WATER SYSTEM DETAILS
FOR PIPE ALLOWED TO BE PLACED IN EXISTING DITCH SECTION, PIPE DEPTH WILL BE A MINIMUM OF 3' BELOW DITCH BOTTOM OR 3' BELOW ROAD WAY SHOULDER WHICHEVER IS GREATER

<table>
<thead>
<tr>
<th>PIPE TYPE</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRANSMISSION</td>
<td>42&quot;</td>
</tr>
<tr>
<td>DISTRIBUTION</td>
<td>36&quot;</td>
</tr>
</tbody>
</table>

* MINIMUM DEPTH
FINISHED GRADE

BACKFILL MATERIAL
CONSISTING OF:
CRUSHED SURFACING, OR
CDF AS DIRECTED BY THE
CITY

ALL BACKFILL SHALL BE
COMPACTED TO 95%
MODIFIED PROCTOR,
ASTM D1557.

BACKFILL SHALL BE
HAND TAMPERED TO THIS
LEVEL ABOVE PIPE.

3" MIN WIDTH FLOURESCENT
IDENTIFICATION TAPE TO
RUN CONTINUOUS WITH
PIPE.

#12 COPPER TRACE WIRE
W/THHN INSULATION
DUCTILE IRON WATER
MAIN

FOUNDATION GRAVEL
AS REQUIRED

NOTE:

BACKFILL MATERIAL AND COMPACTION
SHALL BE IN CONFORMANCE WITH THE
CITY’S STANDARDS AND/OR STATE OR
COUNTY PERMIT REQUIREMENTS.

SELECTED MATERIAL SHALL BE CRUSHED
SURFACING OR GRAVEL BACKFILL FOR
PIPE ZONE BEDDING.

CITY OF ALGONA
WATER MAIN TRENCH SECTION

APPROVED: [Signature]
DATE: 04/06/2015

DWG. NO.
WA-MAIN2
Example Thrust Block Calculation

<table>
<thead>
<tr>
<th>Pipe Diam</th>
<th>Pressure</th>
<th>Tee and Dead End</th>
<th>90° bend</th>
<th>45° bend</th>
<th>22.5° bend</th>
<th>11.25° bend</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>200</td>
<td>2,513</td>
<td>3,554</td>
<td>1,924</td>
<td>981</td>
<td>493</td>
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<td>6</td>
<td>200</td>
<td>5,655</td>
<td>7,997</td>
<td>4,328</td>
<td>2,206</td>
<td>1,109</td>
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<tr>
<td>8</td>
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<td>14,217</td>
<td>7,694</td>
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<tr>
<td>10</td>
<td>200</td>
<td>15,708</td>
<td>22,214</td>
<td>12,022</td>
<td>6,129</td>
<td>3,079</td>
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<td>200</td>
<td>22,619</td>
<td>31,989</td>
<td>17,312</td>
<td>8,826</td>
<td>4,434</td>
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<tr>
<td>16</td>
<td>200</td>
<td>40,212</td>
<td>56,869</td>
<td>30,777</td>
<td>15,690</td>
<td>7,883</td>
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</table>

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Safe Soil Bearing Pressure (LBS/SF)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muck, Peat</td>
<td>0</td>
<td>Use Restrained Joint</td>
</tr>
<tr>
<td>Soft Clay</td>
<td>1,000</td>
<td>Typical Soil in Algona</td>
</tr>
<tr>
<td>Sand</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>Sand &amp; Gravel</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td>Sand &amp; Gravel Cemented with Clay</td>
<td>4,000</td>
<td></td>
</tr>
</tbody>
</table>

Example:

For 8-inch pipe determine thrust block size needed for 250 psi at a 90-degree bend

1. Multiply Thrust at fitting by ratio of pressure to 200 psi
   \[14,217 \times \frac{250}{200} = 17,772 \text{ lbs}\]

2. Determine Volume of Thrust Block. Assume 150 lbs/CF concrete
   \[\frac{17,772}{150} = 118.5 \text{ CF concrete}\]
   \[= 4.4 \text{ CY concrete}\]

3. Determine Bearing Area of Thrust Block in soft clay
   \[\frac{17,772 \text{ lbs}}{1,000 \text{ lbs/SF}} = 17.8 \text{ SF bearing area}\]
<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>90' BEND</th>
<th>45' BEND</th>
<th>22 1/2' BEND</th>
<th>11 1/4' BEND</th>
<th>TEE OR DEAD END CAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>40</td>
<td>17</td>
<td>8</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td>6&quot;</td>
<td>55</td>
<td>23</td>
<td>11</td>
<td>6</td>
<td>39</td>
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<tr>
<td>10&quot;</td>
<td>88</td>
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<tr>
<td>12&quot;</td>
<td>103</td>
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<td>10</td>
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<td>18&quot;</td>
<td>145</td>
<td>60</td>
<td>29</td>
<td>15</td>
<td>124</td>
</tr>
</tbody>
</table>

**NOTES:**

1. RESTRAINED LENGTHS SHOWN ARE MINIMUM AND FOR LINEAL FEET REQUIRED ON EACH SIDE OF FITTING INDICATED.

2. FOOTAGES ARE BASED ON 250 PSI PRESSURE AND 42 INCHES COVER. IF PRESSURE IS GREATER OR COVER IS LESS, THE RESTRAINED LENGTH SHALL BE INCREASED ACCORDINGLY.
### TYPE "A" BLOCKING

FOR 11 1/4"-22 1/2"-30" VERTICAL BENDS

<table>
<thead>
<tr>
<th>PIPE SIZE NOMINAL INCHES</th>
<th>TEST PRESSURE PS</th>
<th>VERTICAL BEND DEGREES</th>
<th>NO. OF CU. FT.</th>
<th>OF CONC. BLOCKING</th>
<th>SIDE OF CUBE LIN. FT.</th>
<th>DIA. OF SHACKLE RODS IN (2)</th>
<th>DEPTH OF RODS IN CONCRETE LIN. FT.</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>300</td>
<td>11 1/4</td>
<td>8</td>
<td>2</td>
<td>5/8&quot;</td>
<td>1.5</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>22 1/2</td>
<td>11</td>
<td>2.2</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>30</td>
<td>17</td>
<td>2.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6&quot;</td>
<td>300</td>
<td>11 1/4</td>
<td>11</td>
<td>2.2</td>
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<td>47</td>
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<td>30</td>
<td>70</td>
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<tr>
<td>12&quot;</td>
<td>250</td>
<td>11 1/4</td>
<td>32</td>
<td>3.2</td>
<td>5/8&quot;</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>22 1/2</td>
<td>88</td>
<td>4.5</td>
<td>7/8&quot;</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>132</td>
<td>5.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16&quot;</td>
<td>225</td>
<td>11 1/4</td>
<td>70</td>
<td>4.1</td>
<td>7/8&quot;</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td>1 1/8&quot;</td>
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<td>275</td>
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<td>1 1/4&quot;</td>
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<tr>
<td>20&quot;</td>
<td>200</td>
<td>11 1/4</td>
<td>91</td>
<td>4.5</td>
<td>7/8&quot;</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>22 1/2</td>
<td>225</td>
<td>6.1</td>
<td>1 1/4&quot;</td>
<td>4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30</td>
<td>330</td>
<td>6.9</td>
<td>1 3/8&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24&quot;</td>
<td>200</td>
<td>11 1/4</td>
<td>128</td>
<td>5.0</td>
<td>1&quot;</td>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>22 1/2</td>
<td>320</td>
<td>6.8</td>
<td>1 3/8&quot;</td>
<td>4.5</td>
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<td></td>
<td></td>
<td></td>
<td>30</td>
<td>480</td>
<td>7.9</td>
<td>1 7/8&quot;</td>
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</tr>
</tbody>
</table>

### TYPE "B" BLOCKING

FOR 45° VERTICAL BENDS

<table>
<thead>
<tr>
<th>PIPE SIZE NOMINAL INCHES</th>
<th>VB</th>
<th>S</th>
<th>D</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>300</td>
<td>45</td>
<td>3.1</td>
<td>5/8&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
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<td>8&quot;</td>
<td>123</td>
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<td></td>
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<tr>
<td>12&quot;</td>
<td>250</td>
<td>232</td>
<td>6.1</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>225</td>
<td>478</td>
<td>7.8</td>
<td>1 1/8&quot;</td>
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<tr>
<td>20&quot;</td>
<td>200</td>
<td>560</td>
<td>8.2</td>
<td>1 1/4&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
<td>820</td>
<td>9.4</td>
<td>1 3/8&quot;</td>
<td>4.5</td>
</tr>
</tbody>
</table>

This table represents the "Minimum" construction standard. Appropriately sized anchor blocks based on existing and local conditions are required.

---

CITY OF ALGONA

VERTICAL ANCHOR BLOCK

APPROVED: [Signature]

DATE: 04/06/2015

DWG. NO.

ANCH-BLO
NOTES:

METER LOCATION TO BE IN PLANTER STRIP IF EXISTING OR BACK OR SIDEWALK.

CITY OF ALGONA

1" AND SMALLER WATER SERVICE

APPROVED: __________________________

DATE: 04/06/2015

WAT-SERV
LEGEND

1. SERVICE SADDLE – SINGLE STRAP FOR PIPE DIAMETERS LESS THAN 10" (ROMAC 101S OR EQUAL) AND DOUBLE STRAP FOR PIPE DIAMETERS 10" AND GREATER (ROMAC 202S OR EQUAL).

2. 1" BALL STYLE CORP STOP MIP x PEP JOINT (MUeller B–25029 OR EQUAL)

3. 1" HIGH MOLECULAR (200 PSI, SDR 7) "POLY" PIPE (LENGTH AS REQUIRED)

4. INSTALL SERVICE LINE IN 2" PVC GUARD PIPE (SCH–80) WHEN BORING UNDER ROADWAY (3' MINIMUM BEYOND AND BENEATH PAVEMENT SECTION) OR AT UTILITY CROSSINGS AS DIRECTED BY CITY.

5. COPPER SETTER WITH ANGLE BALL VALVE AND ANGLE DOUBLE CHECK VALVE (MUeller B2404–2A OR EQUAL)

6. #10 GAUGE COPPER WIRE w/ THHN BLUE PLASTIC INSULATION FROM MAINLINE TAP TO METER BOX AND EXPOSE 6" MINIMUM IN BOX (RUN INSIDE 2" PVC GUARD CONDUIT WHERE APPLICABLE). MINIMUM OF 1 WRAP AROUND SERVICE LINE EVERY 5' FEET.

7. METER BOX – FOGTITE NO.9 WITH HINGED LID DRILLED FOR TRPL HOLE FOR TOUCH READ METERS, H2O LOADING. (SET FLUSH WITH FINISHED GRADE)

8. PROVIDE APPROVED WATERTIGHT PLUG UNTIL CONNECTION TO PRIVATE SYSTEM IS MADE.

CITY OF ALGONA

1" AND SMALLER WATER SERVICE

APPROVED: [Signature]

DATE: 04/06/2015

PAGE 2 OF 2
NOTES:
1. NO SPLICES IN 2" COPPER PIPE ALLOWED.
2. SERVICE FROM METER BOX TO STRUCTURE BY PROPERTY OWNER.
3. INDIVIDUAL SERVICES REQUIRED FOR EACH STRUCTURE.
4. 2-INCH METER SETTER (WITH ADAPTERS IF 1 1/2-INCH METER USED), FORD 70 SERIES OR MUELLER H-1427 WITH BALL VALVE AND CHECK VALVE.
5. METER BOX - FOGTITE NO.2 WITH STEEL LID AND DRILLED FOR TRPL HOLE FOR TOUCH READ. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED.
6. ESMT PROVIDED TO CITY TO AND AROUND METERS LOCATED OUTSIDE R/W.
7. ALL SERVICES SHALL HAVE WASHINGTON STATE APPROVED RPBA FOR BACKFLOW PREVENTION. CONFIRM LOCATION OF ASSEMBLY WITH CITY. INITIAL AND ANNUAL TEXTING REQUIRED. MULTIFAMILY ALLOWED TO USE DCVA IN LIEU OF RPBA.
1. MJ X MJ X 4" FL D.I. TEE.
2. 4" AWWA RESILIENT SEAT GATE VALVE, FL X FL, WITH OPERATING NUT.
3. 4" BLIND FLANGE, TAPPED FOR 2". MAINS LARGER THAN 8" REQUIRE 4-INCH BLOW-OFF OR HYDRANT.
4. CONCRETE THRUST BLOCK.
5. 2" TYPE K COPPER PIPE.
6. CAST IRON VALVE BOX PER VALV-BOX
7. METER BOX - FOGTITE NO. 2. BOX SHALL BE H-20 LOAD RATED.
8. ALUMINUM CAM-LOCK AND CAP. DRILL 1/8" HOLE IN CAP. (PLASTIC CAM LOCK FITTING NOT ALLOWED)

NOTES
1. INSTALL DIELECTRIC COMPARTMENTS FOR SEPARATION AT DISSIMILAR METALS.
CONCRETE COLLAR, SEE VALVE BOX ADJUSTMENT DETAIL

FINISHED GRADE

CAST IRON VALVE BOX

2" SQUARE OPERATING NUT WITH 1/4" THICK ROUND PLATE WELDED TO NUT & EXTENSION

1/4" CLEARANCE INSIDE

EXTENSION STEM - MAKE FROM 1" DIA. MILD STEEL OR DOUBLE EXTRA STRONG PIPE.

MAKE 2" SQUARE NUT SOCKET FROM 1/4" STEEL PLATE - WELD TO 1" EXTENSION STEM

36" MAX. BURY BEFORE EXTENSION STEM IS REQUIRED

VARIABLE

15" MIN.

2" CAST IRON OPERATION NUT

EXTENSION STEM - 1" DIA. MILD STEEL OR DOUBLE EXTRA STRONG PIPE.

CITY OF ALGONA
WATER VALVE STEM EXTENSION

APPROVED:

DATE: 04/06/2015

DWG. NO.
WAT-VALV
NOTES:

1. FIRE HYDRANTS TO BE PAINTED WITH RUSTOLEUM ENAMEL SAFETY YELLOW.
2. INSTALL BLUE LANE REFLECTOR IN PAVEMNT.
NOTES:

1. FIRE HYDRANTS TO BE PAINTED WITH RUSTOLEUM ENAMEL SAFETY YELLOW.
2. INSTALL BLUE LANE REFLECTOR IN PAVEMENT.

CITY OF ALGONA
FIRE HYDRANT IN PLANTER STRIP
(CURB, GUTTER, SIDEWALK)

APPROVED:  
DATE: 04/06/2015

FIRE-HYD2
NOTES:

1. FIRE HYDRANTS TO BE PAINTED WITH RUSTOLEUM ENAMEL SAFETY YELLOW.
2. INSTALL BLUE LANE REFLECTOR IN PAVEMNT.

CITY OF ALGONA
FIRE HYDRANT IN SIDEWALK (CURB, GUTTER, SIDEWALK)

APPROVED:  
DATE: 04/06/2015

DWG. NO.  FIRE-HYD2
NOTES:

1. ALL RELOCATED 4 1/2" PUMPER PORTS ON FIRE HYDRANTS SHALL BE FITTED WITH 5" STORZ ADAPTOR.
2. PROVIDE MIN. 3' - 0" CLEARANCE AND LEVEL AREA AROUND RELOCATED HYDRANT.
INSTALL APPROPRIATELY SIZED STORM CULVERT IN DITCH SECTION AS APPLICABLE - 18' MIN. LENGTH

REFER TO CITY STANDARDS FOR STORM DRAIN INSTALLATION.

LEVEL ALL AROUND MIN. 3' RADIUS

ROCK RETAINING WALL

CUT

FILL

CITY OF ALGONA
FIRE HYDRANT IN CUT OR FILL

APPROVED: 04/06/2015
DATE: 04/06/2015

DWG. NO.
FIRE-HYD4
INSTALL GUARD POSTS EVEN WITH FIRE HYDRANT PORT

9" DIAMETER REINFORCED CONCRETE GUARD POST 6'-0" LONG UTILITY VAULT CO. OR EQUAL.

ELEVATION

FIRE HYDRANT

FIRE HYDRANT GUARD POSTS

MINIMUM AREA OF LEVEL GROUND SURFACE

PLAN

CITY OF ALGONA

FIRE HYDRANT GUARD POST INSTALLATION

APPROVED:

DATE: 04/06/2015

DWG. NO. FIRE-HYD5
NOTE:

1. NO DEFLECTION SHALL BE ALLOWED AT EITHER COUPLING.

2. CUT-IN CONNECTIONS ON NON-D.I. PIPE SHALL USE EXTENDED RANGE COUPLING (ROMAC XR501 COUPLING OR EQUAL)

3. IN-LINE VALVE(S) IN EXISTING SYSTEM MAY BE REQUIRED AT THE SOLE DISCRETION OF THE CITY AT ALL NEW INTERTIE LOCATIONS. (NOTE: VALVE(S) ARE NOT SHOWN ABOVE FOR CLARITY)
"HOT BOX" HB SERIES INSULATED ENCLOSURE SIZED FOR ASSEMBLY. ARCHITECTURAL COVERS WILL BE CONSIDERED BY CITY.

12" MIN. CLEARANCE FROM DISCHARGE TO CONCRETE

BOLT TO PAD W/ 3/8" S.S. ANCHOR BOLTS AND WASHERS, MIN. 4 LOCATIONS

PIPE SUPPORT

FLOW

FLOW

COPPER PIPE FOR VERTICAL RISER. WHEN PASSING THROUGH CONCRETE, WRAP PIPE TO 2-INCHES EACH SIDE OF CONCRETE WITH DUCT TAPE PRIOR TO POURING CONCRETE BASE.

PROVIDE HEAT TAPE AND PIPE INSULATION AS REQUIRED FOR FREEZE PROTECTION. APPLY 2" FIBERGLASS OVER HEAT TAPE. PROVIDE ELECTRICAL FROM SERVED FACILITY.

UNION (TYP. OF 2) SEE NOTE 5

BALL VALVE

DRAIN TO DAYLIGHT W/ BIRD SCREEN AT SLAB LEVEL

COPPER PIPE BETWEEN METER AND RPBA

REDUCED PRESSURE BACKFLOW DEVICE (<3")

NOT TO SCALE

Washington State Approved Reduced Pressure Backflow Assembly (RPBA) with Test Cock Protection And Bronze Body Ball Valve at Each End.

NOTES:

1. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
2. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, CITY AND MANUFACTURER STANDARDS.
3. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
4. RPBA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
5. DIELECTRIC UNIONS SHALL BE USED TO SEPARATE DISSIMILAR MATERIALS.
6. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.

CITY OF ALGONA

REduced PRESSURE BACKFLOW ASSEMBLY 3/4" TO 2"

APPROVED:  

DATE: 04/06/2015

DWG. NO.  

RPBA
1. Washington State approved reduced pressure backflow assembly (RPBA) with resilient seat gate valve each end.

2. Aluminum "hot box" models 4 through 10 for respective size RPBA shall be modified to fit above height requirements. Valve stem shall not extend outside of box.

Notes:
1. "Hot box" to be located outdoors and accessible to city. Alternate location requires city approval.
2. Heaters and wiring shall be rated at 2,000 watt for 8" and under: 3,000 watt for 10".
3. Concrete to be 2500 PSI (minimum) mix with air entrainment.
4. Complete all work in accordance with state, city, and manufacturer standards.
5. System shall not be put into service until RPBA is approved by the city and tested/certified by a Washington State Licensed Tester.
6. RPBA is considered part of the private system and shall be maintained by the property owner with annual certification required.
7. Drain to daylight with bird screen located at slab level (sized per manufacturer's recommendation).
8. No branch connections allowed between meter and RPBA.

City of Algona
Reduced Pressure Backflow Assembly 3" and Larger

Approved: [Signature]
Date: 04/06/2015

Dwg. No. RPBA-2
1. Washington State approved reduced pressure backflow assembly (RPBA) with OS&Y resilient seat gate valve each end and low flow meter assembly.

2. Low flow bypass meter, including 5/8" x 3/4" Sensus radio read water meter with Sensus AMR and MXU radio unit, Washington State approved double check valve assembly (DCAA) and 2 bronze body isolation ball valves, brass or Type K copper piping.

3. Aluminum "Hot Box" models 4 through 10 for respective size RPBA shall be modified to fit above height requirements. Valve stem shall not extend outside of box.

NOTES:
1. Heaters and wiring shall be rated at 2,000 watt for 8" and under: 3,000 watt for 10".
2. Concrete to be 2500 psi (minimum) mix with air entrainment.
3. Complete all work in accordance with state, city and manufacturer standards.
4. System shall not be put into service until RPBA is approved by the city and tested/certified by a Washington State licensed tester.
5. RPBA is considered part of the private system and shall be maintained by the property owner with annual certification required.
6. Drain to daylight with bird screen located at slab level (sized per manufacturer's recommendation).
7. No branch connections allowed between meter and RPBA.

CITY OF ALGONA
REDUCED PRESSURE BACKFLOW DETECTOR ASSEMBLY 3" AND LARGER

APPROVED: [Signature]
DATE: 04/06/2015

DWG. NO. RPBA-2
NOTES:

1. GATE VALVE: AWWA RESILIENT SEAL, THRD x THRD WITH OPERATING NUT
2. ALL PIPING BETWEEN DOUBLE STRAP SADDLE AND INLET SIDE OF COMBINATION AIR & VAC ASSEMBLY SHALL BE TYPE K COPPER
3. TAP MAIN AT SYSTEM HIGH POINT. LOCATION TO BE APPROVED BY THE CITY
4. PAINT PORTION ABOVE GROUND WITH TWO COATS RUSTOLEUM ENAMEL SAFETY YELLOW

CITY OF ALGONA
AIR & VACUUM RELEASE ASSEMBLY

APPROVED: 
DATE: 04/06/2015

DWG. NO. AIR-RLS
ECLIPSE MODEL NO. 88
SAMPLING STATION

PARKER PAINT MARATHON
ENAMEL, 1065 TAHOE BLUE

5/8" x 1-1/2"
BOLTS

12" CHANNEL
IRON EMBEDDED
IN CONC. 10"

EXISTING GROUND
3000 PSI CONCRETE

2' x 2' CONCRETE COLLAR
CAST IRON VALVE BOX

3/4" BRASS
ELBOW MIP x PEP
(MUeller H-15531
OR EQUIAL)

10 GAUGE COPPER
TRACER WIRE, TIE TO
BACK OF CORP STOP

3/4" HIGH MOLECULAR POLY
PIPE (200 PSI, SDR 7)

3/4" BALL VALVE PEP x PEP
(MUeller B-25211 OR EQUIAL)

DOUBLE STRAP
SERVICE SADDLE
(ROMAC 202S OR
EQUAL)

3/4" BALL STYLE
CORP STOP MIP x PEP
JOINT (MUeller
B-25029 OR EQUIAL)

CITY OF ALGONA
WATER SAMPLING STATION

APPROVED:

DATE: 04/06/2015
NOTES:

1. MINIMUM BOX SIZE 3/4” - 1” ASSEMBLIES, 10"x13"
   1 1/4” - 2” ASSEMBLIES, 14”x20”

2. ASSEMBLY MUST BE INSTALLED WITH TEST COCKS
   FACING UP OR TO ONE SIDE. INSTALL WATERTIGHT
   PLUGS IN ALL TEST COCKS.

3. SUFFICIENT DRAINAGE MUST BE PROVIDED TO
   PREVENT ASSEMBLY FROM BEING SUBMERGED.

4. PROVIDE SUPPORT BLOCKS AS MAY BE REQUIRED.

5. PROVIDE A STRAINER WITH BLOW OUT VALVE
   AHEAD OF DEVICE IF REQUIRED BY CITY.

6. THOROUGHLY FLUSH THE LINE, PRIOR TO
   THE INSTALLATION OF THE DCVA.

7. PROTECT DEVICE FROM FREEZING
   BY INSTALLING IN BELOW GROUND
   STRUCTURE OR PER “HOT BOX” SHOWN
   IN REDUCED PRESSURE BACKFLOW
   DEVICE DETAIL.
ALL METER ASSEMBLIES 3" OR LARGER SHALL BE REVIEWED AND APPROVED BY CITY.

**PLAN**

1. REDUCER, M.J.
2. SINGLE STRAP SERVICE CLAMP, ROMAC 101 WITH IPS TAP, OR EQUAL (1 1/2" OR 2" BYPASS, 4-INCH AND LARGER BYPASS REQUIRES D.I. TEE).
3. FITTINGS AS REQUIRED.
4. BEND CPLG COPPER TO COPPER MUELLER H−15525, OR EQUAL.
5. BEND CPLG, COPPER TO OUTSIDE I.P. THREAD MUELLER H−15530, OR EQUAL.
6. BALL VALVE WITH PADLOCK WING OR LOCK CAP, FORD B21−444W OR B21−666 WITH LOCK CAP OR B21−777 WITH LOCK CAP. Sized to line.
7. RESILIENT SEAT GATE VALVE, FL X FL Sized to Meter.
8. 3" TO 10" SENSUS METER FOR IRRIGATION SERVICES AND 3" TO 10" COMPOUND METER IF FOR DOMESTIC SERVICE. READ IN CUBIC FEET WITH MXU RADIO UNIT AS SPECIFIED BY CITY SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.
9. D.I. PIPE SPOOL FL X PE LENGTH TO FIT.

<table>
<thead>
<tr>
<th>METER SIZE</th>
<th>MAIN-LINE</th>
<th>BYPASS</th>
<th>A</th>
<th>B</th>
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<tr>
<td>3&quot;</td>
<td>4&quot; Di.</td>
<td>2&quot; Copper</td>
<td>9&quot;</td>
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<tr>
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NOTES:
SEE PAGE 2 FOR ELEVATION AND NOTES.

**CITY OF ALGONA**

METER AND METER VAULT ASSEMBLY 3" THROUGH 10"

APPROVED: [Signature]

DATE: 04/06/2015

DWG. NO. 3MM
3" FROM TOP OF VAULT TO FINISHED GRADE IN PLANTED AREAS

LOCKING ACCESS HATCH(ES)
LOW PRODUCTS OR EQUAL.
SEE NOTE 3.

PRECAST CONCRETE VAULT
SEE TABLE

WALL MOUNT SIMPLEX DEDICATED
RECEPTACLE IN A CAST ALUMINUM BOX
WITH IN-SERVICE COVER. RECEIPTACLE
SHALL BE ORANGE. INCLUDE SIGN
STATEING "DEDICATED 120V, 1PH, FOR
SUMP PUMP".

ELECTRICAL SERVICE FOR SUMP
(IF REQUIRED) SEE NOTE 5

STANDON S-89
OR EQUAL ADJUSTABLE
PIPE SUPPORTS

SUMP IF REQUIRED

ELEVATION
SEE DETAIL V-W16A FOR CALLOUTS

<table>
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<tr>
<th>METER SIZE</th>
<th>MAIN LINE</th>
<th>MINIMUM I/S VAULT DIM. L x W x H</th>
<th>UTILITY VAULT CO APPROVED MODEL</th>
<th>MIN. HATCH OPENING</th>
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<tr>
<td>3&quot;</td>
<td>4&quot; DI.</td>
<td>8'-4&quot; x 4'-4&quot; x 6'-2&quot;</td>
<td>4484-LA</td>
<td>3' x 6'</td>
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<td>4&quot; DI.</td>
<td>8'-4&quot; x 4'-4&quot; x 6'-2&quot;</td>
<td>4484-LA</td>
<td>3' x 6'</td>
</tr>
<tr>
<td>6&quot;</td>
<td>6&quot; DI.</td>
<td>10'-6&quot; x 5'-0&quot; x 6'-2&quot;</td>
<td>5106-LA</td>
<td>3' x 6'</td>
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<tr>
<td>8&quot;</td>
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<td>12'-0&quot; x 6'-0&quot; x 6'-6&quot;</td>
<td>612-LA</td>
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<td>10&quot;</td>
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<td>14'-0&quot; x 8'-0&quot; x 6'-6&quot;</td>
<td>814-LA</td>
<td>3' x 6'</td>
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NOTES:
1. WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW PREVENTOR REQUIRED.
   SEE RPBA-2. CONFIRM INSTALLATION WITH CITY. INITIAL AND ANNUAL TEST REQUIRED.

2. METER SHALL BE INSTALLED SUCH THAT IT CAN BE READ WITHOUT ENTERING VAULT
   WITH ACCESS HATCH OPEN.

3. COORDINATE ORIENTATION OF HATCH(ES) TO PROVIDE CLEAR VERTICAL ACCESS TO
   METER ASSEMBLY, AND WITH LADDER LOCATION. VERIFY WITH CITY.

4. DRAIN DRAIN HATCH(ES) TO VAULT FLOOR WITH PVC PIPE AND FITTINGS.

5. 3/4" (MINIMUM) PVC SCH-40 CONDUIT. WIRING SHALL BE COMPLETELY SEALED 120V,
   UNDERGROUND. CONTRACTOR TO SEAL CONDUIT PENETRATION WITH NON-SHRINK
   GROUT. (NOT REQUIRED IF GRAVITY VAULT DRAIN PROVIDED).

6. ESMT TO BE PROVIDED TO CITY
   AROUND METERS LOCATED OUTSIDE
   RIGHT-OF-WAY.

7. SEE PAGE 1 FOR PLAN AND NOTES.

CITY OF ALGONA
METER AND METER VAULT
ASSEMBLY 3" THROUGH 10"

APPROVED: [Signature]
DATE: 04/06/2015

PAGE 2 OF 2
**DESCRIPTION**

1. State approved double check detector assembly (DCDA) backflow prevention assembly with O.S.&Y. R.W. gate valve
2. Romac style 'FCA 501' flanged coupling adapter
3. 5/8" x 3/4" Sensus cubic feet reading meter complete with spud nut
4. Locate center of valve 15" from center of vault to allow stems to extend into access opening when applicable
5. 3/4" Shutoff valve; brass gate valve
6. State approved 3/4" double check valve assembly (DCVA)
7. Brass or type K copper, detector check piping (by pass line)
8. 2 ea. galvanized adjustable stanchions (locate at ends of double check assembly)
9. Galvanized steel ladder, locate as directed by district, secure to vault.
10. Pipe spool, cl. 52 d.i., plain end
11. "Utility vault" or approved equal
   - 4" DCDC, use 575 LA (4"-0" x 6"-6" x 4"-0" inside)
   - 6" DCDC, 4484 LA (4"-4" x 6"-4" x 6"-2" inside)
   - 6" DCDC, 5106 LA (5"-0" x 10"-6" x 4"-4" inside)
   - 8" DCDC, 5106 LA (5"-0" x 10"-6" x 6"-2" or 4"-4" inside)
   - 10" DCDC, 5106 LA (3 hatch) (5"-0" x 10"-6" x 6"-2" or 4"-4")
   Orientation and location of hatches to provide clear access to valves and detector check assembly
12. 6" PVC drain, discharge to daylight or to catch basin. Minimum slope 1% unless otherwise approved. Add screens at both ends.
13. Watertight grout, inlet and outlet pipe, drain pipe and access opening

**NOTE:**

After pressure test and purity samples are received, a certified backflow technician shall supply district with a written test report on each backflow assembly.

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**CITY OF ALGONA**

**DOUBLE-CHECK DETECTOR BACKFLOW PREVENTION ASSEMBLY**

APPROVED: [Signature]

DATE: 04/06/2015

DWG. NO.

DCD-BPA