5 1/8	0.428	5 3/8	0.450	5 11/16	0.473	5 15/16	0.495	6 3/16	0.518	6 1/2	0.540	6 3/4	0.563
2.00'	3 3/8	0.280	3 5/8	0.300	3 13/16	0.320	4 1/16	0.340	4 5/16	0.360	4 9/16	0.380	4 13/16	0.400	5 1/16	0.420	5 1/4	0.440	5 1/2	0.460	5 3/4	0.480	6	0.500
1.75'	2 15/16	0.245	3 1/8	0.263	3 3/8	0.280	3 9/16	0.298	3 3/4	0.315	4	0.333	4 3/16	0.350										
1.50'	2 1/2	0.210	2 11/16	0.225																				

DIFFERENCE IN ELEVATION BETWEEN LINES OF ENVIRO-SEPTIC® PIPE IN INCHES AND FEET

The information in this manual is subject to change without notice. Your suggestions and comments are welcome. Please contact us at

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Enviro-Septic® U.S. Patent Nos. 6,461,078; 5,954,451; 6,290,429 with other patents pending. Canadian Patent Nos. 2185087; 2187126 with other patents pending. Simple-Septic® U.S. Patent No. 5,606,786. Presby Maze® U.S. Patent No. 5,429,752.

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