This page left intentionally blank.
# FAIRFAX WATER - STANDARD DETAILS

## Table of Contents

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1&quot; Service Connection with 5/8&quot; or 3/4&quot; Meter</td>
</tr>
<tr>
<td>1A</td>
<td>1&quot; Service Connection with 1&quot; Meter</td>
</tr>
<tr>
<td>2</td>
<td>1&quot; Service Connection with Curb Stop</td>
</tr>
<tr>
<td>3</td>
<td>1&quot; Service Reconnection</td>
</tr>
<tr>
<td>4</td>
<td>Cast Iron Meter Box Cover</td>
</tr>
<tr>
<td>5</td>
<td>Interior Main Meter Installation - 5/8&quot; Through 1&quot; Meter Sizes</td>
</tr>
<tr>
<td>6</td>
<td>Exterior Meter Installation – 5/8&quot; Through 1&quot; Meter Sizes</td>
</tr>
<tr>
<td>7</td>
<td>Interior Meter Installation – 1 ½&quot; And 2&quot; Meter Sizes</td>
</tr>
<tr>
<td>8</td>
<td>Exterior Meter Installation – 1 ½&quot; And 2&quot; Meter Sizes</td>
</tr>
<tr>
<td>9</td>
<td>Interior Meter Installation with By-Pass – 2&quot; And Larger Turbine Meters</td>
</tr>
<tr>
<td>10</td>
<td>Interior Meter Installation for Irrigation System – 2&quot; And Larger Turbine Meters</td>
</tr>
<tr>
<td>11</td>
<td>Interior Meter Installation with By-Pass – 3&quot; And Larger Compound Meters</td>
</tr>
<tr>
<td>12</td>
<td>Trench – Ductile Iron Pipe</td>
</tr>
<tr>
<td>13</td>
<td>Trench – High Density Polyethylene Pipe</td>
</tr>
<tr>
<td>14</td>
<td>Trenchless Crossing - Steel Casing</td>
</tr>
<tr>
<td>15</td>
<td>Trenchless Crossing - Casing Insulators and Casing End Seal</td>
</tr>
<tr>
<td>16</td>
<td>Trenchless Crossing – Liner Plate</td>
</tr>
<tr>
<td>17</td>
<td>Sanitary Sewer Protection - Water Main Crossing Under Sewer</td>
</tr>
<tr>
<td>18</td>
<td>Stream Crossing Scour Protection</td>
</tr>
<tr>
<td>19</td>
<td>D.I.P. Pipe Closure for Prestressed Concrete Cylinder Pipe</td>
</tr>
<tr>
<td>20</td>
<td>H.D.P.E. / M.J. Adapter</td>
</tr>
<tr>
<td>Drawing No.</td>
<td>Title</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>21</td>
<td>Cut and Cap</td>
</tr>
<tr>
<td>22</td>
<td>Concrete Thrust Anchors</td>
</tr>
<tr>
<td>23</td>
<td>Concrete Vertical Blocking – Water Mains Less Than or Equal to 12”</td>
</tr>
<tr>
<td>24</td>
<td>Thrust Collar - 6” To 12” Water Main</td>
</tr>
<tr>
<td>25</td>
<td>Thrust Collar - 16” To 24” Water Main</td>
</tr>
<tr>
<td>26</td>
<td>Valve Box</td>
</tr>
<tr>
<td>27</td>
<td>Valve Box Concrete Pad</td>
</tr>
<tr>
<td>28</td>
<td>Valve Stem and Box Extension</td>
</tr>
<tr>
<td>29</td>
<td>Standard Hydrant Installation</td>
</tr>
<tr>
<td>30</td>
<td>Standard Hydrant – Greater Than 8’ Bury</td>
</tr>
<tr>
<td>31</td>
<td>Hydrant Protection – Guard Posts</td>
</tr>
<tr>
<td>32</td>
<td>Guard Post</td>
</tr>
<tr>
<td>33</td>
<td>Methods of Flushing Fire Hydrants and Blow-Offs</td>
</tr>
<tr>
<td>34</td>
<td>2” Air Release</td>
</tr>
<tr>
<td>35</td>
<td>Air Release and Blow-Off Piping – Ductile Iron Pipe 12” &amp; Larger</td>
</tr>
<tr>
<td>36</td>
<td>2” Blow-Off</td>
</tr>
<tr>
<td>37</td>
<td>Automatic Flushing Device and Drainage Piping</td>
</tr>
<tr>
<td>38</td>
<td>8” &amp; 12” Headwall Blow-Off</td>
</tr>
<tr>
<td>39</td>
<td>4” Through 12” Pressure Reducing Valve Vault</td>
</tr>
<tr>
<td>39A</td>
<td>4” Through 12” Pressure Reducing Valve Vault – Vault Notes</td>
</tr>
<tr>
<td>40</td>
<td>Vault Access Door Installation and Drain Pipe</td>
</tr>
<tr>
<td>41</td>
<td>Type FD Corrosion Control Test Station – Foreign Pipeline Crossing</td>
</tr>
<tr>
<td>42</td>
<td>Type CS Corrosion Control Test Station – Trenchless Crossing</td>
</tr>
<tr>
<td>43</td>
<td>Type TD Corrosion Control Test Station – Standard</td>
</tr>
<tr>
<td>Drawing No.</td>
<td>Title</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>44</td>
<td>Type I Corrosion Control Test Station – Isolator (P.V.C. or H.D.P.E. Insert)</td>
</tr>
<tr>
<td>44A</td>
<td>Isolator (P.V.C. or H.D.P.E. Insert)</td>
</tr>
<tr>
<td>45</td>
<td>Type IS Corrosion Control Test Station – Insulated Flange</td>
</tr>
<tr>
<td>46</td>
<td>Test Station Installation</td>
</tr>
<tr>
<td>47</td>
<td>Typical Test Station Box for Non-Paved Areas</td>
</tr>
<tr>
<td>47A</td>
<td>Typical Test Station Box for Paved Areas</td>
</tr>
<tr>
<td>48</td>
<td>Insulating Flange</td>
</tr>
<tr>
<td>49</td>
<td>Insulating Union</td>
</tr>
<tr>
<td>50</td>
<td>Pipe Joint Bonding</td>
</tr>
<tr>
<td>51</td>
<td>Hotspot Cathodic Protection Coating and Anode Placement</td>
</tr>
<tr>
<td>52</td>
<td>Thermite Weld</td>
</tr>
<tr>
<td>53</td>
<td>Type GM Corrosion Control Test Station – Grounding Mat</td>
</tr>
<tr>
<td>54</td>
<td>Grounding Mat - Fire Hydrant</td>
</tr>
<tr>
<td>55</td>
<td>Typical Wire Splice</td>
</tr>
<tr>
<td>56</td>
<td>Ribbon Anode to Cable Splice</td>
</tr>
<tr>
<td>57</td>
<td>Anode Header Cable Splice</td>
</tr>
<tr>
<td>58</td>
<td>Type FD Test Station Terminal Board and Wiring</td>
</tr>
<tr>
<td>59</td>
<td>Type CS Test Station Terminal Board and Wiring</td>
</tr>
<tr>
<td>60</td>
<td>Type TD Test Station Terminal Board and Wiring</td>
</tr>
<tr>
<td>61</td>
<td>Type IS and I Test Station Terminal Board and Wiring</td>
</tr>
<tr>
<td>62</td>
<td>Type GM Test Station Terminal Board and Wiring</td>
</tr>
<tr>
<td>63</td>
<td>Typical Backfilling and Anode Bed Placement Area</td>
</tr>
<tr>
<td>64</td>
<td>Typical Separator to Avoid Electrical Contact</td>
</tr>
<tr>
<td>65</td>
<td>Corrosion Control Test Station Schedule</td>
</tr>
</tbody>
</table>
NOTES:
1. NO PLASTIC TUBING TO BE USED INSIDE METER BOX.
2. METER BOX, METER BOX COVER, AND METER YOKE TO BE FAIRFAX WATER STANDARD TYPE.
3. THREADED SERVICE CLAMP TO BE USED ON 3" AND 20" & LARGER WATER MAINS.
4. COAT WITH PETROLATUM TAPE PER SECTION 13110 CATHODIC PROTECTION.
5. NO STRUCTURES, POLES, SIGN POSTS, TREES OR SHRUBS TO BE INSTALLED WITHIN FOUR FEET OF METER CROCK.

FAIRFAX WATER
STANDARD DETAILS

1" SERVICE CONNECTION
WITH 5/8" OR 3/4" METER

DATE: 6/20
NOTES:
1. NO PLASTIC TUBING TO BE USED INSIDE METER BOX.
2. METER BOX, METER BOX COVER AND COPPER METER SETTER TO BE FAIRFAX WATER STANDARD TYPE.
3. THREADED SERVICE CLAMP TO BE USED ON 3" AND 20" & LARGER WATER MAINS.
4. COAT WITH PETROLATUM TAPE PER SECTION 13110 CATHODIC PROTECTION.
5. NO STRUCTURES, POLES, SIGNPOSTS, TREES OR SHRUBS TO BE INSTALLED WITHIN FOUR FEET OF METER CROCK.
NOTE:
WHERE CURB BOX IS LOCATED IN PAVEMENT, USE VALVE BOX INSTEAD OF CURB BOX.
NOTE:
COAT WITH PETROLATUM TAPE PER SECTION 13110 CATHODIC PROTECTION
NOTE:
INSTALL 2" DIAMETER HOLE BETWEEN RIBS FOR AUTOMATIC METER READING METERS WHERE INDICATED ON THE PLANS OR BY FAIRFAX WATER.
MATERIALS LIST:
1. 1 – INSIDE METER YOKE
2. 1 – METER WITH GASKETS

NOTES:
1. THE WATER METER SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION. CRAWL SPACES ARE NOT ACCEPTABLE.
2. THE WATER METER MUST BE INSTALLED BETWEEN 2′-0" AND 4′-0" ABOVE THE FLOOR.
3. THE CUSTOMER MUST CALL 703–289–6402, FOR WIRING AND INSPECTION OF THE METER PRIOR TO FINISHING INTERIOR WALLS OF THE BUILDING.
4. GATE OR BALL VALVES SHALL BE INSTALLED APPROXIMATELY 12 INCHES ON EITHER SIDE OF THE METER SETTING.
5. IT IS THE CUSTOMER'S RESPONSIBILITY TO PREVENT THE METER FROM FREEZING.
6. BACKFLOW PREVENTION WILL BE REQUIRED IN ACCORDANCE WITH FAIRFAX COUNTY REGULATIONS.
7. FAIRFAX WATER MAINTAINS THE METER AND REMOTE REGISTER ONLY.
8. A 3" MINIMUM GATE VALVE WITH A 2" OPERATING NUT MUST BE INSTALLED ON THE SERVICE LINE WHEN TAPPED OFF THE FIRE LINE.
9. NO TAPS, PRV'S, STRAINERS, OR BACKFLOW PREVENTION DEVICES ARE TO BE INSTALLED BEFORE THE METER.
10. FAIRFAX WATER TO SUPPLY ITEMS SHOWN IN MATERIALS LIST. ALL OTHER MATERIALS TO BE SUPPLIED BY THE CUSTOMER.
11. FAIRFAX WATER TO SUPPLY AND INSTALL REMOTE REGISTER. WIRE FOR REMOTE REGISTER TO BE FURNISHED BY FAIRFAX WATER AND INSTALLED BY CUSTOMER IF REQUIRED.
MATERIALS LIST:
1. 1-METER BOX
2. 1-METER BOX COVER
3. 2-ANGLE VALVES
4. 1-IRON METER YOKE OR COPPER METER SETTER
5. 1-EXPANSION CONNECTION HANDWHEEL
6. 1-METER WITH GASKETS

NOTES:
1. THE WATER METER BOX SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION IN A GREEN SPACE AND SO AS NOT TO BE A TRIP HAZARD.
2. WATER METER TO BE INSTALLED BY FAIRFAX WATER AS SHOWN IN THE DIAGRAM ABOVE. METER TO BE INSTALLED BY CUSTOMER WHEN TAPPED OFF FIRE LINE.
3. THE METER INSTALLATION WILL BE INSPECTED AND APPROVED BY FAIRFAX WATER. CALL 703-289-6402 FOR INSPECTION PRIOR TO PLACING LINE IN SERVICE.
4. FAIRFAX WATER TO SUPPLY ITEMS SHOWN IN MATERIALS LIST. ALL OTHER MATERIALS TO BE SUPPLIED BY THE CUSTOMER.
5. BACKFLOW PREVENTION WILL BE REQUIRED IN ACCORDANCE WITH FAIRFAX COUNTY REGULATIONS.
6. FAIRFAX WATER MAINTAINS THE SUPPLY LINE BETWEEN THE METER AND THE MAIN, METER, METER BOX, AND METER BOX COVER ONLY. FAIRFAX WATER WILL NOT MAINTAIN SUPPLY LINE WHEN TAPPED OFF FIRE LINE.
7. A 3" MINIMUM GATE VALVE WITH A 2" OPERATING NUT MUST BE INSTALLED ON THE SERVICE LINE WHEN TAPPED OFF THE FIRE LINE.
8. NO STRUCTURES, POLES, SIGN POSTS, TREES OR SHRUBS TO BE INSTALLED WITHIN FOUR FEET OF METER CROCK.

FAIRFAX WATER STANDARD DETAILS

EXTERIOR METER INSTALLATION
5/8" THROUGH 1" METER SIZES

DATE: 6/20

SCALE: NOT TO SCALE

DRAWING NO.: 6
MATERIALS LIST:
1. 1 - 1&1/2" OR 2" WATER METER WITH GASKETS
2. 2 - COMPANION FLANGES

WALL SLEEVE (BY CUSTOMER)
REMOTE REGISTER (BY FAIRFAX WATER)
METER & COMPANION FLANGES TO BE FURNISHED BY FAIRFAX WATER AND INSTALLED BY CUSTOMER
WIRE FOR REMOTE REGISTER TO METER
GATE OR BALL VALVES
SUPPORT LINE TO BUILDING (SEE NOTE 10)
FLOOR
GATE OR BALL VALVES
12"
12"
12" MAX.
5' - 0"
GROUND
MAIN IN STREET OR FIRE LINE
OUTER WALL

NOTES:
1. THE WATER METER SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION. CRAWL SPACES ARE NOT ACCEPTABLE.
2. THE METER MUST BE INSTALLED NOT MORE THAN 2' ABOVE THE FLOOR, OR CLOSER THAN 1' TO ANY WALL OR OTHER FIXED OBJECT.
3. PROVISIONS FOR DISCHARGE OF A LARGE VOLUME OF WATER RESULTING FROM METER TESTING AND REPAIRS SHALL BE MADE AS REQUIRED BY FAIRFAX WATER.
4. THE METER INSTALLATION WILL BE INSPECTED AND APPROVED BY FAIRFAX WATER. CALL 703-289-6402 FOR INSPECTION PRIOR TO PLACING LINE IN SERVICE.
5. IT IS THE CUSTOMER'S RESPONSIBILITY TO PREVENT THE METER FROM FREEZING.
6. SUPPORT IS REQUIRED FOR THE METER.
7. GATE OR BALL VALVES SHALL BE INSTALLED APPROXIMATELY 12 INCHES ON EITHER SIDE OF THE METER SETTING.
8. INCOMING LINE SIZE MUST BE THE SAME AS METER SIZE AT LEAST 3' BEFORE THE METER.
9. FAIRFAX WATER MAINTAINS THE METER AND REMOTE REGISTER ONLY.
10. BACKFLOW PREVENTION WILL BE REQUIRED IN ACCORDANCE WITH FAIRFAX COUNTY REGULATIONS.
11. A 3" MINIMUM GATE VALVE WITH A 2" OPERATING NUT MUST BE INSTALLED ON THE SERVICE LINE WHEN TAPPED OFF THE FIRE LINE.
12. NO TAPS, PRV'S, STRainers, OR BACKFLOW PREVENTION DEVICES ARE TO BE INSTALLED BEFORE THE METER.
13. FAIRFAX WATER TO SUPPLY ITEMS SHOWN IN MATERIALS LIST. ALL OTHER MATERIALS TO BE SUPPLIED BY THE CUSTOMER.
14. FAIRFAX WATER TO SUPPLY AND INSTALL REMOTE REGISTER. WIRE FOR REMOTE REGISTER TO BE FURNISHED BY FAIRFAX WATER AND INSTALLED BY CUSTOMER IF REQUIRED.
NOTES:
1. THE WATER METER BOX SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION IN GREEN SPACE AND
   SO AS NOT TO BE A TRIP HAZARD.
2. WATER METER TO BE INSTALLED BY FAIRFAX WATER AS SHOWN IN THE DIAGRAM ABOVE.
   METER TO BE INSTALLED BY CUSTOMER WHEN TAPPED OFF FIRE LINE.
3. THE METER INSTALLATION WILL BE INSPECTED AND APPROVED BY FAIRFAX WATER. CALL
   703-289-6402 FOR INSPECTION PRIOR TO PLACING LINE IN SERVICE.
4. FAIRFAX WATER TO SUPPLY ITEMS SHOWN IN MATERIALS LIST ONLY. ALL OTHER MATERIALS TO
   BE SUPPLIED BY THE CUSTOMER.
5. BACKFLOW PREVENTION WILL BE REQUIRED IN ACCORDANCE WITH FAIRFAX COUNTY’S REGULATIONS.
6. FAIRFAX WATER MAINTAINS THE SUPPLY LINE BETWEEN THE METER AND THE MAIN, THE METER,
   METER BOX, AND THE METER BOX COVER ONLY. FAIRFAX WATER WILL NOT MAINTAIN SUPPLY LINE
   WHEN TAPPED OFF FIRE LINE.
7. A 3” MINIMUM GATE VALVE WITH A 2” OPERATING NUT MUST BE INSTALLED ON THE SERVICE LINE
   WHEN TAPPED OFF FIRE LINE.
NOTES:
1. THE WATER METER WILL BE LOCATED IN AN ACCESSIBLE LOCATION AND WILL NOT BE INSTALLED UNDER EXISTING PIPING OR CLOSE TO OTHER FACILITIES. CRAWL SPACES ARE UNACCEPTABLE.
2. WATER METER TO BE INSTALLED NOT MORE THAN 2.0' ABOVE THE FLOOR, OR CLOSER THAN 1.0' TO ANY WALL OR OTHER FIXED OBJECT.
3. PROVISIONS FOR DISCHARGE OF A LARGE VOLUME OF EXCESS WATER RESULTING FROM METER TESTING AND METER REPAIRS SHALL BE MADE AS REQUIRED BY FAIRFAX WATER.
4. THE METER INSTALLATION WILL BE INSPECTED AND APPROVED BY FAIRFAX WATER. CALL 703–289–6402 FOR INSPECTION PRIOR TO PLACING LINE IN SERVICE. (REMOTE REGISTER TO BE INSTALLED OUTSIDE BUILDING IF REQUIRED).
5. IT IS THE CUSTOMER’S RESPONSIBILITY TO PREVENT THE METER FROM FREEZING.
6. SUPPORT IS REQUIRED FOR THE METER.
7. INCOMING LINE SIZE MUST BE THE SAME AS METER SIZE AT LEAST 3' BEFORE THE METER.
8. IF THE SERVICE CONNECTION IS 3" AND ABOVE, A 3" MINIMUM GATE VALVE WITH 2" OPERATING NUT MUST BE INSTALLED AT THE MAIN IN THE STREET OR FIRE LINE.
9. NO TAPS, PRV’S, STRAINERS, OR BACKFLOW PREVENTORS ARE TO BE INSTALLED BEFORE METER.
10. GATE VALVES OR BALL VALVES MUST BE INSTALLED ON BOTH SIDES OF THE METER, AND ON THE BYPASS. BUTTERFLY VALVES ARE NOT ACCEPTABLE.
11. BACKFLOW PREVENTION WILL BE REQUIRED IN ACCORDANCE WITH FAIRFAX COUNTY’S REGULATIONS.
12. TURBINE METER, STRAINER AND COMPANION FLANGE TO BE FURNISHED BY FAIRFAX WATER AND INSTALLED BY CUSTOMER.
NOTES:
1. THE WATER METER WILL BE LOCATED IN AN ACCESSIBLE LOCATION AND WILL NOT BE INSTALLED UNDER EXISTING PIPING OR CLOSE TO OTHER FACILITIES. CRAWL SPACES ARE UNACCEPTABLE.
2. WATER METER TO BE INSTALLED NOT MORE THAN 2.0' ABOVE THE BASE SLAB, OR CLOSER THAN 1.0' TO ANY WALL OR FIXED OBJECT.
3. PROVISIONS FOR DISCHARGE OF A LARGE VOLUME OF EXCESS WATER RESULTING FROM METER TESTING, RPZ OPERATION AND METER REPAIRS SHALL BE MADE AS REQUIRED BY FAIRFAX WATER.
4. THE METER INSTALLATION WILL BE INSPECTED AND APPROVED BY FAIRFAX WATER. CALL 703-289-6402 FOR INSPECTION PRIOR TO PLACING LINE IN SERVICE. (REMOTE REGISTER TO BE INSTALLED OUTSIDE BUILDING IF REQUIRED).
5. IT IS THE CUSTOMER’S RESPONSIBILITY TO PREVENT THE METER FROM FREEZING.
6. SUPPORT IS REQUIRED FOR THE METER AND RPZ.
7. INCOMING LINE SIZE MUST BE THE SAME AS METER SIZE AT LEAST 3’ BEFORE THE METER.
8. THE SERVICE CONNECTION SHALL BE MADE OF DUCTILE IRON PIPE. IF THE SERVICE CONNECTION IS 3” OR LARGER, A RESTRAINED GATE VALVE WITH 2” OPERATING NUT MUST BE INSTALLED AT THE SUPPLY MAIN.
9. NO TAPS, PRV’S, STRAINERS, OR BACKFLOW PREVENTOR ARE TO BE INSTALLED BEFORE METER.
10. GATE VALVES OR BALL VALVES MUST BE INSTALLED ON BOTH SIDES OF THE METER, AND ON THE BYPASS. BUTTERFLY VALVES ARE NOT ACCEPTABLE.
11. ENCLOSURE SHALL PROVIDE UNRESTRICTED ACCESS TO METER, RPZ, AND INTERIOR PIPING.
12. TURBINE METER, STRAINER AND COMPANION FLANGE TO BE FURNISHED BY FAIRFAX WATER AND INSTALLED BY CUSTOMER.
TYPICAL INSTALLATION SECTION VIEW

NOTES:
1. THE WATER METER WILL BE LOCATED IN AN ACCESSIBLE LOCATION AND WILL NOT BE INSTALLED UNDER EXISTING PIPING OR CLOSE TO OTHER FACILITIES. CRAWL SPACES ARE UNACCEPTABLE.
2. WATER METER TO BE INSTALLED NOT MORE THAN 2.0’ ABOVE THE FLOOR, OR CLOSER THAN 1.0’ TO ANY WALL OR OTHER FIXED OBJECT.
3. PROVISIONS FOR DISCHARGE OF A LARGE VOLUME OF EXCESS WATER RESULTING FROM METER TESTING AND METER REPAIRS SHALL BE MADE AS REQUIRED BY FAIRFAX WATER.
4. THE METER INSTALLATION WILL BE INSPECTED AND APPROVED BY FAIRFAX WATER. CALL 703–289–6402 FOR INSPECTION PRIOR TO PLACING LINE IN SERVICE. (REMOTE REGISTER TO BE INSTALLED OUTSIDE BUILDING IF REQUIRED).
5. IT IS THE CUSTOMER’S RESPONSIBILITY TO PREVENT THE METER FROM FREEZING.
6. SUPPORT IS REQUIRED FOR THE METER.
7. INCOMING LINE SIZE MUST BE THE SAME AS METER SIZE AT LEAST 3’ BEFORE THE METER.
8. A 3” MINIMUM GATE VALVE WITH A 2” OPERATING NUT MUST BE INSTALLED AT THE MAIN IN THE STREET OR FIRE LINE.
9. NO TAPS, PRV’S, STRAINERS, OR BACKFLOW PREVENTOR ARE TO BE INSTALLED BEFORE METER.
10. GATE VALVES OR BALL VALVES MUST BE INSTALLED ON BOTH SIDES OF THE METER, AND ON THE BYPASS. BUTTERFLY VALVES ARE NOT ACCEPTABLE.
11. FAIRFAX WATER TO SUPPLY AND INSTALL REMOTE REGISTER. WIRE FOR REMOTE REGISTER TO BE FURNISHED BY FAIRFAX WATER AND INSTALLED BY CUSTOMER IF REQUIRED.
12. BACKFLOW PREVENTIONS WILL BE REQUIRED IN ACCORDANCE WITH FAIRFAX COUNTY’S REGULATIONS.
13. 3” METER IS 24” LONG, 4” IS 29” LONG AND 6” IS 36” LONG.
14. METER, STRAINER AND COMPANION FLANGES TO BE FURNISHED BY FAIRFAX WATER AND INSTALLED BY CUSTOMER.
EXISTING PAVED AREAS

<table>
<thead>
<tr>
<th>MAIN SIZE</th>
<th>TRENCH WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>24&quot;</td>
</tr>
<tr>
<td>6&quot;-16&quot;</td>
<td>O.D. + 18&quot;</td>
</tr>
<tr>
<td>20&quot;-36&quot;</td>
<td>O.D. + 24&quot;</td>
</tr>
<tr>
<td>42&quot;-48&quot;</td>
<td>O.D. + 30&quot;</td>
</tr>
</tbody>
</table>

85% COMPACTED BACKFILL (SUITABLE FILL)

PROPOSED D.I.P. WATER MAIN W/ 8-MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT

95% COMPACTED BACKFILL (VDOT 21A STONE, SEE NOTE 1)

NON-PAVED AREAS

<table>
<thead>
<tr>
<th>MAIN SIZE</th>
<th>TRENCH WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>24&quot;</td>
</tr>
<tr>
<td>6&quot;-16&quot;</td>
<td>O.D. + 18&quot;</td>
</tr>
<tr>
<td>20&quot;-36&quot;</td>
<td>O.D. + 24&quot;</td>
</tr>
<tr>
<td>42&quot;-48&quot;</td>
<td>O.D. + 30&quot;</td>
</tr>
</tbody>
</table>

95% COMPACTED BACKFILL (VDOT 21A STONE)

PROPOSED D.I.P. WATER MAIN W/ 8-MIL V-BIO ENHANCED POLYETHYLENE ENCASEMENT

95% COMPACTED BACKFILL (VDOT 21A STONE, SEE NOTE 1)

EXISTING PAVED AREAS

NOTES:
1. VDOT NO. 57 STONE SHALL BE USED AT CREEK CROSSINGS OR IN AREAS WHERE TRENCH CONTAINS GROUND WATER.
2. ALL PAVEMENT RESTORATION AND COMPACTED BACKFILL WITHIN VDOT RIGHT-OF-WAY SHALL ADHERE TO ALL APPLICABLE VDOT SPECIFICATIONS.
3. RESTRAINED JOINT PIPE SHALL BE IDENTIFIED WITH MARKING TAPE PLACED 2 FEET ABOVE PIPE.
4. ALL WATER MAIN INSTALLATION IN AREAS WITH PROPOSED PAVING SHALL ADHERE TO APPROVED DEVELOPMENT PLAN.
EXISTING PAVED AREAS

MAIN SIZE | TRENCH WIDTH = 4" TOPSOIL
----------|---------------------
4"        | 24"                 
6"-16"    | O.D. + 18"          
20"-36"   | O.D. + 24"          
42"-48"   | O.D. + 30"          

85% COMPACTED BACKFILL (SUITABLE FILL)

6 GAUGE SINGLE CONDUCTOR COATED COPPER TRACER WIRE TO BE TAPPED TO PIPE

PROPOSED H.D.P.E. WATER MAIN

NON-PAVED AREAS

EX. GRADE

PAVEMENT RESTORATION

X=24" FOR PIPE LESS THAN 24"
X=30" FOR PIPE 24" AND LARGER

MAIN SIZE | TRENCH WIDTH = 4" TOPSOIL
----------|---------------------
4"        | 24"                 
6"-16"    | O.D. + 18"          
20"-36"   | O.D. + 24"          
42"-48"   | O.D. + 30"          

95% COMPACTED BACKFILL (VDOT 21A STONE)

6 GAUGE SINGLE CONDUCTOR COATED COPPER TRACER WIRE TO BE TAPPED TO PIPE

PROPOSED H.D.P.E. WATER MAIN

EXISTING PAVED AREAS

NOTES:
1. VDOT NO. 57 STONE SHALL BE USED AT CREEK CROSSINGS OR IN AREAS WHERE TRENCH CONTAINS GROUND WATER.
2. ALL PAVEMENT RESTORATION AND COMPACTED BACKFILL WITHIN VDOT RIGHT-OF-WAY SHALL ADHERE TO ALL APPLICABLE VDOT SPECIFICATIONS.
3. ALL WATER MAIN INSTALLATION IN AREAS WITH PROPOSED PAVING SHALL ADHERE TO APPROVED DEVELOPMENT PLAN.
**FAIRFAX WATER STANDARD DETAILS**

TRENCHLESS CROSSING STEEL CASING

**CASING PIPE SIZES**

<table>
<thead>
<tr>
<th>WATER MAIN PIPE SIZE (INCHES)</th>
<th>CASING PIPE SIZE (INCHES)</th>
<th>CASING THICKNESS (INCHES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>16</td>
<td>0.500</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
<td>0.500</td>
</tr>
<tr>
<td>12</td>
<td>24</td>
<td>0.500</td>
</tr>
<tr>
<td>16</td>
<td>30</td>
<td>0.500</td>
</tr>
<tr>
<td>20</td>
<td>36</td>
<td>0.500</td>
</tr>
<tr>
<td>24</td>
<td>42</td>
<td>0.500</td>
</tr>
<tr>
<td>30</td>
<td>48</td>
<td>0.500</td>
</tr>
<tr>
<td>36</td>
<td>54</td>
<td>0.500</td>
</tr>
</tbody>
</table>

**NOTE:**
ANNULAR SPACE MAY BE FILLED AT THE DISCRETION OF FAIRFAX WATER.
ELEVATION: CARRIER PIPE AND INSULATORS

END DIMENSIONS AND SEAL DETAIL

EQUAL SPACE NOT MORE THAN 6'-0" O.C. TO O.C. OR SPACING AS REQUIRED BY MANUFACTURER AND APPROVED BY FAIRFAX WATER

NOTES:
1. THE CONTRACTOR MAY INSTALL TUNNEL LINER PLATE IN LIEU OF THE STEEL CASING SHOWN, IN ACCORDANCE WITH SECTION 02400 OF FAIRFAX WATER’S SPECIFICATIONS, AT NO ADDITIONAL COST TO FAIRFAX WATER. IF THE CONTRACTOR CHOOSES TO INSTALL TUNNEL LINER PLATE, SHOP DRAWINGS AND A DETAIL OF THE TUNNEL LINER PLATE INSTALLATION SHALL BE SUBMITTED, WHICH INDICATE THE ABILITY OF THE THE TUNNEL PLATE LINER TO WITHSTAND THE APPLIED LOADS. SUBMITTAL SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VIRGINIA.
2. RESTRAINED JOINT PIPE SHALL BE INSTALLED WITHIN CASING PIPE.
3. SEE PLAN FOR TEST STATION AND ANODE REQUIREMENTS.
4. CARRIER PIPE DOES NOT REQUIRE POLYETHYLENE ENCASEMENT WITHIN CASING PIPE.
5. ALL PIPE JOINTS 24-INCH AND LARGER WITHIN CASING PIPE SHALL BE BONDED.
6. CASING END SEALS SHALL BE MADE OF NEOPRENE, NITRILE, OR EPDM RUBBER AND SECURED TO THE CASING AND CARRIAGE PIPE WITH STAINLESS STEEL BRANDS.
7. CASING PIPE JOINTS SHALL BE BEVELED AND CONTINUOUSLY WELDED.
NOTE:
ANNULAR SPACE MAY BE FILLED AT THE DISCRETION OF FAIRFAX WATER.
ELEVATION

SECTION A-A

CONCRETE PIER DETAIL

NOTE:
SANITARY AND WATER MAIN PIPE JOINTS SHALL BE LOCATED EQUIDISTANT FROM CROSSING SO AS TO CENTER THE PIPE SECTIONS OVER THE CROSSING. NO JOINT SHALL BE LOCATED CLOSER THAN 4 FEET TO THE CROSSING.
NOTES:
1. DETAILS SHOWN ARE FOR ALL PIPE DIAMETERS.
2. DUCTILE IRON PIPE TO BE INSTALLED WITH POLYETHYLENE ENCASEMENT.
NOTES:
1. TO BE USED WHEN WATER MAIN IS REQUIRED FOR IMMEDIATE SERVICE.
2. FOR PIPE 12" AND LARGER, TWO 6"x6" PRESSURE TREATED TIMBERS SHALL BE USED (USE WEDGES AS NECESSARY).
3. SOLID CONCRETE BLOCKING WILL BE PERMITTED IN LIEU OF TIMBER.
<table>
<thead>
<tr>
<th>PIPE SIZE INCHES</th>
<th>DEGREE OF BEND (°)</th>
<th>TEST PRESSURE 175 PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>L</td>
</tr>
<tr>
<td>6</td>
<td>90</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>22.5</td>
<td>1.5</td>
</tr>
<tr>
<td>8</td>
<td>90</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>22.5</td>
<td>2.0</td>
</tr>
<tr>
<td>12</td>
<td>90</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>22.5</td>
<td>3.0</td>
</tr>
<tr>
<td>16</td>
<td>90</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>11.25/22.5</td>
<td>4.0</td>
</tr>
<tr>
<td>20</td>
<td>90</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>11.25/22.5</td>
<td>5.5</td>
</tr>
<tr>
<td>24</td>
<td>90</td>
<td>13.0</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>11.25/22.5</td>
<td>6.0</td>
</tr>
</tbody>
</table>

**NOTES:**

1. MINIMUM CONCRETE ANCHOR BLOCK DIMENSIONS IN FEET.
2. PROVIDE FORM WORK FOR ALL CONCRETE.
3. CONCRETE SHALL BE CLASS D 2000 PSI.
4. THE ABOVE TABLE IS BASED ON 2000 PSF SOIL BEARING CAPACITY, \( R = 2PA \sin(\theta/2) \) AND FOR A TEST PRESSURE = 1.5 x WORKING PRESSURE.
5. ANCHOR BLOCK DESIGN FOR PIPE LARGER THAN 24" SHALL BE REVIEWED ON AN INDIVIDUAL BASIS BY FAIRFAX WATER.
6. WRAP FITTING WITH POLYETHYLENE SHEETING. CONCRETE MUST NOT OBRUCT ACCESS TO MECHANICAL JOINT ASSEMBLY.
7. CONCRETE ANCHOR BLOCK DIMENSIONS FOR TEES TO BE SAME AS FOR 90° BENDS, AND BASED ON THE SIZE OF THE BRANCH PIPING.
8. HEIGHT OF CONCRETE ANCHOR BLOCK ABOVE PIPE CENTERLINE IS 1/3 THE H DIMENSION.
9. BLOCKING SHALL BACK TO UNDISTURBED EARTH.
RESTRAIN MINIMUM 3 FULL JOINTS OF PIPE BEFORE AND AFTER FITTING FOR 8" DIAMETER WATER MAIN OR SMALLER, 4 FULL JOINTS OF PIPE FOR 12" DIAMETER WATER MAIN, OR AS REQUIRED BY FAIRFAX WATER. IF SUFFICIENT PIPE JOINT RESTRAIN CANNOT BE ACHIEVED, THRUST COLLAR SHALL BE USED.

2. OFFSET BENDS REQUIRE SIMILAR BLOCKING AND PIPE RESTRAINT.
2 OPPOSING RESTRAINING GLANDS (Mega-Lug or equal, see approved product list)

GRAVEL BEDDING
SEE STANDARD TRENCH DETAIL

SIDE ELEVATION

MJ PLUG W/ CONCRETE ANCHOR

FRONT ELEVATION

TRENCH EXCAVATION
4-#6 REBARS ABOVE PIPE
3-#6 REBARS EACH SIDE
4-#6 REBARS BELOW PIPE
4-#6 REBARS

NOTES:
1. BEARING AREA IS BASED ON 200 PSI TEST PRESSURE AND A SOIL BEARING CAPACITY OF 2000 POUNDS PER SQUARE FOOT. INCREASE BLOCK DIMENSIONS AS REQUIRED FOR HIGHER TEST PRESSURES AND IN SOILS WITH LOWER BEARING VALUES.
2. *DIMENSIONS "B" AND "D" ARE MINIMUM VALUES FOR BEARING IN UNDISTURBED EARTH.
3. CONCRETE STRENGTH SHALL BE CLASS B (4000 PSI).
4. MAINTAIN MINIMUM 1.5" CLEARANCE BETWEEN PIPE AND REBAR.

THRUXT COLLAR SCHEDULE

<table>
<thead>
<tr>
<th>LINE SIZE</th>
<th>A</th>
<th>B*</th>
<th>C</th>
<th>D*</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;</td>
<td>2'-0&quot;</td>
<td>1'-0&quot;</td>
<td>1'-6&quot;</td>
<td>1'-0&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>2'-0&quot;</td>
<td>1'-3&quot;</td>
<td>1'-6&quot;</td>
<td>1'-0&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>2'-3&quot;</td>
<td>1'-6&quot;</td>
<td>1'-6&quot;</td>
<td>1'-6&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>2'-6&quot;</td>
<td>2'-0&quot;</td>
<td>1'-6&quot;</td>
<td>1'-6&quot;</td>
</tr>
</tbody>
</table>

FAIRFAX WATER
STANDARD DETAILS

THRUST COLLAR
6" TO 12" WATER MAIN

DATE: 6/20

SCALE: NOT TO SCALE

DRAWING NO.: 24
NOTES:
1. BEARING AREA IS BASED ON 200 PSI TEST PRESSURE AND A SOIL BEARING CAPACITY OF 2000 POUNDS PER SQUARE FOOT. INCREASE BLOCK DIMENSIONS AS REQUIRED FOR HIGHER TEST PRESSURES AND IN SOILS WITH LOWER BEARING VALUES.
2. *DIMENSIONS "B" AND "D" ARE MINIMUM VALUES FOR BEARING IN UNDISTURBED EARTH.
3. CONCRETE STRENGTH SHALL BE CLASS B (4000 PSI).
4. MAINTAIN MINIMUM 1.5" CLEARANCE BETWEEN PIPE AND REBAR.

<table>
<thead>
<tr>
<th>THRUST COLLAR SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINE SIZE</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>16&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
</tr>
</tbody>
</table>

FAIRFAX WATER
STANDARD DETAILS

THRUSt COLLAR
16" TO 24" WATER MAIN

DATE: 6/20

SCALE: NOT TO SCALE

DRAWING NO.: 25
NOTES:
1. THE MANUFACTURER IDENTIFICATION AND COUNTRY OF ORIGIN (IF OTHER THAN U.S.) SHALL BE CAST INTO ALL PARTS.
2. GUARD POSTS ARE NOT TO BE INSTALLED AT VALVES UNLESS INDICATED ON DRAWINGS, OR AS SPECIFIED BY FAIRFAX WATER.
3. VALVE BOX MUST MEET SPECIFICATIONS CONTAINED IN FAIRFAX WATER'S APPROVED PRODUCTS LIST.
4. FOR VALVE BOXES DEEPER THAN SIX FEET, USE 5-INCH DIAMETER GRAY CAST IRON (SOIL) PIPE TO EXTEND STANDARD TOP AND BOTTOM SECTIONS.
5. STACKING OF VALVE BOX SECTIONS IS NOT ACCEPTABLE.
6. VALVE BOXES LOCATED OUTSIDE OF PAVED AREAS MUST BE INSTALLED IN 2' x 2' x 8" CONCRETE PADS, UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS OR BY FAIRFAX WATER.
NOTES:
1. CONCRETE PADS FOR WATER MAIN VALVE AND TERMINAL BOX ARE TO BE INSTALLED USING REQUIREMENTS FOR CLASS D CONCRETE (2000 PSI).
2. PADS TO BE FORMED AND PROPERLY FINISHED.
3. VALVE BOX CONCRETE PAD TO BE INSTALLED ON ALL VALVES IN NON–PAVED AREAS OR AS DIRECTED BY FAIRFAX WATER.
4. GUARD POSTS ARE NOT TO BE INSTALLED AT VALVES UNLESS INDICATED ON DRAWINGS, OR AS SPECIFIED BY FAIRFAX WATER.
NOTES:
1. FOR VALVE BOXES DEEPER THAN SIX FEET, USE 5-INCH DIAMETER GRAY CAST IRON (SOIL) PIPE TO EXTEND STANDARD TOP AND BOTTOM SECTIONS.
2. STACKING OF VALVE BOX SECTIONS IS NOT ACCEPTABLE.
NOTES:
1. FOR HYDRANT LOCATION IN REGARD TO FACE OF CURB, SEE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL.
2. IF SWIVEL TEE IS NOT USED, VALVE MUST BE RESTRAINED TO TEE WITH RESTRAINING GLANDS BY CONTRACTOR.
3. HYDRANTS SHALL HAVE SHOP-APPLIED COATINGS AS FOLLOWS:
   • HYDRANT BARREL: KENNEDY SAFETY RED OR MUELLER RED #10
   • TOPS AND CAPS: KENNEDY SILVER OR MUELLER SILVER #18
   • WHERE INDICATED BY FAIRFAX WATER, THE TOP SHALL BE SHOP-COATED RED AND THE BARREL AND CAPS SHALL BE SHOP-COATED SILVER IN LIEU OF THE ABOVE.
4. POLYETHYLENE ENCASEMENT TO BE INSTALLED UP TO THE BASE (BOOT) OF THE HYDRANT AND SHALL NOT TO PREVENT DISCHARGE OF WATER THROUGH HYDRANT DRAIN HOLES.
5. PROVIDE ADEQUATE CLEARANCE FROM EXISTING GRADE TO ACCESS FLANGE BOLTS.
6. THE DRAIN HOLE SHALL BE PLUGGED WHEN HYDRANT IS INSTALLED IN AN AREA SUBJECT TO HIGH GROUND WATER LEVELS, FLOODING, CONTAMINANT OR POLLUTION SPILLS, OR SURFACE WATER PONDING AS IDENTIFIED BY ENGINEER OR AS CALLED OUT ON THE PLANS.
NOTES:
1. Guard posts are used to protect a hydrant in areas where vehicular or equipment traffic may be encountered. The plans or Fairfax water to specify the installation of guard posts. Do not install guard posts within VDOT right-of-way unless directed by Fairfax water.
2. No structures, poles, sign posts, trees, or shrubs to be installed within four feet of fire hydrant.
NOTE:
GUARD POSTS SHALL BE PRIMED AND PAINTED BY CONTRACTOR AS FOLLOWS:
1. PRIMER: SHERWIN-WILLIAMS DTM WASH PRIMER
2. TOP COAT (2 COATS ARE REQUIRED): SHERWIN-WILLIAMS SHER-CRYL HPA - ROBOTIC BLUE (SW4063)
NOTES:
1. DO NOT SUBMERGE DISCHARGE END OF DRAIN HOSE, PROVIDE AIR GAP.
2. DECHLORINATE AS APPROPRIATE.
2" threaded tapping saddle and corp stop

VALVE BOX

12" x 24" x 8" class D concrete pad (2000 psi) wrapped with polyethylene

WATER MAIN
(size varies)

PLAN

Valve boxes and concrete pad, 2'x3'x8"

Existing Grade

2" threaded gate valve with 2" square nut

2" x 12" ipt brass or epoxy-lined ductile nipple

2" ipt 90° brass ell

2" brass close nipple

2" threaded tapping saddle and corp stop

WATER MAIN
(size varies)

12" x 24" x 8" class D concrete pad wrapped with polyethylene

2" x 12" galvanized or epoxy-lined ductile nipple

ELEVATION

NOTES:
1. threaded saddle to be used on 24" & larger water mains.

FAIRFAX WATER STANDARD DETAILS

SCALE:
not to scale

DRAWING NO.: 34

DATE: 6/20

2" AIR RELEASE
BLOW-OFF PIPING

CONCRETE PAD
(CLASS D, 2000 PSI)
1.5’ X 1.5’ X 0.5’

DIP PE X PE NIPPLE 2’-0” LONG
OR ULTRA COMPACT RESTRAINT

M.J. X M.J. VALVE

45’ M.J. X M.J. BEND

CONCRETE THRUST ANCHOR (SIZE AS
SPECIFIED IN CONCRETE
THRUST ANCHOR DETAIL & TABLE
OR AS SHOWN ON THE PLANS)

RESTRAN

D.I.P. WITH M.J. TEE

45’ M.J. X M.J. BEND

AIR RELEASE PIPING

CONCRETE PAD
(CLASS D, 2000 PSI)
1.5’ X 1.5’ X 0.5’

45’ M.J. X M.J. BEND

DIP PE X PE NIPPLE 2’-0” LONG
OR ULTRA COMPACT RESTRAINT

M.J. X M.J. VALVE

RESTRAN

D.I.P. WITH M.J. TEE

CONCRETE THRUST ANCHOR (SIZE AS
SPECIFIED IN CONCRETE THRUST ANCHOR DETAIL & TABLE OR AS SHOWN ON THE PLANS)

NOTES:
1. CONCRETE PAD DIMENSIONS, APPURtenANT SIZES AND LAYOUT IN ACCORDANCE WITH THE DRAWINGS.
2. HYDRANT INSTALLATION FOR AIR RELEASE OR BLOW-OFF SHALL BE IN ACCORDANCE WITH STANDARD HYDRANT INSTALLATION.
3. ULTRA COMPACT RESTRAINT USED IN PLACE OF DIP NIPPLE, AS DIRECTED BY FAIRFAX WATER, SHALL BE A FOSTER ADAPTER OR EQUAL APPROVED BY FAIRFAX WATER.
NOTES:
1. EXTEND BLOCKING BEYOND THE WATER MAIN TO UNDISTURBED GROUND OR AS SPECIFIED BY FAIRFAX WATER.
2. PER VDOT REQUIREMENTS, BLOW-OFF VALVE BOXES TO BE NO CLOSER THAN 5'-0" TO EDGE OF PAVEMENT IN CUL-DE-SAC INSTALLATIONS.
3. ECCENTRIC TAPPED PLUG OR CAP TO BE USED AT THE 12:00 O'CLOCK POSITION FOR AN AIR RELEASE OR THE 6:00 O'CLOCK POSITION FOR A BLOW-OFF ON WATER MAINS 24" AND LARGER. 16" AND SMALLER WATER MAINS TO BE CENTERLINE TAPPED. DISHED PLUGS AND CAPS SHALL BE PROVIDED WITH A BOSSED OUTLET SO THE 2" TAP IS PERPENDICULAR TO THE PLUG OR CAP.
NOTE:
ROUTE DRAIN TO DAYLIGHT WITH A RIP-RAP CHANNEL DITCH TO NEAREST ESTABLISHED DRAINAGE FACILITY.
PLAN

SECTION A-A

NOTE:
LENGTH OF PIPING AND NUMBER OF FITTINGS VARY BY LOCATION.
SEE PLANS FOR HORIZONTAL ALIGNMENT OF BLOW-OFF.
ITEM

1. PRESSURE REDUCING VALVE

2. PULLING IRON (SEE NOTE 12) FLANGED COUPLING ADAPTER

3. FLANGED 4" GATE OR 6"-12" BUTTERFLY VALVE W/HAND WHEEL (HAND WHEEL AND ACTUATOR SHALL BE LOCATED ON TOP OF PIPE OR FACING THE LADDER)

4. FLANGE x PLAIN END DUCTILE IRON WALL PIPE (CENTER THRUST COLLAR IN VAULT WALL)

5. FLANGE x FLANGE DUCTILE IRON PIPE

6. FLANGE x PLAIN END DUCTILE IRON PIPE (ADJUST LENGTH AS NEEDED, PROVIDE 0.5" MAX SPACING)

7. STANDON S92 STAINLESS STEEL SADDLE SUPPORT OR APPROVED EQUAL

8. 16" x 16" OR 16" DIA. x 10" DEEP SUMP (SEE NOTE 8, DETAIL 39A)

9. 3/4" CORPORATION STOP x 3/4" FIP

10. ALUMINUM LADDER, INSTALL W/ VAULT LADDER SAFETY POST

11. 30" MANHOLE FRAME AND COVER, VDOT STYLE WF&C-1 (WATERTIGHT), GROUT IN PLACE. USE 36" MANHOLE FRAME AND COVER FOR 12" PRESSURE REDUCING VALVE. VAULTS INSTALLED OUTSIDE OF PAVED AREAS (SEE NOTE 11, DETAIL 39A FOR VAULTS INSTALLED OUTSIDE OF PAVED AREAS)
VAULT NOTES:
1. ITEMS #1 THRU #12 SHALL BE PROVIDED IN ACCORDANCE WITH FAIRFAX WATER’S APPROVED PRODUCT LIST AND STANDARD DETAILS.
2. MANHOLE FRAME AND COVER SHALL BE SET IN CEMENT MORTAR AND SECURED TO THE PRECAST CONCRETE COLLAR WITH INSERT TYPE FASTENERS AND BOLTS.
3. ALUMINUM SURFACES COMING IN CONTACT WITH MASONRY OR CONCRETE AND ALL TIE RODS SHALL BE COATED WITH CARBOLINE BITUMASTIC 50 OR EQUAL.
4. ALL PIPING INSIDE VAULT AND SAFETY STRIPING SHALL BE COATED IN ACCORDANCE WITH SECTION 09900 SPECIAL COATINGS.
5. FOR PRECAST VAULTS, THREE MAXIMUM NUMBER OF JOINTS ALLOWED, TO CONSIST OF BASE/WALL SECTION, MIDDLE SECTION, AND TOP/LID SECTION. WALL OF BASE/WALL SECTION TO BE A MINIMUM OF 1-FOOT ABOVE CROWN OF PIPE.
6. JOINTS SHALL BE KEYED AND MASTIC TYPE ROPE SEALANT APPLIED, AS MANUFACTURED BY MULTISEAL, INC. OR CONCRETE SEALANTS, INC. (CONSEAL).
7. FACTORY APPLIED EXTERIOR BITUMASTIC WATERPROOFING, MINIMUM DRY THICKNESS REQUIRED 9-12 MILLS.
8. PROVIDE 1” WIDE DRAINAGE CHANNELS, SLOPED 0.25” PER FOOT, FROM VAULT CORNERS TO SUMP PIT. MANUFACTURER TO PROVIDE DESIGN OF THE DRAINAGE CHANNELS AND ENSURES THEY DO NOT CONFLICT WITH PLACEMENT OF FLANGE/SADDLE SUPPORTS.
9. VAULTS SHALL ACCOMMIDATE AASHTO H-20 LIVE LOAD WITH IMPACT.
10. VAULTS SHALL BE NON-BUOYANT WHEN INSTALLED. MANUFACTURER TO PROVIDE BUOYANCY CALCULATIONS WITH ASSUMED WATER TABLE ELEVATION AT THE GROUND SURFACE. CALCULATIONS SHALL NOT INCLUDE THE WEIGHTS OF THE PIPING OR EQUIPMENT INSTALLED AND SHALL BE SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF VIRGINIA. PROVIDE ANTI-FLOATATION COLLARS AS NECESSARY.
11. VAULTS INSTALLED OUTSIDE OF PAVED AREAS SHALL INCLUDE THE FOLLOWING:
   A. WHERE FEASIBLE, LIDS SHALL BE BETWEEN 3” AND 6” ABOVE GRADE WITH POSITIVE DRAINAGE AWAY FROM LID.
   B. 3’-0” X 3’-0” BILCO ALUMINUM ACCESS DOOR (TYPE J-AL WITH H-20 LOADING) WITH LADDER SAFETY POST AND RECESSED HASP FOR PAD LOCK (5” LENGTH AND 3” WIDTH MINIMUM). FOR 12” PRESSURE REDUCING VALVE, USE 3’-0” X 6’-0” BILCO ALUMINUM ACCESS DOOR.
   C. PROVIDE 1 ½” DIAMETER PVC DRAIN WITH SCREEN FROM ACCESS DOOR FRAME CHANNEL TO DAYLIGHT. WHERE RISERS ARE REQUIRED, SEE DETAIL 40.
   D. MILLER DURAROIST WALL MOUNT SLEEVE, MODEL DH-82P (LOCATE WITHIN HATCH OPENING AND SECURE WITH 4 INSERT FASTENERS AND BOLTS).
12. PULLING IRON AND VAULT LID SHALL BE SIZED AND RATED TO SUPPORT THE WEIGHT OF THE PRV.
NOTES:
1. APPLY DAMPPROOFING AS SPECIFIED IN SECTION 09900 SPECIAL COATINGS.
2. 6" THICK MASONRY RISER FOR PRECAST VAULT.
3. FILL RISER BLOCK CORES WITH MORTAR.
4. USE NO MORE THAN THREE BRICK COURSES TO ADJUST TOP ELEVATION.
5. PRECAST CONCRETE COLLARS CAN BE USED UP TO BRICK COURSES.
SEE TEST STATION INSTALLATION DETAIL 46
ATTACH ALL LEAD WIRES TO TERMINAL BOARD

B-1
A-2
A-1

WATER MAIN

20' (Typ.)
20' (Typ.)
20' (Typ.)

#8 ANODE HEADER CABLE

32 LB. MAG. ANODE (Typ.)
ANODE SPLICE KIT TO HEADER CABLE, SEE DETAIL 57

FOREIGN UTILITY CROSSING (Typ.)

50' 50'

BONDED JOINTS

THERMITE WELD (Typ.)
SEE DETAIL 52

NOTES:
1. FOR USE ON 16" OR LARGER WATER MAINS WHERE FOREIGN UTILITY IS PROTECTED BY IMPRESSED CURRENT OR AS OTHERWISE REQUIRED BY FAIRFAX WATER.
2. MINIMUM 4 – 32 LBS MAGNESIUM ANODES INSTALLED OR AS SPECIFIED BY FAIRFAX WATER, SEE DETAIL 63 & 65 FOR QUANTITY, SPACING, AND PLACEMENT.
3. SEE DETAIL 58 FOR WIRING DETAIL.
SEE TEST STATION INSTALLATION, SEE DETAIL 46

ATTACH ALL LEAD WIRES TO TERMINAL BOARD

SEE TEST STATION INSTALLATION, SEE DETAIL 46

ATTACH ALL LEAD WIRES TO TERMINAL BOARD

WATER MAIN

A-1

B-1

A-2

B-1

B-2

B-2

A-2

1' (TYP.)

STEEL CASING

THERMITE WELD (TYP.); SEE DETAIL 52

NOTES:

1. ONLY FOR USE WHEN WATER MAIN HAS AN EXISTING OR PROPOSED CATHODIC PROTECTION SYSTEM.
2. CARRIER PIPE (WATER MAIN) WITHIN STEEL CASING DOES NOT REQUIRE POLYETHYLENE ENCASEMENT, BUT DOES REQUIRE ALL PIPE JOINTS TO BE BONDED FOR 24" AND LARGER.
3. TEST STATION REQUIRED AT BOTH ENDS OF CASING.
4. SEE DETAIL 59 FOR WIRING DETAIL.
5. SEE DETAIL 65 FOR TEST STATION LOCATIONS.
NOTES:
1. FOR USE WHEN INSTALLING WATER MAIN IN CORROSIVE SOILS (GENERALLY, TRANSMISSION MAINS ONLY).
2. SEE DETAIL 63 FOR PLACEMENT OF ANODES.
3. SEE DETAIL 65 FOR TEST STATION LOCATIONS.
4. SEE DETAIL 60 FOR WIRING DETAIL.
SEE TEST STATION INSTALLATION DETAIL 46
ATTACH ALL LEAD WIRES TO TERMINAL BOARD

THERMITE WELD (TYP.)

WATER MAIN
W/CATHODIC PROTECTION

M.J. TEE

C900/C905 P.V.C. OR SDR11 H.D.P.E.
WATER MAIN (3' MIN.)

EBAA IRON SERIES 2000PV
P.V.C. RESTRAINING GLAND
(AS REQUIRED)

WATER MAIN

NOTES:
1. TYPICALLY FOR USE WHEN ISOLATING A CATHODICALLY PROTECTED TRANSMISSION WATER MAIN FROM NON-CATHODICALLY PROTECTED DISTRIBUTION MAIN OR OTHER DESIRED ELECTRICAL ISOLATION POINTS.
2. SEE DETAIL 61 WIRING DETAIL.

FAIRFAX WATER
STANDARD DETAILS

TYPE I CORROSION CONTROL
TEST STATION – ISOLATOR
(P.V.C. OR H.D.P.E. INSERT)

DATE: 6/20

DRAWING NO.: 44
NOTE:
TYPICALLY FOR USE WHEN ISOLATING A CATHODICALLY PROTECTED TRANSMISSION WATER MAIN FROM NON-CATHODICALLY PROTECTED DISTRIBUTION MAIN OR OTHER DESIRED ELECTRICAL ISOLATION POINTS.
NOTES:
1. FOR USE WHEN ISOLATING CATHODICALLY PROTECTED TRANSMISSION MAIN FROM NON-CATHODICALLY PROTECTED TRANSMISSION MAINS, TRANSMISSION MAINS OF DISSIMILAR MATERIALS, OR OTHER DESIRED ELECTRICAL ISOLATION POINTS.
2. SEE DETAIL 61 FOR WIRING DETAIL.
3. SEE DETAIL 65 FOR TEST STATION LOCATIONS.
**SECTION A-A**

**NOTES:**
1. Test stations shall be located above water main when possible.
2. Concrete pad to be installed on all test stations in non-paved areas. Use test station box for non-paved areas detail (Detail 47).
3. For test stations located in paved areas, engrave test station number directly on terminal board. Use test station box for paved areas detail (Detail 47A).

---

**FAIRFAX WATER STANDARD DETAILS**

**DATE:** 6/20

**SCALE:** Not to Scale

**DRAWING NO.:** 46
NOTES:
1. THE MANUFACTURER IDENTIFICATION AND COUNTRY OF ORIGIN (IF OTHER THAN U.S.) SHALL BE CAST INTO ALL PARTS.
2. MUST MEET SPECIFICATIONS CONTAINED IN FAIRFAX WATER’S APPROVED PRODUCTS LIST FOR VALVE BOXES.
NOTES:
1. EXTERNAL COATING OF INSULATING FLANGE SHALL CONSIST OF COMPATIBLE PRIMER, MASTIC, PETROLATUM IMPREGNATED FABRIC TAPE AND OUTER PROTECTIVE WRAP, SEE FAIRFAX WATER’S APPROVED PRODUCTS LIST.
2. BOLTS AND BOLT STUDS SHALL EXTEND COMPLETELY THROUGH THE NUTS.
NOTE: FOR USE WHERE SERVICE LINE IS CONNECTED TO A CATHODICALLY PROTECTED WATER MAIN.
TYPICAL PIPE JOINT BOND

TYPICAL BONDING FOR FITTINGS

NOTES:
1. BOND JOINTS ON UNDERGROUND PIPING WHERE INDICATED ON DRAWINGS AND WITHIN ALL TRENCHLESS CROSSINGS.
2. THERMITE WELD BONDING WIRES TO TOP OF PIPE OR FITTINGS.
NOTES:
1. INSTALL ANODES IN THE VICINITY OF ALL REPAIRED PIPE FAILURES DUE TO CORROSION.
2. ANODES PLACED AT SAME DEPTH AS THE BOTTOM OF PIPE AND AT A MINIMUM OF 12” FROM EDGE TO EDGE OF PIPE.
3. HOTSPOT CATHODIC PROTECTION TO BE APPLIED TO CAST AND DUCTILE IRON PIPING, DO NOT INSTALL ON COPPER PIPING.
4. INSTALL ANODES ON BOTH SIDES OF PIPE.
5. ANODES MUST BE PLACED IN NATIVE SOIL. DO NOT BACKFILL AROUND ANODES WITH SAND OR STONE.
6. PRESOAK ANODE WITH FIVE GALLONS OF WATER AFTER PLACEMENT AND BEFORE BACKFILLING.
FOR GENERAL INFORMATION ONLY - FOLLOW MANUFACTURER'S RECOMMENDATIONS

**STEP 1**
- DUCTILE IRON OR STEEL PIPE
- CLEAN SURFACE TO BRIGHT METAL AT WELD LOCATION BY MECHANICAL GRINDER.

**STEP 2**
- SLEEVE
- STRANDED COPPER WIRE (WITH THWN OR HMWPE INSULATION).
- STRIP INSULATION FROM WIRE AND INSTALL SLEEVE.

**STEP 3**
- GRAPHITE MOLD
- OPENING
- HOLD GRAPHITE MOLD FIRMLY OVER SLEEVE WITH OPENING AWAY FROM OPERATOR - IGNITE STARTING POWDER.

**STEP 4**
- REMOVE SLAG FROM CONNECTION.
- THOROUGHLY CLEAN WELD AREA.
- STRIKE WELD SHARPLY ON THE SIDE WITH 2 LB HAMMER TO CHECK ADHESION.

**STEP 5**
- THERMITE WELD
- WIRE
- DUCTILE IRON OR STEEL PIPE
- PRIME AND COAT ALL EXPOSED METAL AT WELD AREA; SEE NOTES.

**NOTE:**
- THERMITE WELDS MADE TO DUCTILE IRON AND STEEL PIPE SHALL BE COATED WITH A PREFABRICATED ONE PIECE, ELASTOMERIC CAP OR APPROVED EQUAL.
- SEE FAIRFAX WATER'S APPROVED PRODUCTS LIST.
NOTES:
1. INSTALL AC GROUND MAT WHERE INDICATED ON PLANS OR CORROSION CONTROL TEST STATION SCHEDULE.
2. CONNECT ANODE HEADER CABLE TO PIPE LEADS IN TEST STATION.
3. WHEN GROUND MAT IS INSTALLED AT APPURTENANCE OTHER THAN TEST STATION, CIRCLE APPURTENANCE WITH ZINC RIBBON ANODE AND CONNECT ANODE HEADER CABLES DIRECTLY TO PIPE IMMEDIATELY ADJACENT TO APPURTENANCE.
4. AC GROUND MAT TYPICALLY USED IN CONJUNCTION WITH OTHER TEST FACILITIES. OTHER TEST WIRES NOT SHOWN FOR CLARITY.
5. TO PROTECT THE OPERATOR FROM ACCIDENTAL SHOCK, THIS GROUNDING MAT CONFIGURATION SHALL BE USED WHENEVER HIGH VOLTAGE POWER LINES ARE WITHIN 50’ OF THE WATER MAIN.
6. GROUNDING MATS SHOULD NOT BE PLACED UNDER IMPERVIOUS SURFACES UNLESS OTHERWISE DIRECTED.

NOTES:
1. INSTALL SHORTING BAR BETWEEN PIPE WIRE AND ZINC RIBBON ANODE
2. SEE GM TEST STATION TERMINAL BOARD WIRING DETAIL 62.

**FAIRFAX WATER STANDARD DETAILS**

**TYPE GM CORROSION CONTROL TEST STATION – GROUNDING MAT**

**DATE:** 6/20

**SCALE:** NOT TO SCALE

**DRAWING NO.:** 53
NOTES:
1. CIRCLE APPURtenANCE(S) WITH ZINC RIBBON ANODE AND CONNECT ANODE HEADER CABLES DIRECTLY TO PIPE IMMEDIATELY ADJACENT TO APPURtenANCE.
2. ALL PIPING FITTINGS, VALVES AND HYDRANT SHALL BE BONDED.
3. TO PROTECT THE OPERATOR FROM ACCIDENTAL SHOCK, THIS GROUNDING MAT CONFIGURATION SHALL BE USED WHENEVER HIGH VOLTAGE POWER LINES ARE WITHIN 50’ OF THE WATER MAIN.
4. GROUNDING MATS SHOULD NOT BE PLACED UNDER IMPERVIOUS SURFACES UNLESS OTHERWISE DIRECTED.

AWG NO. 6 BLACK HMWPE ANODE HEADER CABLE

SPICE ANODE HEADER CABLE TO END OF RIBBON ANODE (TYPICAL BOTH ENDS), SEE ANODE HEADER CABLE SPICE DETAIL.

ELEVATION

FAIRFAX WATER STANDARD DETAILS

GROUNDING MAT – FIRE HYDRANT

DATE: 6/20

SCALE: NOT TO SCALE

DRAWING NO.: 54
AWG NO. 12 BLACK ANODE LEAD WIRE

REMOVE INSULATION TO EXPOSE WIRE

3-LAYERS OF HALF LAPPED VINYL TAPE, SEE FAIRFAX WATER'S APPROVED PRODUCTS LIST

3-LAYERS OF HALF LAPPED RUBBER TAPE, SEE FAIRFAX WATER'S APPROVED PRODUCTS LIST

AWG NO. 8 BLACK HMWPE ANODE HEADER CABLE

COPPER CRIMP CONNECTOR

AWG NO. 8 BLACK HMWPE ANODE HEADER CABLE

3" MIN.

3" MIN.
### Test Station Terminal Location

<table>
<thead>
<tr>
<th>Test Station Terminal</th>
<th>Wire Designation</th>
<th>Color/AWG</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A-1</td>
<td>White #12</td>
<td>Pipe/THWN</td>
</tr>
<tr>
<td>2</td>
<td>A-2</td>
<td>Black #12</td>
<td>Pipe/THWN</td>
</tr>
<tr>
<td>3</td>
<td>B-1</td>
<td>Black #8</td>
<td>Anode Header Cable</td>
</tr>
</tbody>
</table>

**NOTES:**
1. INSTALL .01 OHM SHUNT BETWEEN PIPE WIRE AND ANODE CABLE.
2. TERMINAL BOARD NUMBERS SHALL BE ENGRAVED ON TERMINAL BOARDS.
<table>
<thead>
<tr>
<th>TEST STATION TERMINAL</th>
<th>WIRE DESIGNATION</th>
<th>COLOR/AWG</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A-1</td>
<td>WHITE #12</td>
<td>PIPE/THWN</td>
</tr>
<tr>
<td>2</td>
<td>A-2</td>
<td>WHITE #12</td>
<td>PIPE/THWN</td>
</tr>
<tr>
<td>3</td>
<td>B-1</td>
<td>BLACK #12</td>
<td>PIPE/THWN</td>
</tr>
<tr>
<td>4</td>
<td>B-2</td>
<td>BLACK #12</td>
<td>PIPE/THWN</td>
</tr>
</tbody>
</table>

NOTE:
TERMIAL BOARD NUMBERS SHALL BE ENGRAVED ON TERMINAL BOARDS.
<table>
<thead>
<tr>
<th>TEST STATION TERMINAL</th>
<th>WIRE DESIGNATION</th>
<th>COLOR/AWG</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A-1</td>
<td>BLACK #12</td>
<td>PIPE/THWN</td>
</tr>
<tr>
<td>2</td>
<td>A-2</td>
<td>BLACK #12</td>
<td>PIPE/THWN</td>
</tr>
<tr>
<td>3</td>
<td>B-1</td>
<td>BLACK #8</td>
<td>ANODE HEADER CABLE</td>
</tr>
</tbody>
</table>

NOTES:
1. INSTALL .01 OHM SHUNT BETWEEN TEST STATION TERMINAL 1 AND 3 (A-1, B-1).
2. TERMINAL BOARD NUMBERS SHALL BE ENGRAVED ON TERMINAL BOARDS.
<table>
<thead>
<tr>
<th>TEST STATION TERMINAL</th>
<th>WIRE DESIGNATION</th>
<th>COLOR/AWG</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A-1</td>
<td>WHITE #12</td>
<td>PIPE/THWN</td>
</tr>
<tr>
<td>2</td>
<td>A-2</td>
<td>WHITE #12</td>
<td>PIPE/THWN</td>
</tr>
<tr>
<td>3</td>
<td>B-1</td>
<td>BLACK #12</td>
<td>PIPE/THWN</td>
</tr>
<tr>
<td>4</td>
<td>B-2</td>
<td>BLACK #12</td>
<td>PIPE/THWN</td>
</tr>
</tbody>
</table>

NOTES:
1. TERMINAL BOARD NUMBERS SHALL BE ENGRAVED ON TERMINAL BOARDS.
COPPER SHORTING BARS

<table>
<thead>
<tr>
<th>TEST STATION TERMINAL</th>
<th>WIRE DESIGNATION</th>
<th>COLOR/AWG</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A-1</td>
<td>WHITE #12</td>
<td>PIPE/THWN</td>
</tr>
<tr>
<td>2</td>
<td>A-2</td>
<td>WHITE #12</td>
<td>PIPE/THWN</td>
</tr>
<tr>
<td>3</td>
<td>B-1</td>
<td>BLACK #6</td>
<td>AWG</td>
</tr>
<tr>
<td>4</td>
<td>B-2</td>
<td>BLACK #6</td>
<td>AWG</td>
</tr>
</tbody>
</table>

NOTES:
1. INSTALL SHORTING BAR BETWEEN PIPE WIRE AND ZINC RIBBON ANODE.
2. TERMINAL BOARD NUMBERS SHALL BE ENGRAVED ON TERMINAL BOARDS.
EXISTING PIPELINE

POLYETHYLENE MESH WEBBING PAD
(CENTER ON CROSSING)
SEE FAIRFAX WATER’S APPROVED
PRODUCTS LIST

PIPELINE

NON-METALLIC TAPE

NOTE:
USE ONLY WHEN PIPES ARE LESS THAN 12” APART.
<table>
<thead>
<tr>
<th>PLAN SHEET NUMBER</th>
<th>APPROXIMATE WATER MAIN STATION</th>
<th>TEST STATION NO.</th>
<th>TEST STATION TYPE</th>
<th>TEST STATION DETAIL NO.</th>
<th>ANODE SPACING (FEET)</th>
<th>NO. OF 32 LB. PREPACKAGED MAGNESIUM ANODES</th>
<th>NO. OF INSULATING FLAMELESS</th>
<th>NO. OF A.C. GROUND MATS</th>
<th>NO. OF TEST STATIONS</th>
<th>NO. OF GUARD POSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>