Water Main
<table>
<thead>
<tr>
<th>NO.</th>
<th>DATE</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WM-101</td>
<td>10-18-16</td>
<td>Thrust Blocks</td>
</tr>
<tr>
<td>WM-102</td>
<td>10-18-16</td>
<td>Tracer System</td>
</tr>
<tr>
<td>WM-201</td>
<td>04-19-22</td>
<td>Fire Hydrant Assembly</td>
</tr>
</tbody>
</table>
Extend thrust blocks to undisturbed soil. Excavation into trench wall may be necessary.

Form vertical surfaces of poured concrete thrust blocks except on bearing surface.

Encase all fittings in polyethylene wrap. Do not allow concrete to directly contact joints or fitting bolts.

Minimum bearing surface (ft)

<table>
<thead>
<tr>
<th>Diameter of Pipe, D (inches)</th>
<th>Bends</th>
<th>Tees and Dead Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>12</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>14</td>
<td>11</td>
<td>28</td>
</tr>
<tr>
<td>16</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>18</td>
<td>17</td>
<td>42</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
<td>63</td>
</tr>
<tr>
<td>30</td>
<td>24</td>
<td>78</td>
</tr>
<tr>
<td>36</td>
<td>24</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>34</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>34</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>34</td>
<td>132</td>
</tr>
<tr>
<td></td>
<td>34</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td>34</td>
<td>173</td>
</tr>
</tbody>
</table>

Minimum surface area based on water pressure of 150 psi and allowable soil pressure of 1,000 psf.
DEAD ENDS (ALTERNATE METHOD)

Use only when allowed by the Engineer, or when specified in the contract documents.

CHANGES IN PIPE DEPTH

Possible Pipe or Structure

Elbows with Restrained Joints

Straps

Possible Valve

Mechanical Joint

Restrained Cap

Retainer Gland

Valve

Possible Pipe or Structure

Restrained Joint

Straps

Thrust Block

Anchor Block

Turnbuckle

Depth of Concrete

Trench

Hook

SHELL 2 OF 2

SECTION B-B

SECTION A-A

ELEVATION

PLAN

REVISIONS:

THRUST BLOCKS

Replaced Iowa DOT and SUDAS logos with new logos.
1. Extend tracer wire up fire hydrant barrel to internal terminals of tracer wire station and back down. Refer to WM-201 for details of fire hydrant assembly.

2. Clamp tracer wire to ground rod at system termination points.

- Fire Hydrant Barrel
- Fire Hydrant Valve
- New Water Main
- Anchor Tee
- Fire Hydrant Valve
- Possible Splice
- Ground Rod

TYPICAL INSTALLATION

Existing Water Main

Do not run wire up valve box

Tape wire at midpoint of each pipe length

Clamp tracer wire to ground rod at system termination points.

Extend tracer wire up fire hydrant barrel to internal terminals of tracer wire station and back down. Refer to WM-201 for details of fire hydrant assembly.

Clamp tracer wire to ground rod at system termination points.

Do not run wire up valve box. Refer to WM-201 for details of fire hydrant assembly.

Tape wire at midpoint of each pipe length.

Clamp tracer wire to ground rod at system termination points.

Extend tracer wire up fire hydrant barrel to internal terminals of tracer wire station and back down. Refer to WM-201 for details of fire hydrant assembly.

Clamp tracer wire to ground rod at system termination points.

Tape wire at midpoint of each pipe length.
Use ductile iron pipe with restrained mechanical joints for fire hydrant assembly and anchor tee.

All shaded items are included in the Fire Hydrant Assembly bid item.

See the contract documents for the location of each hydrant and the length of anchoring pipe.

1. Do not cover drain holes or tracer wire.