### MaxiForce™ Steel Bollard Base Installation Schedule

*For Universal, Simple, Removable, and EZ Bases*

#### Engineered Anchorage System for MaxiForce™ Steel Bollard Bases - Single Footing
(For Universal, Simple, Removable and EZ Bases)

<table>
<thead>
<tr>
<th>Base Type</th>
<th>Concrete Pier Diameter (In.)</th>
<th>Concrete Pier Height (In.)</th>
<th>Concrete Pier Reinforcing</th>
<th>Bollard Base/Embedment at Concrete Pier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal</td>
<td>12&quot;</td>
<td>39&quot;</td>
<td>2 - #4 Vert.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>Simple</td>
<td>12&quot;</td>
<td>39&quot;</td>
<td>2 - #4 Vert.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>Removable</td>
<td>12&quot;</td>
<td>39&quot;</td>
<td>2 - #4 Vert.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>EZ</td>
<td>12&quot;</td>
<td>39&quot;</td>
<td>2 - #4 Vert.</td>
<td>6&quot; Min</td>
</tr>
</tbody>
</table>

#### Engineered Anchorage System for MaxiForce™ Steel Bollard Bases - Continuous Beam Footing
(For Universal, Simple, Removable and EZ Bases)

<table>
<thead>
<tr>
<th>Base Type</th>
<th>Concrete Grade Beam Width (In.)</th>
<th>Concrete Grade Beam Height (In.)</th>
<th>Concrete Grade Beam Reinforcing</th>
<th>Bollard Base/Embedment at Concrete Grade Beam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal</td>
<td>12&quot;</td>
<td>22&quot;</td>
<td>3 - #4 Cont.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>Simple</td>
<td>12&quot;</td>
<td>22&quot;</td>
<td>3 - #4 Cont.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>Removable</td>
<td>12&quot;</td>
<td>22&quot;</td>
<td>3 - #4 Cont.</td>
<td>8&quot; Min</td>
</tr>
<tr>
<td>EZ</td>
<td>12&quot;</td>
<td>22&quot;</td>
<td>3 - #4 Cont.</td>
<td>6&quot; Min</td>
</tr>
</tbody>
</table>

### Design and Construction Notes

1.0 For continuous concrete grade beam footing, pipe bollards shall be spaced 4'-0" O.C. maximum.

2.0 Allowable Foundation Pressure = 2,000 psf. Allowable Lateral Bearing = 150/psf. Assumed in-place soil, Sand, Silty Sand, Clayey Sand, Silty Gravel, or Clayey Gravel. For higher soil allowable design values, site soil investigation by a Registered Geotechnical Engineer is required.

3.0 See supplemental concrete footing details for additional information.

4.0 Material Specifications: Concrete = 3,000 psi (28-day min); Reinforcing ASTM A615 (60 ksi for all bars #5 and larger, 40 ksi for all bars #4 and smaller).
Engineered Anchorage System for the MaxiForce™ EZ Base
Circular Concrete Pier Footing

1. MaxiForce™ Steel pipe bollard per specification.
3. Finished grade or pavement.
4. Concrete base pier per schedule, at each pipe sleeve.
5. Compacted gravel bed (3" minimum).
6. #3 hoop ties at 12" O.C. and 2 - #3 ties at top and bottom of concrete pier.
7. Centerline of bollard and concrete base pier.

Installation Orientation

Protected Side

Attack Side

See Schedule

3" Clr Typ

See Schedule
Engineered Anchorage System for the MaxiForce™ EZ Base Continuous Beam Footing

1. MaxiForce™ Steel pipe bollard per specification.
3. Finished grade or pavement.
4. Continuous concrete grade beam per schedule.
5. Compacted gravel bed (3" minimum).
6. #4 at 12" O.C. - TYP. with 4" min. hooks with 135 degree bend - TYP. UNO.
7. Centerline of bollard and concrete grade beam.
8. Continuous longitudinal reinforcement per schedule - lap splice 24" min. - TYP. UNO.

Installation Orientation

Protected Side

Attack Side

3" Clr Typ

See Schedule

See Schedule