NOTE: FOR WATER AND SANITARY SEWER PIPES THERE SHALL BE A MINIMUM OF 12" OF BACKFILL OVER THE PIPE BEFORE OTHER THAN HAND COMPACTION EQUIPMENT IS USED IN THE TRENCH.

* SEE SECTION 9.04 FOR COMPACTION REQUIREMENTS
NOTE: FOR WATER AND SANITARY SEWER PIPES THERE SHALL BE A MINIMUM OF 12" OF BACKFILL OVER THE PIPE BEFORE OTHER THAN HAND COMPACTION EQUIPMENT IS USED IN THE TRENCH.

* SEE SECTION 9.04 FOR COMPACTION REQUIREMENTS
NOTES

1. FLEXIBLE PLASTIC SEALING COMPOUND BETWEEN RING AND CONE OR FLAT LID, OR CONCRETE RING.
2. MINIMUM OF 3 INCHES CLEARANCE BETWEEN ANY PIPE PENETRATION AND THE ECCENTRIC CONE SECTION OR FLAT LID.
3. SEE SECTION 10.01.09 FOR FRAME AND COVER SIZING
4. DEPRESS RING 1/8" TO 1/2" BELOW ADJACENT FINISH STREET GRADE.
NOTES:
1. STRAIGHT PIPE SECTIONS MAY BE LAID THROUGH THE MANHOLE WITH CROWN REMOVED.
2. UNIFORM PIPE SIZE SECTION NOT LAID THROUGH THE MANHOLE SHALL DROP A MIN. OF 0.2 FEET.
3. BENCHES SHALL SLOPE 1 INCH/FT.
4. THE OUTSIDE WALLS SHALL BE FORMED TO THE DESIGNED SHAPE.
5. THE TOP OF THE BASE SHALL BE LEVEL IN ALL CASES.
6. PRECAST MANHOLE BASES SHALL HAVE A 6" COMPACTED LAYER OF 3/4" COARSE AGGREGATE (#67).
7. GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN NATIVE SOIL AND COARSE AGGREGATE.
DROP MANHOLE ALTERNATE
POLYLINED DUCTILE IRON FITTINGS AND PIPE WITH
MECHANICAL JOINTS MAY BE USED IN PLACE OF PVC
AND CONCRETE ENCASEMENT.

SECTION A-A

SECTION B-B

NOTES:
1. STRAIGHT PIPE SECTIONS MAY BE LAID
   THROUGH THE MANHOLE WITH CROWN
   REMOVED WITH APPROVAL.
2. UNIFORM PIPE SIZE SECTION NOT LAID
   THROUGH THE MANHOLE SHALL DROP A MIN.
   OF 0.2 FEET, 0.3 FEET AT DEFLECTED MANHOLES.
3. BENCHES SHALL SLOPE 1 INCH/FT.
4. THERE SHALL BE A JOINT MADE AT THE EDGE
   OF MANHOLE BASE.
5. THE OUTSIDE WALLS SHALL BE FORMED TO THE
   DESIGNED SHAPE.
6. THE TOP OF THE BASE SHALL BE LEVEL IN ALL
   CASES.
7. ENCASEMENT SHALL BE EXTENDED TO THE
   SPRINGLINE OF PIPE.
8. INSIDE DROP MANHOLES ARE SUBJECT TO
   REVIEW AND APPROVAL BY AURORA WATER.
NOTES
1. MAINTAIN PIPE CURVATURE THROUGHOUT THE CHANNEL.
2. APRON SHOULD BE SLIGHTLY SLOPED TO ALLOW FOR COMFORTABLE STANDING BY A WORKER.
NOTES:
1. THE ALIGNMENT OF PIPES INTO THE M.H. WILL DETERMINE THE BARREL SIZE FOR THE SIZE OF PIPE USED.
2. IF MINIMUM DISTANCES CANNOT BE OBTAINED DUE TO PIPE DIAMETERS, A SPECIAL CONCRETE VAULT SHALL BE USED IN PLACE OF A STANDARD M.H.
3. MANHOLES LARGER THAN 72" WILL BE ALLOWED WITH SPECIAL WRITTEN PERMISSION OF THE ENGINEER.

THE INTERNAL DIAMETER OF THE M.H. BARREL SHALL BE:

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
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<th>PIPE SIZE</th>
<th>BARREL SIZE</th>
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<tbody>
<tr>
<td>12&quot; or LESS</td>
<td>48&quot;</td>
<td>27&quot; or LESS</td>
<td>60&quot;</td>
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<tr>
<td>15&quot; to 27&quot;</td>
<td>60&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30&quot; to 48&quot;</td>
<td>72&quot;</td>
<td>30&quot; to 48&quot;</td>
<td>72&quot;</td>
</tr>
</tbody>
</table>

MINIMUM DISTANCE BETWEEN HOLES=1/2 PIPE O.D.(APPROX.) OR 12" MINIMUM

OPTIONAL CONCRETE VAULT

PLAN VIEW

MH CONCRETE BARREL SECTION

AURORA WATER

MANHOLE BASE DETAIL

101-5
NOTES:
1. AURORA WATER REQUIRES INSIDE SLIDES WHERE THE INVERT OF THE CONNECTING SANITARY SEWER IS ABOVE THE CROWN OF THE RECEIVING SANITARY SEWER AND THE DROP INTO THE MANHOLE IS SHORT ENOUGH NOT TO REQUIRE A DROP CONNECTION. INSIDE SLIDES SHALL BE CALLED OUT ON THE PLANS AND SHOWN IN THE PROFILE VIEW.
2. 18” MAX. OR AS APPROVED BY THE ENGINEER.

MATCH INVERTS

CAST IN PLACE BASE & INSIDE SLIDE CHANNEL
MATCH INVERT OF SLIDE TO SPRINGLINE OF MAIN PIPE

PRE-CAST BASE WITH CAST-IN-PLACE SHELF AND CHANNEL ON 4” MIN. DEPTH COMPACTED GRANULAR BEDDING.

SEE NOTE #2

FLOW

FLOW

PLAN VIEW
NOTES:
2. ALL BEARING SURFACES TO BE MACHINED.
3. LETTERING ON COVER AS REQUIRED (WATER, SANITARY, OR STORM).
4. AURORA STANDARD-NEENAH R-1706, OR EQUAL, TOTAL MINIMUM WEIGHT APPROXIMATELY 224 LBS, MINIMUM FRAME WEIGHT -114 LBS, MINIMUM LID WEIGHT-110 LBS.
5. LIFTING NOTCH SHALL NOT EXTEND PAST INSIDE FACE OF RING SEAT.
6. SEE SECTION 10.00 FOR SPECIFICATIONS.
7. CITY OF AURORA LABELING IS NOT TO BE INCLUDED ON PRIVATE INFRASTRUCTURE.
NOTES:
2. ALL BEARING SURFACES TO BE MACHINED.
3. LETTERING ON COVER AS REQUIRED (WATER, SANITARY, OR STORM).
4. AURORA STANDARD-NEENAH R-1741, OR EQUAL, TOTAL MINIMUM WEIGHT APPROXIMATELY 350 LBS, MINIMUM FRAME WEIGHT -170 LBS, MINIMUM LID WEIGHT-180 LBS.
5. LIFTING NOTCH SHALL NOT EXTEND PAST INSIDE FACE OF RING SEAT.
6. SEE SECTION 10.00 FOR SPECIFICATIONS.
7. CITY OF AURORA LABELING IS NOT TO BE INCLUDED ON PRIVATE INFRASTRUCTURE.
25" MANHOLE
ADJUSTMENT RING

SECTION A-A
NOTES

1. DIMENSION SHOWN IN **BOLD** SHALL HAVE A TOLERANCE OF ± 1/16”
2. DIMENSION a (RISE HEIGHT) = 1 5/16”, 1 1/2”, 2”, 2 1/2”, 3” or 4”
3. ALL OTHER DIMENSIONS SHALL HAVE A TOLERANCE OF ± 1/8”
4. OUTSIDE DIMENSION OF 23 3/4” ON LOWER SECTION OF RING SHALL BE MAINTAINED TO A MINIMUM OF 1 1/4” FROM THE BOTTOM BEARING SURFACE OF THE RING

SPECIFICATION FOR GRAY CAST IRON RISERS

1. CAST IRON RISERS SHALL CONFORM TO ASTM A48, CLASS 35B AND AASHTO M306
2. BEARING SURFACES BETWEEN MANHOLE RINGS AND COVERS AND FRAMES SHALL BE MACHINED TO PREVENT ROCKING
3. RISERS TO BE OF UNIFORM QUALITY FREE FROM SAND HOLES, GAS HOLES, SHRINKAGE, CRACKS OR OTHER DEFECTS
4. RISERS SHALL BE GROUND SMOOTH AND WELL CLEANED BY SHOT BLASTING
5. EACH RISER SHALL BE STAMPED WITH THE SIZE, NAME OF PRODUCING FOUNDRY, ASTM MATERIAL DESIGNATION, INDIVIDUAL PART NUMBER AND MANUFACTURE DATE

SPECIFICATION FOR STEEL RISERS

1. STEEL RISERS TO BE MANUFACTURED WITH U.S. MILLED CARBON STEEL CONFORMING TO ASTM A36
2. PROVIDE CONTINUOUS FILLET OR GROOVE WELDS CONFORMING TO AWS D1.1 STRUCTURAL WELDING GUIDE
3. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS
4. BEARING SURFACES BETWEEN MANHOLE RINGS AND COVERS AND FRAMES SHALL BE MACHINED TO PREVENT ROCKING
5. RISERS TO BE OF UNIFORM QUALITY FREE FROM SHRINKAGE, CRACKS OR OTHER DEFECTS
6. RISERS SHALL BE SMOOTH AND WELL CLEANED
7. EACH RISER SHALL BE STAMPED WITH THE SIZE, NAME OF PRODUCING MILL, ASTM MATERIAL DESIGNATION, INDIVIDUAL PART NUMBER AND MANUFACTURE DATE
8. SET SCREWS TO BE PROVIDED WITH RISERS
NOTES:
2. ALL BEARING SURFACES TO BE MACHINED.
3. LETTERING ON COVER AS REQUIRED (WATER, SANITARY, OR STORM).
4. AURORA STANDARD-NEENAH R-1798, OR EQUAL, TOTAL MINIMUM WEIGHT APPROXIMATELY 575 LBS, MINIMUM FRAME WEIGHT -295 LBS., MINIMUM LID WEIGHT-280 LBS. LOAD REQUIREMENTS MUST BE IN CONFORMANCE WITH HS20 STANDARDS.
5. LIFTING NOTCH SHALL NOT EXTEND PAST INSIDE FACE OF RING SEAT.
6. SEE SECTION 10.00 FOR SPECIFICATIONS.
7. CITY OF AURORA LABELING IS NOT TO BE INCLUDED ON PRIVATE INFRASTRUCTURE.

DETAIL-COVER DESIGN
TYPE "C" DESIGN: 1"X 1" SCORED 1/32"± DEEP
NOTES:
2. ALL BEARING SURFACES TO BE MACHINED.
3. LETTERING ON COVER AS REQUIRED (WATER, SANITARY, OR STORM).
4. AURORA STANDARD-NEENAH R-1741-D, OR EQUAL, TOTAL
   MINIMUM WEIGHT APPROXIMATELY 350 LBS, MINIMUM FRAME
   WEIGHT -170 LBS., MINIMUM LID WEIGHT -180 LBS.
5. LIFTING NOTCH SHALL NOT EXTEND PAST INSIDE FACE OF RING SEAT.
6. SEE SECTION 10.00 FOR SPECIFICATIONS.
7. CITY OF AURORA LABELING IS NOT TO BE INCLUDED ON PRIVATE
   INFRASTRUCTURE.
NOTES:
1. AS MANUFACTURED BY M.A.INDUSTRIES. PART NO. PS2-PF OR PS2-PFS
2. CAPACITY: 2,500 LBS. WITH STEP EXTENDED 6-3/8" FROM WALL.
3. MATERIAL: COPOLYMER POLYPROPYLENE PLASTIC, WITH 1/2"Ø GRADE 60 STEEL REINFORCEMENT.

IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPLACE TOP STEPS AS NECESSARY WITH MODEL NO. PS2-PF-HH (SEE DETAIL 105-2) IF 20" OF CLEARANCE CANNOT BE MAINTAINED.
NOTES:
1. THIS STEP, PART NO. PS2-PF-HH, AS MANUFACTURED BY M. A. INDUSTRIES, INC. SHALL BE USED WHENEVER 20 INCHES OF CLEARANCE CANNOT BE MAINTAINED AT THE TOP STEP, USING DETAIL 105-1. MEASUREMENT SHALL BE TAKEN FROM THE FACE OF THE STEP TO THE INNER WALL OF THE MANHOLE.
ANCHOR GRATING TO "Z"s WITH 3/8" BOLTS (PLATFORM IS TO BE REMOVABLE)

SUPPORT CHANNEL 3"x3"x3/8" GALVANIZED STEEL "Z" ANCHORED WITH 8-1/2" STAINLESS STEEL BOLTS & RAMSETS INTO MH WALL.

USE FIBERGLASS OR ALUMINUM SERRATED GRATING BEARING BARS 3/16"x1-1/4" HEAVY DUTY GENERAL USE

PLATFORM DETAIL

24"x30" ACCESS DOOR WITH RECESSED HANDLE AND WALL FASTENER

ELEVATION

DOOR IN OPEN POSITION

PLATFORM LOCATED AT THE MIDPOINT

NOTES
1. LANDING PLATFORMS SHALL ONLY BE PROVIDED AT LOCATIONS AS SPECIFIED ON APPROVED PROJECT DRAWINGS.
TYPICAL STEEL ENCASEMENT CONSTRUCTION

STEEL CASING INFORMATION
REQUIRED ON CONSTRUCTION PLANS
1. LENGTH AND TIES TO ENDS OF CASING
2. THICKNESS IN INCHES
3. INSIDE DIAMETER

CARRIER PIPE  |  CASING PIPE
-------------|-------------
NOMINAL DIA. | MIN. I.D.   | MIN. WALL THICKNESS
4"           | 12"         | 0.250"
6"           | 16"         | 0.250"
8"           | 18"         | 0.282"
12"          | 23"         | 0.344"
16"          | 30"         | 0.406"
24"          | 40"         | 0.469"

Casing chocks shall meet or exceed the Aurora Water Approved Products List manufacturer standards.

NOTES:
1. Joint restraint pipe shall be used for carrier pipe through all bores. P.V.C. (A.S.T.M.-D3034-C900) may be used for sanitary sewers on bores of 100' or less in length. Ductile iron pipe shall be polywrapped.
2. If the bore is not constructed to the proper grade an additional manhole shall be installed at the grade change.
3. The casing shall be sealed with concrete collars or endseals. No spiral welded steel casing pipe shall be used.
4. The pipe and casing shall be insulated by use of casing chocks. All polyethylene chocks are not allowed.
5. Steel casing shall be factory coated for direct bury applications. 48 lb anodes shall be installed at both ends of casing for bored applications.

Aurora Water

Chung Wu
01/17/2024
Aurora Water

TYPICAL STEEL ENCASEMENT CONSTRUCTION

1 of 1

107-1
NOTES:

1. SEE "TYPICAL STREET CROSS SECTION" IN ROADWAY SPECIFICATIONS.

2. ALL FIRE HYDRANTS TO BE LOCATED AT POINTS OTHER THAN CORNER INTERSECTIONS SHALL BE INSTALLED AT A LOT LINE EXTENDED.
**LOCAL STREET TYPE 2 ALTERNATIVE**

**"A" - STRAIGHT LINE CUL-DE-SAC:**
Lay water pipe to 18' beyond the center (radius point) of cul-de-sac.

**"B" - OFFSET CUL-DE-SAC:**
Lay water pipe to 5' beyond P.I. then to 18' beyond center (radius point) of cul-de-sac.

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**NOTE:**
1. Residential cul-de-sac less than 250' in length see C.O.A. roadway specifications for typical street cross sections.
PROCEDURES TO BE FOLLOWED BY THE CONTRACTOR FOR CONSTRUCTION AND INSTALLATION OF WATER METERS

CALL PDS INSPECTIONS AT 303-739-7385 BEFORE 3:30pm 24 HOURS PRIOR TO TAPPING THE MAIN FOR INSPECTION OF TAPS 2" AND SMALLER. CITY PERFORMS TAPS FOR 3" AND LARGER METERS-ALL EXCAVATION SUBJECT TO BACK SLOPING OR SHORING AND PROVIDE 18" OF CLEARANCE AROUND MAIN. CALL OPERATIONS SERVICE CENTER AT 303-326-8645 TO SCHEDULE TAPS (SEE APPENDIX A DETAIL 206 FOR 3" AND LARGER DETAILS).

CALL PDS INSPECTIONS AT 303-739-7385 TO OBTAIN A PERMIT AND SCHEDULE INSPECTION FOR SERVICE LINE FROM METER PIT TO BUILDING.

PASS

INSPECTION BY PROJECT DELIVERY SERVICES (PDS)

PASS

CONTRACTOR MUST MAKE REPAIRS BEFORE RE-SCHEDULING.

AFTER CONNECTION FEES HAVE BEEN PROCESSED AND THE SITE MEETS CERTIFICATE OF OCCUPANCY REQUIREMENTS, CONTACT OPERATIONS SERVICE CENTER TO SCHEDULE A METER INSTALLATION.

CUSTOMER SERVICE WILL INSTALL METER UPON ACCEPTANCE OF METER PIT OR VAULT. IF REJECTED, A NOTICE OF DISCREPANCY WILL BE LEFT NEXT TO THE BUILDING PERMIT, IN VAULT, OR WITH CONSTRUCTION SUPERINTENDANT.

PASS

METER SET

THE OWNER/DEVELOPER IS REQUIRED TO ADJUST THE GRADE OF THE PIT, YOKE OR LATERAL AS NECESSARY PRIOR TO METER SET IN ACCORDANCE WITH APPLICABLE STANDARDS.

THE ACCEPTANCE AND WARRANTY OF THE SERVICE LATERAL FROM THE POINT OF CONNECTION TO THE METER PIT, INCLUDING THE PIT, BEGINS AT TIME OF METER SET, WHenever THAT OCCURS.

AURORA WATER

METER INSTALLATION PROCEDURE

1 of 1

200-1
NOTES:
1. WATER METER FURNISHED AND INSTALLED BY AURORA WATER.
2. SERVICE LINE MUST HAVE A MINIMUM COVER OF 4 1/2 FEET.
3. CALL PDS INSPECTIONS AT 303-739-7385 FOR WATER SERVICE LINES INSPECTIONS PRIOR TO BACKFILLING.
4. "VALVE BOX AND CURB STOP ARE OPTIONAL FOR RESIDENTIAL - MANDATORY FOR COMMERCIAL, IRRIGATION, AND ALL SERVICES TAPPED OFF 16" MAINS AND LARGER. CURB STOP SHALL NOT BE LOCATED IN STREET, GUTTER OR SIDEWALK. THE METER PIT MUST BE INSTALLED WITH THE MAINLINE TO PIT OR PIT TO HOME INSPECTION. AN INSPECTION FEE WILL BE CHARGED FOR ANY ADDITIONAL INSPECTIONS.
5. THE OWNER/DEVELOPER IS REQUIRED TO ADJUST THE GRADE OF THE PIT, YOKE, OR LATERAL IF NECESSARY PRIOR TO METER SET IN ACCORDANCE WITH APPLICABLE STANDARDS.
6. METER SETTER MUST HAVE INTEGRAL OUTLET SPRING CHECK VALVE.
7. CURB STOP AND METER PIT LIDS SHALL BE FLUSH WITH THE FINAL GRADE OF THE LANDSCAPE I.E., TURF, MULCH, ROCK, WHICH MUST INCLUDE PROPER DEPTH OF THE YOKE AND METER. ENSURE THE ITEMS SCHEDULED FOR INSPECTION ARE READILY VISIBLE PER AURORA WATER STANDARDS & SPECIFICATIONS.
8. A PASSING INSPECTION ON THE WATER SERVICE LINE INSTALLATION MUST BE COMPLETED PRIOR TO THE METER SET REQUEST. THIS WILL BE CHECKED DURING THE SCHEDULING PROCESS AND THE METER SET WILL BE CANCELED IF IT WAS NOT COMPLETE.
9. WATER METERS MUST BE INSTALLED BEFORE A CERTIFICATE OF OCCUPANCY CAN BE ISSUED. THE WATER METER SETTING MUST PASS INSPECTION BEFORE THE CERTIFICATE OF OCCUPANCY, OR A TEMPORARY CERTIFICATE OF OCCUPANCY WILL BE ISSUED.
10. RESIDENCE MUST BE IN A CONDITION SUITABLE FOR OCCUPANCY PRIOR TO A METER BEING SET.
11. THE METER PIT SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION ACTIVITIES.
12. METER PIT MUST BE AT LEAST 2' FROM ANY HARDSCAPE AS MEASURED FROM EDGE OF LID; HARDSCAPE TO BE INSTALLED PRIOR TO METER SET.
13. PLANTINGS, SHRUBS, AND BRANCHES MUST REMAIN 3 FEET CLEAR OF THE METER PIT LID.
14. PERMANENT OBSTRUCTIONS MUST BE 3 FEET CLEAR OF THE METER PIT, I.E., UTILITIES, STREETLIGHTS, FOUNDATIONS, FENCE LINES, RETAINING WALLS, BACKFLOW PREVENTION ASSEMBLIES.
15. FINAL GRADE IS INCLUSIVE OF MULCH, ROCK, TURF. FINISHED GRADE IS THE GRADE WITHOUT MULCH, ROCK, OR TURF.

<table>
<thead>
<tr>
<th>SERVICE TYPE</th>
<th>YOKE SIZE</th>
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<tr>
<td>¾&quot; RESIDENTIAL</td>
<td>⅜&quot; X ⅜&quot;</td>
</tr>
<tr>
<td>¾&quot; COMMERCIAL</td>
<td>⅜&quot; X ⅜&quot;</td>
</tr>
<tr>
<td>1&quot; COMMERCIAL</td>
<td>1&quot; X 1&quot;</td>
</tr>
</tbody>
</table>
NOTES:
1. THE HOOD MAY BE COMPOSITE OR CAST IRON
2. THE LIDS SHALL BE COMPOSITE MATERIAL MANUFACTURED FROM CITY PRE-APPROVED VENDORS
3. ADDRESS TAGS ARE REQUIRED FOR BANKED METER PITS TAGS SHALL BE ATTACHED TO THE YOKE AND THE LID
NOTE: ADDRESS TAGS ARE REQUIRED FOR BANKED METER PITS. TAGS SHALL BE ATTACHED TO THE YOKE AND THE LID.
MATERIALS:
1. 24 INCH METER PIT (SEE DETAIL 201 AND 202)
2. \( \frac{3}{4} \) INCH CURB STOP AND BOX

NOTES:
1. METER PITS PLACED INLINE SHALL BE SPACED 36 INCHES APART. METER PITS PLACED STAGGERED (AS SHOWN) SHALL BE SPACED 30 INCHES APART.
2. SEE DETAIL 201 FOR ADDITIONAL INFORMATION ON METER PIT.
3. ADDRESS TAGS ARE REQUIRED FOR BANK METERS. TAGS SHALL BE ATTACHED TO BOTH THE YOKE AND THE LID.

1-3/4" BRASS TAG WITH HOLE TO SECURE TO LID
NOTES:
1. WATER METER FURNISHED AND INSTALLED BY AURORA WATER.
2. SERVICE LINE MUST HAVE A MINIMUM COVER OF 4-1/2 FEET.
3. PUB INSPECTIONS WILL INSPECT THE SERVICE LINE PRIOR TO BACK-FILLING.
4. NO JUMPERS ARE ALLOWED IN IRRIGATION METERS THAT DO NOT UTILIZE THE OUTLET CHECK VALVE. ALL CONSTRUCTION SOURCES SHOULD BE DOWNSTREAM OF THE OUTLET CHECK VALVE. CONTRACTORS SHALL BE RESPONSIBLE FOR ANY CHANGES OR DAMAGES DUE TO SHUT-OFF.
5. CONCRETE SHALL NOT BE Laid IN FLOOR OF METER PIT.
6. FOOTINGS ARE TO BE INSTALLED UNDER METER PIT.
7. FIELD SOLDERED JOINTS OR PLASTIC PIPE NOT ALLOWED IN METER PIT.
8. IRRIGATION METERS REQUIRE RP DEVICE.
9. TOP STEP TO BE 18"-24" BELOW SURFACE. STEPS TO BE SPACED 12" APART VERTICALLY.
10. CURB STOP VALVE ON UPSTREAM SIDE SHOULD BE LOCATED NO FURTHER THAN 3 FEET FROM INSIDE OF VAULT.
11. NO SHRUBS ALLOWED WITHIN 5' OF LID AND VALVE BOXES.
12. CONCRETE COLLARS ARE REQUIRED WHEN A CURB BOX IS LOCATED WITHIN A LANDSCAPE AREA.
13. METER PIT SHALL NOT BE LOCATED BEHIND, AND NO CLOSER THAN 3 FEET FROM RETAINING WALLS.
14. UPSIZE AND DOWNSIZE OF PLUMBING MATERIAL IS NOT ALLOWED INSIDE METER VAULT.

MATERIALS:
1. CORPORATION STOP AND INSULATING COUPLING.
2. FULLY ENCLOSED SWING CHECK VALVE ON OUTLET REQUIRED.
3. WATER SERVICE LINE - COPPER TUBING, (TYPE K) - 4 1/2' MIN. COVER.
4. WATER METER.
5. BALL VALVES-CLASS 125 WITH LOCK WING AND TEE HEAD
6. LOK-PAK ON OUTLET SIDE OF METER.
7. PRECAST 60" VAULT - ASTM C-478 WITH MANHOLE STEPS, OFFSET FLAT TOP AND CONCRETE ADJUSTMENT RINGS.
8. COPPER TO BRASS FITTINGS MUST BE EXPOSED.
9. COMPRESSION COUPLING ON INLET SIDE OF METER MUST BE EXPOSED.
10. CALL 303-326-8645 FOR DIMENSION.
11. SEE APPENDIX 'B' FOR APPROVED MATERIALS.
NOTES:
1. WATER METER FURNISHED AND INSTALLED BY AURORA WATER.
2. SERVICE LINE MUST HAVE A MINIMUM COVER OF 4-1/2 FEET.
3. PDS INSPECTIONS WILL INSPECT THE SERVICE LINE PRIOR TO BACK-FILLING.
4. NO JUMPERS ARE ALLOWED IN IRRIGATION METERS CONTRACTORS SHALL BE RESPONSIBLE FOR ANY CHANGES OR DAMAGES DUE TO SHUT-OFF.
5. CONCRETE SHALL NOT BE LAID IN FLOOR OF METER PIT.
6. FOOTINGS ARE TO BE INSTALLED UNDER METER PIT.
7. FIELD SOLDERED JOINTS OR PLASTIC PIPE NOT ALLOWED.
8. IRRIGATION METERS REQUIRE RP DEVICE.
9. 1 1/2" TO 2" IRRIGATION METERS REFER TO 204.
10. TOP STEPS TO BE 18" - 24" BELOW SURFACE. STEPS TO BE SPACED 12" APART VERTICALLY.
11. GATE VALVE ON UPSTREAM SIDE SHOULD BE LOCATED NO FURTHER THAN 3 FEET FROM OUTSIDE OF VAULT.
12. NO SHRUBS ALLOWED WITHIN 5' OF LID AND VALVE BOXES.
13. CONCRETE COLLARS ARE REQUIRED WHEN A VALVE BOX IS LOCATED WITHIN A LANDSCAPED AREA.
14. METER PIT SHALL NOT BE LOCATED BEHIND, AND NO CLOSER THAN 3-FEET FROM, RETAINING WALLS.
15. UPSIZE AND DOWNSIZE OF PLUMBING MATERIAL IS NOT ALLOWED IN METER VAULT.

MATERIALS:
A. TAPPING TEE AND VALVE (4 INCH MIN.) FURNISHED AND INSTALLED BY AURORA WATER ACCORDING TO LATEST FEE SCHEDULE. (TEE IN LEIU OF TAPPING SLEEVE ALLOWED IF NEW MAIN IS BEING CONSTRUCTED.)
B. WATER SERVICE LINE - DUCTILE IRON, (PRESSURE CLASS 350) - 4 1/2" MIN. COVER.
C. WATER METER.
D. DRESSER STYLE COMPRESSION COUPLING.
E. SEE DETAIL 206 FOR ADDITIONAL INFORMATION ON RING AND COVER.
F. PRECAST 72" MANHOLE 5' HIGH - ASTM C-478 WITH MANHOLE STEPS, OFFSET FLAT TOP AND CONCRETE ADJUSTMENT RINGS.
G. CALL 303-326-8645 FOR DIMENSION.

LID, 2" ABOVE FINISHED GRADE; SEE DTL 206 FOR LID DETAIL

MAXIMUM OF 2-2" ADJUSTMENT RINGS. PLACE THICKER ADJUSTMENT RING DIRECTLY ON VAULT LID. REMOKE BETWEEN ALL SURFACES OF MANHOLE LID AND RING AND COVER.

LOCATE BEHIND CURB

FLANGE x PLAN END

GROUT

2 of 2

3", 4" & 6" TURBINE IRRIGATION METER VAULT INSTALLATION

NOTES:
1. IF THE SURFACE IS NOT TO FINAL GRADE AT THE TIME OF THE METER INSTALLATION, THE OWNER SHALL RAISE OR LOWER THE PIT TO MATCH THE FINAL GRADE.
2. METER PIT AND RELATED SERVICE UNIT MUST BE INSPECTED BY PDS INSPECTIONS PRIOR TO BACKFILLING.
3. NO CONCRETE TO BE LAID IN FLOOR OF METER PIT.
4. FOOTINGS TO BE INSTALLED UNDER METER PIT.
5. FIELD SOLDERED JOINTS OR PLASTIC PIPE NOT ALLOWED IN PIT.
6. PDS INSPECTIONS SHALL INSPECT THE SERVICE LINE PRIOR TO BACKFILLING.
7. TOP STOPS TO BE 18" - 24" BELOW SURFACE. STEPS TO BE SPACED 12" APART VERTICALLY.
8. CURB STOP VALVE ON UPSTREAM SIDE SHOULD BE LOCATED NO FURTHER THAN 3 FEET FROM OUTSIDE OF VAULT.
9. NO SHRUBS ALLOWED WITHIN 5' OF LID AND VALVE BOXES.
10. CONCRETE COLLARS ARE REQUIRED WHEN A VALVE BOX IS LOCATED WITHIN A LANDSCAPED AREA.
11. METER PIT SHALL NOT BE LOCATED BEHIND, AND NO CLOSER THAN 3 FEET, RETAINING WALLS.
12. UPSIZE AND DOWNSIZE OF PLUMBING MATERIAL IS NOT ALLOWED INSIDE METER VAULT.

MATERIALS:
1. CORPORATION STOP AND INSULATING COUPLING - FURNISHED AND INSTALLED BY THE CONTRACTOR.
2. SWING CHECK VALVE ON OUTLET REQUIRED.
3. WATER SERVICE LINE - COPPER TUBING, TYPE 'K' - 4-1/2' MIN. COVER.
4. METER - FURNISHED AND INSTALLED BY AURORA WATER.
5. SEE DETAIL 207-1 FOR ADDITIONAL INFORMATION ON RING & COVER.
6. PRECAST 60" MANHOLE - ASTM C-478 WITH MANHOLE STEPS, OFFSET FLAT TOP AND CONCRETE ADJUSTMENT RINGS.
7. COPPER TO BRASS COMPRESSION FITTINGS (MUST BE EXPOSED).
8. COMPRESSION COUPLING ON INLET SIDE OF METER (MUST BE EXPOSED).
9. BYPASS VALVE WITH WINGED LOCKING VALVE.
10. CALL (303)326-8645 FOR DIMENSIONS. LAY LENGTH (INCLUDING GASKETS) 1 1/2" = 13 1/4" 2" = 17 1/4" 2 1/2" = 21 3/4"
11. BALL VALVES WITH LOCK WINGS.
METER VAULT INSTALLATION
3", 4" & 6" COMPOUND METER
FOR DOMESTIC SERVICE

STANDARD

NOTE:
1. TOP STEP TO BE 18"-24" BELOW SURFACE. MANHOLE STEPS TO BE SPACED 12" APART VERTICALLY.
2. POS INSPECTIONS SHALL INSPECT THE SERVICE LINE PRIOR TO BACKFILLING.
3. METER FURNISHED & INSTALLED BY AURORA WATER.
4. 72" INSIDE DIAMETER ROUND VAULT IS AN ACCEPTABLE ALTERNATIVE. LID TO BE 2 INCHES ABOVE FINISHED GRADE.
5. GATE VALVE ON UPSTREAM SIDE SHOULD BE LOCATED NO FURTHER THAN 3 FEET FROM OUTSIDE OF VAULT.
6. NO SHRUBS ALLOWED WITHIN 5' OF LID AND VALVE BOXES.
7. CONCRETE COLLARS ARE REQUIRED WHEN VALVE BOX IS LOCATED WITHIN LANDSCAPED AREA.
8. METER PIT SHALL NOT BE LOCATED BEHIND, AND NO CLOSER THAN 3-FEET FROM, RETAINING WALLS.
9. UPSIZE AND DOWNSIZE OF PLUMBING MATERIAL IS NOT ALLOWED INSIDE MATER VAULT.

MATERIALS:
1. VAULT-WALL THICKNESS 6", FLOOR THICKNESS 6".
2. SEE DETAIL 206-2 AND 206-3 FOR ADDITIONAL INFORMATION ON RING & COVER.
3. TAPPING TEE & VALVE FURNISHED AND INSTALLED BY THE CITY OF AURORA WATER IN ACCORDANCE WITH LATEST FEE SCHEDULE. (TEE IN MAIN IN LIEU OF TAPPING SLEEVE ALLOWED IF NEW MAIN IS BEING CONSTRUCTED.)
4. ALL PIPING SHALL BE DUCTILE IRON CONFORMING TO AWWA-C151.
5. ALL MECHANICAL JOINTS SHALL BE RESTRAINED.
6. RESILIENT SEAT GATE VALVES (4" MIN.) & VALVE BOX TO BE USED. CLASS 150 CONFORMING TO AWWA-C500.
7. COUPLING SHALL BE COMPRESSION TYPE SMITH-BLAIR, DRESSER OR EQUAL ON OUTLET SIDE.
8. SWING CHECK VALVE FULLY ENCLOSED REQUIRED.
9. FLANGED OR COMPRESSION TYPE FITTINGS ONLY IN METER PIT.
10. PIPE STANDS (2 REQUIRED)
11. 3/8" COARSE AGGREGATE (#67) TO BE PLACED 4" THICK BELOW PRECAST GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN NATIVE SOIL AND COARSE AGGREGATE.

* CALL (303) 326-8645 FOR DIMENSIONS
** MINIMUM DIMENSIONS

AURORA WATER

DATE 01/17/2024

Chung Wu
MATERIALS:
1. 23.75" x 1" LID (SMC)
2. BRASS THREADED INSERT
3. WORM GEAR, STYLE B (DI)
4. WORM GEAR, STYLE B (UHMWPE)
5. FLANGED SLEEVE, HD
6. BEARING WASHER
7. METRIC PLAIN WASHER
8. HEX CAP SCREWS
9. MACHINE SCREWS
10. BRONZE PENTAGON BOLT

NOTES:
1. FRAMES SHALL BE COMPOSITE (MAX WEIGHT: 35.21)
2. LIDS ARE REQUIRED TO BE COMPOSITE MATERIAL (MAX WEIGHT: 46.34 lb)
3. SEE APPENDIX B FOR APPROVED MODELS
4. LIDS SHOWN ARE ONLY TO BE ALLOWED FOR COMPOUND METERS (3" AND LARGER)
5. LIDS SHOWN ARE ONLY ALLOWED IN LANDSCAPED AREAS
MATERIALS:
1. 23.75" x 1" LID (SMC)
2. RETAINER PLATE
3. WORM GEAR, STYLE B (DI)
4. WORM GEAR, STYLE B (UHMWPE)
5. FLANGED SLEEVE, HD
6. BEARING WASHER
7. METRIC PLAIN WASHER
8. HEX CAP SCREWS
9. MACHINE SCREW
10. BRONZE PENTAGON BOLT
11. THREADED INSERT

NOTES:
1. FRAMES SHALL BE COMPOSITE (MAX WEIGHT 35.21)
2. LIDS SHALL BE COMPOSITE (MAX WEIGHT: 46.74)
3. SEE APPENDIX B FOR APPROVED MODELS
4. LIDS SHOWN ARE ONLY TO BE ALLOWED FOR COMPOUND METERS (3" AND LARGER)
5. LIDS SHOWN ARE ONLY ALLOWED IN HARD SURFACE AREAS
6. LIDS SHALL BE HS-20 TRAFFIC RATED
MATERIALS:
1. 23.75" x 1" LID (SMC)
2. BRASS THREADED INSERT
3. WORM GEAR, STYLE B (DI)
4. WORM GEAR, STYLE B (UHMWPE)
5. FLANGED SLEEVE, HD
6. BEARING WASHER
7. METRIC PLAIN WASHER
8. HEX CAP SCREWS
9. MACHINE SCREWS
10. BRONZE PENTAGON BOLT

NOTES:
1. FRAMES SHALL BE COMPOSITE (MAX WEIGHT: 35.21)
2. LIDS ARE REQUIRED TO BE COMPOSITE MATERIAL (MAX WEIGHT: 46.54 lb)
3. SEE APPENDIX B FOR APPROVED MODELS
4. LIDS SHOWN ARE ONLY TO BE ALLOWED FOR 1.5" AND 2" METERS (Disc and Turbine)
HYDRANT MUST BE PLUMB IN ALL DIRECTIONS

FINISHED FLANGE ELEVATION MUST BE 2'-6" ABOVE FINAL GRADE. ELEVATION SHALL BE SHOWN ON PLANS & STAKED IN THE FIELD.

2" MIN 6" MAX

COVER ROCK WITH APPROVED FILTER BLANKET OR 8 MIL POLYETHYLENE SHEET PRIOR TO PLACING BACKFILL

0.33 CU. YD. STABILIZATION MATERIAL (SEC. 19.03.1)

FIRE HYDRANT LATERAL

NOTES:
1. FIRE HYDRANTS TO BE UNOBSCTURED TO THE STREET AND A MINIMUM CLEARANCE OF 5' ON ALL OTHER SIDES.
2. WHEN ADJUSTMENTS ARE REQUIRED TO EXISTING FIRE HYDRANTS IN NO CASE SHALL THE BURY DEPTH EXCEED 7.0 FEET (5.5' BARREL WITH 18" EXTENSION). IF ADJUSTMENTS TO THE FIRE HYDRANT LATERAL ARE REQUIRED, (I.E. VERTICAL BENDS) THEN THE HYDRANT SHALL BE ADJUSTED TO A 5'-6" BURY DEPTH.
3. FOR NEW HYDRANTS, THE MAXIMUM BURY DEPTH IS 5'-6" DEEP.
4. HYDRANTS OLDER THAN 5 YEARS MUST BE REPLACED; LESS THAN 5 YEARS CAN BE RELOCATED.
5. INSTALLATIONS IN CONCRETE REQUIRE A 24"X24" BLOCK OUT WITH EXPANSION MATERIAL.
FIRE HYDRANT BOLLARDS

6" DIA. DIP GUARD POST FILLED WITH CONCRETE (TYP. OF 4)
PAINTED YELLOW

15"

3'-0"

6" MAX.

FIRE HYDRANT

FIRE LANE

6' MAX.

PLAN VIEW

AS SHOWN ON PLANS

6" DIA. DIP GUARD POST FILLED WITH CONCRETE (TYP. OF 4)
CONCRETE THRUST BLOCK 24" MIN.

2" COUPLING WITH SCREWED PLUG NOTE: PLUG TO BE WELL GREASED

NOTE: PLUG TO BE WELL GREASED

REST BOX ON BRICK

2" GALVANIZED STEEL

90° THREAD BRASS STREET ELBOW

2" RISER

STANDARD AURORA CAST IRON LID WITH "WATER" CAST INTO TOP

LINE BASIN WITH 1 LAYER OF MIRAFI 140

1 CU.FT. MIN OF 1 1/2" WASHED GRAVEL

2" 90° ELBOW

2" NIPPLE

NOTES:
1. ALL 2" PIPE & FITTINGS TO BE THREADED BRASS.
2. MAINLINE ISOLATION VALVE SHALL BE PROVIDED WHERE TEMPORARY BLOW OFF IS REQUIRED.

SECTION A-A

2" BLOWOFF

AURORA WATER

01/17/2024

AURORA WATER

DATE

209-1
**NOTES:**

1. ALL BLOW-OFF PIPING SHOWN SHALL BE PRESSURE CLASS 350 D.I.P. AND POLYWRAPPED.
2. REF. PLAN AND PROFILE SHEETS FOR BLOWOFF LOCATIONS AND ELEVATIONS.
3. MEG-A-LUG RESTRAINT IS REQUIRED FOR ALL PIPING.
4. CATHODIC PROTECTION SHALL BE PROVIDED BY ATTACHING A 17 lb. ANODE AND TEST SITE (32 LB. ANODE FOR RUNS EXCEEDING 50 FEET) TO THE 6" PIPING BETWEEN THE VALVE AND 90° BEND, PER DETAIL No. 219.
5. IF "L" IS GREATER THAN 20 FEET ON A D.I.P. MAIN, GATE VALVE MUST BE FLANGED WITH INSULATING FLANGE KIT.
6. IF DEPTH OF VALVE IS GREATER THAN OR EQUAL TO 12 FEET, REPLACE VALVE BOX WITH 6 INCH DIP.
NOTES:
1. ALL DUCTILE IRON PIPE SHOWN SHALL BE PRESSURE CLASS 350 AND POLYWRAPPED.
2. REF. PLAN AND PROFILE SHEETS FOR BLOWOFF LOCATIONS AND ELEVATIONS.
3. MEG-A-LUG RESTRAINT IS REQUIRED FOR ALL PIPING.
4. CATHODIC PROTECTION SHALL BE PROVIDED BY ATTACHING A 17lb. ANODE AND TEST SITE (32 lb. ANODE FOR RUNS EXCEEDING 50 FEET) TO THE 6" PIPING BETWEEN THE VALVE AND 90° BEND PER DETAIL No. 219.
5. INSULATOR FLANGE BOLTS WILL BE EITHER STAINLESS STEEL #304 OR CORTEN.
6. WAX TAPE OR PETROLEUM TAPE AND PRIMER REQUIRED ON INSULATING FLANGE AND ALL BOLTS.
2. THE DISTANCE BETWEEN RUNGS, CLEATS, AND STEPS SHALL NOT EXCEED 12 INCHES AND SHALL BE UNIFORM THROUGHOUT THE LENGTH OF THE LADDER.

3. LADDER RUNGS ARE REQUIRED IN PRECAST CONCRETE MANHOLES.

4. WELD ON STEEL WILL USE THREAD-O-LETS

5. INSTALL VENT PIPE OPPOSITE OF ACCESS OPENING.

6. TURN DISCHARGE PORT AWAY FROM VALVES AND ACCESS OPENING.

7. SEE SECTION 20.00 FOR COATING REQUIREMENTS.
NOTE: USE 2-2" AIR VALVE ASSEMBLY ON 30" OR SMALLER DUCTILE IRON PIPE.

SEE STANDARD DETAIL #215

24" NEENAH R-1758-C OR EQUAL (FROST-RETARDANT) WITH AURORA STD. COVER (WATER)

MORTAR 0-3 CONC. RINGS

PRECAST CONC. MH SEC. W/STEPS EVENLY SPACED

6" CRUSHED ROCK  #4-12" (TYP.)

SPRING LINE CONCRETE FOOTING

SECTION A-A

DETAIL A

NOTES:
1. TURN DISCHARGE PORT AWAY FROM VALVES AND ACCESS OPENING.
2. 3" AND LARGER AIR VACS BY SPECIAL DESIGN.
NOTE:
1. LADDER RUNGS ARE REQUIRED IN PRECAST MANHOLES. THE DISTANCE BETWEEN RUNGS, CLEATS AND STEPS SHALL NOT EXCEED 12" AND SHALL BE UNIFORM THROUGHOUT THE LENGTH OF THE LADDER.
FIELD JOINT
STEEL: DRESSER STYLE 38
COUPLING PVC OR DIP:
RESTRAINED SOLID SLEEVE

VALVE OPERATOR TO BE ACCESSIBLE THROUGH VALVE BOX OPENING

CONC PAD
10'x10' FOR 16"-24"
12'x12' FOR 30"-36"

CONC COLLARS
24"Ø M.H. & COVER

FLAT TOP LID

TOP SECTION OF 6" VALVE BOX HOLE TO BE DRILLED IN FIELD OR CAST IN PLACE (EXTENSIONS IF REQ'D)

PLAN

24"

12"

CONC BOX SUPPORT PLATE (SEE DETAIL)

AIR & VACUUM VALVE ON TOP OF PIPE "ONE EACH SIDE OF VALVE OPERATOR
INSTALL PER DETAIL 'A' ON DETAIL 211-2

LINK SEAL FOR ALL PIPE PENETRATIONS

ELEVATION

2'-6"

VARIABLE

18" MIN.

5"Ø HOLE

OPERATOR EXTENSION & GUIDE
POSITION INDICATOR
ADJUSTABLE SUPPORTS

FLAT TOP LID

M.J. OR FLANGED BUTTERFLY VALVE

2" CORP STOP or THR'D INLET or THR'D NIPPLE

AIR & VACUUM VALVE

NOTES:
1. THE DISTANCE BETWEEN RUNGS, CLEATS, AND STEPS SHALL NOT EXCEED 12 INCHES AND SHALL BE UNIFORM THROUGHOUT THE LENGTH OF THE LADDER.
2. 8' I.D. MIN. DIAMETER MANHOLE FOR 16" & 24" VALVES. 9' I.D. MIN. SQUARE VAULT FOR 30" & 36" VALVES.
3. 3/4" COARSE AGGREGATE (#67) TO BE PLACED 4" THICK BELOW PRECAST BASE.
4. VALVE IS A DEAD END WHEN CLOSED. REFER TO DETAIL 220-1 FOR JOINT RESTRAINT ON BOTH SIDES OF VAULT.
5. GEOTEXTILE FABRIC SHALL BE PLACED BETWEEN NATIVE SOIL AND COARSE AGGREGATE.

AIR & VACUUM VALVE ON TOP OF PIPE ~ONE EACH SIDE OF VALVE OPERATOR

INSTALLED PER DETAIL 'A' ON DETAIL 211-2

NOTE: FOR ALL PIPE PENETRATIONS, BLOCK OUT IN VAULT OR MANHOLE

Link Seal for All Pipe Penetrations

AURORA WATER
1. TWO 2" INSULATED CORPS INSTALLED ON TOP OF PIPE WITH 2" THREADED BALL VALVES INSTALLED.
2. LINK SEAL FOR ALL PIPE PENETRATIONS
3. ALL PIPE INSTALLED THROUGH THE VALVE SHALL ADHERE TO STANDARD 220-1 FOR TIED PIPE AND CONSIDER THE VALVE AS A DEAD END.
4. PRV OR CHECK VALVE WILL BE INSTALLED BY AURORA WATER PERSONNEL.
5. INSTALLATIONS LARGER THAN 12" OR THOSE THAT REQUIRE A BYPASS NEED A SPECIAL DESIGN APPROVED BY AURORA WATER ENGINEERING.
6. SUMP PIT IS 12"x12"x12" CAST IN PLACE SUMP PIT WITH REBAR REINFORCEMENT.
7. VAULT WILL BE INSTALLED TO PREVENT INFLOW AND INFILTRATION.
8. INSTALLATION MUST COMPLETE WATER QUALITY TESTING BEFORE INSTALLATION OF PRV/CHECK VALVE.
FABRICATED VENT SCREEN

THREAD END ON VENT PIPE

BREAK-AWAY COUPLING

GROUND LEVEL

INSTALL OPPOSITE LADDER RUNGS

4" X 6" X 6" CONCRETE PAD

6" PVC PIPE SCHEDULE 40 WITH GLUED JOINTS.

90° BEND

NOTES:
1. VENT PIPES TO BE LOCATED IN FIELD AT THE NEAREST INTERSECTION OF THE STREET PROPERTY LINE AND THE SIDE LOT LINE.

VENT PIPE INSTALLATION DETAILS

6 5/8" O.D. GALVANIZED STEEL PIPE, SCHEDULE 40.

PVC GLUED BY THREADED FEMALE ADAPTER.

6" PVC PIPE

VENT PIPE AND BREAK-AWAY COUPLING DETAILS
7" Ø 3/16" Ø

1/2"

1/8

3/4" NO. 9-11 FLATTENED EXPANDED METAL SCREEN.
(GALVANIZED)

6-3/4" O.D.

1/2" x 1/8"

ELEVATION
SCREEN FOR 6" VENT PIPE

6" GALV. ONE-HALF COUPLING (7.35" O.D.)
FOR 6-5/8" O.D. PIPE.
CUT FROM 4-1/8" LONG COUPLING.

NOTE: BUG SCREEN TO BE INSTALLED ON INTERIOR OF METAL SCREEN.
6" VENT PIPE
CONCRETE PAD
20 GA. VENT BODY

BASE DETAIL

8" O.D. SEAMLESS
ALUMINUM PIPE

2 1/2" X 2 1/2" X 1/8" STEEL
OR ALUMINUM ANGLE (SEE
DETAIL THIS SHEET)

ROUND VENT SCREEN

NOTE: COLOR SHALL BE OLIVE
GREEN OR FLAT BLACK TO MATCH
SURROUNDINGS.

8" VENT BODY

STEEL OR ALUMINUM ANGLE DETAIL

NOTE: COLOR SHALL BE OLIVE
GREEN OR FLAT BLACK TO MATCH
SURROUNDINGS.
ADJUSTABLE-SUPPORT
(TRANSFER)

ADJUSTABLE-SUPPORT
(HEAVY DUTY)
NOTE: INSTALL ANODES A MINIMUM OF 3 FEET OR ONE (1) PIPE DIAMETER (WHICHERVER IS GREATER) FROM THE PIPELINES AND ANY OTHER UNDERGROUND METALLIC STRUCTURES AND A MINIMUM OF 5 FEET FROM NEIGHBORING ANODES.

NOTES:
1. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS FOR THIS PROJECT AND ACTUAL FIELD CONDITIONS WHICH MAY INTERFERE WITH THIS PROJECT.
2. NO BELOW GRADE SPICING OF WIRES IS ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER. CONTRACTOR SHALL ENSURE THAT ALL WIRES ARE OF SUFFICIENT LENGTH FOR EACH INTENDED APPLICATION.
3. REMOVE ANODES FROM PLASTIC OR OTHER SHIPPING BAG AND POSITION ACCORDING TO DETAIL DRAWINGS. DO NOT REMOVE CLOTH SACK.
4. INSTALL ANODES A MINIMUM OF 3 FEET FROM EDGE OF PIPE OR ANY OTHER METALLIC OBJECT AND PLACE BELOW THE SPRINGLINE OF THE PIPE.
5. BACKFILL WITH NATIVE SOIL. A MINIMUM OF 12 INCHES AROUND ANY COUPONS, OR ANODES THEN FLOOD EACH WITH A MINIMUM OF 5 GALLONS FRESH WATER. AFTER WATER ABSORPTION, CONTINUE BACKFILLING AS PER SPECIFICATIONS.
6. PIPELINE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ELECTRICAL ISOLATION OF THE NEW PIPELINE FROM EXISTING PIPELINES, CONCRETE REBAR, ELECTRICAL GROUNDING, CASINGS, PIPE SUPPORTS, PIPE LATERALS, OR OTHER METALLIC STRUCTURES.
7. DURING BACKFILL, INSTALL CATHODIC PROTECTION WARNING TAPE 12"-18" ABOVE ANY CATHODIC PROTECTION WIRES OR DEVICES.
8. TYPICAL WIRE INSTALLATION COLORS:
   - BLUE = PROTECTED STRUCTURE
   - WHITE = INSULATED OR BONDED STRUCTURE
   - RED = FOREIGN STRUCTURE
   - YELLOW = REFERENCE ELECTRODE
   - ORANGE = CASING
   - GREEN = METALLIC COUPON
   - BLACK = CONTINUITY BOND/ANODE
NOTES:

1. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS FOR THIS PROJECT AND ACTUAL FIELD CONDITIONS WHICH MAY INTERFERE WITH THIS PROJECT.

2. NO BELOW GRADE SPlicing OF WIRES IS ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER. CONTRACTOR SHALL ENSURE ALL WIRES ARE OF Sufficient LENGTH FOR EACH INTENDED APPLICATION.

3. INSTALL COUPONS 6 INCHES FROM EDGE OF PIPE AND PLACE BELOW THE SPRINGLINE OF THE PIPE. COUPONS SHALL CONSIST OF THE SAME MATERIAL AS THE PIPE AT THE LOCATION OF INSTALLATION.

4. BACKFILL WITH NATIVE SOIL. A MINIMUM OF 12 INCHES AROUND ANY COUPONS, OR ANODES THEN FLOOD EACH WITH A MINIMUM OF 5 GALLONS FRESH WATER. AFTER WATER ABSORPTION, CONTINUE BACKFILLING AS PER SPECIFICATIONS.

5. ROUTE ALL TEST LEADS AND COUPON WIRES IN APPROPRIATELY SIZED CONDUIT BETWEEN THE PIPE AND THE TEST STATION BASE. THE CONDUIT WILL ALSO AID THE INSTALLER AS THE PIPELINE IS PADDED AND BACKFILLED BY PROVIDING MEANS TO LEAN THE TEST STATION AGAINST THE TRENCH WALL.

6. TEST STATION BOXES SHALL BE MOUNTED ON A MINIMUM 5 FOOT LONG THREADED 1-1/4" RIGID STEEL GALVANIZED CONDUIT AND INSTALLED WITH A GALVANIZED STEEL CHANNEL FOR SUPPORT AND PROTECTION. THE GALVANIZED STEEL C-CHANNEL SHALL BE A MINIMUM 6 FEET LONG AND 7 INCHES WIDE BY 2 INCHES DEEP. THE CONDUIT SHALL BE ATTACHED TO THE CHANNEL WITH U-BOLTS SET A MINIMUM 1-1/2 FEET APART.

7. IF POSSIBLE, INSTALL TEST STATIONS OVER CENTERLINE OF PIPE. PLACE TEST STATIONS ON PROTECTED LOCATIONS (NEXT TO FENCES, APPURTENANCES, OUT OF ROADWAYS, ETC.) OR OTHER EASILY ACCESSIBLE AREAS.

8. PIPELINE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ELECTRICAL ISOLATION OF THE NEW PIPELINE FROM EXISTING PIPELINES, CONCRETE REBAR, ELECTRICAL GROUNDING, CASINGS, PIPE SUPPORTS, PIPE LATERALS, OR OTHER METALLIC STRUCTURES.

9. DURING BACKFILL, INSTALL CATHODIC PROTECTION WARNING TAPE 12"-18" ABOVE ANY CATHODIC PROTECTION WIRES OR DEVICES.

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    - YELLOW = REFERENCE ELECTRODE
    - ORANGE = CASING
    - GREEN = METALLIC COUPON
    - BLACK = CONTINUITY BOND/ANODE
NOTES:

1. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS FOR THIS PROJECT AND ACTUAL FIELD CONDITIONS WHICH MAY INTERFERE WITH THIS PROJECT.

2. NO BELOW GRADE SPLICING OF WIRES IS ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER. CONTRACTOR SHALL ENSURE ALL WIRES ARE OF SUFFICIENT LENGTH FOR EACH INTENDED APPLICATION.

3. INSTALL COUPONS 6 INCHES FROM EDGE OF PIPE AND PLACE BELOW THE SPRINGLINE OF THE PIPE. COUPONS SHALL CONSIST OF THE SAME MATERIAL AS THE PIPE AT THE LOCATION OF INSTALLATION.

4. BACKFILL WITH NATIVE SOIL. A MINIMUM OF 12 INCHES AROUND ANY COUPONS, OR ANODES THEN FLOOD EACH WITH A MINIMUM OF 5 GALLONS FRESH WATER. AFTER WATER ABSORPTION, CONTINUE BACKFILLING AS PER SPECIFICATIONS.

5. ROUTE ALL TEST LEADS AND COUPON WIRES IN APPROPRIATELY SIZED CONDUIT BETWEEN THE PIPE AND THE TEST STATION BASE. THE CONDUIT WILL ALSO AID THE INSTALLER AS THE PIPELINE IS PADDED AND BACKFILLED BY PROVIDING MEANS TO LEAN THE TEST STATION AGAINST THE TRENCH WALL.

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7. IF POSSIBLE, INSTALL TEST STATIONS OVER CENTERLINE OF PIPE. PLACE TEST STATIONS ON PROTECTED LOCATIONS (NEXT TO FENCES, APPURTENANCES, OUT OF ROADWAYS, ETC.) OR OTHER EASILY ACCESSIBLE AREAS.

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- YELLOW = REFERENCE ELECTRODE
- GREEN = METALLIC COUPON
HANDY-CAP APPLICATION PROCEDURES:
1. Clean all mud, dirt, grease, oil, and other containments from the metal surface and any part of the mill applied coating which is to be covered.
2. Apply a coat of Royston 747 primer (if required) and allow to dry to a non-glossy appearance, which will take approximately 5 minutes depending on humidity and temperature.
3. Remove the release paper from the bottom of the Royston Handy Cap. Bend the plastic sheet inward at the serrations when applying to a small diameter pipe. Position and place the Handy Cap on the welded area with the tunnel over the lead wire.
4. Push the dome of the Cap firmly in the weld area. Now lift the wire away from the pipe and squeeze the black rubber compound completely around and underneath the wire. Then push the lead wire back down on the pipe and press the elastomeric compound into firm contact with the pipe over the entire area.
5. No further protection is necessary if the Royston Handy Cap covers the entire exposed metal area. Uncovered areas should be protected by applying tape or mastic such as Trenton Pipeline Tape CP or Royston Roskote mastic.
6. When coating or wrapping the Royston Handy Cap, remove the narrow strips of plastic release film on the top of the Cap. This will assure maximum protection by effecting a positive waterproof seal.

HANDY-CAP INSTALLATION

METALLIC COUPON INSTALLATION

THERMITE WELDING INSTRUCTIONS:
1. Remove approximately 4" diameter circle of pipeline coating at structure connection location.
2. Clean area approximately 2" diameter to bright metal.
3. Remove 2" of insulation from end of wire.
4. Weld conductor to pipe. Use appropriate graphite mold and cartridge charge size. Sleeves are required for all wires.
5. Test the thermite weld connection by striking the common several blows on the side using a one pound hammer. Top of weld may be hammered flat if required.
6. Apply Handy-Cap. See detail 218-4

CARRIER PIPE
HANDY-CAP
LEAD WIRE
STRUCTURE COATING
INSIDE PIPE WALL

METALLIC COUPON
THERMITE WELD
SEE DETAIL 218-4

PIPEDLINE
WRAP LEADS AROUND PIPE FOR STRAIN RELIEF
WRAP TEST LEADS AROUND PIPE FOR STRAIN RELIEF
TOP OF PIPE
CARRIER PIPE
HANDY-CAP
THERMITE WELD
PIPELINE
TEST STATION
WRAP LEADS AROUND PIPE FOR STRAIN RELIEF
CONTINUITY BONDING NOTES:
1. TYPICAL FOR NON-WELDED PIPING.
2. CLEAN PIPE PRIOR TO WELDING.
3. ENSURE ALL BLOW-OFF AND HYDRANT PIPING ARE BONDED AND ELECTRICALLY CONTINUOUS WITH ADJACENT WATER MAIN.
4. ALL FOLLOWER RINGS SHALL HAVE A SINGLE #8 AWG JOINT BOND WIRE ATTACHED WHERE POSSIBLE.
5. HMWPE INSULATED WIRE STRANDED COPPER BOND WIRES SHALL BE SIZED ACCORDING TO THE FOLLOWING TABLE UNLESS OTHERWISE NOTED.

<table>
<thead>
<tr>
<th>NOMINAL PIPE Ø</th>
<th>WIRE SIZE</th>
<th>NUMBER OF WIRES</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot; OR LESS</td>
<td>#8</td>
<td>2</td>
</tr>
<tr>
<td>13&quot; - 36&quot;</td>
<td>#4</td>
<td>2</td>
</tr>
<tr>
<td>&gt; 36&quot;</td>
<td>#2</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTE:
DO NOT INSTALL CONTINUITY BONDS OVER INSULATING COUPLINGS, ISOLATING FLANGES, NON-METALLIC PIPING, AND ISOLATING FITTINGS.
NOTE:
THE INSULATING WASHER AND INSULATING SLEEVE ON THE EXISTING PIPE SIDE OF THE INSTALLATION MUST BE A SOLID PIECE.

FLANGE ISOLATION KIT
(DOUBLE WASHER SET FOR ABOVE GRADE OR VAULTED APPLICATIONS)

FLANGE ISOLATION KIT
(SINGLE WASHER SET FOR BURIED APPLICATIONS)
CONTINUITY BONDING NOTES:

1. TYPICAL FOR NON-WELDED PIPING.
2. CLEAN PIPE PRIOR TO WELDING.
3. HMWPE INSULATED WIRE STRANDED COPPER BOND WIRES SHALL BE SIZED ACCORDING TO THE FOLLOWING TABLE UNLESS OTHERWISE NOTED.
4. ALL FOLLOWER RINGS SHALL HAVE A SINGLE #8 AWG JOINT BOND WIRE ATTACHED WHERE POSSIBLE.

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<td>#8</td>
<td>2</td>
</tr>
<tr>
<td>13&quot;-36&quot;</td>
<td>#4</td>
<td>2</td>
</tr>
<tr>
<td>&gt;36&quot;</td>
<td>#2</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTE:

- IF COUPLING WILL BE RESTRAINED, INSULATING BOLT SLEEVES AND WASHERS MUST BE INSTALLED ON EACH RESTRAINING BOLT ON THE EXISTING PIPE SIDE OF THE CONNECTION.
- CONSULT ENGINEER IF WAX-TAPE IS TO BE APPLIED TO COUPLING HARDWARE.
CONC. CAP

STD. 3" GALVANIZED PIPE (PAINTED FIRE HYDRANT YELLOW.)

CONCRETE

CONCRETE FILL

GROUND LEVEL

1 BAG INDUSTRIAL CONCRETE MIX

NOTE:
VALVE BOXES LOCATED OUTSIDE OF PAVEMENT SHALL BE PROVIDED AN 18" SQUARE BY 4" DEEP CONCRETE COLLAR.

IDENTIFICATION MARKS ON POSTS SHALL BE 3" DIA. CIRCLES BROKEN IN VERTICAL CENTER (△) POINTING TO APPURtenANCE, WITH 1" STENCILS INSIDE CIRCLE INDICATING TYPE OF APPURtenANCE (MH, 12" GATE VALVE, ETC.) AND THE DISTANCE IN FEET AND INCHES FROM POST.

MARKER POSTS SHALL BE LOCATED NO FURTHER THAN 3 FEET FROM THE APPURtenANCE.
**BEARING THRUST BLOCKS**

**MINIMUM BEARING SURFACE AREA (A_b)**

**(IN SQUARE FEET)**

**(BASED ON A MINIMUM SOIL BEARING CAPACITY OF 2000PSF)**

<table>
<thead>
<tr>
<th>SIZE OF PIPE DIA</th>
<th>BENDS</th>
<th>TEE OR DEAD END</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11 1/4°</td>
<td>22 1/2°</td>
</tr>
<tr>
<td>6&quot;</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>8&quot;</td>
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<tr>
<td>12&quot;</td>
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<td>7.0</td>
</tr>
<tr>
<td>24&quot;</td>
<td>8.0</td>
<td>15.5</td>
</tr>
</tbody>
</table>

**LENGTH OF TIED PIPE (ft)**

<table>
<thead>
<tr>
<th>SIZE OF PIPE DIA</th>
<th>HORIZONTAL BENDS</th>
<th>TEE OR DEAD END</th>
</tr>
</thead>
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<td>11 1/4°</td>
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<tr>
<td>6&quot;</td>
<td>4.0</td>
<td>8.0</td>
</tr>
<tr>
<td>8&quot;</td>
<td>5.0</td>
<td>11.0</td>
</tr>
<tr>
<td>12&quot;</td>
<td>8.0</td>
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<tr>
<td>16&quot;</td>
<td>10.0</td>
<td>20.0</td>
</tr>
<tr>
<td>24&quot;</td>
<td>15.0</td>
<td>30.0</td>
</tr>
</tbody>
</table>

**NOTES:**

1. ALL METAL SHALL BE WRAPPED IN POLYETHYLENE IN ACCORDANCE WITH THESE SPECIFICATIONS.
2. LARGE DIAMETER LINES WILL REQUIRE ENGINEERING DESIGN AND CALCULATIONS SUBMITTED AND APPROVED. LARGER THAN 24" BY DESIGN.
3. IF THE BRANCH OF A TEE OR WET-TAP IS LESS THAN ONE HALF THE DIAMETER OF THE MAIN, THRUST BLOCK IS NOT REQUIRED.
NOTES:
1. VERTICAL 90° BENDS ARE NOT ALLOWED.
2. REBAR SHALL BE PREFABRICATED BENT REBAR AND EPOXY COATED. FIELD REPAIR OF REBAR COATING IS ALLOWED.
3. THERE SHALL BE A MINIMUM CLEARANCE OF 24" BETWEEN WATERLINE AND ANY NEW CONSTRUCTION.
4. ALL JOINTS SHALL BE RESTRAINED PER DETAIL 220-1.
5. ANCHORS SHALL BE SLEEVED TO PREVENT CORROSION OF THE PIPE AND/OR BAR. THIS COULD INCLUDE, BUT NOT LIMITED TO, REINFORCED GARDEN HOSE, CURVED FIBERGLASS BOARD, ETC.
6. CONCRETE STRENGTH TO BE AT LEAST 3,000 PSI AT 28 DAYS, AND YIELD STRENGTH OF ANCHOR ROD (REBAR) TO BE 60,000 PSI.

GRAVITY BLOCKS
MINIMUM VOLUME (IN CUBIC YARDS)

<table>
<thead>
<tr>
<th>SIZE OF PIPE</th>
<th>BENDS</th>
<th>REBAR SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11 1/4&quot;</td>
<td>22 1/2&quot;</td>
</tr>
<tr>
<td>3&quot;</td>
<td>0.10</td>
<td>0.20</td>
</tr>
<tr>
<td>4&quot;</td>
<td>0.18</td>
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<td>6&quot;</td>
<td>0.39</td>
<td>0.76</td>
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<td>1.30</td>
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<td>12&quot;</td>
<td>1.37</td>
<td>2.74</td>
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<tr>
<td>16&quot;</td>
<td>1.80</td>
<td>3.56</td>
</tr>
<tr>
<td>24&quot;</td>
<td>3.93</td>
<td>7.81</td>
</tr>
</tbody>
</table>

LARGER THAN 24" BY SPECIAL DESIGN

AURORA WATER

01/17/2024
DATE

WATER LINE
LOWERING DETAIL

STANDARD

ALL JOINTS TO BE FULLY RESTRAINED WITH MEGALUG OR APPROVED BELL RESTRAINT PER THRUST RESTRAINT DETAIL #220

SLEEVED ANCHOR OR FULL BODY CLAMP

MIN. 3" COVER

GRAVITY BLOCKS SHALL BE CONICAL IN SHAPE

DETAILED B

VESSEL B CLOSING WITH DETAIL 'B'

STEEL CLAMP OR MEGALUG

GRAVITY BLOCK IN ACCORDANCE WITH DETAIL 'B'

THRUST BLOCK IN ACCORDANCE WITH STANDARD DETAIL 220-1

GRAVITY BLOCK IN ACCORDANCE WITH DETAIL 'B'

WATERLINE LOWERING DETAIL

GRAVITY BLOCKS

MINIMUM VOLUME (IN CUBIC YARDS)

<table>
<thead>
<tr>
<th>SIZE OF PIPE</th>
<th>BENDS</th>
<th>REBAR SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11 1/4&quot;</td>
<td>22 1/2&quot;</td>
</tr>
<tr>
<td>3&quot;</td>
<td>0.10</td>
<td>0.20</td>
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<tr>
<td>4&quot;</td>
<td>0.18</td>
<td>0.36</td>
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<tr>
<td>6&quot;</td>
<td>0.39</td>
<td>0.76</td>
</tr>
<tr>
<td>8&quot;</td>
<td>0.65</td>
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<td>16&quot;</td>
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<td>3.56</td>
</tr>
<tr>
<td>24&quot;</td>
<td>3.93</td>
<td>7.81</td>
</tr>
</tbody>
</table>

LARGER THAN 24" BY SPECIAL DESIGN
NOTE:
1. ALL PIPE SHALL BE WRAPPED IN POLYETHYLENE AND RESTRAINED
2. PVC PIPE IS ALLOWED WITH APPROVAL BASED ON SOIL RESISTIVITY TESTING.
RESTRAINED JOINT DUCTILE IRON

SECTION A-A

NOTE: SUCH DEVICES SHOULD BE TORQUED TO MANUFACTURERS RECOMMENDATIONS

D.I. PIPE

ALL PIPING SHALL BE RESTRAINED

CONCRETE KICKBLOCK

NOTE:
1. PVC PIPE IS ALLOWED WITH APPROVAL BASED ON SOIL RESISTIVITY TESTING.

FLANGE SPIGOT

THRUST BLOCK & TIE BACK DETAIL (FIRE SUPPRESSION SYSTEMS ONLY)
TYPICAL REDUCED PRESSURE BACKFLOW PREVENTION DEVICE

DESCRIPTION:

The reduced pressure backflow preventer operates on the principle that water will not flow from a zone of lower pressure to one of higher pressure. It provides maximum protection against backflow caused by both backpressure and backsiphonage.

The device consists of two spring-loaded check valves (A and B) and a spring-loaded diaphragm actuated differential pressure relief valve (C) located in the zone between the check valves.

Operation:

The first check valve (A) causes all water passing through it to be automatically reduced in pressure.

The second check valve (B) is lightly spring-loaded and forms the "double check" feature of the device. It acts to prevent unnecessary drainage of the domestic system in case a backflow condition occurs.

The relief valve (C) is spring-loaded to remain open, and diaphragm actuated to close by means of differential pressure.

See detail 224 for floor drain capacities.

See section 19.00 for additional requirements.
FLOOR DRAIN CAPACITIES ARE ESTABLISHED BY THE FLOOR DRAIN MANUFACTURERS.

TYPICAL FLOW RATES AS SIZED BY FLOOR DRAIN MANUFACTURES

2"  55 GPM
3" 112 GPM
4" 170 GPM
5" 350 GPM
6" 450 GPM
8" 760 GPM

NOTE:
FLOOR DRAIN Capacities ARE ESTABLished BY THE FLOOR DRAIN MANUFACTURERS.
NOTE:
OUTSIDE COVERS MUST HAVE DOORS FOR ACCESS TO TEST COCKS FOR TESTING AND MAINTENANCE

SEE SECTION 20.00 FOR COATING REQUIREMENTS.

CLIMATE CONTROLLED "HOT BOX"

FLOOR DRAIN - LOCATED NEAR RELIEF VALVE OPENING (SEE SIZING CHART DETAIL #224)

TYPICAL INSTALLATION OF REDUCED PRESSURE PRINCIPLE DEVICE (OUTSIDE)

FLOOR DRAIN - LOCATED NEAR RELIEF VALVE OPENING TIED INTO SANITARY SEWER SERVICE

TYPICAL INSTALLATION OF REDUCED PRESSURE PRINCIPLE DEVICE (IN BUILDING)
TYPICAL DOUBLE CHECK VALVE ASSEMBLY
FIRE LINES ONLY
TYPICAL PRESSURE TYPE VACUUM BREAKER

1. PRESSURE VACUUM BREAKERS SHOULD BE INSTALLED A MINIMUM OF 12" ABOVE THE HIGHEST OUTLET THEY ARE PROTECTING, BUT NO MORE THAN 5 FEET ABOVE GROUND.

2. PRESSURE VACUUM BREAKERS MAY BE INSTALLED UNDER CONTINUOUS LINE PRESSURE FOR LIMITED PERIODS OF TIME.

3. THE PRESSURE VACUUM BREAKER CANNOT BE INSTALLED WHERE THERE CAN BE BACKPRESSURE ANYWHERE DOWNSTREAM OF DEVICE.
CONCRETE SEE ROADWAY SPECIFICATIONS FOR REQUIREMENTS

NOTE:
The location relative to the canal, height and length of the cut-off wall will be shown on the civil drawings. Reinforcement bar is not allowed to touch pipe.

#4 @ 12" HORIZONTAL
#4 @ 12" VERTICAL
LINK-SEAL MASTIC OR APPROVED EQUAL

10" MIN
3" CL MIN. (TYP)

3' MIN
3' MIN

SIDE VIEW

UNDISTURBED SOIL

TOP VIEW

NOTE: REINFORCEMENT NOT SHOWN.

TYPICAL CUT-OFF WALL FOR DITCH OR CANAL CROSSING

AURORA WATER

01/17/2024

DATE
MEGALUG TIE RODS MAY BE THREADED TO MEGALUG OR THROUGH BLOCK.

3 ~ #1

#4 @ 12" O.C.

TIE ROD DIAMETERS

<table>
<thead>
<tr>
<th>D</th>
<th>ROD</th>
</tr>
</thead>
<tbody>
<tr>
<td>4''</td>
<td>2 ~ 3/4''</td>
</tr>
<tr>
<td>6''</td>
<td>2 ~ 3/4''</td>
</tr>
<tr>
<td>8''</td>
<td>2 ~ 3/4''</td>
</tr>
<tr>
<td>12''</td>
<td>2 ~ 1'' OR 4 ~ 3/4''</td>
</tr>
<tr>
<td>16''</td>
<td>4 ~ 7/8''</td>
</tr>
<tr>
<td>24''</td>
<td>4 ~ 7/8''</td>
</tr>
</tbody>
</table>

NOTES:
1. 2" B.O. FOR < 12"Ø
2. 6" B.O. FOR > 12"Ø

NO PIPE JOINTS ARE ALLOWED BETWEEN ANCHOR & CAP

ASTM A-36 THREADED STEEL RODS

MEGALUG TIE RODS MAY BE THREADED TO MEGALUG OR THROUGH BLOCK.

<table>
<thead>
<tr>
<th>D</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>4''</td>
<td>20''</td>
<td>12''</td>
<td>28''</td>
<td>44''</td>
</tr>
<tr>
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</tr>
<tr>
<td>24''</td>
<td>40''</td>
<td>73''</td>
<td>64''</td>
<td>186''</td>
</tr>
</tbody>
</table>

INLINE ANCHOR

1 of 1

AURORA WATER

01/17/2024

DATE

229-1
NOTES:

1. SAMPLING STATION SHALL BE 4.5' BURY, WITH A 3/4" FIP INLET, AND 7/16" UNTHEADED BLOW OFF AND SAMPLING BIBB.
2. STATION SHALL BE ENCLOSED IN A LOCKABLE, NON-REMOVABLE 6" SQUARE ALUMINUM BOX WITH HINGED OPENINGS.
3. WHEN OPEN, THE STATION SHALL REQUIRE NO KEY FOR OPERATION, AND ALL WATER FLOW SHALL PASS THRU AN ALL STAINLESS STEEL WATERWAY.
4. ALL WORKING PARTS SHALL BE OF STAINLESS STEEL AND SERVICEABLE FROM ABOVE GROUND WITH NO DIGGING OR REPLACEMENT NEEDED.
5. A STAINLESS STEEL PET COCK WILL BE LOCATED BELOW THE SAMPLING BIBB TO ALLOW PUMPING OF ANY WATER REMAINING INSIDE THE STATION TO INSURE NON-FREEZING.
6. THE STATION SHALL BE MODEL #66 AS MANUFACTURED BY THE KUPFERLE FOUNDRY, OR APPROVED EQUAL.
7. SAMPLING STATION SHALL BE LOCATED 5 FEET FROM THE ADJACENT HYDRANT AND EQUIDISTANT FROM THE CURB AS SPECIFIED ON APPROVED PROJECT DRAWINGS.
NOTES:
1. Bells shall not touch the sides or the bottom of the bell hole.
2. The barrel section shall be supported throughout its length.
3. Service taps shall be in line tee or machine tapped. Hand taps shall not be allowed.
4. Service lines shall be located 5' downhill from centerline of lot.
5. Minimum service lines grades
   4" service laterals @ 2%
   6" service laterals @ 0.62%
6. Joints shall be water tight.
7. Cleanouts required for all new services and service repairs, to be located outside of public roadway.

RESIDENTIAL SEWER SERVICE

SANITARY SEWER SERVICE DETAIL

AURORA WATER

01/17/2024

1 of 1

300-1
NOTES:
1. CLEAN-OUT SHALL BE CONSTRUCTED SO THAT THE SURFACE LOAD WILL NOT BE TRANSFERRED TO THE MAIN.
2. CONCRETE PAD SHALL BE INSTALLED SO THAT THE WATER WILL RUN AWAY FROM THE INSTALLATION.
3. WHENEVER POSSIBLE, LOCATE CLEAN-OUTS WITHIN LANDSCAPED AREAS.
4. CLEANOUTS REQUIRED FOR ALL NEW SERVICES AND SERVICE REPAIRS, TO BE LOCATED OUTSIDE PUBLIC ROADWAY.
NOTES:
1. PIPE SHALL BE NON-PREFORATED WITHIN 5 FEET OF SANITARY SEWER MANHOLES.
2. PIPE SHALL BE WRAPPED WITH MIRAFI FABRIC SO THAT SOIL CANNOT INFILTRATE THE UNDERDRAIN SYSTEM
3. ALL NON-PERFORATED PVC PIPE SHALL CONFORM TO ASTM 3034-SDR-35. PERFORATED PVC SHALL HAVE PERFORATIONS IN THE LOWER QUADRANT AND BE INSTALLED IN FULL COMPLIANCE WITH ASTM D2321.
4. HDPE PIPE IS AN ACCEPTABLE SUBSTITUTION. ALL NON-PERFORATED PIPE SHALL CONFORM TO AASHTO M252 TYPE "S". ALL PERFORATED HDPE PIPE SHALL Conform TO AASHTO M252 TYPE "SP". COLOR SHALL BE BLACK AND RESISTANT TO ULTRAVIOLET RAYS.
5. CLEANOUT VALVE BOXES SHALL BE RATED FOR HS-20 TRAFFIC LOADING.
6. CITY OF AURORA WILL NOT BE RESPONSIBLE FOR MAINTENANCE NOR OWNERSHIP OF UNDERDRAIN SYSTEMS.
1. SECONDARY TANK TO BE 1/3 OF TOTAL VOLUME.
2. BAFFLE WALL INSERTS TO BE SEALED IN PLACE.
3. OUTLET PIPE INVERT TO BE 2" LOWER THAN INLET.
4. SUPPORT BRACKETS AND CLEAN-OUT CAPS MUST NOT FALL BELOW GRADE.
5. MANHOLE RING & COVER SHALL BE NEENAH R-1706, OR APPROVED EQUAL.
6. ALL JOINTS IN PRECAST JOINT SECTIONS TO BE SEALED RAMNEK.
7. ALL PIPING TO BE DUCTILE IRON OR SCHEDULE 40 PVC WITH A MINIMUM DIAMETER OF 4" UNLESS OTHERWISE NOTED.
8. NO BOLT DOWN COVERS ALLOWED WITHOUT WRITTEN AUTHORIZATION FROM AURORA WATER ENGINEERING.
9. VENT PIPES SHALL BE CAST IRON OR SCHEDULE 40 PVC AND CAN JOIN TOGETHER AT 1" ABOVE GRADE.
10. INLET AND OUTLET RISER PIPES SHALL BE ANCHORED TO WALL AT 4" BELOW PIPE OPENING.
11. SEE APPENDIX C FOR ADDITIONAL WASTEWATER CONTROL REGULATIONS.
12. CLASS B BEDDING REQUIRED FOR PIPES.

STANDARD ACCEPTED TANK SIZES (GALLONS)
800
1000
1500
2000
2500
3000
LARGER SIZES BY SPECIAL DESIGN
APPROVED BY AURORA WATER ENGINEERING

Recommended Grease Interceptor

Aurora Water
1. ALL PIPE AND FITTINGS ARE TO BE SCHEDULE 40 PVC OR DUCTILE IRON.
   MINIMUM 4" DIAMETER.
2. SMALL COMPARTMENT HAS 1/3 TOTAL CAPACITY.
3. TANK AND LID TO BE TRAFFIC RATED (Hs-20 LOADING).
4. MANHOLE RING & COVER SHALL BE NEENAH R-1706, OR APPROVED EQUAL.
5. NO BOLT DOWN COVERS ALLOWED WITHOUT WRITTEN AUTHORIZATION FROM AURORA WATER ENGINEERING. SEE APPENDIX C FOR ADDITIONAL WASTEWATER CONTROL REGULATIONS.
6. ALL JOINTS TO BE SEALED WITH RAMNEK.
1. INTERVAL "X" PROVIDES A KEY SO THAT COVER WILL FIT ONLY WHEN SAMPLING PORT IS IN CORRECT POSITION. SUITABLE ALTERNATIVES WILL BE CONSIDERED.
2. ALL OTHER INTERVALS ARE "A".
3. MOST MANUFACTURERS WILL PLACE THE RISER TO SUIT THE NEEDS OF THE CUSTOMER. THE RISER MUST BE IN ONE LOCATION OR THE OTHER - NOT BOTH.
4. ALL UNITS MUST BE INSTALLED SO THEY ARE EASILY ACCESSIBLE FOR MAINTENANCE AND TESTING.
5. WHERE A UNIT IS TO BE LOCATED UNDERGROUND, A CONCRETE VAULT WITH HATCH ACCESS MUST BE PROVIDED AND SAMPLING PORT MUST BE EXTENDED TO A POINT NO LESS THAN 6" AND NO MORE THAN 12" BELOW THE LEVEL OF THE FINISHED Floor OR GROUND.
6. MATERIALS - SPECIFIC MATERIALS MUST BE SELECTED FOR SPECIFIC APPLICATIONS. HIGH DENSITY POLYETHYLENE AND POLYPROPYLENE MATERIALS ARE RECOMMENDED IN MOST CASES. CONCRETE UNITS LINED WITH "ACID RESISTANT" MATERIAL WILL NOT BE APPROVED.
7. ACID NEUTRALIZATION TANKS AND INSTALLATIONS MUST BE INSPECTED AND APPROVED BY AURORA WATER ENGINEERING.
8. SEE APPENDIX C FOR ADDITIONAL WASTEWATER CONTROL REGULATIONS.
INLET RING & COVER TO CONFORM TO DETAIL 102-1.

NOTE: CHANNEL AND ALL OTHER EXPOSED STEEL SHALL BE GALVANIZED (AASHTO M111). CHANNEL SHALL BE EXTENDED 5" INTO THE WALL ON EACH SIDE.

BENDING DIAGRAM

1. ALL STEEL SHALL BE CAST IN PLACE. PRECAST INLETS ALLOWED WITH PREAUTHORIZATION ONLY.
2. TIGHTEN LOCK NUT AFTER TOP SLAB CURES.
3. NO STEPS REQUIRED IN INLETS LESS THAN 36" DEEP, TOP OF DECK TO INVERT.
4. SEE CDOT M STANDARDS FOR ALL INFORMATION NOT SHOWN ON THIS DRAWING.
5. EDGE OF ACCESS OPENING SHALL BE LOCATED NO MORE THAN 18" FROM THE INSIDE FACE OF THE OUTFALL PIPE.
6. FOR ON GRADE INLETS, THE DECK TOP SHALL MATCH THE STREET GRADE.
7. INLETS OVER 10 FEET IN LENGTH REQUIRE TWO ACCESS OPENINGS.
SECTION A-A
REGULAR INLET
NOT TO SCALE

TOP SHALL BE MONOLITHIC POUR TO BACK OF WALK

BACK OF WALK

FOR 5' WALK EXTEND EVERY THIRD #5 BAR FROM INLET TOP INTO WALK TO WITHIN 3" FROM BACK OF WALK.

8' & 10' SIDEWALKS SHALL BE POURED SEPARATE FROM INLET DECKS AND BE SEPARATED BY 1/2" EXPANSION JOINT.

NOTE:
ALL CONSTRUCTION JOINTS SHALL HAVE A 2"X4" KEYWAY.

SEE BENDING DIAGRAM "A"(TYP.)

CONSTRUCTION JOINT OPTIONAL

SEE BENDING DIAGRAM "B"

2 - #6 SEE BENDING DIAGRAM "B"

NOTE:
ALL CONSTRUCTION JOINTS SHALL HAVE A 2"X4" KEYWAY.

AURORA WATER
CURB OPENING INLET
TYPE 'R' MODIFIED

2 of 7
400-2

01/17/2024
01/17/2024
DATE
DATE
STANDARD

SECTION A-A

VARIABLE
3'-0" CONSTANT
3'-2" CONSTANT

OPTIONAL

CONSTRUCTION JOINT

#4@9"O.C.
#4@6"O.C.

FIELD BEND

SEE BENDING DIAGRAM

SECTION C-C & D-D

(DOTTED BARS ARE IN SECTION D-D)

FIELD BEND

SEE BENDING DIAGRAM

CURB OPENING INLET
TYPE 'R' MODIFIED

3 of 7

AURORA WATER
01/17/2024
DATE

AURORA WATER

400-3
NOTES:
1. INLET RING AND COVER TO CONFORM TO DETAIL 400-1
2. STEPS SHALL BE AS SPECIFIED IN DETAILS 105 AND 106 OF CITY OF AURORA PUBLIC UTILITY IMPROVEMENTS RULES AND REGULATIONS REGARDING STANDARDS AND SPECIFICATIONS: WATER, SANITARY, STORM SEWER.
3. ALL #4 REBAR SHALL BE GRADE 40.
4. ALL #5 AND LARGER REBAR SHALL BE GRADE 60.
TYPICAL END VIEW
REFER TO DETAIL 400-4 FOR
REINFORCING INFORMATION
AND NOTES

SLOPE
1" PER FT.

#4@12" O.C.

#5@5½" O.C.

SEE BENDING DIAG., S12.2

8" WING FLOOR

8" TYPICAL WALL

#4@11" O.C.

#4@9" O.C.

2" ALL AROUND

#4@6" O.C.

#4@6" O.C.

3" CLR.

#4@8" O.C.

2" CLR.

3" CLR.

11" O.C.

#4@11" O.C.

#4@9" O.C.

16" MAX.

16" MAX.

2 - #6

#4 REBAR @ 11" O.C.

24" EMBEDMENT

4'-0"

1'-0"

2:1

7½" +

TYPICAL WALL

#4@8" O.C.

2" CLR.

3" CLR.

11" O.C.

24" EMBEDMENT

#4 REBAR @ 11" O.C.

#4@9" O.C.

2" CLR.

3" CLR.

#4@11" O.C.

#4@8" O.C.

1'-0"

2 - #6

1" O.C.

1½ R.

1½ R.

1½ R.

2½ R.
NOTE: REFER TO S 400-1 THRU 400-7 FOR COMPLETE CONSTRUCTION DETAILS.
NOTES:

1. PROVIDE A 1 1/2" DEEP CONTROL JOINT THROUGH THE INLET DECK AT EACH INTERMEDIATE WALL PER S7.3 OF THE "ROADWAY DESIGN & CONSTRUCTION SPECIFICATIONS". THE JOINT SHALL EXTEND FROM THE BACK OF THE DECK TO THE FACE OF THE GUTTER PAN.

2. INLET DECK REINFORCEMENT STEEL SHALL BE CONTINUOUS WITH SPLICE LENGTHS OF NO LESS THAN 18". INTERMEDIATE WALL STEEL SHALL TIE INTO THE OUTSIDE WALLS AND FLOOR PER STANDARD DETAILS.

3. ALL INTERMEDIATE WALL CONSTRUCTION SHALL CONFORM TO STANDARD CONSTRUCTION SPECIFICATION AS SHOWN IN STANDARD DETAILS #400, 1 THRU 7 UNLESS OTHERWISE NOTED.
NOTE:
1. END OF PIPE SHALL NOT EXTEND PAST INSIDE WALL OF STORM SEWER PIPE.
2. THIS CONNECTION IS PERMISSIBLE WHEN THE INSIDE DIAMETER OF THE CONNECTING PIPE IS LESS THAN ONE-HALF THE INSIDE DIAMETER OF THE MAIN. OTHERWISE, A MANHOLE IS REQUIRED PER DETAIL 102 AT THE POINT OF CONNECTION.
3. THE AURORA WATER DEPT. RESERVES THE RIGHT TO REQUIRE A MANHOLE AT THE POINT OF CONNECTION WHEN DEEMED NECESSARY.
4. PIPE PENETRATION GASKETS ARE ALLOWED, TO ENSURE A SILT-PROOF CONNECTION, AS APPROVED BY AURORA WATER.
1. AT NO TIME SHALL THE DISTANCE BETWEEN BOLLARDS BE GREATER THAN 5'.
2. ALL BOLLARDS, EXCEPT FOR REMOVABLE POST, SHALL BE FILLED WITH CONCRETE.
3. ALL BOLLARDS SHALL BE GALVANIZED STEEL.
4. BOLLARDS ARE TO BE SET 5' TO 7' BACK OF SIDEWALK.
5. CHANNEL WIDTH = TRACT WIDTH (UNLESS OTHERWISE APPROVED.)
NOTES:
1. LONGITUDINAL SLOPE IS 0.4% UP TO 1%.
2. REFER TO THE 'AURORA WATER STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA' FOR ADDITIONAL DESIGN INFORMATION.
NOTES:
1. CONNECTION SHALL BE CORED INTO EXISTING INLET WALL AND NON SHRINK GROUT PLACED AROUND SDR-35.
2. IF INLET IS TO BE CAST IN PLACE, CONTRACTOR HAS THE OPTION TO PLACE SDR-35 BLOCKOUT WITHIN THE WALL PRIOR TO PLACING CONCRETE.
3. WATERSTOP GASKET SHALL BE USED AT THE CONNECTION.
4. FOR EDGE DRAINS RUNNING PARALLEL TO STORM, A MINIMUM OF 6" IS REQUIRED BETWEEN BOTTOM OF EDGE DRAIN PIPE AND TOP OF STORM PIPE.
5. SEE COA ROADWAY SPECIFICATIONS S1.19 FOR EDGE DRAIN CONSTRUCTION.
6. LOCATION OF STEPS TO BE COORDINATED.

TYPICAL END VIEW
REFER TO DETAIL 400-5 FOR REINFORCING INFORMATION AND NOTES
NOTES:
1. COLLAR JOINT SHALL BE USED WHEN DIRECTED BY THE ENGINEER OR AS NOTED ON THE PLANS.
2. "D" SHALL REFER TO THE INTERNAL DIAMETER OF PIPE.
3. "OD" SHALL REFER TO THE OUTSIDE DIAMETER OF PIPE.