W-23A  Water Main and Service Line Locations
W-23B  Water Meter Locations Three Quarter -2 Inch
W-23C  1 Inch Meter Settings Short and Long Sides DOT and County Roads
W-24   Service Line Conduit Subdivisions
W-25   2 Inch Meter Setting
W-26   Pavement Cut Repairs Type A B C
W-27   Driveway Cut Repairs
W-28   Sidewalk Curb and Gutter Repairs
W-29   Stream Crossing
W-30   Irrigation Service Line Detail
W-31   Commercial / Industrial RPZ Backflow Preventer
W-32   Concrete Encasement Detail
W-33   Fire Line Valve Vault
W-34   Master Meter with Bypass Detail for 6 and 8 Inch
W-35   Double Detector Check Valve Configuration 6 Inch
W-36   Double Detector Check Valve Configuration 8 Inch
W-37   Water Service Meter Box
W-38   Valve Marker Detail
W-39   Marker Balls
VALVES TO BE PLACED AT CONNECTION TO WATER SOURCE

VALVES TO BE PLACED ON ALL SIDES OF TEE AT EACH BRANCH

VALVES TO BE PLACED A MAXIMUM OF 2,000 FEET APART

VALVE TO BE PLACED AT EACH BRANCH OFF MAIN

VALVES TO BE PLACED ON THE MAIN AT EACH BRANCH AWAY FROM THE WATER SOURCE

VALVE TO BE PLACED AT CONNECTION TO WATER SOURCE

WATER SOURCE

LOOPED WATER SOURCE

VALVE TO BE PLACED AT CONNECTION TO WATER SOURCE

VALVE TO BE PLACED AT EACH BRANCH OFF MAIN

ONE - WAY FEED MAIN

VALVE TO BE PLACED AT CONNECTION TO WATER SOURCE

SINGLE WATER SOURCE

CITY OF CUMMING
DEPARTMENT OF UTILITIES

TYPICAL VALVE LOCATION

LATEST REVISION
07/14/2017

DETAIL NUMBER:
W-1

SCALE: NOT TO SCALE
SHORT SIDE SERVICE
METER BOX TO BE LOCATED WITHIN PROPERTY LINES AT CURB
P/L

METER BOX TO BE LOCATED WITHIN PROPERTY LINES AT CURB
P/L

LONG SIDE SERVICE
ENCASED IN 2" PVC CONDUIT

PLAN

R/W
C/L

R/W
C/L

P/L
WATER LINE CONSTRUCTION

NOTE: TAP MAY BE POSITIONED UP TO 20 DEGREES FROM HORIZONTAL IF APPROVED BY CITY WATER INSPECTOR

SAW-CUT "W" IN CURB PAINTED BLUE

WATER METER BOX W-37

3/4-INCH COPPER TUBING TYPE "K"

1-INCH X 3/4-INCH REDUCER

1-INCH TYPE "K" HARD COPPER TUBING SERVICE LINE

ENCASED IN 2" PVC CONDUIT (LONG SIDE SERVICE ONLY).

1-INCH DOUBLE STRAP BRASS SADDLE CORPORATION STOP

18" MAX DEPTH TO BALL VALVE

WATER MAIN

WATER METER BOX W-37

ENCASED IN 2" PVC CONDUIT (LONG SIDE SERVICE ONLY).
NOTES:

1. TRENCH WIDTH MINIMUMS PER DETAIL W-3B.
2. BACKFILL SHALL BE PLACED IN MAXIMUM 4-6 INCH LIFTS, TAMPERED OR COMPACTED IN ACCORDANCE WITH AWWA C600 (CURRENT EDITION).
3. NATIVE OR LOOSE SOILS ARE THOSE EXCAVATED FROM THE TRENCH, FREE OF LARGE ROCKS (GREATER THAN 2-INCHES), FOREIGN MATERIALS, AND FROZEN EARTH.
4. GRANULAR OR SELECT FILL MATERIAL SHALL BE COMPACTED TO 90% STANDARD PROCTOR PER AASHTO T-99.
5. TYPE "V" BEDDING REQUIRED AT ROADWAY CROSSINGS AND RESTRAINED JOINT LOCATIONS.
6. WHERE TRENCH IS EXPOSED ROCK, 6-9 INCHES MIN. CUSHION REQUIRED BETWEEN PIPE & ROCK.
7. TYPE I AND TYPE II LAYING CONDITIONS SHALL NOT BE ALLOWED FOR WATER MAINS.
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<th>PIPE SIZE</th>
<th>A SIDE CLEARANCE - INCH</th>
<th>B DITCH WIDTH - INCH</th>
<th>C SHORING WIDTH (ADDITIONAL - INCH)</th>
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COMPACTED GRAVEL SUB-BASE

HIGH BACK CURB

18" 6" FINISHED GROUND
SLOPE - 3/4" IN 5"
2" R 1" R
11 3/4"
24"

ROADWAY

COMPACTED GRAVEL SUB-BASE

ROLL BACK CURB

8 1/2" RAD

11 3/4"
10 1/2"
24"
8" R

ROADWAY

FINISHED GROUND

CITY OF CUMMING
DEPARTMENT OF UTILITIES
CURB AND GUTTER DETAILS

W-4

LATEST REVISION 07/14/2017
SCALE: NOT TO SCALE
CAST IRON COVER WITH "WATER" CAST ON TOP

BASE OF VALVE BOX SHALL NOT REST ON VALVE

COMPACTED #57 STONE BLOCK SUPPORTS

2'-0" SQUARE

PROVIDE CONCRETE COLLAR IN UNPAVED AREA

ADJUSTABLE-TYPE CAST IRON VALVE BOX

BUTTERFLY VALVES FOR LINES 12" OR LARGER

NOTE:
1. ALL GATE VALVES SHALL HAVE A VALVE BOX.
2. VALVE STEM REQUIRED ON INSTALLATIONS OVER 4' OF DEPTH, BROUGHT TO WITHIN 2' OF FINISHED GRADE.
3. VALVE EXTENSION TO HAVE SET SCREWS.

CITY OF CUMMING
DEPARTMENT OF UTILITIES

BUTTERFLY VALVE INSTALLATION DETAIL - 12" OR LARGER

SCALE: NOT TO SCALE

LATEST REVISION
07/14/2017

DETAIL NUMBER: W-5
CAST IRON COVER WITH "WATER" CAST ON TOP

2'-0" SQUARE

GATE VALVES FOR LINES 10" AND SMALLER
BASE OF VALVE BOX SHALL NOT REST ON VALVE BLOCK SUPPORTS

COMPACTED #57 STONE

PROVIDE CONCRETE COLLAR IN UNPAVED AREA

NOTES:
1. ALL GATE VALVES SHALL HAVE A VALVE BOX.
2. VALVE STEM REQUIRED ON INSTALLATIONS OVER 4' OF DEPTH, BROUGHT TO WITHIN 2' OF FINISHED GRADE.
3. VALVE EXTENSION TO HAVE SET SCREWS.
NOTES:

1. BEFORE ANY UTILITY IS INSTALLED, THE REQUIRED WIDTH OF THE ROADWAY SHALL BE ROUGH GRADED AND ALL CONCRETE CURBING SHALL BE SET AT FINAL GRADES.
2. IN GENERAL, THE WATER MAINS SHOULD BE INSTALLED FIRST. FOLLOWING WATER MAIN INSTALLATION, UTILITIES ARE TO BE INSTALLED IN THIS ORDER: 1) ELECTRIC POWER 2) GAS 3) TELEPHONE 4) CABLE T.V. ALL UTILITIES SHALL BE INSTALLED PRIOR TO PAVING.
3. ON THOSE SUBDIVISION STREETS WHERE NO CURB IS CALLED FOR IN THE PLANS, MEASUREMENTS SHALL BE FROM THE EDGE OF PAVEMENT.
4. AT CUL-DE-SACS, ALL DIMENSIONS SHALL REMAIN IDENTICAL TO STANDARD STREET SPACING, EXCEPT THAT GAS WILL BE 3.0 FT AND TELEPHONE WILL NOT BE LOOPED.
5. EACH UTILITY SHALL BE RESPONSIBLE FOR REPAIRS OF ANY DAMAGE THEY CREATE TO OTHER UTILITIES AND TO THE STREET IMPROVEMENTS WITHIN THE RIGHT-OF-WAY.
6. MINIMUM COVER FOR ALL WATER MAINS (WITHIN SUBDIVISION ROAD ROWS) THAT ARE 6 INCHES - 10 INCHES IN DIAMETER SHALL BE 3.0 FT. FOR ALL WATER MAINS 12 INCHES AND LARGER IN DIAMETER (WITHIN SUBDIVISION ROAD ROWS), MINIMUM COVER SHALL BE 4.0 FT. MINIMUM COVER FOR ALL WATER MAINS LOCATED IN THE ROW OF COUNTY OR DOT ROADS SHALL BE 4.0 FT.
NOTES:
1. DEPTH OF COVER OVER WATER MAINS SHALL BE AS MEASURED FROM TOP OF CURB (SEE NOTE 6 OF DRAWING W-7A.)
2. MINIMUM 6" COMPACTED SOIL BETWEEN BOTTOM OF PIPE AND ROCK. MINIMUM 9" COMPACTED SOIL BETWEEN SIDES OF PIPE AND ROCK.
3. NO ROCK IN BACKFILL FOR FIRST 2 FT ABOVE TOP OF PIPE.
4. IF RADIUS IS NOT 25 FT, ADJUST PIPE LENGTHS SO THAT VALVES ARE NOT IN STREET.
5. VALVES TO BE A MIN. OF 2 FT FROM BACK OF CURB, TOP SECTION OF BOX TO HAVE 2 FT CONCRETE COLLAR. SEE DWG W-12A
6. WHEN GOING AROUND CATCH BASIN, USE 3 JOINTS OF D.I.P. CENTERED, AND CHANGE ALIGNMENT BY "PULLING" EACH JOINT. MAXIMUM DEFLECTION TO BE NO MORE THAN 3 DEGREES PER JOINT. PIPE SHALL CLEAR OUTSIDE WALL OF CATCH BASIN BY 4" MINIMUM.
NOTES:
1. DEPTH OF COVER OVER WATER MAINS SHALL BE AS SPECIFIED IN GADOT PERMIT OR PER TYPICAL SECTION (SEE NOTE 6 OF DRAWING W-7A).
2. MINIMUM 6" COMPACTED SOIL BETWEEN BOTTOM OF PIPE AND ROCK. MINIMUM 9" COMPACTED SOIL BETWEEN SIDES OF PIPE AND ROCK.
3. NO ROCK IN BACKFILL FOR FIRST 2 FT ABOVE TOP OF PIPE.
4. BORE OR BORE AND CASING MAY BE REQUIRED BY PERMITTING AGENCY (CITY, COUNTY, OR STATE).
5. ALL PIPE SHALL BE DUCTILE IRON.
6. IF RADIUS IS NOT 25 FT, ADJUST PIPE LENGTHS SO THAT VALVES ARE NOT IN STREET.
7. VALVES TO BE 6 FT MINIMUM FROM BACK OF CURB OR EDGE OF PAVEMENT. BOX WILL HAVE CONCRETE COLLAR, DRAWING W-18.
4" MIN.

TYPICAL ALL VALVE BOXES

THOROUGHLY TAMP DITCH TO SPECIFICATION REQUIREMENTS

TEST, TAP & PLUG

ADJUSTABLE-TYPE CAST IRON VALVE BOX

SUPPORT W/ BRICKS

TAPPING VALVE

2'-0" SQUARE CONC.

NOTES
1. TEMPORARILY SUPPORT TAPPING SADDLE AND VALVE AND APPLY STANDARD HYDROSTATIC TEST.
2. IF NO LEAKS, POUR INDICATED PERMANENT CONCRETE BLOCK AND SUPPORT PAD.
3. MAKE TAP, LINE EXTENSION AND BACKFILL.
4. COVER GLANDS AND BOLTS WITH HEAVY POLYETHYLENE SHEETING TO KEEP CONCRETE FROM BONDING. TYPICAL WHENEVER BOLTS OR GLANDS MAY BE "WRAPPED-UP" IN CONCRETE.
5. COAT TAPPING SLEEVE AND BOLTS WITH AN APPROVED BITUMASTIC COATING BEFORE POURING CONCRETE. TYPICAL FOR ALL STEEL INCLUDING RODS, COUPLINGS, STRAPS AND OTHER BURIED STEEL.

CITY ENGINEER WILL SPECIFY BLOCK DIMENSIONS

HOLLOW CONCRETE BLOCK AND/OR BRICK FOR TEMPORARY SUPPORT. SET WITH HOLLOW CORE HORIZONTAL. WRAP-UP BLOCKS IN CONCRETE POUR. MAKE SURE CONCRETE FILLS HOLLOW PORTION OF BLOCKS.

ALL TAPPING SLEEVES MUST BE APPROVED BY THE CITY OF CUMMING UTILITY INSPECTOR. PLEASE CALL FOR SPECIFICATIONS PRIOR TO ORDERING OR INSTALLATION.

(770) 781-2020

CITY OF CUMMING
DEPARTMENT OF UTILITIES
TAPPING SLEEVE AND VALVE

W-8A
THOROUGHLY COMPACTED BACKFILL TO SPECIFICATION REQUIREMENTS

EXIST. WATER LINE: 4'' TO 16''

DOUBLE STRAP TAPPING SADDLE

OUTLET PIPE SIZE: $\frac{3}{4}''$ TO 2''

CORPORATION STOP
A.Y. McDonald Brass

COPPER (TYPE K)

DOUBLE STRAP BRASS SADDLE

CORPORATION STOP

COPPER (TYPE K)

EXIST. WATER LINE: 4'' TO 16''

CITY OF CUMMING
DEPARTMENT OF UTILITIES

TAPPING SADDLE AND CORPORATION STOP

DETAIL NUMBER: W-8B

LATEST REVISION
07/14/2017

SCALE: NOT TO SCALE
NOTES:
1. IF PIPE ON BOTH SIDES OF VALVE IS NOT DIP, THEN VALVE MUST BE SUPPORTED AND STRAPPED DOWN TO A CONCRETE PAD.
2. STUB OUT MUST BE HYDROSTATICALLY TESTED WITH REST OF WATER MAIN.
3. IN LIEU OF SLIP-JOINT AND COMPRESSION PLUG, AN M.J. JOINT MAY BE USED WITH A M.J. PLUG
4. STUB OUT PLUG SHALL BE TAPPED W/ 3/4" COPPER CORPORATION STOP & ROUTED TO METER BOX & CURB STOP

CAST IRON SLIP-TYPE ADJUSTABLE VALVE BOX

NO CONTACT WITH TOP OF VALVE

3' MINIMUM COVER FOR 10" & SMALLER. 4' MINIMUM FOR 12" & LARGER

DIP-SEE NOTE 1

DUCTILE IRON RETAINER GLAND DETAIL W-16

CONCRETE COLLAR THRUST RESTRAINT SEE DETAIL W-16 FOR EXACT DIMENSIONS FOR VARIOUS PIPE DIAMETERS

SEE BLOW OFF VALVE DETAIL 4-INCH AND LARGER DETAIL

3FT MIN.

12" MIN.

(1 FULL JOINT)

STUB OUT MJ PLUG (NOTE 4)

CITY OF CUMMING
DEPARTMENT OF UTILITIES

LATEST REVISION
07/14/2017

SCALE: NOT TO SCALE
NOTES
1. IF 4" DRAIN CAN NOT BE PROVIDED, A MINIMUM OF 10 HOLES @ 1" DIAMETER HOLES ARE TO BE DRILLED IN THE MJ PLUG AT THE TOP OF RISER. (TOP TEE DELETED AND RISER PIPE EXTENDED AS REQUIRED, TERMINATING WITH BELL END.
2. FOR MAIN SIZE 4" THROUGH 14" DIAMETER, USE 4" BLOW-OFF PIPING AND VALVE. FOR MAIN SIZES 20" THROUGH 48" DIAMETER, USE 8" BLOW-OFF PIPING AND VALVE.
3. ALL CAST IRON FITTINGS, EXCLUSIVE OF VALVES AND VALVE BOXES, SHALL BE DIP.
4. RODS TO BE HIGH TENSILE, HOT ROLLED STEEL WITH TENSILE TRENGTH OF 150,000 PSI AND MINIMUM YIELD STRENGTH OF 130,000 PSI. RODS SHALL BE COATED W/ AN APPROVED BITUMINOUS COATING.
5. BLOW-OFF OUTLETS MAY NOT BE SUBMERGED IN ANY STREAM OR GUTTER, NOR DISCHARGED DIRECTLY INTO ANY SEWER.
6. RUN DIAMETER AS REQUIRED FOR 8" - 34" DIAMETER DIP MAIN WITH 4" BELL BRANCH. FOR 48" MAIN, USE 48" X 8" MJ TEE DUCTILE IRON.
7. IF NO PAVEMENT OR SIDEWALK, POUR 2 FT CONCRETE COLLAR AROUND TOP OF VALVE BOX. SEE DRAWING W-10A.
8. BLOW OFF TAP SIZES SHALL BE IN ACCORDANCE WITH AWWA M4 WATER FLUORIDATION (CURRENT EDITION).
TYPICAL ROADWAY

SECTION A-A

SAME SIDE BLOW-OFF

SECTION B-B

OPPOSITE SIDE BLOW-OFF

NOTES
1. ALL PERMANENT BLOW-OFF INSTALLATIONS MUST BE AUTHORIZED BY CITY PRIOR TO INSTALLATION.
2. 90 DEGREE BEND AND EXTENSION PIECE TO BE USED ON PERMANENT RUNNING BLOW-OFF.
3. BLOW OFF TAP SIZES SHALL BE IN ACCORDANCE WITH AWWA M4 WATER FLUORIDATION (CURRENT EDITION).

CITY OF CUMMING
DEPARTMENT OF UTILITIES

BLow OFF VALVE DETAIL
3/4-INCH TO 2-INCH

LATEST REVISION
07/14/2017

SCALE: NOT TO SCALE

DETAIL NUMBER:
W-10B
NOTES:

1. IF "G" IS GREATER THAN 1 / 2", AT ITS NARROWEST POINT, THEN A FULL-CIRCLE SPACER OR "DUTCHMAN" MUST BE CUT AND PLACED IN THE GAP BEFORE THE SLEEVE IS USED TO CLOSE THE JOINT.

2. THE "DUTCHMAN" SPACER SHALL BE CUT TO A WIDTH NO LESS THAN 1 / 4" LESS THAN THE NARROWEST WIDTH OF "G".

3. EACH PIPE SPIGOT SHALL BE MARKED TO INDICATE THE POINT WHERE THE SLEEVE WILL BE PROPERLY CENTERED OVER THE POINT.

4. "FULL-CIRCLE" REPAIR CLAMPS ARE NOT APPROVED FOR JOINING PIPE.
NOTES:
1. LOCATE FIRE HYDRANT WITHIN 5' FROM CURB.
2. PROVIDE DOUBLE STRAP TAPPING SADDLES FOR SERVICE STUBS ON BOTH SIDES OF CONNECTION.
3. FIRE HYDRANT, VALVE, TEE & THRUST BLOCK TO BE WITHIN 5' OF CURB.
DESIGN DATA

1. DIMENSION OF THRUST BLOCK IN FEET BASED ON 2000 POUNDS PER SQUARE FOOT SOIL BEARING PRESSURE. ACTUAL INSIDE DIAMETER OF DIP, CLASS 50, 250 PSI TEST PRESSURE.

2. CONCRETE SHALL BE CLASS A, 3000 PSI.

3. UNDER ADVERSE CONSTRUCTION CONDITIONS, CONCRETE SHALL BE "HIGH EARLY" TYPE.

NOTES:

1. SOIL CONDITIONS SHALL BE VERIFIED BY THE ENGINEER BEFORE THRUST BLOCK DESIGN IS IMPLEMENTED.

2. COVER GLANDS & BOLTS W/ POLYETHYLENE BEFORE PLACING CONCRETE.

3. ALLOW CONCRETE TO SET UP A MIN. OF 6 HOURS BEFORE PLACING BACKFILL.

MINIMUM DIMENSIONS FOR CONCRETE BLOCKING

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<th>B (FT)</th>
<th>C (IN)</th>
<th>D (FT)</th>
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| 24"          | 6.0  | 9.0    | 40     | 6.5    | 7.94   | 113,100              

CITY OF CUMMING
DEPARTMENT OF UTILITIES

THRUST RESTRAINT: HORIZONTAL THRUST

DETAIL NUMBER: W-13

SCALE: NOT TO SCALE

LATEST REVISION 07/14/2017
CITY OF CUMMING
DEPARTMENT OF UTILITIES

W-14A

THRUST RESTRAINT
UPWARD THRUST

2" X 1/4" COATED STEEL STRAP (2 REQUIRED)

MJ BEND

CONCRETE THRUST BLOCK SEE W-16B FOR DIMENSIONS A,B,C,D.

STRAP DETAIL

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SCALE: NOT TO SCALE

DETAIL NUMBER:

LATEST REVISION
07/14/2017
MINIMUM DIMENSIONS FOR CONCRETE BLOCKING

NOTES:
1. SEE STRAP DETAIL IN W-16A FOR REQUIRED STRAPS.
2. COVER GLANDS & BOLTS W/ 6 MIL POLYETHYLENE BEFORE PLACING CONCRETE.
3. ALLOW CONCRETE TO SET FOR A MINIMUM OF 6 HOURS BEFORE PLACING BACKFILL.
4. CONCRETE SHALL BE 3000 PSI CLASS A.
5. ALL DUCTILE IRON FITTINGS SHALL BE BLOCKED AND SUPPORT AS SHOWN
6. UNDER ADVERSE CONSTRUCTION CONDITIONS, CONCRETE SHALL BE "HIGH EARLY" TYPE.
7. COAT STEEL STRAP W. BITUMINOUS ASPHALT COATING.

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DESIGN DATA

1. DIMENSION OF THRUST BLOCK IN FEET BASED ON 2000 POUNDS PER SQUARE FOOT SOIL BEARING PRESSURE AND 250 PSI TEST PRESSURE. ACTUAL INSIDE DIAMETER OF DIP, CLASS 50, USED AS STANDARDS.

2. CONCRETE SHALL BE CLASS A, 3000 PSI. UNDER ADVERSE CONSTRUCTION CONDITIONS, CONCRETE SHALL BE "HIGH EARLY" TYPE.

NOTES:
1. SOIL CONDITIONS SHALL BE VERIFIED BY THE ENGINEER BEFORE THRUST BLOCK DESIGN IS IMPLEMENTED.
2. COVER GLANDS & BOLTS W/ POLYETHYLENE BEFORE PLACING CONCRETE.
3. ALLOW CONCRETE TO SET UP A MIN. OF 6 HOURS BEFORE PLACING BACKFILL.

MINIMUM DIMENSIONS
FOR CONCRETE BLOCKING

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<th>B (FT)</th>
<th>C (IN)</th>
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CITY OF CUMMING
DEPARTMENT OF UTILITIES

THRUST RESTRAINT:
DOWNWARD THRUST

LATEST REVISION
07/14/2017

SCALE: NOT TO SCALE

DETAIL NUMBER:
W-15
NOTES:
1. ALL WATER MAINS GREATER THAN 16" I.D. SHALL BE INDIVIDUALLY CALCULATED BY THE CITY OF CUMMING.
2. SOIL CONDITIONS SHALL BE VERIFIED BY THE ENGINEER BEFORE THRUST RESTRAINT DESIGN IS IMPLEMENTED.
3. PIPE MUST BE DUCTILE IRON.

DESIGN DATA:
1. DIMENSION OF THRUST RESTRAINT IN FEET BASED ON 2000 POUNDS PER SQUARE FOOT SOIL BEARING PRESSURE AND 250 PER SQUARE INCH TEST PRESSURE. ACTUAL INSIDE DIAMETER OF DUCTILE IRON PIPE, CLASS 50, USED AS STANDARD.
2. CONCRETE SHALL BE CLASS A, 3000 PSI.
3. UNDER ADVERSE CONSTRUCTION CONDITIONS, CONCRETE SHALL BE "HIGH EARLY" TYPE.
4. ALLOW CONCRETE TO SETUP A MINIMUM OF 6 HOURS BEFORE PLACING BACKFILL.

MINIMUM DIMENSIONS IN FEET FOR CONCRETE COLLAR ON DUCTILE IRON PIPE TO BE USED WITH EMBEDDED DUCTILE IRON RETAINER GLAND.

<table>
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<tr>
<th>PIPE SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>VOLUME</th>
<th>CONC WT</th>
<th>THRUST</th>
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<td>1' - 5&quot;</td>
<td>1' - 6&quot;</td>
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<td>3150</td>
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NOTES:
1. ALL WATER MAINS GREATER THAN 16" I.D. SHALL BE INDIVIDUALLY CALCULATED BY THE CITY OF CUMMING.
2. SOIL CONDITIONS SHALL BE VERIFIED BY THE ENGINEER BEFORE THRUST RESTRAINT DESIGN IS IMPLEMENTED.
3. PIPE MUST BE DUCTILE IRON.

TORQUE SET SCREWS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. INSPECTOR MUST WITNESS INSTALLATION.
NOTES:
1. BASED ON ROD AND NUT HAVING YIELD STRENGTH OF 96,000 PSI.
2. SOIL BEARING CAPACITY OF 2000 PSI.
3. RODS TO HAVE 6" OF THREADS ON ENDS.
4. ALL METAL TO BE CLEANED AND COATED WITH APPROVED PROTECTIVE COATING FOLLOWING INSTALLATION AND PRIOR TO BACKFILLING. SEE NOTE 2 ON DETAIL 18

CITY OF CUMMING
DEPARTMENT OF UTILITIES
THRUST RESTRAINT
"DEAD MAN" CONCRETE TYPE

STAINLESS STEEL THREADED ROD

FORM WORK NOT ALLOWED.
MUST BE Poured AGAINST UNDISTURBED EARTH (ALL SIDES)

Fittings, Plugs, Etc. to be Restrained.

DETAIL NUMBER: W-17

SCALE: NOT TO SCALE
NOTES:
1. NO FLANGED JOINTS ARE TO BE BURIED.

2. AFTER INSTALLATION, TIE-RODS AND CLAMP ASSEMBLIES SHALL BE CLEANED AND THOROUGHLY COATED WITH BITUMASTIC OR APPROVED EQUIVALENT.
PLACE STONE TO 6" ABOVE WEEP HOLES, 18" BELOW WEEP HOLES AND 18" TOWARDS THE MAIN. ALSO 16" LATERALLY ON EACH SIDE. COMPACT STONE UNDER HYDRANT.

NOTES
1. FOR ALL WATER MAINS IN COUNTY, STATE, OR FEDERAL R/W'S - MIN. COVER SHALL BE 3'-0".
2. IF REGULAR TEE USED, MIN. NIPPLE LENGTH SHALL BE 12"
NOTES:
1. FOR ALL WATER MAINS IN COUNTY, STATE, OR FEDERAL R/W'S - MIN. COVER SHALL BE 3'-0".
2. IF REGULAR TEE USED, MIN. NIPPLE LENGTH SHALL BE 12".
3. THE FIRE DEPT REQUIRES HYDRANT TO BE LOCATED WITHIN 3 FEET OF THE CURB.
AIR VALVE SIZING

<table>
<thead>
<tr>
<th>MAIN SIZE</th>
<th>AIR VALVE SIZE</th>
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<tbody>
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<td>1&quot;</td>
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<tr>
<td>14&quot; - 16&quot;</td>
<td>1-1/2&quot;</td>
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<tr>
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<td>2&quot;</td>
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<tr>
<td>36&quot; - 42&quot;</td>
<td>2&quot;</td>
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4' DIA PRECAST MH (TOP SLAB NOT SHOWN)

Crispin Combination Air Valve

Water Main Size Varies

Plan

A

B

Flat Top W/ Manhole Frame and Cover (Bolted Down).

Vent for Manhole in Pavement

Fill with Flexible Sealant

Water Main Size Varies

Manhole Steps @16" C.C.

4' Dia. Precast MH Riser

12"

#57 Stone

Notes:
1. All Nipples to be "All Threaded" Minimum Length.
2. All Pipe to be Red Brass.
3. All Fittings to be Brass.

Valve may not be located under pavement with manhole in the flow of traffic. If manhole must be in pavement, it is to be vented to out of the pavement and flow of traffic.

CITY OF CUMMING
DEPARTMENT OF UTILITIES

Air Valve Installation

Detail Number: W-21

Scale: Not to Scale
NOTE:
1. ALL WATER LINES CROSSING INTERSTATE OR LIMITED ACCESS ROADS SHALL BE CASED.

LOCATION REQUIREMENTS

CASING SIZES

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<tr>
<th>PIPE SIZE</th>
<th>PIPE O.D.</th>
<th>BELL O.D.</th>
<th>CASING O.D.</th>
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NOTES:
1. IF WATER MAIN MUST BE DEFLECTED AROUND A CATCH BASIN OR STORM SEWER, DEFLECTED PORTION MUST BE 3 LENGTHS OF DIAMETER.
2. WATER MAINS CROSSING STORM SEWER LINES MUST BE DIP.
3. ALL WATER METERS MARKED AT CURB "W".

18" GRASS STRIP REQUIRED BETWEEN SIDEWALK AND BACK OF CURB

CITY OF CUMMING
DEPARTMENT OF UTILITIES
WATER MAIN AND SERVICE LINE LOCATIONS

DETAIL NUMBER: W-23A
LATEST REVISION 07/14/2017
SCALE: NOT TO SCALE
NOTE:
1. CITY WATER INSPECTOR MUST APPROVE LOCATION OF ALL WATER METERS

CROWNED ROAD

ACTUAL LOCATION PER SLOPE OF BANK. (NOTE 1)

ENCASED IN 2" PVC TYP.

WATER MAIN

FLAT OR CONCRETE ROAD

ACTUAL LOCATION PER SLOPE OF BANK. (NOTE 1)

ENCASED IN 2" PVC TYP.

MIN. 4' COVER

CITY OF CUMMING
DEPARTMENT OF UTILITIES

WATER METER LOCATIONS 3/4 - 2 INCH

GA DOT & COUNTY

DETAIL NUMBER: W-23B

LATEST REVISION 07/14/2017

SCALE: NOT TO SCALE
NOTES:
1. IN THE EVENT CASING IS NOT PRESENT ON LONG SIDE LOT, BORING SHALL BE PERMITTED.
2. NO PAVEMENT CUTS WILL BE PERMITTED WITHOUT APPROVAL OF THE CITY WATER INSPECTOR AND THE (CITY, COUNTY, OR STATE) ROAD ENGINEER.
3. 3-4 FT MIN. COVER FOR SUBDIVISION ROADS. STATE AND COUNTY ROADS, MIN. 4 FT COVER.
4. ALL CUTS IN PAVEMENT SHALL BE REPAIRED IN ACCORDANCE WITH GA D.O.T. OR FORSYTH CO. STANDARDS. SEE PAVEMENT CUT REPAIR STANDARD DETAIL.
5. METERS SHALL NOT BE OFFSET LATERALLY FROM TAP ON WATER MAIN, SET DIRECTLY OPPOSITE TAP LOCATION.
6. FOR SERVICE LINE RELOCATIONS TO NEW MAINS COPPER TUBING TYPE "K" SHALL BE REQUIRED.
NOTES:
1. CONDUIT LOCATIONS SHALL BE MARKED "W" AT CURBS ON EACH SIDE OF STREET.
2. INSPECTOR SHALL VERIFY PRESENCE AND DEPTH OF CONDUITS.
3. MINIMUM COVER FOR ALL WATER MAINS 6-10 INCH DIAMETER SHALL BE 3 FT. 12-INCH AND LARGER SHALL BE 4 FT.
A.Y. McDONALD BRASS BALL SHUT OFF VALVE (LOCATE AT METER OR INSIDE CUSTOMER FACILITY)

CAST IRON WATER METER BOX

WATER METER

RPZ BACK FLOW PREVENTER

ADJUSTABLE - TYPE CAST IRON VALVE BOX AT CURB STOP

BACK OF CURB

3'-0"

VARIES

5' - 0"

A.Y. McDONALD BRASS BALL SHUT OFF VALVE

2" COPPER TYPE "K"

2" DRESSER STYLE COMPRESSION COUPLING

NIPPLE LENGTH AS REQ'D

SECTION

GATE VALVE

2" DOUBLE STRAP BRASS SADDLE

WATER METER

NIPPLE LENGTH AS REQ'D

GATE VALVE W/ CAST-IRON ADJUSTABLE - TYPE VALVE BOX

PLAN

CITY OF CUMMING
DEPARTMENT OF UTILITIES

2" METER SETTING

LATEST REVISION
07/14/2017

SCALE: NOT TO SCALE

DETAIL NUMBER:

W-25
NOTES:
1. FINAL APPROVAL OF PAVEMENT CUT REPAIRS RESIDES WITH THE AUTHORITY HAVING JURISDICTION. FOR GEORGIA D.O.T. ROADS ALL MATERIALS AND METHODS OF INSTALLATION SHALL COMPLY WITH THE GEORGIA D.O.T. "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", LATEST REVISION.
2. BACKFILL SHALL BE PLACED AND COMPACTED IN 4-6" LIFTS, IN ACCORDANCE WITH AWWA C600, LATEST REVISION.
3. TRAFFIC CONTROL PLAN MUST BE APPROVED BY THE AUTHORITY HAVING JURISDICTION BEFORE WORK BEGINS.
4. FOR TYPE "C" PAVEMENT REPAIR THE Poured CONCRETE SHALL BE COVERED WITH TRAFFIC RATED STEEL PLATES A MINIMUM OF 24-HOURS TO ALLOW ADEQUATE CONCRETE SET.
5. STABILIZATION STONE SHALL BE REQUIRED IN AREAS WHERE TRENCH BOTTOM IS UNSTABLE. PIPE BEDDING SHALL HAVE A MINIMUM OF 4" OF #57 STONE OR AS SHOWN IN THE BEDDING STANDARD DETAILS.
6. PRIME COAT 0.15 - 0.30 GAL. PER SQ. YARD.
7. MINIMUM TRENCH WIDTHS ACCORDING TO TRENCH WIDTH CHART STANDARD DETAIL.
NOTES:
1. FREE-BORE CROSSINGS ARE STANDARD UNLESS SHOWN OTHERWISE IN CONTRACT DRAWINGS OR APPROVAL IS GIVEN BY THE CITY.
2. FINISHED GRADE TO BE FLUSH WITH EDGE OF DRIVE.
3. FINISHED SURFACE OF REPAIRED AREA TO MATCH EXISTING SURFACE. SAW CUTS SHALL BE VERTICAL. EXPANSION MATERIAL TO BE USED AS DIRECTED.
4. FOR CONCRETE DRIVEWAYS REMOVE & REPLACE BACK TO FIRST CONSTRUCTION JOINT.
5. SUBGRADE COMPACTION AND MATERIALS SHALL MEET SPECIFICATIONS AND TRENCHING STANDARD DETAILS.

CITY OF CUMMING
DEPARTMENT OF UTILITIES
DRIVEWAY CUT REPAIRS

SCALE: NOT TO SCALE

DETAIL NUMBER: W-27

LATEST REVISION 07/14/2017
NOTES:
1. DETAILS ARE TYPICAL
2. REPLACE SIDEWALKS CURB AND GUTTER AND CURBING TO MATCH EXISTING MATERIALS OR AS DIRECTED.

CITY OF CUMMING
DEPARTMENT OF UTILITIES
SIDEWALK, CURB AND GUTTER REPAIRS

DETAIL NUMBER: W-28
SCALE: NOT TO SCALE
10'-0" MINIMUM FROM EDGE OF STREAM BANK TO EDGE OF STEEL ENCASEMENT

10'-0" MINIMUM FROM EDGE OF STREAM BANK TO EDGE OF STEEL ENCASEMENT

CARRIER PIPE

STEEL ENCASEMENT SEE DETAIL W-22

18" MINIMUM BELOW STREAM BED

NON-WOVEN GEOTEXTILE FILTER FABRIC

10'-0" MINIMUM FROM EDGE OF STREAM BANK TO EDGE OF STEEL ENCASEMENT
CITY OF CUMMING
DEPARTMENT OF UTILITIES
IRRIGATION SERVICE LINE DETAIL

CAST IRON WATER METER BOX

BACK OF CURB

BACK OF CURB

4-INCHES OF WASHED #57 STONE

1" TYPE "K" HARD COPPER TUBING

18 - 24 INCHES DEEP TO BRASS BALL VALVE

DOUBLE STRAP SADDLE

1" TYPE "K" HARD COPPER TUBING

1-INCH CORP

LATEST REVISION
07/14/2017

SCALE: NOT TO SCALE
NOTE: HOTBOX MUST BE PROVIDED WITH POWER AND MUST BE HEATED

REDUCED PRESSURE ZONE BACKFLOW PREVENTER WITH SHUT-OFF VALVES & STRAINERS.

COVER BY SAFE-T-COVER, PER TABLE BELOW OR AT WWW.SAFE-T-COVER.COM

O.S. & Y. RISING STEM GATE VALVE TYP.

DIP WATER LINE

FLANGED 90° BEND

BACKFILL, COMPACTED TO 98% SPD

FLOW

CONCRETE SUPPORT 24" X 24" X 12" THICK BASE, 12" X 12" RISER

#4 @ 10" E.W. 2" COVER AT TOP 3" COVER AT BOTTOM

4" MIN.

24" MIN.

4" MIN.

FLANGED 90° BEND W/ BLOCKING (TYP)

SEE THRUST RESTRAINT DETAIL

RPZ SIZE | WATTS RPZ MODEL NO. | HOT BOX MODEL | CONCRETE DIM. (LxWxD)
---|---|---|---
4" | LF909-NRS | 400-AL | 9'-0" x 3'-0" x 16"
6" | LF909-NRS | 600-AL | 11'-0" x 4'-0" x 16"
8" | LF909-NRS | 800-AL | 13'-0" x 4'-0" x 16"
10" | LF909-NRS | 1000-AL | 16'-0" x 4'-6" x 16"

CITY OF CUMMING
DEPARTMENT OF UTILITIES
COMMERCIAL / INDUSTRIAL RPZ BACKFLOW PREVENTER

DETAIL NUMBER: W-31

SCALE: NOT TO SCALE

LATEST REVISION 07/14/2017
TRENCH WIDTH SHALL BE IN ACCORDANCE WITH THE SEE ALLOWABLE TRENCH WIDTH CHART STANDARD DETAIL.

REPLACE ORIGINAL EXCAVATED MATERIAL AS FILL AND CONSOLIDATE

CLASS "B" CONCRETE ENCASEMENT REQUIRED

NOTE: WHERE CONCRETE ENCASEMENT IS REQUIRED, ANY OVER EXCAVATION OF TRENCH SHALL BE FILLED W/CLASS "B" CONCRETE

TRENCH WIDTH

PIPE O.D.

8"

8"

8"
GENERAL NOTES

1. ALL BURIED BENDS AND TEES SHALL BE MJ MEGA-LUG GLANDS AND HAVE RESTRAINT THRUST BLOCKING IN ACCORDANCE WITH THE STANDARD DETAILS.
2. "ROMA GRIP" RESTRAINED MJ/FLANGED COUPLING ADAPTERS SHALL BE USED FOR TRANSITION INTO THE VAULT.
3. ALL INTERIOR VAULT FITTINGS SHALL BE FLANGED.
4. GATE VALVES SHALL BE RISING STEM OS & Y TYPE
5. "CONBRACO" OR "WATTS" DOUBLE CHECK VALVE SHALL INCLUDE 3/4 INCH BYPASS METER AND CHECK VALVE ASSEMBLY.
6. ACCESS HATCH SHALL BE BILCO ALUMINUM SINGLE SWING AND LOCATED FOR OPTIMUM MAINTENANCE ACCESS.
7. PRECAST CONCRETE VAULT 5 INCH MIN. WALL THICKNESS.
8. VAULTS SHALL BE OPTIMALLY LOCATED WITHIN LANDSCAPED AREAS AND 3-5 FT. CLEAR OF ANY PLANTINGS OR MATURE TREE ROOTS.
9. FINISH GRADE INSIDE VAULT SHALL BE OPEN. MIN. 6 INCH #57 STONE AND 2 FT. MIN. CLEARANCE FROM FINISH FLOOR TO BOTTOM OF FLANGES.
10. FINAL APPROVAL SHALL BE BY FORSYTH COUNTY FIRE DEPARTMENT.
GENERAL NOTES

1. ALL BURIED BENDS AND TEES SHALL BE MJ MEGA-LUG GLANDS AND HAVE RESTRAINT THRUST BLOCKING IN ACCORDANCE WITH THE STANDARD DETAILS.
2. "ROMA GRIP" RESTRAINED MJ/FLANGED COUPLING ADAPTERS SHALL BE USED FOR TRANSITION INTO THE VAULT.
3. ALL INTERIOR VAULT FITTINGS SHALL BE FLANGED.
4. GATE VALVES SHALL BE RISING STEM OS & Y TYPE
5. "CONBRACO" OR "WATTS" DOUBLE CHECK VALVE ASSEMBLY SHALL INCLUDE 3/4 INCH BYPASS METER AND CHECK VALVE ASSEMBLY.
6. COMPOUND METER WITH DUAL PORT R900V2 TRANSMITTER KIT SHALL BE AS MANUFACTURED BY NEPTUNE (HP PROTECTUS III).
7. WHEN NO FIRE VAULT IS REQUIRED, COMPOUND METER SHALL BE NEPTUNE (HP PROTECTUS III).
8. ACCESS HATCH SHALL BE BILCO ALUMINUM SINGLE SWING AND LOCATED FOR OPTIMUM MAINTENANCE ACCESS.
9. PRECAST CONCRETE VAULT 5 INCH MIN. WALL THICKNESS.
10. VAULTS SHALL BE OPTIMALLY LOCATED WITHIN LANDSCAPED AREAS AND 3-5 FT. CLEAR OF ANY PLANTINGS OR MATURE TREE ROOTS.
11. FINISH GRADE INSIDE VAULT SHALL BE OPEN. MIN. 6 INCH #57 STONE AND 2 FT. MIN. CLEARANCE FROM FINISH FLOOR TO BOTTOM OF FLANGES.

3-6 INCH MAIN ONLY

12. ACCESS HATCH SHALL BE BILCO ALUMINUM 3' X 3' SINGLE SWING AND LOCATED FOR OPTIMUM MAINTENANCE ACCESS.
13. COMPOUND METER SHALL BE AS MANUFACTURED BY NEPTUNE (TRU/FLO). FOR 6 INCH MAINS, CONFIRM TYPE WITH CITY BASED ON DESIGN FLOW RATES.

CITY OF CUMMING
DEPARTMENT OF UTILITIES

MASTER METER WITH BYPASS DETAIL
6" AND 8" MAIN

DETAIL NUMBER: W-34

SCALE: NOT TO SCALE

LATEST REVISION 07/14/2017
NOTES:

1. ALL FITTINGS INSIDE VAULT SHALL BE FLANGED.

2. VAULT TOP IS REINFORCED. MINIMUM INSIDE HEIGHT IS 6 FEET. VAULT BOTTOM IS 4" CONCRETE SLAB SLOPED TO DRAIN TO 4" OFF-CENTER SUMP HOLE. SLAB TO BE Poured ON 4" OF COMPACTED NO. 57 STONE.

3. HATCH IS BILCO ALUMINUM SINGLE MODEL J-4AL OR EQUAL APPROVED IN ADVANCE BY THE CITY OF CUMMING.

4. VAULT INLET/OUTLET OPENINGS TO BE SEALED WITH MORTAR MIX AROUND PIPE.

5. DOUBLE CHECK VALVE ASSEMBLY SHALL BE SUPPORTED IN AT LEAST THREE (3) PLACES ON CAP BLOCKS OR BRICK.

6. VAULT SHALL BE PRECAST NON-LOAD BEARING. WHERE VAULT WILL BE SUBJECT TO LIVE LOAD, CUSTOMER SHALL SUBMIT DETAILED VAULT DESIGN FOR CITY APPROVAL PRIOR TO CONSTRUCTION.

7. ALL RODS SHALL BE BITUMASTIC COATED AND SHALL EXTEND FROM FIRST FLANGE INSIDE VAULT TO TAPPING VALVE. (WELDED TO CASING ON LONG SIDE BORE)

8. ALL PIPE AND FITTINGS TO BE DUCTILE IRON.

9. DOUBLE CHECK VALVE ASSEMBLY SHALL BE WATTS MODEL 700, AMES MODEL 3000SE, OR FEBCO 806 W/OS&Y RESILIENT SEATED GATE VALVES TAPPED FOR TESTING OR EQUIVALENT AS APPROVED BY THE CITY PRIOR TO CONSTRUCTION BY-PASS ASSEMBLY SHALL BE Sized TO LARGE VALVE.

10. MINIMUM CLEARANCE FROM VAULT FLOOR TO BOTTOM OF FLANGES SHALL BE 12" MIN.

11. VAULT SHALL BE INSTALLED ON PRIVATE PROPERTY. CUSTOMER SHALL PROVIDE A 15' x 30' EASEMENT.

12. ALL MATERIALS SHALL BE FURNISHED BY THE CUSTOMER.
1. All fittings inside vault shall be flanged.

2. Vault top is reinforced. Minimum inside height is 6 feet. Vault bottom is 4" concrete slab sloped to drain to 4" off-center sump hole. Slab to be poured on 4" of compacted No. 57 stone.

3. Hatch is Bilco aluminum single model J-4AL or equal approved in advance by the City of Cumming.

4. Vault inlet/outlet openings to be sealed with mortar mix around pipe.

5. Double check valve assembly shall be supported in at least three (3) places on cap blocks or brick.

6. Vault shall be precast non-load bearing. Where vault will be subject to live load, customer shall submit detailed vault design for city approval prior to construction.

7. All rods shall be bitumastic coated and shall extend from first flange inside vault to tapping valve. (Welded to casing on long side bore)

8. All pipe and fittings to be ductile iron.

9. Double check valve assembly shall be Watts model 700, Ames model 3000SE, or FeBCo 806 W/OS&Y resilient seated gate valves tapped for testing or equivalent as approved by the City prior to construction. By-pass assembly shall be sized to large valve.

10. Minimum clearance from vault floor to bottom of flanges shall be 16" min.

11. Vault shall be installed on private property. Customer shall provide a 15' x 30' easement.

12. All materials shall be furnished by the customer.
CITY OF CUMMING LETTERING

NOTES:

1. THIS ASSEMBLY IS RATED FOR A STATIC DESIGN LOAD OF 5,000 LBS. OVER A 10 X 10 AREA AND MUST PASS A MIN. STATIC TEST LOAD OF 7,500 LBS.

2. METER BOX SHALL BE BY HUBBELL, OLDCASTLE OR APPROVED EQUIVALENT. SHOP DRAWING AND SPECIFICATION SUBMITTAL IS REQUIRED FOR EQUIVALENT.
NOTES:
1. ALUMINUM PLATE CAST IN SIDE OF MARKER POST.

2. DISTANCE (NEAREST FOOT) FROM CENTER LINE OF POST TO CENTER LINE OF VALVE BOX AND DIRECTION ARROW TO BE STAMPED INTO PLATE WITH STEEL DIE AFTER MARKER IS SET.
### CITY OF CUMMING
#### DEPARTMENT OF UTILITIES

**MARKER BALLS**

**W-39**

**LATEST REVISION**

07/14/2017

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**MARKER BALL REFERENCE**

<table>
<thead>
<tr>
<th>TAG NO.</th>
<th>DESCRIPTION</th>
<th>DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXX-XXX-XXX</td>
<td>SIZE, MATERIAL, FITTING</td>
<td>DEPTH OF MARKER BALL TO TOP OF PIPE</td>
</tr>
</tbody>
</table>

**NOTES:**

1. LOCATOR BALL TO BE CONSTRUCTED AT BENDS, AND AT 200-FOOT INTERVAL ON STRAIGHT PIPE.
2. MARKER BALLS SHALL BE 3M DYNATEL SERIES EMS ID BALL MARKERS MODEL NUMBER 1424-XR/ID FOR SEWER.
   
   LOCATOR SHALL BE 3M DYNATEL 2250M-ID-UU-3W-RT.

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**CITY OF CUMMING**

**DEPARTMENT OF UTILITIES**

**W-39**

**DETAIL NUMBER:**

**SCALE: NOT TO SCALE**