The purpose of this manual is to provide specific design and installation information pertinent to the use of Quick4® High Capacity, Quick4 Plus High Capacity, Quick4 Standard, Quick4 Plus Standard, Quick4 Plus Standard Low Profile, Quick4 Equalizer® 36, Quick4 Plus Equalizer 36 Low Profile, Quick4 Equalizer 24, and Quick4 Equalizer 24 Low Profile Chambers in trenches, wide excavations, soil substitution, mounds and low pressure dosing applications in Texas. Each revised version of this manual supersedes the previous version. Infiltrator Chambers must be used in conjunction with the standards described in the Texas Commission on Environmental Quality (TCEQ) OSSF Regulations Chapter 285.

For more detailed design information, please contact Infiltrator Water Technologies at 1-800-221-4436
Quick4 and Quick4 Plus Chambers

The Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, Quick4 Plus Standard, and Quick4 Plus Standard Low Profile chambers can be installed in a 36-inch wide trench. The Quick4 Equalizer 36 and Quick4 Plus Equalizer 36 Low Profile chambers can be installed in a 24-inch wide trench. The Quick4 Equalizer 24 and Quick4 Equalizer 24 Low Profile chambers can be installed in an 18-inch or wide trench. There are a variety of system inletting options to choose from.

**Quick4 High Capacity Nominal Chamber Dimensions**

<table>
<thead>
<tr>
<th>Size:</th>
<th>34&quot;W x 53&quot;L x 16&quot;H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Capacity:</td>
<td>62 gal</td>
</tr>
<tr>
<td>Invert Elevation:</td>
<td>11.5&quot;</td>
</tr>
</tbody>
</table>

**Quick4 Plus High Capacity Nominal Chamber Dimensions**

<table>
<thead>
<tr>
<th>Size:</th>
<th>34&quot;W x 53&quot;L x 14&quot;H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Capacity:</td>
<td>54 gal</td>
</tr>
<tr>
<td>Invert Elevation:</td>
<td>8&quot;, 12.7&quot;</td>
</tr>
</tbody>
</table>

**Quick4 Standard Nominal Chamber Dimensions**

<table>
<thead>
<tr>
<th>Size:</th>
<th>34&quot;W x 53&quot;L x 12&quot;H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Capacity:</td>
<td>44 gal</td>
</tr>
<tr>
<td>Invert Elevation:</td>
<td>8&quot;</td>
</tr>
</tbody>
</table>

**Quick4 Plus Standard Nominal Chamber Dimensions**

<table>
<thead>
<tr>
<th>Size:</th>
<th>34&quot;W x 53&quot;L x 12&quot;H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Capacity:</td>
<td>45 gal</td>
</tr>
<tr>
<td>Invert Elevation:</td>
<td>5.3&quot;, 8&quot;</td>
</tr>
</tbody>
</table>
## QUICK4 PLUS STANDARD LOW PROFILE (LP)

### Nominal Chamber Dimensions

<table>
<thead>
<tr>
<th>Size</th>
<th>34&quot;W x 53&quot;L x 8&quot;H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Capacity</td>
<td>32 gal</td>
</tr>
<tr>
<td>Invert Elevation</td>
<td>3.3&quot;, 8&quot;</td>
</tr>
</tbody>
</table>

## QUICK4 EQUALIZER 36

### Nominal Specifications

<table>
<thead>
<tr>
<th>Size</th>
<th>22&quot; W x 53&quot;L x 12&quot;H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Capacity</td>
<td>32 gal</td>
</tr>
<tr>
<td>Invert Elevation</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>

## QUICK4 PLUS EQUALIZER 36 LOW PROFILE

### Nominal Specifications

<table>
<thead>
<tr>
<th>Size</th>
<th>22&quot;W x 53&quot;L x 8&quot;H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Capacity</td>
<td>20.8 gal</td>
</tr>
<tr>
<td>Invert Elevation</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>

## QUICK4 EQUALIZER 24

### Nominal Specifications

<table>
<thead>
<tr>
<th>Size</th>
<th>16&quot;W x 53&quot;L x 11&quot;H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Capacity</td>
<td>20.8 gal</td>
</tr>
<tr>
<td>Invert Elevation</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>

## QUICK4 EQUALIZER 24 LOW PROFILE

### Nominal Specifications

<table>
<thead>
<tr>
<th>Size</th>
<th>16&quot;W x 53&quot;L x 8&quot;H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Capacity</td>
<td>17 gal</td>
</tr>
<tr>
<td>Invert Elevation</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>

## QUICK4 PLUS All-in-One Periscope

### Nominal Specifications

<table>
<thead>
<tr>
<th>Size</th>
<th>5&quot;W x 9&quot;L x 6&quot;H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invert Elevation when installed on All-in-One Endcap</td>
<td>9&quot;</td>
</tr>
</tbody>
</table>

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Sizing of Chamber Systems in Trenches Only

QUICK4 HIGH CAPACITY CHAMBER SYSTEMS

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies’ minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 High Capacity Chambers.

\[
L = \frac{0.75 \times A}{W + 2}
\]

\[
L = \frac{0.75 \times A}{3 + 2}
\]

4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 High Capacity Chambers.

\[
L = \frac{0.6 \times A}{W + 2}
\]

\[
L = \frac{0.6 \times A}{3 + 2}
\]

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

Minimum number of Quick4 High Capacity Chambers required based on bedrooms and soils class.

<table>
<thead>
<tr>
<th>NUMBER OF BEDROOMS</th>
<th>SOIL CLASS I 1B</th>
<th>SOIL CLASS II</th>
<th>SOIL CLASS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>18</td>
<td>27</td>
<td>34</td>
</tr>
<tr>
<td>3</td>
<td>24</td>
<td>36</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
<td>45</td>
<td>57</td>
</tr>
<tr>
<td>5</td>
<td>36</td>
<td>54</td>
<td>68</td>
</tr>
<tr>
<td>6</td>
<td>42</td>
<td>63</td>
<td>79</td>
</tr>
<tr>
<td>Ea. Add’l Bedroom</td>
<td>6</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>

For additional information regarding excavation in 3 feet using Quick4 High Capacity Chambers with 25% reduction, see Appendix A on page 44.
Sizing of Chamber Systems in Trenches Only

QUICK4 PLUS HIGH CAPACITY CHAMBER SYSTEMS

Minimum number of Quick4 Plus High Capacity Chambers required based on bedrooms and soils class.

<table>
<thead>
<tr>
<th>NUMBER OF BEDROOMS</th>
<th>SOIL CLASS 1B</th>
<th>SOIL CLASS II</th>
<th>SOIL CLASS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>18</td>
<td>27</td>
<td>34</td>
</tr>
<tr>
<td>3</td>
<td>24</td>
<td>36</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
<td>45</td>
<td>57</td>
</tr>
<tr>
<td>5</td>
<td>36</td>
<td>54</td>
<td>68</td>
</tr>
<tr>
<td>6</td>
<td>42</td>
<td>63</td>
<td>79</td>
</tr>
<tr>
<td>Ea. Add’l Bedroom</td>
<td>6</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>

For additional information regarding excavation in 3 feet using Quick4 Plus High Capacity Chambers with 25% reduction, see Appendix B on page 45.

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies’ minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 Plus High Capacity Chambers.

\[
L = \frac{.75 \times A}{W + 2} \\
L = \frac{.75 \times A}{3 + 2}
\]

4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 Plus High Capacity Chambers.

\[
L = \frac{.6 \times A}{W + 2} \\
L = \frac{.6 \times A}{3 + 2}
\]

NOTE: All Infiltrator Quick leaching chambers can be installed on residential or commercial installations.
Sizing of Chamber Systems in Trenches Only

QUICK4 STANDARD CHAMBER SYSTEMS

Minimum number of Quick4 Standard Chambers required based on bedrooms and soils class.

<table>
<thead>
<tr>
<th>NUMBER OF BEDROOMS</th>
<th>SOIL CLASS 1B</th>
<th>SOIL CLASS II</th>
<th>SOIL CLASS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>18</td>
<td>27</td>
<td>34</td>
</tr>
<tr>
<td>3</td>
<td>24</td>
<td>36</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
<td>45</td>
<td>57</td>
</tr>
<tr>
<td>5</td>
<td>36</td>
<td>54</td>
<td>68</td>
</tr>
<tr>
<td>6</td>
<td>42</td>
<td>63</td>
<td>79</td>
</tr>
<tr>
<td>Ea. Add’l Bedroom</td>
<td>6</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>

For additional information regarding excavation in 3 feet using Quick4 Standard Chambers with 25% reduction, see Appendix A on page 44.

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies’ minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 Standard Chambers.

\[ L = \frac{0.6 \times A}{W+2} \]

Quick4 Standard Chambers:

\[ L = \frac{0.6 \times A}{3+2} \]

4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 Standard Chambers.

\[ L = \frac{0.75 \times A}{W+2} \]

Quick4 Standard Chambers:

\[ L = \frac{0.75 \times A}{3+2} \]

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.
Sizing of Chamber Systems in Trenches Only

**QUICK4 PLUS STANDARD CHAMBER SYSTEMS**

Minimum number of Quick4 Plus Standard Chambers required based on bedrooms and soils class.

<table>
<thead>
<tr>
<th>NUMBER OF BEDROOMS</th>
<th>SOIL CLASS I</th>
<th>SOIL CLASS II</th>
<th>SOIL CLASS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>18</td>
<td>27</td>
<td>34</td>
</tr>
<tr>
<td>3</td>
<td>24</td>
<td>36</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
<td>45</td>
<td>57</td>
</tr>
<tr>
<td>5</td>
<td>36</td>
<td>54</td>
<td>68</td>
</tr>
<tr>
<td>6</td>
<td>42</td>
<td>63</td>
<td>79</td>
</tr>
<tr>
<td>Ea. Add’l Bedroom</td>
<td>6</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>

For additional information regarding excavation in 3 feet using Quick4 Plus Standard Chambers with 25% reduction, see Appendix B on page 45.

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies’ minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 Plus Standard Chambers.

   \[
   L = \frac{0.6 \cdot A}{W+2} \\
   \]

   \[
   L = \frac{0.6 \cdot A}{3+2} \\
   \]

4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 Plus Standard Chambers.

   \[
   L = \frac{0.75 \cdot A}{W+2} \\
   \]

   \[
   L = \frac{0.75 \cdot A}{3+2} \\
   \]

**NOTE:** All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.
Sizing of Chamber Systems in Trenches Only

QUICK4 PLUS STANDARD LOW PROFILE CHAMBER SYSTEMS

Minimum number of Quick4 Plus Standard Low Profile Chambers required based on bedrooms and soils class.

<table>
<thead>
<tr>
<th>NUMBER OF BEDROOMS</th>
<th>SOIL CLASS 1B</th>
<th>SOIL CLASS II</th>
<th>SOIL CLASS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>21</td>
<td>32</td>
<td>39</td>
</tr>
<tr>
<td>3</td>
<td>28</td>
<td>42</td>
<td>52</td>
</tr>
<tr>
<td>4</td>
<td>35</td>
<td>52</td>
<td>65</td>
</tr>
<tr>
<td>5</td>
<td>41</td>
<td>63</td>
<td>78</td>
</tr>
<tr>
<td>6</td>
<td>48</td>
<td>73</td>
<td>91</td>
</tr>
<tr>
<td>Ea. Add'l Bedroom</td>
<td>7</td>
<td>11</td>
<td>13</td>
</tr>
</tbody>
</table>

For additional information regarding excavation in 3 feet using Quick4 Plus Standard Chambers with 25% reduction, see Appendix C on page 46.

1. This chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied or granted on any system installation that does not comply with these minimum sizing requirements.

2. This chart complies with Infiltrator Water Technologies’ minimum sizing criteria per TCEQ regulations.

3. If you use the HIGH GPD flow rate, use the following formulas for the Quick4 Plus Standard Low Profile Chambers.

   \[ L = \text{excavation length in feet} \]
   \[ A = \text{absorptive area} \]
   \[ W = \text{excavation width in feet} \]

   Quick4 Plus Standard Low Profile Chambers:
   \[ L = 0.6 \frac{A}{W+1.33} \]
   Quick4 Plus Standard Low Profile Chambers:
   \[ L = 0.6 \frac{A}{3+1.33} \]

4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formula for the Quick4 Plus Standard Low Profile Chambers.

   \[ L = \text{excavation length in feet} \]
   \[ A = \text{absorptive area} \]
   \[ W = \text{excavation width in feet} \]

   Quick4 Plus Standard Low Profile Chambers:
   \[ L = 0.75 \frac{A}{W+1.33} \]
   Quick4 Plus Standard Low Profile Chambers:
   \[ L = 0.75 \frac{A}{3+1.33} \]

**NOTE:** All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.
Sizing of Chamber Systems in Trenches Only

**QUICK4 EQUALIZER 36 CHAMBER SYSTEMS**

Minimum number of Quick4 Equalizer 36 Chambers required based on bedrooms and soils class.

<table>
<thead>
<tr>
<th>NUMBER OF BEDROOMS</th>
<th>SOIL CLASS 1B</th>
<th>SOIL CLASS II</th>
<th>SOIL CLASS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>23</td>
<td>34</td>
<td>43</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>45</td>
<td>57</td>
</tr>
<tr>
<td>4</td>
<td>37</td>
<td>57</td>
<td>71</td>
</tr>
<tr>
<td>5</td>
<td>43</td>
<td>68</td>
<td>85</td>
</tr>
<tr>
<td>6</td>
<td>52</td>
<td>79</td>
<td>99</td>
</tr>
<tr>
<td>Ea. Add’l Bedroom</td>
<td>8</td>
<td>12</td>
<td>14</td>
</tr>
</tbody>
</table>

For additional information regarding excavation in 2 feet using Quick4 Equalizer 36 Chambers with 25% reduction, see Appendix D on page 47.

1. The chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied, or granted on any system installation, which does not comply with these minimum sizing requirements.

2. This chart complies with our minimum sizing criteria per TCEQ regulations.

3. If you use the GPD flow rate, use the following formulas for the Quick4 Equalizer 36 Chambers.

4. If you use the LOW GPD flow rate, use the following formula for the Quick4 Equalizer 36 Chambers.

\[
L = \text{excavation length in feet} \\
A = \text{absorptive area} \\
W = \text{excavation width in feet} \\
\]

**Quick4 EQ36 Chamber:**

\[
L = \frac{.6 A}{W + 2} \\
L = \frac{.6 A}{2 + 2} \\
\]

**Quick4 EQ36 Chamber:**

\[
L = \frac{.75 A}{W + 2} \\
L = \frac{.75 A}{2 + 2} \\
\]

**NOTE:** All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.
Sizing of Chamber Systems in Trenches Only

QUICK4 PLUS EQUALIZER 36 LOW PROFILE CHAMBER SYSTEMS

Minimum number of Quick4 Plus Equalizer 36 Low Profile Chambers required based on bedrooms and soils class.

<table>
<thead>
<tr>
<th>NUMBER OF BEDROOMS</th>
<th>SOIL CLASS 1B</th>
<th>SOIL CLASS II</th>
<th>SOIL CLASS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>27</td>
<td>41</td>
<td>51</td>
</tr>
<tr>
<td>3</td>
<td>36</td>
<td>54</td>
<td>68</td>
</tr>
<tr>
<td>4</td>
<td>45</td>
<td>68</td>
<td>85</td>
</tr>
<tr>
<td>5</td>
<td>54</td>
<td>81</td>
<td>102</td>
</tr>
<tr>
<td>6</td>
<td>63</td>
<td>95</td>
<td>119</td>
</tr>
<tr>
<td>Ea. Add'l Bedroom</td>
<td>9</td>
<td>14</td>
<td>17</td>
</tr>
</tbody>
</table>

For additional information regarding excavation in 2 feet using Quick4 Plus Equalizer 36 Low Profile Chambers with 25% reduction, see Appendix E on page 48.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 Plus EQ36 LP Chamber: \( L = .6 \frac{A}{W + 1.33} \)
Quick4 Plus EQ36 LP Chamber: \( L = .6 \frac{A}{2 + 1.33} \)

4. If you use the LOW GPD flow rate (Water Savings Credit), use the following formulas for the Quick4 Plus Equalizer 36 Low Profile Chambers.

L = excavation length in feet
A = absorptive area
W = excavation width in feet

Quick4 Plus EQ36 LP Chamber: \( L = .75 \frac{A}{W + 1.33} \)
Quick4 Plus EQ36 LP Chamber: \( L = .75 \frac{A}{2 + 1.33} \)

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.
Sizing of Chamber Systems in Trenches Only

**QUICK4 EQUALIZER 24 CHAMBER SYSTEMS**

Minimum number of Quick4 Equalizer 24 Chambers required based on bedrooms and soils class.

<table>
<thead>
<tr>
<th>NUMBER OF BEDROOMS</th>
<th>SOIL CLASS 1B</th>
<th>SOIL CLASS II</th>
<th>SOIL CLASS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>26</td>
<td>39</td>
<td>49</td>
</tr>
<tr>
<td>3</td>
<td>34</td>
<td>52</td>
<td>65</td>
</tr>
<tr>
<td>4</td>
<td>43</td>
<td>65</td>
<td>81</td>
</tr>
<tr>
<td>5</td>
<td>51</td>
<td>78</td>
<td>97</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
<td>90</td>
<td>113</td>
</tr>
<tr>
<td>Ea. Add’l Bedroom</td>
<td>9</td>
<td>15</td>
<td>17</td>
</tr>
</tbody>
</table>

For additional information regarding excavation in 1.5 feet or 18 inches using Quick4 Equalizer 24 Chambers with 25% reduction, see Appendix F on page 49.

1. The chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied, or granted on any system installation, which does not comply with these minimum sizing requirements.

2. This chart complies with our minimum sizing criteria per TCEQ regulations.

3. If you use the GPD flow rate, use the following formulas for the Quick4 Equalizer 24 Chambers.

4. If you use the LOW GPD flow rate, use the following formula for the Quick4 Equalizer 24 Chambers.

   \[ L = \frac{.6 A}{W + 2} \]

   \[ L = \frac{.6 A}{1.5 + 2} \]

   \[ L = \frac{.75 A}{W + 2} \]

   \[ L = \frac{.75 A}{1.5 + 2} \]

**NOTE:** All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.
Sizing of Chamber Systems in Trenches Only

**QUICK4 EQUALIZER 24 LOW PROFILE SYSTEMS**

1. The chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied, or granted on any system installation, which does not comply with these minimum sizing requirements.

2. This chart complies with our minimum sizing criteria per TCEQ regulations.

3. If you use the **HIGH** GPD flow rate, use the following formulas for the Quick4 Equalizer 24 LP Chambers.

\[
L = \frac{0.75 \times A}{W + 1.33}
\]

\[
L = \frac{0.75 \times A}{1.5 + 1.33}
\]

4. If you use the **LOW** GPD flow rate (**Water Savings Credit**), use the following formula for the Quick4 Equalizer 24 LP Chambers.

\[
L = \frac{0.75 \times A}{W + 1.33}
\]

\[
L = \frac{0.75 \times A}{1.5 + 1.33}
\]

**NOTE:** All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.

---

**Minimum number of Quick4 Equalizer 24 LP Chambers required based on bedrooms and soils class.**

<table>
<thead>
<tr>
<th>NUMBER OF BEDROOMS</th>
<th>SOIL CLASS 1B</th>
<th>SOIL CLASS II</th>
<th>SOIL CLASS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>32</td>
<td>48</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>42</td>
<td>64</td>
<td>80</td>
</tr>
<tr>
<td>4</td>
<td>53</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>63</td>
<td>96</td>
<td>120</td>
</tr>
<tr>
<td>6</td>
<td>74</td>
<td>112</td>
<td>140</td>
</tr>
<tr>
<td>Ea. Add'l Bedroom</td>
<td>11</td>
<td>16</td>
<td>20</td>
</tr>
</tbody>
</table>

For additional information regarding excavation in 1.5 feet or 18 inches using Quick4 Equalizer 24 LP Chambers with 25% reduction, see Appendix G on page 50.
Steven C. Murdock  
Infiltrator Water Technologies  
Senior Sales Representative  
2400 New Hope Spur  
Cedar Park, Texas 78613  

Re: Use of Leaching Chamber Panels in LPD Systems  

Dear Mr. Murdock,  

You recently inquired about the use of leaching chambers in low-pressure dosing (LPD) systems. Specifically, you inquired about whether the reduction is still given in these situations.  

We interpret the Chapter 285 rules as follows: if a standard system can be installed in that soil, then the chambers get a reduction, regardless of whether they use pressure distribution. Alternatively, if a standard system cannot be used in that soil, and they are using chambers instead of using gravel, then no reduction is allowed.  

The reason for our interpretation is that pressure distribution is preferable to gravity distribution, and if a designer could use gravity distribution, but chooses to go the extra mile and use pressure distribution, we do not wish to provide a disincentive to this practice.  

If you have any questions, please feel free to contact me at 512-239-4777.  

Sincerely,  

James McCaine  
On-site Wastewater Team, TCEQ
Steve Murdock, Senior Sales Representative  
Infiltrator Water Technologies  
4 Business Park Road  
Old Saybrook, CT 06475  

Subject: End Cap Bottom Area Credit  

Dear Mr. Murdock,

We have completed our review of the subject matter. Basically, you are requesting bottom area credit for the different models of leaching chambers manufactured by Infiltrator Water Technologies. The table below provides the models and the requested bottom area credits for end caps and end cap pairs:

<table>
<thead>
<tr>
<th>Chamber Model</th>
<th>Effective Endcap Open Bottom Area (ft²)</th>
<th>Per End Cap</th>
<th>Per Pair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick4 Standard</td>
<td>1.64</td>
<td>3.28</td>
<td></td>
</tr>
<tr>
<td>Quick4 High Capacity</td>
<td>2.25</td>
<td>4.50</td>
<td></td>
</tr>
<tr>
<td>Quick4 Plus Standard (Quick4 Plus All-in-One 12 Endcap)</td>
<td>3.06</td>
<td>6.12</td>
<td></td>
</tr>
<tr>
<td>Quick4 Plus Standard Low Profile (Quick4 Plus All-in-One 8 Endcap)</td>
<td>1.39</td>
<td>2.78</td>
<td></td>
</tr>
<tr>
<td>Quick4 Plus High Capacity (Quick4 Plus All-in-One 12 Endcap)</td>
<td>3.06</td>
<td>6.12</td>
<td></td>
</tr>
<tr>
<td>Quick4 Equalizer 24</td>
<td>0.84</td>
<td>1.68</td>
<td></td>
</tr>
<tr>
<td>Quick4 Equalizer 36</td>
<td>1.16</td>
<td>2.32</td>
<td></td>
</tr>
<tr>
<td>Quick4 Equalizer 24 Low Profile (Quick4 Plus All-in-One 8 Endcap)</td>
<td>1.39</td>
<td>2.78</td>
<td></td>
</tr>
<tr>
<td>Quick4 Equalizer 36 Low Profile (Quick4 Plus All-in-One 8 Endcap)</td>
<td>1.39</td>
<td>2.78</td>
<td></td>
</tr>
</tbody>
</table>

We have no objections to giving bottom area credit to the end caps and end cap pairs in accordance with this table. The basis for approval is that the bottom area is an unobstructed surface for infiltration. If you have any questions, please either e-mail me back or call me at 512-239-4777.

Sincerely,

James McCaine  
Program Support Section
Steven C. Murdock  
Infiltrator Water Technologies  
Senior Sales Representative  
2400 New Hope Spur  
Cedar Park, Texas 78613

Re: Chapter 285 Treatment of Partially Buried Leaching Chambers

Dear Mr. Murdock,

You recently asked our opinion on a specific scenario. Due to soil characteristics, the system will use leaching chambers placed at a depth where the top of the chamber (above the louvers) is above native grade. Your concern is that we have not allowed gravel systems to be installed above grade without treating them as mounds.

The reason we have not allowed gravel systems above grade without treating them as mounds is that the basal calculations and considerations covered under mound design will prevent seeps. However, we believe that as long as the louvers are below grade, seepage along the native soil surface should not be a problem and the top of the panel may be above grade without requiring the system to meet the requirements for mounds.

If you have any questions, please feel free to contact me at 512-239-4777.

Sincerely,

James McCaine  
On-site Wastewater Team, TCEQ
System Layout

After the system is sized, then the system layout can be determined. This includes identifying the septic tank location, leachfield location, vertical alignment of all components, and the designation of a repair area.

System location is determined based upon the site evaluation. On undeveloped lots, the location of the system should take precedence over the location of the house, well, and driveway in order to ensure safe and effective siting.

Septic Tank Design

Septic tanks must meet the TCEQ design criteria (see Figures 2 and 3).

Connection of the distribution pipe to the chamber should be the highest elevation possible on the endcap.

NOTE: Length of trench varies, based upon system sizing.
Quick4 Chambers Serial Distribution Configurations

SERIAL DISTRIBUTION SYSTEM
PLAN VIEW (TYP.)

INFLTRATOR SEPTIC TANK

QUICK4 STANDARD CHAMBERS

HIGH LEVEL OVERFLOW

3" OR 4" MIN. PVC

SLOPE

SERIAL DISTRIBUTION SYSTEM
ON SLOPING TERRAIN

3" OR 4" PVC 45° or 60°

3" or 4" PVC 22° or 45°

RAISED INVERT
HIGH LEVEL OVERFLOW

ESTABLISH VEGETATIVE COVER

ORIGINAL GRADE
Quick4 Plus Chambers Serial Distribution Configurations

**SERIAL DISTRIBUTION SYSTEM**
**PLAN VIEW (TYP.)**

- **INfiltrator Septic Tank**
- **Raised Invert**
- **High Level Overflow**
- **Original Grade**
- **All-In-One Periscope (TYP.)**
- **Quick4 Plus Standard Chamber (TYP.)**
- **3" or 4" PVC 45° OR 60°**
- **3" or 4" PVC 22° OR 60°**

**SERIAL DISTRIBUTION SYSTEM**
**ON SLOPING TERRAIN**

- **Raised Invert High Level Overflow**
- **Establish Vegetative Cover**
- **Quick4 Plus All-In-One Endcap (TYP.)**

**SERIAL DISTRIBUTION SYSTEM**
**ON LEVEL TERRAIN**

- **Raised Invert High Level Overflow**
- **Establish Vegetative Cover**
- **Quick4 Plus All-In-One Endcap (TYP.)**
Quick4 Chambers Serial Distribution Configurations

INSPECTION PORT STEP DOWN SYSTEM
CROSS SECTION (TYP.)

- 3" or 4" PVC STREET 90º FITTING INSERTED INTO CHAMBER INSPECTION PORT SO THE FLOW LINE IS NO HIGHER THAN THE TOP OF CHAMBER
- ESTABLISH VEGETATIVE COVER
- CENTER-TO-CENTER SPACING PER CODE
- INLET FIRST ROW THROUGH INSPECTION PORT
- ORIGINAL GRADE

INSPECTION PORT STEP DOWN SYSTEM
PLAN VIEW (TYP.)

- INLET FROM SEPTIC TANK
- 12" x 12" CONCRETE SPLASH PAD (TYP.)

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Quick4 High Capacity Chamber Trench Configurations

CROSS SECTION

Chamber Rating: 20.00 ft² per chamber

PLAN VIEW

LEVEL PVC HEADER PIPE
3” OR 4” PVC PIPE
QUICK4 HIGH CAPACITY CHAMBERS
INFLTRATOR SEPTIC TANK
QUICK4 HIGH CAPACITY MULTIPOINT ENDCAPS

LEVEL PVC HEADER PIPE
3” OR 4” PVC PIPE
QUICK4 HIGH CAPACITY CHAMBERS
INFLTRATOR SEPTIC TANK
QUICK4 HIGH CAPACITY MULTIPOINT ENDCAPS

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Quick4 Plus High Capacity Chamber Trench Configurations

CROSS SECTION

PLAN VIEW

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Quick4 Standard Chamber Trench Configurations

**CROSS SECTION**

- MOUND FOR PROPER DRAINAGE
- TOPSOIL
- NATIVE BACKFILL, IB, II, OR III CLASS SOILS
- ESTABLISH VEGETATIVE COVER
- 12" MIN. H-10 LOAD AREAS
- 6" MIN. NON-TRAFFIC AREAS
- 36" TRENCH WIDTH

**PLAN VIEW**

- 3" OR 4" PVC PIPE
- LEVEL PVC HEADER PIPE
- QUICK4 STANDARD CHAMBERS
- INTEGRATOR SEPTIC TANK
- QUICK4 STANDARD MULTIPORT ENDCAPS
- 34" PER CODE

**Chamber Rating:** 20.00 ft² per chamber
Quick4 Plus Standard Chamber Trench Configurations

**CROSS SECTION**

CHAMBER CONFIGURATIONS

Chamber Rating: 20.00 ft² per chamber

**PLAN VIEW**

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Quick4 Plus Standard Low Profile Chamber Trench Configurations

Chamber Rating: 17.60 ft² per chamber

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Quick4 Equalizer 36 Chamber Trench Configurations

CHAMBER CONFIGURATIONS

CROSS SECTION

MOUND FOR PROPER DRAINAGE

ESTABLISH VEGETATIVE COVER

TOPSOIL

NATIVE BACKFILL

12" MIN, H-10 LOAD AREAS

6" MIN, NON-TRAFFIC AREAS

TOPSOIL

NATIVE BACKFILL

24" TRENCH WIDTH

QUICK4 PLUS
ALL-IN-ONE
ENDCAP (TYP.)

INTEGRATOR
SEPTIC TANK

LEVEL PVC HEADER PIPE

22" PER CODE

3" OR 4"
PVC PIPE

QUICK4 EQUALIZER 36
CHAMBERS (TYP.)

CHAMBER Rating: 16 ft² per chamber

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Quick4 Plus Equalizer 36 Low Profile Chamber Trench Configurations

CHAMBER CONFIGURATIONS

CROSS SECTION

PLAN VIEW

Chamber Rating: 13.6 ft³ per chamber

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Quick4 Equalizer 24 Chamber Trench Configurations

CROSS SECTION (TYP.)

ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL

12" MIN., H-10 LOAD AREAS
6" MIN., NON-TRAFFIC AREAS

TRENCH WIDTH
18"

6"

11"

CHAMBER CONFIGURATIONS

Quick4 Equalizer 24 Chamber Trench Configurations

Chamber Rating: 14 ft² per chamber

PLAN VIEW (TYP.)

QUICK4 PLUS
ALL-IN-ONE
ENDCAP (TYP.)

16"

PER CODE

3" OR 4"
PVC PIPE

INFLTRATOR SEPTIC TANK

QUICK4 EQUALIZER 24
CHAMBERS (TYP.)
CHAMBER CONFIGURATIONS

Quick4 Equalizer 24 Low Profile Chamber Trench Configurations

CROSS SECTION (TYP.)

Chamber Rating: 11.32 ft$^2$ per chamber

PLAN VIEW (TYP.)
Turn Design Configurations

Contour Swivel Connection™
The Quick4 Chamber’s Contour Swivel Connection allows systems to be constructed on sloped sites and avoid obstructions without additional parts or accessories. The chamber easily follows contours or an “S” curve and avoids obstacles without additional parts or accessories. Chamber connections swivel 10 or 15-degrees, (see drawing below).

PVC Pipe with MultiPort Endcaps
The Quick4 MultiPort Endcap’s universal multi-port design offers unlimited piping and design options. The molded-in inlets/outlets allow you to pipe from multiple directions and eliminate pipe fittings (see drawing below).
1. SIZE REDUCTION: 40% WITHOUT WATER SAVING DEVICES
A 40% maximum size reduction in system square footage has been approved by the TCEQ, when the Infiltrator® Leaching Chamber System is installed in Type Ib, II or III soils without water saving devices. (See Sizing Charts on pages 5-8). Infiltrator Chambers can be installed in Class IV soil with no size reduction of system.

NOTE: The maximum reduction allowed for all standard leaching chamber system installations is 40%. There is no additional reduction for water saving devices.

2. SIZE REDUCTION: 25% WITH WATER SAVING DEVICES
A 25% maximum size reduction in system square footage has been approved by the TCEQ, when the Infiltrator® Leaching Chamber System is installed in Type Ib, II or III soils with water saving devices. (See Sizing Charts on pages 5-8). Infiltrator Chambers can be installed in Class IV soil with no size reduction of system.

NOTE: The maximum reduction allowed for all standard leaching chamber system installations is 25% when using water saving devices.

3. CLASS IV SOILS
Infiltrator Leaching Chambers may be used instead of media in ET systems, low-pressure dosed drainfields, and Soil Substitution drainfields, but the size of drainfield shall not be reduced from septic drainfield area.

4. DESIGN
The Infiltrator Water Technologies may be designed using serial or parallel distribution. The flowline of the crossover tightline on serial distribution systems shall be at the top of the chamber on the discharge end.

5. LINE LENGTH
When installing Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, Quick4 Plus Standard, Quick4 Plus Standard Low Profile, Quick4 Equalizer 36, Quick4 Plus Equalizer 36 Low Profile, Quick4 Equalizer 24 or Quick4 Equalizer 24 LP Chambers no line shall be longer than 150 feet or more than 37 chambers in length.

6. HEADER OR MANIFOLD PIPE
The header or manifold pipe shall be connected to each inlet chamber opening with a 1 1/2-inch screw to prevent possible line separation during installation and backfilling.

7. ENDCAPS
MultiPort endcaps shall be backfilled by hand to ensure the endcaps are not dislodged during final backfill.

8. TOP LOADING
In the case that the chambers cannot be loaded from the end plate, the chambers may be loaded from the inspection port. However, a concrete block must be placed below the inspection port.

9. LEVELING
All chambers should be as level as possible per TCEQ regulations. The bottom of the excavation shall be level to within one inch over each 25 feet of excavation or within three inches over the entire excavation, whichever is less. The elevation of all chambers should be based on the inspection port disc in the center of each chamber.

10. INSPECTION PORT (OPTIONAL)
If you are installing an inspection port, use 3” or 4” PVC to ground surface with a threaded plug or cap. An inspection port may be placed on any chamber in the drainfield and the location should be noted on the septic system drawing.

11. INITIAL BACKFILL
IMPORTANT: The sides of the chambers shall be shoveled filled with select backfill material (Type I b, II or III soils) and walked down (compacted) once chambers are latched and leveled. This is to provide chamber support, prevent movement during the final backfill process and prevent loose soil migration into the chamber.

12. BACKFILL MATERIAL
The backfill material shall be soil Types I b, II and III soils only. (No Class IV soils.) Infiltrator Water Technologies requires native soil backfill (Type I b, II or III) to prevent infiltration of rain or surface water run-off, similar to the french drain effect. All backfill material shall be free of rocks larger than one inch (1”). Be cautious in areas where silty soils are being classified as sandy loam.

13. FINAL BACKFILL
No vehicle or construction equipment shall be allowed to enter the disposal area during or after the backfill process. There should be a minimum of 12 inches (12”) of cover over all chambers in the systems. A minimum of 6” of cover can be used in non-vehicular traffic areas.

14. LOW MOISTURE CONTENT
When working in fine and very fine sands (loamy sand and sandy loam soils with LOW MOISTURE CONTENT) it is at the contractors’ discretion to cover the chambers with a very fine filter cloth (0.040 mil.) (ASTM D 4571) prior to backfilling the system. A thicker filter fabric over the chambers may develop a biomat in the cloth, which prevents the exfiltration of effluent from the chambers into the soil. Any other filter fabric used will VOID this warranty.
Quick4 High Capacity, Quick4 Standard, Quick4 Equalizer 36 and Quick4 Equalizer 24 Chambers

Before You Begin
Quick4 Chambers may only be installed according to State and/or local regulations. If unsure of the installation requirements for a particular site, contact the local health department.

Like conventional systems, the soil and site conditions must be approved prior to installation. Conduct a thorough site evaluation to determine the proper sizing and siting of the system before installation.

Preparation of the Endcap
1. With a utility knife start the tear-out seal at the appropriate diameter for the inlet pipe. The seal allows for a tight fit for 3-inch, 4-inch SDR35, and 4-inch SCH40 pipe.
2. Pull the tab on the tear-out seal to create an opening on the endcap.
3. Snap off the molded splash plate located on the bottom front of the endcap.
4. Insert the inlet pipe into the endcap at the beginning of the trench. The pipe will go in several inches before reaching a stop. Screws are recommended to prevent the header pipe from pulling out during backfill.
5. Verify that each trench is level using a level, transit or laser.

Materials and Equipment Needed
- Quick4 Chambers
- MultiPort Endcaps
- PVC Pipe and Couplings
- Backhoe
- Laser, Transit or Level
- Shovel and Rake
- Tape Measure
- Utility Knife
- Hole Saw*
- 1½-inch Drywall Screws*
- Screw Gun*
- Small Valve-Cover Box*
- 3 or 4-inch Threaded Plug for Inspection Port*

*Optional

These guidelines for construction machinery must be followed during installation:
- Avoid direct contact with chambers when using construction equipment. Chambers require a 12-inch minimum of compacted cover to support a wheel load rating of 16,000 lbs/axle or equivalent to an H-10 AASHTO load rating.
- Only drive across the trenches when necessary. Never drive down the length of the trenches.
- To avoid additional soil compaction, never drive heavy vehicles over the completed system.

Excavating and Preparing the Site
NOTE: As is the case with conventional systems, do not install the systems in wet conditions or in overly moist soils, as this causes machinery to smear the soil.
1. Stake out the location of all trenches and lines. Set the elevations of the tank, pipe, and trench bottom.
2. Install sedimentation and erosion control measures. Permanent drainage swales/berms may be installed to protect the site during rainfall events.
3. Excavate and level trenches with proper center-to-center separation. Verify that the trenches are level or have the prescribed slope.
NOTE: Over excavate the trench width in areas where you are planning to swivel the chambers.
4. Rake the bottom and sides if smearing has occurred while excavating. Remove any large stones and other debris. Do not use the bucket teeth to rake the trench bottom.
Note: Raking to eliminate smearing is not necessary in sandy soils. In fine textured soils (silt and clays), avoid walking in the trench to prevent compaction and loss of soil structure.
5. Verify that each trench is level using a level, transit or laser.

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Installing the System

1. Check the header pipe to be sure it is level or has the prescribed slope.
2. Set invert to appropriate height from the bottom of the trench.
3. Place the inlet end of the first chamber over the back edge of the endcap.
4. Lift and place the end of the next chamber onto the previous chamber by holding it at a 90-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the first chamber. Lower it to the ground to connect the chambers.

**NOTE:** When the chamber end is placed between the connector hook and locking pin at a 90-degree angle, the pin will be visible from the back side of the chamber.

Note: The connector hook serves as a guide to insure proper connection and does not add structural integrity to the chamber joint. Broken hooks will not affect the structure nor void the warranty.

5. Swivel the chamber on the pin to the proper direction for the trench layout.

**NOTE:** Quick4 chambers allow for 10º swivel in either direction at each joint.

6. Where the system design requires straight runs, use the StraightLock™ Tabs to ensure straight connections. To activate the tabs, pop the tabs up with your thumb to lock into place.

7. Continue connecting the chambers until trench is completed.

Note: As chambers are installed, verify they are level or have the prescribed slope to meet local code.

8. The last chamber in the trench requires an endcap. Lift the endcap at a 45-degree angle and insert the connector hook through the opening on the top of the endcap. Applying firm pressure, lower endcap to the ground to snap it into place. Do not remove tear-out seal.

9. To ensure structural stability, fill the sidewall area by pulling soil from the sides of the trench with a shovel. Start at the joints where chambers connect. Continue backfilling the entire sidewall area, making sure the fill covers the louvers.

10. Pack down the fill by walking along the edges of the trench and chambers. This is an important step in assuring structural support.

11. Proceed to the next trench and begin with Step 1.

Installing Optional Inspection Ports

1. With a hole saw drill the pre-marked area in the top of the chamber to create a 4-inch opening.
2. Set a cut piece of pipe of the appropriate length into the corresponding chamber’s inspection port sleeve.

Note: The sleeve will accommodate a 4-inch SCH 40 pipe.

3. Use 2 screws to fasten pipe to the sleeve around inspection port.
4. Attach a threaded cap or cleanout assembly onto the protruding pipe at the appropriate height.

5. A small valve cover box may be used if inspection port is below the desired grade.

Covering the System

Before backfilling, the system must be inspected by a health officer or other official as required by State and local codes. Create an as-built drawing at this time for future records.

1. Backfill the trench by pushing fill material over the chambers with a backhoe. Keep a minimum of 12 inches of compacted cover over the chambers before driving over the system.

Note: Do not drive over system while backfilling in sand.

2. It is best to mound several inches of soil over the finish grade to allow for settling. This ensures that runoff water is diverted away from the system.

3. After system is covered, Infiltrator recommends, but doesn’t require, that the site be seeded or sodded to prevent erosion.

**NOTE:** If the system is for new home construction it is important to leave marking stakes along the boundary of the system. This will notify contractors of the site location so they will not cross it with equipment or vehicles.
Quick4 Plus Standard, Quick4 Plus High Capacity, Quick4 Plus Standard Low Profile and Quick4 Plus Equalizer 36 Low Profile Chamber Systems

Before You Begin
This document addresses the installation of Quick4 Plus High Capacity Quick4 Plus Standard Low Profile (LP) and Quick4 Plus Equalizer 36 Low Profile (LP) chambers. The Quick4 Plus Standard LP and Quick4 Plus Equalizer 36 LP chambers are designed for shallow placement applications. All chambers may only be installed according to state and/or local regulations. If unsure of the installation requirements for a particular site, contact the local health department. Like conventional systems, soil and site conditions must be approved prior to installation. Conduct a thorough site evaluation to determine proper sizing and siting of system.

Preventing Backfill Smearing

Materials and Equipment Needed

- Q4 Plus Chambers
- Q4 Plus Endcaps
- Q4 Plus All-in-One
- PVC Pipe and Couplings
- Backhoe
- Laser, Transit or Level
- Shovel and Rake
- Tape Measure
- Utility Knife
- Hole Saw* 
- 1 1/2-inch Drywall Screws*
- Screw Gun*
- Small Valve-Cover Box*
- 3 or 4-inch Threaded Plug for Inspection Port*

*Optional

These guidelines for construction machinery must be followed during installation:

- Avoid direct contact with chambers when using construction equipment. Chambers require a 12-inch minimum of compacted cover to support a wheel load rating of 16,000 lbs/axle or equivalent to an H-10 AASHTO load rating.
- When installing in sandy soil conditions, wheeled construction equipment is prohibited over top of system. Tracked equipment can be used over top of system with a minimum of 6” of soil cover.
- Avoid stones larger than 3 inches in diameter in backfill. Remove stones this size or larger.

Before You Begin

This document addresses the installation of Quick4 Plus High Capacity Quick4 Plus Standard Low Profile (LP) and Quick4 Plus Equalizer 36 Low Profile (LP) chambers. The Quick4 Plus Standard LP and Quick4 Plus Equalizer 36 LP chambers are designed for shallow placement applications. All chambers may only be installed according to state and/or local regulations. If unsure of the installation requirements for a particular site, contact the local health department. Like conventional systems, soil and site conditions must be approved prior to installation. Conduct a thorough site evaluation to determine proper sizing and siting of system.

Preventing Backfill Smearing

Materials and Equipment Needed

- Q4 Plus Chambers
- Q4 Plus Endcaps
- Q4 Plus All-in-One
- PVC Pipe and Couplings
- Backhoe
- Laser, Transit or Level
- Shovel and Rake
- Tape Measure
- Utility Knife
- Hole Saw* 
- 1 1/2-inch Drywall Screws*
- Screw Gun*
- Small Valve-Cover Box*
- 3 or 4-inch Threaded Plug for Inspection Port*

*Optional

These guidelines for construction machinery must be followed during installation:

- Avoid direct contact with chambers when using construction equipment. Chambers require a 12-inch minimum of compacted cover to support a wheel load rating of 16,000 lbs/axle or equivalent to an H-10 AASHTO load rating.
- When installing in sandy soil conditions, wheeled construction equipment is prohibited over top of system. Tracked equipment can be used over top of system with a minimum of 6” of soil cover.
- Avoid stones larger than 3 inches in diameter in backfill. Remove stones this size or larger.

Excavating and Preparing the Site

NOTE: As is the case with conventional systems, do not install systems in wet conditions or in overly moist soils, as this causes machinery to smear the soil.

1. Stake out location of all trenches and lines. Set elevations of tank, pipe, and trench bottom.
2. Install sedimentation and erosion control measures. Temporary drainage swales/berms may be installed to protect site during rainfall.
3. Excavate and level trenches with proper width and center-to-center separation. Verify that trenches are level or have the prescribed slope.

NOTE: Over excavate an area where you are planning to contour.
4. Rake bottom and sides if smearing has occurred while excavating. Remove any large stones and other debris. Do not use bucket teeth to rake trench bottom.

NOTE: Raking to eliminate smearing is not necessary in sandy soils. In fine textured soils (sils and clays), avoid walking in the trench to prevent compaction and loss of soil structure.

Installing the Quick4 Plus Periscope

NOTE: Available for use with Quick4 Plus All-in-One Endcap only. Invert options based on system design.

1. With a 4” hole saw drill the pre-marked area on top of the Quick4 Plus All-in-One Endcap.
2. Insert the Quick4 Plus Periscope into top of the Quick4 Plus All-in-One Endcap. Insert the Quick4 Plus Periscope until it snaps into place.
3. Insert a 4” Schedule 40 PVC pipe into the Quick4 Plus Periscope at the appropriate locations for the system design.
4. Rotate Quick4 Plus Periscope to desired angle.

Connect inlet pipe.
Installing the System

1. Check the header pipe to be sure it is level or has the prescribed slope.
2. Set the invert height as specified in the design from the bottom of the inlet.
3. Place the first chamber in the trench.
4. Place the back edge of the endcap over the inlet end of the first chamber. Be sure to line up the locking pins on the top of both the chamber and endcap.
5. Insert the inlet pipe 2.5 inches into the opening on the front of the endcap. Insert fully to the internal pipe stop.
6. Lift and place the end of the next chamber onto the previous chamber by holding it at a 45-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the first chamber. Lower the chamber to the ground to connect the chambers.

**NOTE:** The connector hook serves as a guide to ensure proper connection and does not add structural integrity to the chamber joint. Broken hooks will not affect the structure or void the warranty.

7. Swivel the chamber on the pin to achieve the proper direction for the trench layout.

**NOTE:** The chamber allows up to 10-degree swivel in either direction at each joint.

8. Continue connecting chambers until the trench is completed.

**NOTE:** As chambers are installed, verify they are level or have the prescribed slope.

9. The last chamber in the trench requires an endcap. Lift the endcap at a 45-degree angle and align the connector hook on the top of the chamber with the raised slot on the top of the endcap. Lower the endcap to the ground and into place.

**NOTE:** Place a few shovels of soil around the endcap to secure it during backfill.

10. To ensure structural stability, fill the sidewall area by pulling soil from the sides of the trench with a shovel. Start at the joints where the chambers connect. Continue backfilling the entire sidewall area, making sure the fill covers the louvers.

11. Pack down fill by walking along the edges of trench and chambers.

**NOTE:** In wet or clay soils, do not walk in the sidewalls.

12. Proceed to the next trench and begin with Step 1.

**Installing Quick4 Plus All-in-One Endcap as a Mid-line Connection**

**NOTE:** See mid-line piping options on the back of this document.

1. With a hole saw drill an opening appropriate for the pipe diameter being used on the side (3.3" invert) or on top (9.0" invert) of the Quick4 Plus All-in-One Endcap.

**NOTE:** Piping configurations are determined by the preference of the installer or designer.

2. With a hole saw, drill an opening on the end of the Quick4 Plus All-in-One Endcap to create an invert at 0.5 inches. This will allow effluent to fill both sides of the chamber line.

3. Snap off the molded splash plate located on the bottom front of the endcap.

4. Install splash plate into the appropriate slots below the inlet to prevent trench bottom erosion.

5. Place the back edge of the endcap over the inlet end of the first chamber. Be sure to line up the locking pins on the top of both the chamber and endcap.

**NOTE:** Fasten endcap to chamber with a screw at the top of endcap.

6. Insert the connection pipe 2.5 inches into the opening on endcap.
Covering the System

Before backfilling, the system must be inspected by a health officer or other official as required by state and local codes. Create an as-built drawing at this time for future records.

1. Backfill the system by pushing fill material over the chambers. Keep a minimum of 12 inches of compacted cover over the chambers before driving over the system with wheeled construction equipment.

   **NOTE:** Do not drive over the system while backfilling in sandy soil.

2. It is best to mound several inches of soil over the finished grade to allow for settling. A slight crown also ensures that runoff water is diverted away from the system trench.

3. After the system is covered, the site should be seeded or sodded to prevent erosion.

   **NOTE:** For shallow cover, sand fill, and sandy soil applications, tracked construction equipment must be used. You must mound 12 inches of soil over the system before driving over it with wheeled construction equipment, then grade it back a minimum 6 inches upon completion.

   **NOTE:** If system is for new home construction, it is important to leave marking stakes along the boundary of the system. This will notify contractors of the system location so they will not cross it with equipment or vehicles.
Quick4 Equalizer 24 LP Chamber Systems

Before You Begin
Quick4 Equalizer 24 LP Chambers are designed for shallow placement applications and may only be installed according to State and/or local regulations. If unsure of the installation requirements for a particular site, contact the local health department.

Like conventional systems, the soil and site conditions must be approved prior to installation. Conduct a thorough site evaluation to determine the proper sizing and siting of the system before installation.

Preparing the Endcap
1. With a hole saw drill a opening appropriate to the pipe diameter being used (normally 3 to 4 inches) on the front of the endcap.
2. Snap off the molded splash plate located on the bottom front of the endcap.
3. Install splash plate into the appropriate slots below the inlet to prevent trench bottom erosion.

Installing the System
1. Check the header pipe to be sure it is level or has the prescribed slope.
2. Set the invert height as specified in the design from the bottom of the inlet.
3. Place the first chamber in the trench.
4. Place the back edge of the endcap over the inlet end of the first chamber. Be sure to line up the locking pins on the top of both the chamber and endcap.
5. Insert the header pipe into the opening on the front of the endcap.
6. Lift and place the end of the next chamber onto the previous chamber by holding it at a 45-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the first chamber. Lower the chamber to the ground to connect the chambers.
7. Swivel the chamber on the pin to achieve the proper direction for the trench layout.
8. The last chamber in the trench requires a endcap. Lift the MultiPort endcap at a 45-degree angle and insert the connector hook through the opening on the top of the MultiPort endcap. Applying firm pressure, lower the MultiPort endcap to the ground to snap it into place. Do not remove tear-out seal.
9. To ensure structural stability, fill the sidewall area by pulling soil from the sides of the trench with a shovel. Start at the joints where the chambers connect. Continue backfilling the entire sidewall area, making sure the fill covers the louvers.
10. Pack down fill by walking along the edges of trench and chambers.

Excavating and Preparing the Site
NOTE: As is the case with conventional systems, do not install the systems in wet conditions or in overly moist soils, as this causes machinery to smear the soil.

1. Stake out the location of all trenches and lines. Set the elevations of the tank, pipe, and trench bottom.
2. Install sedimentation and erosion control measures. Permanent drainage swales/berms may be installed to protect the site during rainfall events.
3. Excavate and level 18” wide trenches with proper center-to-center separation. Verify that the trenches are level or have the prescribed slope.
4. Rake the bottom and sides if smearing has occurred while excavating. Remove any large stones and other debris. Do not use the bucket teeth to rake the trench bottom.
5. Verify that each trench is level using a level, transit or laser.

<table>
<thead>
<tr>
<th>Materials and Equipment Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick4 Equalizer 24 LP Chambers</td>
</tr>
<tr>
<td>Endcaps</td>
</tr>
<tr>
<td>PVC Pipe and Couplings</td>
</tr>
<tr>
<td>Backhoe</td>
</tr>
<tr>
<td>Laser, Transit or Level</td>
</tr>
<tr>
<td>Shovel and Rake</td>
</tr>
<tr>
<td>Tape Measure</td>
</tr>
</tbody>
</table>

| Utility Knife |

These guidelines for construction machinery must be followed during installation:

1. Avoid direct contact with chambers when using construction equipment.
2. Only drive across the trenches when necessary. Never drive down the length of the trenches.
3. To avoid additional soil compaction, never drive heavy vehicles over the completed system.

Place endcap onto first chamber.
8. Continue connecting the chambers until the trench is completed.

9. The last chamber in the trench requires an endcap. Lift the endcap at a 45-degree angle and align the connector hook on the top of the chamber with the raised slot on the top of the endcap. Lower the endcap to the ground and into place.

10. To ensure structural stability, fill the sidewall area by pulling soil from the sides of the trench with a shovel. Start at the joints where the chambers connect. Continue backfilling the entire sidewall area, making sure the fill covers the louvers.

11. Pack fill by walking along the edges of trench and chambers.

12. Proceed to next trench and begin with Step 1.

4. Attach a threaded cap or cleanout assembly onto the protruding pipe at the appropriate height.

5. A small valve cover box may be used if inspection port is below the desired grade.

Install Optional Inspection Ports

1. With a 4” hole saw, drill the pre-marked area in the top of the chamber to create a 4-inch opening.

2. Set a cut piece of pipe of the appropriate length into the corresponding chamber’s inspection port sleeve.

NOTE: The sleeve will accommodate up to a 4-inch SCH40 pipe.

3. Use two screws to fasten the pipe to the sleeve around the inspection port.

Covering the System

Before backfilling, the system must be inspected by a health officer or other official as required by State and local codes. Create an as-built drawing at this time for future records.

1. Backfill the trench by pushing fill material over the chambers with a backhoe. Keep a minimum of 12 inches of compacted cover over the chambers before driving over the system.

NOTE: Do not drive over system while backfilling in sand.

NOTE: For shallow cover applications, it is recommended that tracked construction equipment be used. You must mound 12 inches of soil over the system before driving over it, and then grade it back a minimum of 4 inches upon completion.

2. It is best to mound several inches of soil over the finish grade to allow for settling. This also ensures that runoff water is diverted away from the system.

3. After the system is covered, the site should be seeded or sodded to prevent erosion.

NOTE: If the system is for new home construction, it is important to leave marking stakes along the boundary of the system. This will notify contractors of the site location so they will not cross it with equipment or vehicles.
Wide Excavation Systems (No Reduction)

Excavating and Preparing the Site
1. Per the TCEQ regulations there is no reduction in drainfield sizing in any soil class when installing Quick4 High Capacity or Quick4 Standard Chambers in a wide excavation (wider than three feet) on four-foot centers.
2. Excavate the desired depth of the bottom of the system. Make sure that you have a level bottom area for the chambers to set on.
3. Install the Quick4 High Capacity or Quick4 Standard Chambers at four-foot centers. (See drawing below.)
4. Apply the desired backfill material along the sides of the chambers and walk the soil in. Continue backfilling the soil to the top of chambers.

Installing the Chambers
NOTE: When installing chambers in a wide excavation make sure you follow these procedures.
1. Secure the endcaps to the proper ends of the chambers.
2. Check the level of your trench or wide excavation area to make sure the depth is correct.
3. Check your header pipe to make sure that you have the proper fall coming from the septic tank.
4. Place the Quick4 High Capacity, Quick4 Standard or Quick4 Plus Standard Chamber with the endcap at the beginning at the trench or row. Insert the header pipe into the endcap.
5. Place the next chamber onto the previous chamber at a 90° angle and lower to the bottom of the excavation to connect the chambers.
6. Make sure the maximum distance between the chambers are four-foot center to center.
7. Backfill the chambers using a dozer, small box blade or a tracked Bobcat machine. Make sure you apply the soil above the top of the sidewall and walk the sidewall in. Now you are ready for inspection.

NOTE: Never drive a wheeled vehicle (backhoe) over the trench or wide excavation area, due to the lack of compacted soil above the chambers.

For additional information regarding wide excavation in 3 feet or greater using Quick4 High Capacity or Quick4 Standard Chambers with no reduction, see Appendix H on page 51.

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.
Wide Excavation Systems (25% Reduction)

Excavating and Preparing the Site

1. To obtain the reduction in drainfield size you must install the Infiltrator chambers per TCEQ regulations.
2. Excavate the desired depth of the bottom of the system. Make sure that you have a level bottom area for the chambers to set on.
3. Install the desired Infiltrator chambers. Chambers must be installed edge to edge. (See drawing below.)
4. Apply the desired backfill material along the sides of the chambers and walk the soil in. Continue backfilling the soil to the top of chambers.

NOTE: When installing chambers in a wide excavation make sure you follow these procedures.

1. Secure the endcaps to the proper ends of the chambers.
2. Check the level of your trench or wide excavation area to make sure the depth is correct.
3. Check your header pipe to make sure that you have the proper fall coming from the septic tank.
4. Place the Infiltrator chambers with the endcap at the beginning of the trench or row. Insert the header pipe into the endcap.
5. Place the next chamber onto the previous chamber at a 90° angle and lower to the bottom of the excavation to connect the chambers.
6. Make sure the chambers are placed edge to edge.
7. Backfill the chambers using a dozer, small box blade or a tracked Bobcat machine. Make sure you apply the soil above the top of the sidewall and walk the sidewall in. Now you are ready for inspection.

Note: Never drive a wheeled vehicle (backhoe) over the trench or wide excavation area, due to the lack of compacted soil above the chambers.

For additional information regarding wide excavation in 3 feet or greater using any Infiltrator chambers with 25% reduction, see Appendix I on page 52.

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.
Wide Excavation Systems with No Reduction (Soil Substitutions)

Excavating and Preparing the Site
1. When installing Quick4 High Capacity, Quick4 Standard or Quick4 Equalizer 36 Chambers in soil substitution systems follow the TCEQ regulations.
2. Excavate at least 2 ft below the desired depth of the bottom of the chamber for both trench and wide excavations.
3. Install the Quick4 High Capacity, Quick4 Standard or Quick4 Equalizer 36 Chambers. (See drawing below.)
4. Apply the desired backfill material along the sides of the chambers and walk the soil in. Continue backfilling the soil to the top of the chambers.
5. Place the soil in six inch to one-foot lifts, and compact the soil with a walk behind plate compactor, such as the Wacker, Model VPR134OW or equivalent.
6. Proceed to compact the soil with one pass north to south then east to west. Apply the soil in six inch to one-foot lifts and compact until you have reached the elevation to natural grade.

Installing the Chambers
1. Secure the endcaps to the proper ends of the chambers.
2. Check the level of your trench or wide excavated area to make sure the depth is correct.
3. Check your header pipe to make sure that you have the proper fall coming out of the septic tank.
4. Place the Quick4 High Capacity, Quick4 Standard or Quick4 Equalizer 36 Chamber with the endcap at the beginning of the trench or row. Insert the header pipe into the endcap.
5. Place the next chamber onto the previous chamber at a 90° angle and lower it into the bottom of the trench to connect the chambers.
6. Make sure the maximum distance between the chambers is four-foot center to center.
7. When backfilling the chambers use a dozer, small box blade or a tracked Bobcat machine. Be sure to apply the soil above the top of the sidewall area and walk the sidewall in. Now you are ready for inspection.

NOTE: Never drive a backhoe or wheeled vehicle over the trench or wide excavated area due to the lack of compacted soil above the chambers.

For additional information regarding wide excavation in 3 feet or greater using Quick4 High Capacity or Quick4 Standard Chambers with soil substitution, see Appendix J on page 53.

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.
For additional information regarding evapotranspirative (ET) systems using Quick4 Plus Equalizer 36 Low Profile Chambers with no reduction, see Appendix K on page 54.

NOTE: All Infiltrator Quick4 leaching chambers can be installed on residential or commercial installations.
For additional information regarding low pressure dosing systems into chambers, see Appendix L on page 55.

**NOTE:** All Infiltrator Quick4 chambers can be installed on residential or commercial installations.

**PRESSURE DOSING CROSS SECTION**
*(EXAMPLE A)* (not to scale)

**ACCESS FOR DRAINFIELD MAINTENANCE AND FLUSHING SIDE VIEW**
Quick4 EQ36 Mound System with Low Pressure Dosing with No Reduction

NOTE: All Infiltrator chambers may be used in mound application with no reduction.

For additional information regarding mound system design using Quick4 Equalizer 36 chambers with no reduction, see Appendix M on page 56.
Appendix A

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 3 feet using Quick4 High Capacity or Quick4 Standard Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: \( A = \frac{Q}{Ra} \)

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: \( Ra = 0.2 \text{ gallons per square foot per day} = Ra \) (GPSFPD = Ra)
Water usage rate: \( Q = 240 \text{ gallons per day} \) (3-bedroom house - water usage rate based on facilities with water savings devices)
Formula: \( A = \frac{Q}{Ra} \)
\( A = \frac{240 \text{ GPD}}{0.2 \text{ GPSFPD}} \)
\( A = 1200 \text{ square feet of absorptive drainfield area required for standard system} \)

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: \( A = \frac{Q}{Ra} \) (A = Square Feet = SF)
Example: \( A = \frac{240 \text{ GPD}}{0.2 \text{ GPSFPD}} \)
\( A = 1200 \text{ square feet of drainfield absorptive area required for standard system} \)
For width of trench or excavations 3 feet wide use: \( L = \frac{A}{W + 2} \)
\( L = \text{drainfield length in feet} \ W = \text{drainfield width in feet} = 3 \text{ Feet (Lineal Feet = LF)} \)
\( L = \frac{1200 \text{ ft}}{3 + 2} = 1200 \text{ ft} / 5 = 240 \text{ LF of 3 ft wide trench excavations for standard gravel and pipe system} \)

Leaching Chamber Systems:
Where: \( A = \text{minimum absorptive area calculated with flow reduction; and} \)
\( W = \text{leaching chamber panel width} \)
\( H = \text{Height of chamber} \)
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: \( L = 0.75 \frac{A}{(W + 2)} \) (with water savings devices)
Example: Where \( A = 1200 \text{ square feet} \) and \( W = 3 \text{ feet} \) (chamber width)

Use Quick4 High Capacity or Quick4 Standard Leaching Chambers:
Length = 4 feet and Width = 3 feet
\( L = 0.75 \times (1200 \text{ ft}) / (3 + 2) = 900 \text{ ft} / 5 = 180 \text{ lineal feet of 3 feet wide leaching chambers} \)
Total chambers for excavation: \( LF = 180 \text{ ft} / 4 \text{ ft per chamber} = 45 \text{ Quick4 High Capacity or Quick4 Standard Chambers required in Class III soil for 240 gallons per day septic system} \)
Appendix B

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 3 feet using Quick4 Plus High Capacity, Quick4 Plus Standard Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)

A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water savings devices)
Formula: A = Q / Ra
   A = 240 GPD / 0.2 GPSFPD
   A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
   A = 1200 square feet of drainfield absorptive area required for standard system
For width of trench or excavations 3 feet wide use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 3 Feet (Lineal Feet = LF)
L = 1200 ft / (3 + 2) = 1200 ft / 5 = 240 LF of 3 ft wide trench excavations for standard gravel and pipe system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
   W = leaching chamber panel width
   H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 2) (with water savings devices)
Example: Where A = 1200 square feet and W = 3 feet (chamber width)

Use Quick4 Plus High Capacity, Quick4 Plus Standard Leaching Chambers:
Length = 4 feet and Width = 3 feet
L = 0.75 X (1200 ft) / (3 + 2) = 900 ft / 5 = 180 lineal feet of 3 feet wide leaching chambers
Total chambers for excavation: LF = 180 ft / 4 ft per chamber = 45 Quick4 Plus Standard Chambers
required in Class III soil for 240 gallons per day septic system
Appendix C

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 3 feet using Quick4 Plus Standard Low Profile Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)

A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: \( A = \frac{Q}{Ra} \)

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: \( Ra = 0.2 \) gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: \( Q = 240 \) gallons per day (3-bedroom house - water usage rate based on facilities with water savings devices)
Formula: \( A = \frac{Q}{Ra} \)
\[
A = \frac{240 \text{ GPD}}{0.2 \text{ GPSFPD}} = 1200 \text{ square feet of absorptive drainfield area required for standard system}
\]

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: \( A = \frac{Q}{Ra} \) (A = Square Feet = SF)
Example: \( A = \frac{240 \text{ GPD}}{0.2 \text{ GPSFPD}} \)
\[
A = 1200 \text{ square feet of drainfield absorptive area required for standard system}
\]

For width of trench or excavations 3 feet wide use: \( L = \frac{A}{W + 2} \)
\[
L = \text{drainfield length in feet} \quad W = \text{drainfield width in feet} = 3 \text{ Feet (Lineal Feet = LF)}
\]
\[
L = \frac{1200 \text{ ft}}{5} = 240 \text{ LF of 3 ft wide trench excavations for standard gravel and pipe system}
\]

Leaching Chamber Systems:
Where: \( A = \text{minimum absorptive area calculated with flow reduction; and} \)
\( W = \text{leaching chamber panel width} \)
\( H = \text{Height of chamber} \)
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: \( L = \frac{0.75 \times A}{(W + 1.33)} \) (with water savings devices)
Example: Where \( A = 1200 \text{ square feet} \) and \( W = 3 \text{ feet} \) (chamber width)

Use Quick4 Plus Standard Low Profile Leaching Chambers:
Length = 4 feet and Width = 3 feet
\[
L = 0.75 \times \frac{1200}{3 + 1.33} = 900 \text{ ft} / 4.4 = 204.5 \text{ lineal feet of 3 feet wide leaching chambers}
\]
Total chambers for excavation: \( \text{LF} = 204.5 \text{ ft} / 4 \text{ ft per chamber} = 52 \text{ Quick4 Plus Standard Low Profile Chambers} \) required in Class III soil for 240 gallons per day septic system
Appendix D

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 2 feet using Quick4 Equalizer 36 Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)

A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: $A = \frac{Q}{Ra}$

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: $Ra = 0.2$ gallons per square foot per day = $Ra$ (GPSFPD = $Ra$)
Water usage rate: $Q = 240$ gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: $A = \frac{Q}{Ra}$

$A = \frac{240 \text{ GPD}}{0.2 \text{ GPSFPD}} = 1200$ square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:

Formula: $A = \frac{Q}{Ra}$ ($A = \text{Square Feet} = \text{SF}$)
Example: $A = 240 \text{ GPD} / 0.2 \text{ GPSFPD}$
$A = 1200$ square feet of drainfield absorptive area required for standard system
For width of trench or excavations 2 feet wide use: $L = \frac{A}{(W + 2)}$
$L = \text{drainfield length in feet}$ $W = \text{drainfield width in feet} = 2$ feet (Lineal Feet = LF.)
$L = 1200 \text{ Ft} / (2 + 2) = 1200 \text{ Ft} / 4 = 300$ LF of 2 Ft wide trench excavations for standard gravel and pipe system

Leaching Chamber Systems:

Where: $A = \text{minimum absorptive area calculated with flow reduction} ;$ and
$W = \text{leaching chamber panel width}$
$H = \text{Height of chamber}$
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: $L = 0.75 \frac{A}{(W + 2)}$
Example: Where $A = 1200$ square feet and $W = 2$ feet (chamber width)

Use Quick4 Equalizer 36 Leaching Chambers:

Length = 4 feet and Width = 2 feet
Formula: $L = 0.75 \frac{A}{(W + 2)}$
$L = 0.75 \times (1200 \text{ SF}) / (2 \text{ ft} + 2) = 900 \text{ ft} / 4 \text{ ft} = 225$ lineal feet of 2 feet wide leaching chambers
Total chambers for excavation: LF = 225 ft / 4 ft (chamber length) = 56.25 or 57 Quick4 Equalizer 36 Chambers required in Class III soil for 240 gallons per day septic system
Appendix E

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 2 feet using Quick4 Plus Equalizer 36 Low Profile Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(l)

A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard system

For width of trench or excavations 2 feet wide use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 2 feet (Lineal Feet = LF.)
L = 1200 Ft / (2 + 2) = 1200 Ft / 4 = 300 LF of 2 Ft wide trench excavations for standard gravel and pipe system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 1.33)
Example: Where A = 1200 square feet and W = 2 feet (chamber width)

Use Quick4 Plus Equalizer 36 Low Profile Leaching Chambers:
Length = 4 feet and Width = 2 feet
Formula: L = 0.75 A / (W + 1.33)
L = 0.75 X (1200 SF) / (2 ft + 1.33) = 900 ft / 3.33 ft = 225 lineal feet of 2 feet wide leaching chambers
Total chambers for excavation: LF = 270 ft / 4 ft (chamber length) = 67.5 or 68 Quick4 Plus Equalizer 36 Low Profile Chambers required in Class III soil for 240 gallons per day septic system
Appendix F

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 1.5 feet or 18 inches using Quick4 Equalizer 24 Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)
Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard gravel and pipe system
For width of trench or excavations 1.5 feet or 18 inches wide Use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 1.5 feet or 18 inches (Lineal Feet = LF)
L = 1200 ft / (1.5 + 2) = 1200 ft / 3.5 = 343 LF of 1.5 ft or 18 inch wide trench excavations for standard system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 2)
Example: Where A = 1200 square feet and W = 1.5 ft or 18 inches (chamber width)

Use Quick4 Equalizer 24 Leaching Chambers:
Length = 4 feet and Width = 1.5 ft or 18 inches
Formula: L = 0.75 A / (W + 2)
L = 0.75 X (1200 SF.) / (1.5 ft + 2) = 900 ft / 3.5 ft = 257 lineal feet of 18 inch wide leaching chambers
Total chambers for excavation: LF = 257 ft / 4 ft (chamber length) = 64.25 Quick4 Equalizer 24 Chambers or 65 Quick4 Equalizer 24 Chambers required in Class III soil for 240 gallons per day septic system
Appendix G

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 1.5 feet or 18 inches using Quick4 Equalizer 24 LP Chambers with 25% reduction:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)

A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Drainfield Absorptive Area for Standard Gravel and Pipe System:
Formula: A = Q / Ra (A = Square Feet = SF)
Example: A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of drainfield absorptive area required for standard gravel and pipe system
For width of trench or excavations 1 feet or 12 inches wide Use: L = A / (W + 2)
L = drainfield length in feet W = drainfield width in feet = 1 feet or 12 inches (Lineal Feet = LF)
L = 1200 ft / (1 + 2) = 1200 ft / 3 = 400 LF of 1 ft or 12 inch wide trench excavations for standard system

Leaching Chamber Systems:
Where: A = minimum absorptive area calculated with flow reduction; and
W = leaching chamber panel width
H = Height of chamber
25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices
Formula: L = 0.75 A / (W + 1.33)
Example: Where A = 1200 square feet and W = 1.5 ft or 18 inches (chamber width)

Use Quick4 Equalizer 24 LP Leaching Chambers:
Length = 4 feet and Width = 1.5 ft or 18 inches
Formula: L = 0.75 A / (W + 1.33)
L = 0.75 X (1200 SF.) / (1.5 ft + 1.33) = 900 ft / 2.83 ft = 318 lineal feet of 18 inch wide leaching chambers
Total chambers for excavation: LF = 318 ft / 4 ft (chamber length) = 79.5 Quick4 Equalizer 24 LP Chambers or
80 Quick4 Equalizer 24 LP Chambers required in Class III soil for 240 gallons per day septic system
WIDE EXCAVATION greater than 3 feet using Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard or Quick4 Plus Standard Chambers with NO REDUCTION installed on 4’ centers:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day
Formula: A = Q / Ra

**Example:**
Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard gravel and pipe system

**Wide Excavation Drainfield Absorptive Area**
Formula: Absorptive Area = A = (L x W) + 2 (L+W) x 1.0 ft (A = Square Feet = SF)
Where: L = excavation length in feet
W = excavation width in feet

**Example:** In this example the width is 20 ft. wide
Where A = 1200 SF and use variable W = 20 ft
1200 SF = (20ft) L + (40 ft + 2 L) x 1.0 ft
1200 SF = (L x 20 ft) + 2 (L + 20 ft) x 1.0 ft
1200 ft = 20 L + 2 L + 40 ft
52.72 or 53 feet = L

**Example:** Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, or Quick4 Plus Standard Chambers:
Length = 4 feet   Width = 3 feet
See TAC Chapter 285: Figure 4. Typical Drainfields – Sectional View
Chambers spaced on maximum of 4 feet centers and 2 feet from sidewall of excavation to center of chamber
L = length of excavation / 4 ft = total number of chambers
L = 56 feet / 4 feet (chamber length) = 13.25 or 14 chambers per lateral line
L = 14 (Quick4 High Capacity, Quick4 Standard, or Quick4 Plus Standard Chambers) x 4 = 56 ft
W = Width of excavation / 4 feet per row of chambers
W = 20 ft / 4 ft = 5 rows of chambers required
L = 56 ft
W = 20 ft
Total Bottom Area: L x W = 56 ft. x 20 ft. = 1,125 SF

Sidewall Area = (2L + 2W) x 1.0 ft = [(2 x 56.25) + (2 x 20 ft)] x 1.0 ft
= (112.5 ft + 40 ft) x 1.0 ft
= 152.5 SF

Total Wide Excavation Area provided in this Example with total Bottom Area and Sidewall Area: 1080 SF + 148 SF = 1,228 SF

Total chambers for excavation: 5 rows x 13 chambers per lateral line = 65 chambers for excavation for 240 GPD septic system in Class III soil.

**NOTE:** The Quick4 High Capacity, Quick4 Standard, or Quick4 Plus Standard Chambers can be installed as long as the chambers are installed on 4 foot centers.
Appendix I

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Wide excavation greater than 3 feet using any Infiltrator chamber with 25% reduction installed edge to edge: Chambers spaced.

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
A = absorptive area.  Q = average daily sewage flow in gallons per day.  Ra = soil application rate in gallons per square foot per day.  Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Example: Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, or Quick4 Plus Standard Chambers:
Chambers placed edge to edge
Length of chamber = 4 feet
Width of chamber = 2.83 feet or 34 inches

Formula: A = Q / Ra
  A = Absorptive Area
  A = 240 GPD / 0.2 GPSFPD
  A = 1200 square feet of absorptive drainfield area required for standard system

Wide Excavation Drainfield Absorptive Area With 25% Reduction using Infiltrator Chambers:
(25% reduction of drainfield absorptive area allowed based on water usage rate with water saving devices)
Formula: Absorptive Area = A = 0.75A = (L x W) + 2 (L + W) x 1.0 ft
  Where: A = (0.75 x 1200 sf) = 900 sf = A1 + A2 (2 drainfield areas needed)
Formula: L = (0.75A - 2W) / (W + 2)
  L = excavation length in feet
  W = excavation width in feet
Use: Infiltrator Quick4 Standard Chambers (4 ft x 2.85 ft x 1 ft)
Formula: A1 = (L x W) + 2 (L + W) x 1.0 ft
  Use variable W = 22.8 ft and L = 26 ft for wide excavation with 75% reduction
  A1 = (26 ft x 22.8 ft) + 2 (26 ft + 22.8 ft) x 1.0 ft
  A1 = (592.8 sf) + 2 (48.8 ft) ft = 592.8 sf + 97.6 sf = 690.4 sf
Where: A1 + A2 = 900 sf, then A1 = 900 sf - A2
  A2 = 900 sf - 690.4 sf = 209.6 sf needed for second drainfield area
Formula: L2 = A2 / (W2 + 2)
  Use variable W2 = 8.55 ft
  L2 = 209.6 sf / (8.55 + 2) x 1.0 ft
  L2 = (209.6 sf) / (10.55) ft = 19.87 ft
  A = A1 + A2 = 690.4 sf + 209.6 sf = 900 sf
Total Area: A = (L x W) + (L2 x W2) + [2 (L +L2) + 2 (W)] x 1.0 ft
  A = (26 ft x 22.8 ft) + (19.87 ft x 8.55 ft) + [2 (26 ft + 19.87 ft) + 2 (22.8 ft)] x 1.0 ft
  A = (592.8 sf + 169.89 sf) + [2 (45.87 ft) + 45.6 ft] x 1.0 ft
  A = 762.69 sf + [91.74 ft + 45.6 ft] ft = 762.69 sf + 137.34 sf = 900.03 sf
(minimum required for 3 bedroom house. Class III soil)

Total chambers for excavation: 6 rows x 11 chambers per lateral line = 66 chambers for excavation for 240 GPD septic system in Class III soil.

Bed Area = 46 ft x 17 ft = 782 square feet
Perimeter = (46 ft x 2) + (17 ft x 2) = 126 square feet
Total Area = (782 square feet) + (126 square feet) = 908 square feet
Appendix J

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Wide excavation greater than 3 feet using Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, or Quick4 Equalizer 36 Chambers with Soil Substitution with NO REDUCTION:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(I)
Soil substitution drainfields may be constructed in Class Ia soils, fractured rock, fissured rock, or other areas of high permeability where septic tank effluent could rapidly reach groundwater without undergoing adequate treatment through soil contact.

A = absorptive area. Q = average daily sewage flow in gallons per day. Ra = soil application rate in gallons per square foot per day. Formula: A = Q / Ra

Example: Soil Analysis: Class III – Silty Clay Loam (Class III soil buffer shall be placed 2 feet below and 2 feet outside of the drainfield absorption excavation)
Rate of application: Ra = 0.2 gallons per square foot per day = Ra (GPSFPD = Ra)
Water usage rate: Q = 240 gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: A = Q / Ra
A = 240 GPD / 0.2 GPSFPD
A = 1200 square feet of absorptive drainfield area required for standard system

Wide Excavation Drainfield Absorptive Area For Soil Substitution:
Formula: Absorptive Area = A = (L x W) + 2 (L+W) x 1.0 ft (A = Square Feet = SF)
Where:
L = excavation length in feet
W = excavation width in feet

Example:
Where A = 1200 SF use variable W = 20 ft
1200 SF = (L x 20 ft) + 2 (L + 20 ft) x 1.0 ft
1200 SF / 1.0 ft = (L x 20 ft) / 1.0 ft + 2 (L + 20ft)
1200 FT = 20 L + 2 L + 40 ft
1200 FT – 40 ft = 22 L
52.72 or 53 feet = L

Example: Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, Quick4 Plus Standard Chambers:
Length = 4 feet
Width = 3 feet

See TAC Chapter 285: Figure 4. Typical Drainfields – Sectional View
Chambers spaced on maximum of 4 feet centers and 2 feet from sidewall of excavation to outside edge of chamber
L = length of excavation / 4 ft = total number of chambers
L = 56 feet / 4 feet (chamber length) = 14 chambers per lateral line
W = Width of excavation / 4 feet per row of chambers
W = 23 ft / 3 ft = 6 rows of chambers required
Total chambers for excavation: 6 rows X 14 chambers per lateral line = 84 chambers for excavation for 240 GPD septic system in Class III soil

Total Excavated Area for Soil Substitution:
Formula: A = (L + 4ft) X (W + 4ft)
Where L = 53 ft and W = 20 ft, the
A = (56ft + 4ft) x (23ft + 4ft) = (60ft) x (27ft)
Total excavated area: L = 60 feet and W = 27 feet

NOTE: The Quick4 High Capacity, Quick4 Standard, or Quick4 Equalizer 36 Chambers can be installed as long as the chambers are installed on 4 foot centers.
Appendix K

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Evapotranspirative (ET) System using Quick4 Plus Equalizer 36 Low Profile Chambers with NO REDUCTION:
Note: Any Infiltrator chamber can be used for (ET) systems with NO REDUCTION.

Chambers spaced on maximum of 4-foot centers and 1 foot from the sidewall of excavation.

Site Evaluation: Class IV - Clay
See TAC Chapter 285: Table VII. Ret = Net local evaporation rate – (Yearly Average Net Evaporation Rate)
Example: Annual Average Net Evaporation: Ret = 0.14 Inches / Day (Austin)
Water Usage Rate: Q = Estimated daily water usage in gallons/day
Example: Q = 240 gallons per day (3-bedroom house - water usage rate based on facility with water saving devices)

Evaporation – Transpiration Drainfield Area (ET):
Area = A = Total top surface area of the excavations in square feet = SF
Formula: A = 1.6 Q / Ret
A = 1.6 x (240 GPD) / 0.14 Inches/Day/Square Feet
A = 384 / 0.14 = 2742.9 SF or 2743 SF of ET drainfield area (Minimum required)
(2) - Drainfields: Area / 2 = A / 2 = 2743 SF / 2 = 1372 SF = A2 per drainfield (Minimum required)
Minimum areas required for a 3-bedroom home in Class IV soil.

Drainfield area must be separated into two drainfields using a 4-inch PVC bull-run valve required to alternate drainfield effluent flows on a monthly basis or as system requires to prevent overloading or surfacing of effluent.

Excavation Sizing
Formula: A2 = L x W where A2 = 1372 SF
Use: A2 = 1372 SF and use variable W = 20 feet where
L = Drainfield length in feet & W = Drainfield width in feet (Ft)
1372 ft. = L x 20 ft. therefore L = 1372 ft / 20 ft
L = 70 ft

Infiltrator Quick4 Plus Equalizer 36 Low Profile Leaching Chambers:
Length of chamber = 4 Feet  Width = 22 Inches  Height = 8 Inches
Leaching chambers should be spaced on maximum of 4-foot centers and 1 foot from the sidewall of excavation
See TAC Chapter 285: Figure 4. Typical Drainfields - Sectional View
L = Length of excavation / 4 ft = Total number of chambers required
L = 70 feet / 4 feet (chamber length) = 17.5 or 17 leaching chambers
W = Width of excavation / 4 feet per row of chambers
W = 20 feet / 4 feet = 5 rows of chambers required

Total number of chambers per bed: 5 rows x 17 chambers per lateral line = 85 chambers per bed excavation
(2) excavations x 85 chambers/excavation = 170 Quick4 Plus Equalizer 36 Low Profile Chambers for ET system for 240 GPD

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Appendix L

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Excavation 3 feet or less using Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, Quick4 Plus Standard, Quick4 Equalizer 36, Quick4 Equalizer 24 or Quick4 Equalizer 24 LP Chambers with Low Pressure Dosing:

Figure: 30 TAC Chapter 285.33(b)(1)(A)(vii)(l)

A = absorptive area
Q = average daily sewage flow in gallons per day
Ra = soil application rate in gallons per square foot per day

Formula: \( A = \frac{Q}{Ra} \)

Example: Soil Analysis: Class III – Silty Clay Loam
Rate of application: \( Ra = 0.2 \) gallons per square foot per day = \( Ra \) (GPSFPD = \( Ra \))
Water usage rate: \( Q = 240 \) Gallons per day (3-bedroom house - water usage rate based on facilities with water saving devices)

Formula: \( A = \frac{Q}{Ra} \)

\( A = 240 \text{ GPD} / 0.2 \text{ GPSFPD} \)
\( A = 1200 \) square feet of absorptive drainfield area required for low pressure dosing system

Drainfield Absorptive Area for Low Pressure Dosing Using Infiltrator Chambers or Pipe and Gravel:

Formula: \( A = \frac{Q}{Ra} \) (A = square feet = SF); (LF = lineal feet)

Where:

- \( A = \) minimum absorptive area
- \( W = \) leaching chamber panel width
- \( H = \) Height of chamber

Example: \( A = 240 \text{ GPD} / 0.2 \text{ GPSFPD} \)
\( A = 1200 \) square feet of drainfield absorptive area required for standard system

For width of trench or excavations 3 feet wide or less Use: \( L = \frac{A}{W + 2H} \), where

- \( H = \) depth of media in feet = 1 foot
- \( L = \) drainfield length in feet
- \( W = \) drainfield width in feet; use variable \( W = 3 \) feet

\( L = \frac{(1200 \text{ SF})}{3\text{ ft} + 2} = 1200 \text{ SF} / (3\text{ ft} + 2\text{ ft}) = 1200 \text{ SF} / 5\text{ ft} = 240 \text{ LF} \) of 3 ft wide trench excavations for gravel system or chambers

Leaching Chamber Systems:

Where: \( A = \) minimum absorptive area

- \( W = \) leaching chamber panel width
- \( H = \) Height of chamber

Example: Where \( A = 1200 \) square feet and \( W = 3 \) feet (chamber width)

Use Quick4 High Capacity, Quick4 Plus High Capacity, Quick4 Standard, or Quick4 Plus Standard Chambers:

Height = 1.0 foot; Length = 4 feet and Width = 3.0 feet

Formula: \( L = \frac{A}{W + 2H} \)

\( L = 1200 \text{ SF} / 3\text{ ft} + 2 = 240 \)

Total number of chambers for excavation: LF: 240 LF/4 ft chamber = 60 Quick4 High Capacity, Quick4 Standard, or Quick4 Plus Standard chambers required in a Class III soil for a 240 gallon per day septic system.

Use Quick4 Equalizer 36 Infiltrator Chambers:

Height = 1.0 foot; Length = 4 feet and Width = 2.0 feet

Formula: \( L = \frac{A}{W + 2H} \)

\( L = 1200 \text{ SF} / 2\text{ ft} + 2 = 300 \)

Total number of chambers for excavation: LF: 300 LF/4 ft chamber = 75 Quick4 Equalizer 36 chambers required in a Class III soil for a 240 gallon per day septic system.

Use Quick4 Equalizer 24 Infiltrator Chambers:

Height = 1.0 foot; Length = 4 feet and Width = 1.5 feet

Formula: \( L = \frac{A}{W + 2H} \)

\( L = 1200 \text{ SF} / 1.5\text{ ft} + 2 = 343 \)

Total number of chambers for excavation: LF: 343 LF/4 ft chamber = 85.75 or 86 Quick4 Equalizer 24 chambers required in a Class III soil for a 240 gallon per day septic system.

Use Quick4 Equalizer 24 Low Profile Infiltrator Chambers:

Height = .666 foot; Length = 4 feet and Width = 1.5 feet

Formula: \( L = \frac{A}{W + 1.33H} \)

\( L = 1200 \text{ SF} / 1.5\text{ ft} + 1.33 = 424 \)

Total number of chambers for excavation: LF: 424 LF/4 ft chamber = 106 Quick4 Equalizer 24 LP chambers required in a Class III soil for a 240 gallon per day septic system.

NOTE: Pump sizing. Lateral pipe sizing and the septic system designer shall determine orifice hole diameter.
Appendix M

TEXAS ADMINISTRATIVE CODE: TITLE 30 – CHAPTER 285: On-site Sewage Facilities

Mound System using Quick4 Equalizer 36 Chambers in trenches on 4’ centers with Low Pressure Dosing with NO REDUCTION:

Figure: 30 TAC Chapter 285.33 (d)(3)

A mound drainfield is an absorptive drainfield constructed above the native soil surface. The mound consists of a distribution area installed within fill material placed on the native soil surface. The required area of the fill material is a function of the texture of the native soil surface, the depth of the native soil, basal area sizing considerations, and side slope requirements. A description of mound construction can be found in the North Carolina State University Sea Grant College publication UNC-SG-82-04 (1982). A mound drainfield shall only be installed at a site where there is at least one foot of native soil, however, approval for installation on sites with less than one foot of native soil may be granted by the permitting authority on a case by case basis.

A = minimum required distribution absorptive area in square feet

Q = design wastewater usage rate in gallons per day

Ra = most restrictive application rate between fill material or the soil surface if the soil surface is within four inches of the bottom of the distribution media. The application rate is in gallons per square foot per day.

Formula: $A = \frac{Q}{Ra}$

Example: Soil Analysis: Class III Soil

Rate of application: $Ra = 0.2$ gallons per square foot per day = $Ra$ (GPSFPD = $Ra$)

Water usage rate: $Q = 240$ gallons per day (3-bedroom house – water usage rate based on facilities with water saving devices)

Formula for a Quick4 Equalizer 36 (Q4EQ36) Chamber system example:

\[
A = \frac{Q}{Ra} \\
Q = 360 \text{ GPD} / 0.2 \text{ GPSFPD} \\
A = 1800 \text{ square feet of absorptive area required for mound system with low pressure dosing}
\]

\[
L = 1800 / \text{width of chamber} + 2 = 450 \text{ LF} \\
450 \text{ LF} / 4' \text{ Chambers Length} = 112.5 \text{ or 113 Q4EQ36 Chambers needed}
\]

Bed width and Length

40’ wide x 48 length
7 rows with 11 Q4EQ36 Chambers
3 rows with 12 Q4EQ36 Chambers

113 – Q4EQ36 Chambers = $A = 113 \times 4 \text{ (chamber length} x = 2 = 1808 \text{ SF for 40’} \times 48’ \text{ distribution area}$

1800 square feet / 37.5 = 48 feet length of mound, not including slope

The space between the rows of chambers must meet the TCEQ Regulations.

Notes for Installation:

- The pump size is to be determined by the design.
- The orifice hole size and separation to be determined by designer.
- There must be at least 6 inches of backfill over the chambers and the mound shall be crowned to shed water.
- Place the backfill material in 6-inch to 12-inch lifts and compact the soil with a walk behind plate compactor, such as the Wacker model VPR134OW or equivalent.
- Proceed to compact the soil with one pass north and one pass south, then east to west. Apply soil in 6-inch to 12 inch lifts and compact until you have reached the elevation required by the designer. After reaching desired bottom area of drainfield, you must drill out the endcaps to accommodate the proper size of pipe prior to installing the system.
- Place the low pressure dosing pipe inside of the chambers with the orifice holes facing upward toward the top of the chambers. Strap the low pressure dosing pipe at the end of each chamber. At the end of each row, use a 90-degree elbow upward with a female adapter with male cap to ground surface. Then cover fitting valve box for easy access for yearly maintenance.
- It is recommended to sod the mound completely after the system is completed to prevent erosion.
- The side slopes must be no steeper than 3 to 1 on a site with less than a 2% slope.

NOTE: Any Infiltrator chamber can be used in a mound system as long as you have 3-feet edge to edge between rows of chambers.
The IM-540 is an injection molded two piece mid-seam plastic tank. The IM-540 injection molded plastic design allows for a mid-seam joint that has precise dimensions for accepting an engineered EPDM gasket. Infiltrator’s gasket design utilizes technology from the sanitary sewer pipe industry to deliver proven means of maintaining a watertight seal. The two-piece design is permanently fastened using a series of non-corrosive plastic alignment dowels and locking seam clips. The IM-540 will be assembled and sold through a network of certified Infiltrator distributors.

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<td>Width</td>
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The IM-1060 Septic Tank by Infiltrator Water Technologies comes in one size and may be used as a septic or pump tank. The IM-1060 can be a single or dual compartment septic tank and includes access port lids and 4” diameter pipe grommets that accommodate SDR 35 or SCH 40 pipe. Inlet and outlet tees are optional.

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Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
The IM-1530 Septic Tank by Infiltrator Water Technologies comes in one size and may be used as a septic or pump tank. The IM-1530 can be a dual or triple compartment septic tank and includes access port lids and 4” diameter pipe grommets that accommodate SDR 35 or SCH 40 pipe. Inlet and outlet tees are optional.

The table shows the parameters and values for the IM-1530 Septic Tank:

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</table>

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Drill height markings are provided on the Infiltrator IM-1060 to serve as a guide for inlet and outlet hole locations. The IM-1060 is manufactured to have an end inlet invert height of 47 inches (1,194 mm) above the interior surface of the tank bottom when using the drill height guide markings and 4-inch-diameter (100 mm) pipes. The end outlet invert height is 44 inches (1,118 mm), corresponding to a 3-inch (76 mm) drop from end inlet to end outlet. The side inlets have invert heights of 47.5 inches (1,207 mm), and side outlets have invert heights of 44.5 inches (1,130 mm). This corresponds to a side inlet to side outlet invert drop of 3 inches (76 mm); a side inlet to end outlet invert drop of 3.5 inches (89 mm); and an end inlet to side outlet invert drop of 2.5 inches (64 mm).

Please download the current Installation Instructions for the IM-540, IM-1060 and IM-1530 Series Tanks at www.infiltratorwater.com

1. Height measured from lowermost inside surface at bottom of corrugation in tank.
EZSNAP RISERS

Click And Lock Riser Technology
The EZsnap riser is designed to create an easy-to-assemble watertight riser system for septic tanks, pump tanks, and cisterns.
The EZsnap Riser features click and lock technology eliminating the need for assembly tools, sealant/caulk and hardware. The 24" diameter EZsnap Riser is available in 2", 6" and 12" tall sections that nest together making for efficient storage and shipping.

EZSnap Riser Specifications

EZSnap Safety Star Specifications

EZSnap 24" Lid Specifications

Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.
Infiltrator IM-Series Tank Riser Connection Guidance Document for EZsnap Risers

Before You Begin
This document provides recommended procedures for the connection of EZsnap Riser products to Infiltrator Water Technologies’ (Infiltrator’s) IM-Series tanks.

The intent of this document is to provide procedures for making the connection between the riser and tank. Risers must be installed according to state and/or local regulations, which supersede the guidelines in this document. If unsure of the requirements for a particular site, contact the local health department or permitting authority.

Parts and Supplies
The parts and supplies necessary for installation of a riser system on Infiltrator IM-Series tanks must be purchased separately from the tank. All parts and supplies are commercially available. Contact Infiltrator or the riser manufacturer for assistance obtaining parts and supplies.

Required Tools for EZsnap Risers
• Rubber Mallet
• Screw Gun
• 7/16” Hex Nut Driver Screw Gun Bit
• #3 Square Head Robertson Driver Bit, 6-inch Length
• #2 Phillips Driver Bit, 6-inch Length
• Rags
• Install riser assembly prior to backfilling tank.

Note: The EZsnap Riser segment includes factory-installed gaskets on both ends of the riser segment, so the application of a sealant or mastic on the connection surface is not required. Proper care must be taken to ensure the gasket surface is clean and free of debris. It’s recommended that all gaskets and connection surfaces be wiped clean. Each riser section is tapered to have a narrow end and a wide end. When shipped the EZsnap Risers are stacked wide end down and nested together. When making riser connections the narrow ends are designed to connect to the narrow end and the wide end is designed to connect to the wide end. It is a recommended best practice that the taller sections be installed at the deepest points of the installation.

Riser-to-Tank Connection
Insert the EZsnap Riser, narrow end down into the IM-Tank opening. Rotate the riser until the riser connection tabs align with the tank indexing tabs on the tank opening. Screw pilot holes will be in alignment on the riser and tank when in proper position. On one side of the tank insert the riser connection tabs into the tank indexing tabs and engage into the proper position. Then using a rubber mallet pound down on the top of the riser engaging the rest of the tabs. It is helpful to move around the circumference of the tank opening. It is recommended for the tank to riser connection only to secure the connection with the supplied (10) #12 High-Low 1-3/4” stainless steel screws. Tighten screws in a “star” pattern, tightening screws on opposite sides of the EZsnap Riser.

Riser to Riser Connection
The EZsnap Risers come in multiple heights to generate the desired finished grade. Each Riser is tapered to have a large end and small end align like-diameter ends of riser segments. Rotate until the tabs on the upper riser segment drops into alignment on the lower riser segment. With tabs in alignment, push directly down on the top rim of the upper riser segment until the connection tab engages into the lower riser segment. A rubber mallet may be necessary to engage the tabs by hitting on the top surface of the riser if manual pressure is not adequate.

The Infiltrator Safety Star Installation
The Infiltrator Safety Star is designed to be mounted to the screw pilot holes at a narrow end riser connection. One arm on the Safety...
Star folds down 15 degrees allowing it to collapse and fit through a 24” opening.

1. Install the Infiltrator Safety Star at an EZsnap narrow riser to riser connection closest to the ground surface. A minimum of a 6-inch riser is required to accommodate the safety star and to attach the lid properly.

2. Fasten the Safety Star in place using #12 x 1-3/4” stainless steel screws.

Infiltrator’s five arm Safety Star system is equipped with a folding arm for easy installation.

Lid-to-Riser Connection

The EZsnap Lid will accommodate the narrow and the wide end of the riser. To install, set the lid on top of the last riser and rotate until the riser tabs recess into the receiving pockets on the lid. The lid will drop down approximately 1/2-inch and stop rotating when seated properly. With the lid properly seated the screw pilot holes are in alignment.

Use the ten #14 stainless steel screws provided to fasten the lid to the riser. There are nine (9) hexagonal head stainless steel bolts and one (1) #3 Pan-head Robertson screw, which is used as a tamper-resistant fastener. Depending upon which end of a riser segment is being used for the lid connection, use the outer-diameter screw pilot holes on the lid for the larger-diameter end of the riser and the inner-diameter screw holes for the smaller-diameter end of the riser. Call-outs on the lids clearly define the proper screw pilot holes to use for the different scenarios. Adjust the screw gun settings to prevent stripping out the pilot holes. Do not over-tighten screws.

24-inch (600-mm) IPEX, Ultra-Rib™ PVC Pipe

Note: 24-inch (600-mm) IPEX pipe must be installed using the Infiltrator Pipe Adapter Ring (SNAPPAR-2400).

1. Install riser assembly prior to backfilling tank.

2. Cut IPEX pipe along an inner corrugation to allow lid to fit properly. Cut should be smooth and even.

3. Apply 1 continuous 3/8” beads of ISI-1500 Adhesive Sealant to the smaller of the two standing ribs closest to the screw pilot holes on the top surface of the IM-Tank manhole opening. Add an extra dab of sealant in each screw hole. Sealant thickness must fill gap beneath Infiltrator Pipe Adapter Ring.

4. Align the Pipe Adapter Ring with the IM-Tank opening by lining up the arrows on the Pipe Adapter Ring with the arrow on the tank inlet or outlet. The ring will seat on the tank tightly when properly aligned. Center and press to create an even distribution of the sealant.

5. Fasten Infiltrator Pipe Adapter Ring to the IM-Tank manhole opening using ten #12 x 1-3/4-inch stainless steel screws. Tighten in star pattern. Repeat star pattern at least twice, without over tightening screws.

6. Mark (4) evenly spread locations on the inside of the Infiltrator Pipe Adapter Ring for pilot holes to accept screws. The pilot holes should be at a height half way up
Contact Infiltrator Water Technologies 1-800-221-4436 for additional technical and product information.

6. Drill (4) 1/8-inch (3.5-mm) pilot holes at marked locations on the Infiltrator Pipe Adapter Ring.

7. Apply (1) bead of ISI-1500 Adhesive Sealant to the first taper on the Infiltrator Pipe Adapter.

8. Place the IPEX pipe over the Infiltrator Pipe Adapter Ring until it is seated at the base of the flange.

9. Insert ISI-1500 Adhesive Sealant into the (4) pre-drilled pilot holes.

10. Fasten IPEX pipe to Infiltrator Pipe Adapter Ring using (4) #12 x 1/2-inch stainless steel screws from the inside of pipe.

11. Tighten screws in a “star” pattern, tightening screws on opposite sides of the Infiltrator Pipe Adapter Ring. Repeat the star pattern at least twice, without over tightening screws.

12. Apply a generous bead of sealant into the groove at the top of the pipe adapter and then smear the sealant into the groove between the pipe and Infiltrator Pipe Adapter Ring.

13. Use the Infiltrator IM-Series septic tank lid, or equivalent product as a lid for the riser pipe. The lid will require the installation of the factory supplied adhesive backed gasket to the bottom side of the lid to ensure a snug fit. Set and center the lid onto the riser pipe and fasten using the factory supplied (10) #14 x 1-3/4-inch stainless steel lag bolts. Pre-drill 1/8” (3.5-mm) pilot holes on the inner set of templated locations on the lid.

Note: when using the Infiltrator lid, apply the factory supplied adhesive back gasket to the bottom side of the lid to ensure a snug fit.

14. Backfill tank in accordance with Infiltrator’s tank installation instructions.

15. Following tank backfilling, visually examine the riser to Infiltrator Pipe Adapter Ring connection for damage resulting from backfill placement. Repair or replace if damaged. Allow 24 hours sealant cure-time before testing or putting into service.

**24-inch (600-mm) HDPE Pipe**

Note: The 24-inch (600-mm) HDPE pipe must be installed using the Infiltrator Pipe Adapter Ring (SNAPPAR-2400).

1. Install riser assembly prior to backfilling tank.

2. Cut HDPE pipe along an inner corrugation to allow lid to fit properly. Cut should be smooth and even.

3. Apply 1 continuous 3/8” beads of ISI-1500 Adhesive Sealant to the smaller of the two standing ribs closest to the screw pilot holes on the top surface of the IM-Tank manhole opening. Add an extra dab of sealant in each screw hole. Sealant thickness must fill gap beneath Infiltrator Pipe Adapter Ring.

4. Align the Pipe Adapter Ring with the IM-Tank opening by lining up the arrows on the Pipe Adapter Ring with the arrow on the tank inlet or outlet. The ring will seat on the tank tightly when properly aligned.
Center and press to create an even distribution of the sealant.

5. Fasten Infiltrator Pipe Adapter Ring the IM-Tank manhole opening using ten #12 x 1-3/4-inch stainless steel screws. Tighten in star pattern. Repeat star pattern at least twice, without over tightening screws.

6. Mark (4) evenly spread locations on the Infiltrator Pipe Adapter Ring for pilot holes to accept screws. The pilot holes should be at a height half way up the interior flange of the Infiltrator Pipe Adapter Ring.

7. Drill (4) 1/8-inch (3.5-mm) pilot holes at marked locations on the Infiltrator Pipe Adapter Ring.

8. Center the HDPE pipe over the Infiltrator Pipe Adapter Ring.

9. Fasten HDPE pipe to Infiltrator Pipe Adapter Ring using four #12 x 1¼-inch (5.5 mm x 31 mm) stainless steel screws from inside the pipe.

10. Tighten screws in a “star” pattern, tightening screws on opposite sides of the Infiltrator Pipe Adapter Ring. Repeat the star pattern at least twice, without over tightening screws.

11. Apply ISI-1500 Adhesive Sealant in the space between the pipe and Infiltrator Pipe Adapter Ring to seal the gap between the pipe and adapter ring.

12. Use the Infiltrator IM-Series septic tank lid, or equivalent product as a lid for the riser pipe. The lid will require the installation of the factory supplied adhesive backed gasket to the bottom side of the lid to ensure a snug fit. Set and center the lid onto the riser pipe and fasten using the factory supplied (10) #14 x 1-1/2-inch stainless steel lag bolts. Pre-drill 1/8" (3.5-mm) pilot holes on the inner set of templated locations on the lid.

Note: when using the Infiltrator lid, apply the factory supplied adhesive back gasket to the bottom side of the lid to ensure a snug fit.

13. Backfill tank in accordance with Infiltrator’s tank installation instructions.

14. Following tank backfilling, visually examine the riser to Infiltrator Pipe Adapter Ring connection for damage resulting from backfill placement. Repair or replace if damaged. Allow 24 hours sealant cure-time before testing or putting into service.

Backfill Tank and Risers
Backfill tank and risers in lifts properly supporting all sides of the risers as you move up.

Disclaimer: These recommended procedures have been developed to identify best practices for achieving a watertight connection between the tank and riser under typical tank installation conditions. These procedures have been shown to result in a watertight connection between the riser assemblies identified in this document and the Infiltrator IM-Tank. Infiltrator does not guarantee a watertight connection between tank and riser because achieving a watertight connection is dependent upon a combination of installer practices and procedures, and field conditions. Please contact Infiltrator’s Technical Services Department at 800-221-4436 if difficulty is encountered during riser connection installation. Please contact the appropriate riser manufacturer for concerns associated with anything that does not involve the tank to-riser connection.
This product has been approved for use as a substitute for conventional pipe and gravel in absorption trenches. The approval of the 1003T indicates that the product meets the Rules and Regulations Pertaining to Sewage Disposal Systems.

The absorption field product should be installed in 24 inch-wide trenches with shallow trench bottom depths of 18 inches recommended. The most suitable backfill material available should be used. Clay backfill is not recommended. The backfill should be mounded over the trench to allow for settling and ensure a minimum of six inches of cover as specified by the manufacturer.

Materials and Equipment Needed

- EZflow 1003T bundles
- EZflow internal pipe couplers
- Endcaps, if needed
- Backhoe
- Laser, Transit or Level

Installation Instructions

1. The EZflow assemblies are 10 inches in diameter by 10 feet long. The polyethylene net bundles contain a four inch perforated pipe surrounded by EPS aggregate.

In cases where linear footage required is not in multiples of 10, the installer may (a) reduce the product to the needed length and refasten the netting to the pipe or, (b) use an additional 10 feet of product to exceed the required trench length.

Note: The required length of drainfield is that required for a two foot wide stone trench.

2. The plastic stretch wrap is removed before the ten foot long bundles are placed in the trench(es).

3. The bundles containing 4-inch perforated pipe are joined end to end with an internal coupling available from EZflow. The same internal coupler is used to start the trench, as it will slide inside the 4-inch PVC pipe.

4. The trench top shall be shaped to ensure surface runoff. Minimum cover over the pipe and aggregate assembly shall be 6 inches. Mounding of backfill may be necessary to ensure the required 6 inches of cover.

5. Repeat steps 1 through 4 for each required trench.

Products 1003T

Two-foot Wide Trench

Three-foot Wide Trench

NOTE: All Infiltrator EZflow bundles can be installed on residential or commercial installations.

NOTE: No length of EZflow bundles are to be cut.

NOTE: If installing the EZflow 1003T system in a 3 foot wide trench, the products must be staked every 5 feet prior to backfilling the system.
Sizing of EZflow Systems in Trenches Only

EZFLOW 1003T SYSTEMS

Minimum number of EZflow bundles required based on bedrooms and soils class.

<table>
<thead>
<tr>
<th>NUMBER OF BEDROOMS</th>
<th>SOIL CLASS 1B</th>
<th>SOIL CLASS II</th>
<th>SOIL CLASS III</th>
</tr>
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<td>12</td>
<td>15</td>
</tr>
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<td>35</td>
</tr>
<tr>
<td>Ea. Add’l Bedroom</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. The chart is the minimum sizing based on Infiltrator Water Technologies requirements. There is no warranty implied, or granted on any system installation, which does not comply with these minimum sizing requirements.

2. This chart complies with our minimum sizing criteria per TCEQ regulations.

3. If you use the **HIGH** GPD flow rate, use the following formulas for the EZflow 1003T system when installed in a 2 foot wide trench.

\[ L = \text{excavation length in feet} \]
\[ A = \text{absorptive area} \]
\[ W = \text{excavation width in feet} \]

EZflow 1003T System: \[ L = \frac{.53 \, A}{W + 2} \]
EZflow 1003T System: \[ L = \frac{.53 \, A}{(W + 2)} \]

4. If you use the **LOW** GPD flow rate use the following formulas for the EZflow system when installed in a 2 foot wide trench.

\[ L = \text{excavation length in feet} \]
\[ A = \text{absorptive area} \]
\[ W = \text{excavation width in feet} \]

EZflow 1003T System: \[ L = \frac{.66 \, A}{W + 2} \]
EZflow 1003T System: \[ L = \frac{.66 \, A}{(W + 2)} \]

5. If you use the **HIGH** GPD flow rate use the following formulas for the EZflow system when installed in a 3 foot wide trench.

\[ L = \text{excavation length in feet} \]
\[ A = \text{absorptive area} \]
\[ W = \text{excavation width in feet} \]

EZflow 1003T System: \[ L = \frac{.66 \, A}{(W + 2)} \]
EZflow 1003T System: \[ L = \frac{.66 \, A}{(3 + 2)} \]

Note: All Infiltrator EZflow bundles can be installed on residential or commercial installations.

Note: No length of EZflow bundles are to be cut.

Note: If installing the EZflow 1003T system in a 3 foot wide trench, the products must be staked every 5 feet prior to backfilling the system.

6. If you use the **LOW** GPD flow rate use the following formulas for the EZflow system when installed in a 3 foot wide trench.

\[ L = \text{excavation length in feet} \]
\[ A = \text{absorptive area} \]
\[ W = \text{excavation width in feet} \]

EZflow 1003T System: \[ L = \frac{.83 \, A}{W + 2} \]
EZflow 1003T System: \[ L = \frac{.83 \, A}{(3 + 2)} \]
Steven C. Murdock  
Infiltrator Water Technologies  
Senior Sales Representative  
2400 New Hope Spur  
Cedar Park, Texas  78613

Re:  Use of EZFlow Model 1003-T in LPD Systems

Dear Mr. Murdock,

You recently inquired about the use of EZFlow Model 1003-T in low-pressure dosing (LPD) systems. Specifically, you inquired about whether the reduction is still given in these situations.

We interpret the Chapter 285 rules as follows: if a standard system can be installed in that soil, then the EZFlow Model 1003-T gets a reduction, regardless of whether they use pressure distribution. Alternatively, if a standard system cannot be used in that soil, and they are using the EZFlow Model 1003-T instead of using gravel, then no reduction is allowed.

The reason for our interpretation is that pressure distribution is preferable to gravity distribution, and if a designer could use gravity distribution, but chooses to go the extra mile and use pressure distribution, we do not wish to provide a disincentive to this practice.

If you have any questions, please feel free to contact me at 512-239-4777.

Sincerely,

[Signature]

James McCaine  
On-site Wastewater Team, TCEQ
WARRANTY

INFILTRATOR WATER TECHNOLOGIES
STANDARD LIMITED WARRANTY

(a) The structural integrity of each chamber, endcap and other accessory manufactured by Infiltrator (collectively referred to as “Units”), when installed and operated in a leachfield of an onsite septic system in accordance with Infiltrator’s installation instructions, is warranted to the original purchaser (“Holder”) against defective materials and workmanship for one year from the date upon which a septic permit is issued for the septic system containing the Units; provided, however, that if a septic permit is not required for the septic system by applicable law, the one (1) year warranty period will begin upon the date that installation of the septic system commences. In order to exercise its warranty rights, Holder must notify Infiltrator in writing at its corporate headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect. Infiltrator will supply replacement Units for those Units determined by Infiltrator to be defective and covered by this Limited Warranty. Infiltrator’s liability specifically excludes the cost of removal and/or installation of the Units.

(b) THE LIMITED WARRANTY AND REMEDIES IN SUBPARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

(c) This Limited Warranty shall be void if any part of the chamber system (chamber, endcap or other accessory) is manufactured by anyone other than Infiltrator. The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the Holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Units; the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions; failure to maintain the minimum ground covers set forth in the installation instructions; the placement of improper materials into the system containing the Units; failure of the Units or the septic system due to improper siting or improper sizing, excessive water usage, improper grease disposal, or improper operation; or any other event not caused by Infiltrator. This Limited Warranty shall be void if the Holder fails to comply with all of the terms set forth in this Limited Warranty.

Further, in no event shall Infiltrator be responsible for any loss or damage to the Holder, the Units, or any third party resulting from installation or shipment, or from any product liability claims of Holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and Infiltrator’s installation instructions.

(d) No representative of Infiltrator has the authority to change this Limited Warranty in any manner whatsoever, or to extend this Limited Warranty. No warranty applies to any party other than the original Holder.

The above represents the standard Limited Warranty offered by Infiltrator. A limited number of states and counties have different warranty requirements. Any purchaser of Units should contact Infiltrator’s corporate headquarters in Old Saybrook, Connecticut, prior to such purchase, to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of Units.
TEXAS LIMITED SEPTIC WARRANTY FOR INFILTRATOR CHAMBERS

a. The structural integrity of each Infiltrator Chamber and end cap, when installed in accordance with manufacturer’s instructions, is warranted to the original purchaser against defective materials and workmanship for two years from the date of purchase. Should a defect appear within the warranty period, purchaser must inform Infiltrator Water Technologies of the defect within fifteen (15) days. Infiltrator Water Technologies will supply a replacement chamber and/or end cap. Infiltrator Water Technologies’ liability specifically excludes the cost of removal and/or installation of units.

b. THE WARRANTY IN SUBPARAGRAPH (a) IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE CHAMBERS AND END CAPS, INCLUDING NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. THE WARRANTY DOES NOT EXTEND TO INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES. THE COMPANY SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS OF PRODUCTION AND PROFITS, LABOR AND MATERIALS, OVERHEAD COSTS, OR OTHER LOSS OR EXPENSE INCURRED BY PURCHASER. SPECIFICALLY EXCLUDED FROM WARRANTY COVERAGE ARE DAMAGE TO THE UNITS DUE TO ORDINARY WEAR AND TEAR, ALTERATION, ACCIDENT, MISUSE, ABUSE, OR NEGLECT OF THE UNITS; THE UNITS BEING SUBJECTED TO STRESSES GREATER THAN THOSE PRESCRIBED IN THE INSTALLATION INSTRUCTIONS; THE PLACEMENT BY PURCHASER OF IMPROPER MATERIALS INTO THE PURCHASER’S SYSTEM; OR ANY OTHER EVENT NOT CAUSED BY THE COMPANY. FURTHERMORE, IN NO EVENT SHALL THE COMPANY BE RESPONSIBLE FOR ANY LOSS OR DAMAGE TO THE PURCHASER, THE UNITS, OR ANY THIRD PARTY RESULTING FROM ITS INSTALLATION OR SHIPMENT. PURCHASER SHALL BE SOLELY RESPONSIBLE FOR ENSURING THAT THE INSTALLATION OF THE SYSTEM IS COMPLETED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES, RULES, AND REGULATIONS.

c. NO REPRESENTATIVE OF THE COMPANY HAS THE AUTHORITY TO CHANGE THIS WARRANTY IN ANY MANNER WHATSOEVER, OR TO EXTEND THIS WARRANTY. NO WARRANTY APPLIES TO ANY PARTY OTHER THAN TO THE ORIGINAL PURCHASER.

d. All types of chamber systems must be installed in full compliance with the latest version of the product installation requirements. The system must be in full compliance with all aspects of the state regulations and codes.

e. WHEN WORKING IN FINE AND VERY FINE SANDS (LOAMY SAND AND SANDY LOAM SOILS WITH LOW MOISTURE CONTENT) IT IS AT THE CONTRACTORS’ DISCRETION TO COVER THE CHAMBERS WITH A VERY FINE FILTER CLOTH (0.040 MIL) (ASTM D 4571) PRIOR TO BACKFILLING THE SYSTEM. A THICKER FILTER FABRIC OVER THE CHAMBERS MAY DEVELOP A BIOMAT IN THE CLOTH, WHICH PREVENTS THE EXFILTRATION OF EFFLUENT FROM THE CHAMBERS INTO THE SOIL. ANY OTHER FILTER FABRIC USED WILL VOID THIS WARRANTY.

NOTE: Any chamber systems constructed with less than our minimum sizing requirements will not be covered by any product warranties.

NOTE: When installing Infiltrator chambers in sandy conditions, do not over excavate the trench.

f. IF YOU ARE IN A GOPHER-PRONE AREA IT IS RECOMMEND THAT THE INSTALLER PLACES WIRE MESH (CHICKEN WIRE) ON THE BOTTOM OF EACH TRENCH BEFORE INSTALLING ANY INFILTRATOR CHAMBERS.

NOTE: It is at the contractors’ discretion to cover the chambers with a very fine Infiltrator filter fabric (0.040 MIL) (ASTM D 4571) prior to backfilling the system when working in fine and very fine sands (loamy sand and sandy loam soils with low moisture content). A thicker filter fabric over the chambers may develop a biomat in the cloth, which may prevent the exfiltration of effluent from the chambers into the soil. Infiltrator filter fabric may be purchased from any Infiltrator Water Technologies distributor. ANY OTHER FILTER FABRIC USED WILL VOID THE WARRANTY.
INTEGRATOR WATER TECHNOLOGIES

STANDARD LIMITED WARRANTY

EZflow, L.P. (“EZflow”) hereby extends the following LIMITED WARRANTY to the original purchaser of a new EZflow drainfield system installed by an authorized installer. The EZflow drainfield system is warranted to be free from defects in material and workmanship under normal use, subject to the terms and conditions herein.

WARRANTY ELIGIBILITY:
This Limited Warranty shall extend to the original homeowner and to each subsequent owner of the home during the term of this Limited Warranty. This Limited Warranty covers the performance of the EZflow drainfield system only when properly installed in accordance with EZflow, L.P.’s design specifications, installation instructions, and any applicable state rules or regulations by an authorized installer for use with domestic strength effluent.

OWNER’S OBLIGATIONS AND MAINTENANCE
1. The homeowner must retain proof that septic tank solids (digested sludge) have been properly removed once every thirty-six (36) months.
2. The homeowner must not landscape over the EZflow drainfield system with trees or shrubbery nor erect any structures or place heavy items over the drainfield.
3. Homeowner must retain this Limited Warranty signed by an authorized drainfield system installer and a properly issued Operation Permit.

WHAT IS WARRANTED AND FOR HOW LONG:
The EZflow prefabricated drainfield system is warranted for ONE (1) YEAR from the date of installation to be free from defects in material or workmanship. During the warranty period, EZflow, L.P. shall, at its option, repair or replace any defective system components at no charge for labor or materials. REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT IS THE EXCLUSIVE REMEDY UNDER THIS LIMITED WARRANTY. Any replacement or repair parts are warranted for the remainder of the warranty period or ninety (90) days, whichever is longer. Under this Limited Warranty, EZflow, L.P. will provide only for replacement and installation of defective EZflow drainfield system parts. The homeowner shall be responsible for any other costs, including but not limited to, re-sodding and any permits required for installation.

WHAT IS NOT COVERED BY THIS LIMITED WARRANTY:
1. The septic tank, filters, effluent distribution box(es) or other system components.
2. Improper design or installation, including but not limited to repairs/replacements necessitated due to improper or inaccurate soils analysis, the use of incorrect application rates or inadequate sizing criteria.
3. Landscaping or re-sodding costs.
4. Repair work performed without EZflow, L.P.authorization.
5. Damage caused by unauthorized or improper attachment, alterations or modifications, including but not limited to use of geotextiles or plastic pipe.
6. Damage caused by flood, earthquake or other natural disaster.
7. Damage or failure due to improper maintenance or inadequate maintenance.
8. Failure due to excessive water usage, improper grease disposal or other excessive or improper use.
9. Failure caused by placing structures or plant material over the drainfield or by stresses or vehicular traffic greater than that prescribed in the installation or operation instructions.

NOTICE OF WARRANTY CLAIM:
To obtain warranty service under this Limited Warranty, the homeowner must notify EZflow, L.P. within ninety (90) days after discovery of any defect. Upon notification, EZflow, L.P. will issue an authorization number for investigation, repair, or replacement service. Notify EZflow, L.P., 6 Business Park Road, Old Saybrook, CT 06475 or call Toll Free 1-800-689-7759.
EZflow, L.P. will not pay for any costs, repairs, or replacements without prior authorization.

DISCLAIMER OF AND LIMITATION ON WARRANTIES:
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NOTE: When installing EZflow by Infiltrator in sandy conditions, do not over excavate the trench.