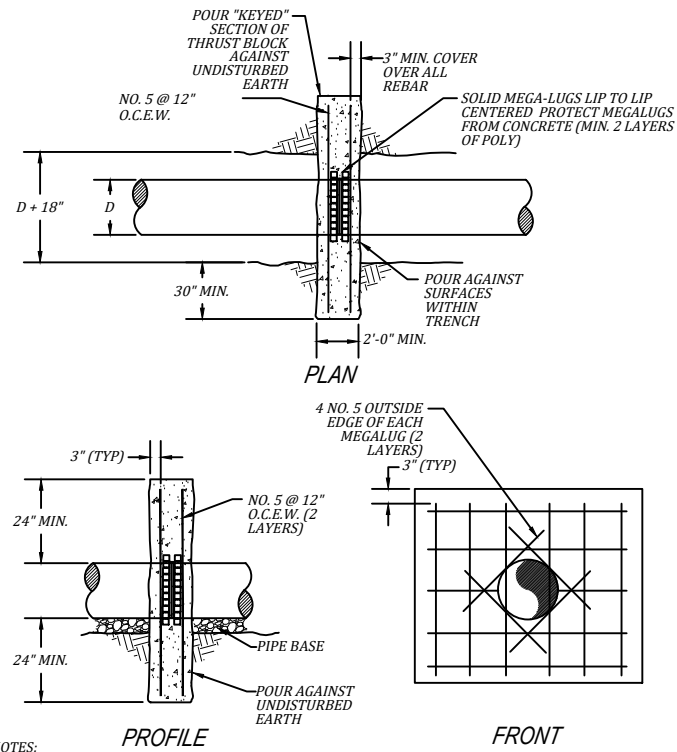


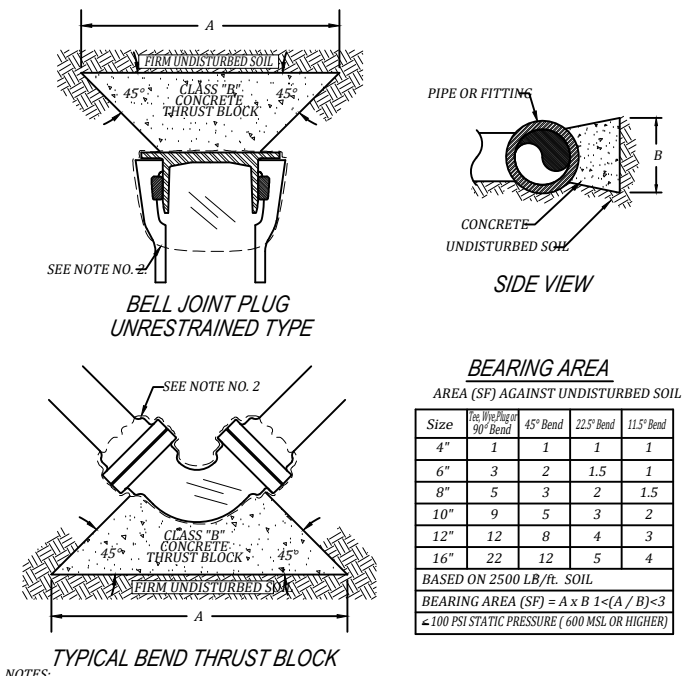
TYPICAL DEADMAN THRUST RESTRAINT



- NOTES:**
1. DEADMAN TO BE CENTERED ON FULL JOINT OF PIPE
 2. ALL CONCRETE SHALL BE CLASS "A" (4000 PSI) IN ACCORDANCE WITH THE CITY OF AUBURN STANDARD SPECIFICATIONS
 3. NO CALCIUM CHLORIDE CURING ACCELERATOR ALLOWED.
 4. APPLICABLE FOR UP TO AND INCLUDING 12" DIAMETER PIPE. MAY BE USED FOR PIPES ABOVE 12" DIAMETER ON A CASE BY CASE BASIS.
 5. TO BE USED ON EXISTING DUCTILE IRON OR CAST IRON PIPE IN GOOD CONDITION.

200

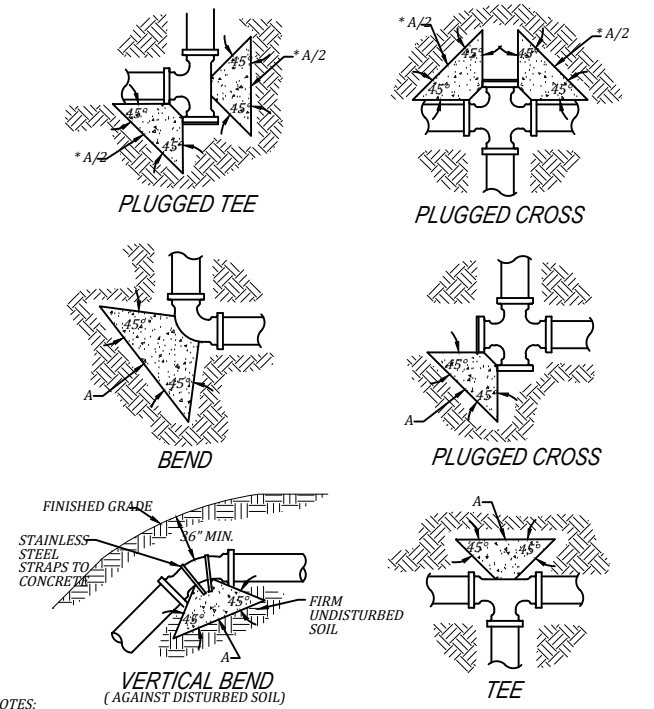
TYPICAL CONCRETE THRUST BLOCK DESIGN



- NOTES:**
1. 45 DEGREE ANGLES REQUIRED FOR ALL THRUST BLOCKS.
 2. NON STANDARD THRUST BLOCKING WILL REQUIRE SPECIAL DETAILING PROVIDED BY A LICENSED ENGINEER AND APPROVED BY THE CITY OF AUBURN.
 3. ALL MECHANICAL JOINT FITTINGS THAT REQUIRE THRUST BLOCKS SHALL BE WRAPPED IN PLASTIC. CONCRETE SHALL NOT BE POURED OVER JOINTS.
 4. CLASS "B" CONCRETE SHALL BE AS DEFINED IN THE CITY OF AUBURN STANDARD SPECIFICATIONS SECTION II.
 5. THE PREFERRED METHOD OF THRUST RESTRAINT SHALL BE THROUGH THE USE OF EXTERNALLY RESTRAINED JOINT DEVICES SUCH AS MEGA-LUGS IN LIEU OF CONCRETE BLOCKING. CONCRETE BLOCKING SHALL ONLY BE PERMITTED WHERE APPROVED BY THE AWWB AND SHALL NOT BE USED IN CONJUNCTION WITH MEGA-LUG RESTRAINTS. THE APPROPRIATE LENGTH OF RESTRAINT SHALL BE CALCULATED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

202

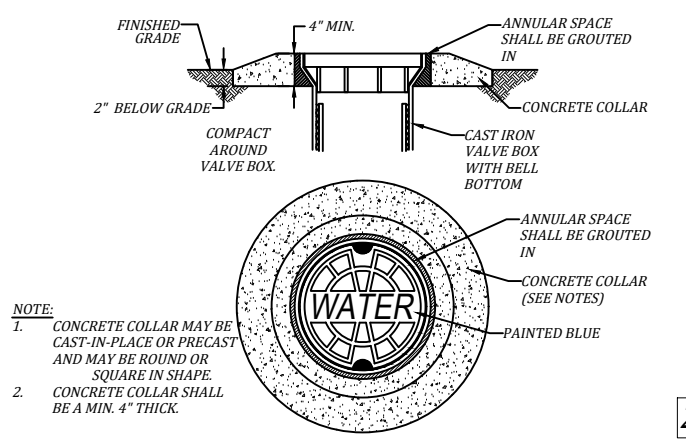
TYPICAL CONCRETE THRUST BLOCK LAYOUT



- NOTES:**
1. 45 DEGREE ANGLES REQUIRED FOR ALL THRUST BLOCKS.
 2. NON STANDARD THRUST BLOCKING WILL REQUIRE SPECIAL DETAILING PROVIDED BY A LICENSED ENGINEER AND APPROVED BY THE CITY OF AUBURN.
 3. ALL MECHANICAL JOINT FITTINGS THAT REQUIRE THRUST BLOCKS SHALL BE WRAPPED IN PLASTIC. CONCRETE SHALL NOT BE POURED OVER JOINTS.
 4. CLASS "B" CONCRETE SHALL BE AS DEFINED IN THE CITY OF AUBURN STANDARD SPECIFICATIONS SECTION II.
 5. THE PREFERRED METHOD OF THRUST RESTRAINT SHALL BE THROUGH THE USE OF EXTERNALLY RESTRAINED JOINT DEVICES SUCH AS MEGA-LUGS IN LIEU OF CONCRETE BLOCKING. CONCRETE BLOCKING SHALL ONLY BE PERMITTED WHERE APPROVED BY THE AWWB AND SHALL NOT BE USED IN CONJUNCTION WITH MEGA-LUG RESTRAINTS. THE APPROPRIATE LENGTH OF RESTRAINT SHALL BE CALCULATED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

204

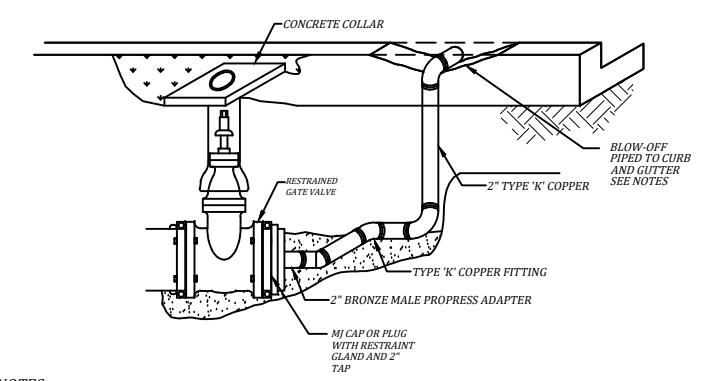
TYPICAL VALVE BOX INSTALLATION



- NOTE:**
1. CONCRETE COLLAR MAY BE CAST-IN-PLACE OR PRECAST AND MAY BE ROUND OR SQUARE IN SHAPE.
 2. CONCRETE COLLAR SHALL BE A MIN. 4" THICK.

216

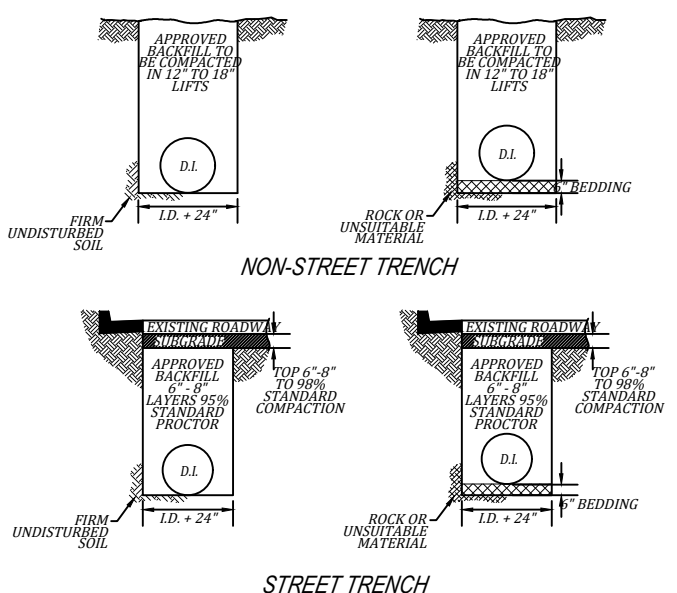
TYPICAL END OF MAIN BLOWOFF ASSEMBLY



- NOTES:**
1. THE PREFERRED METHOD OF THRUST RESTRAINT SHALL BE THROUGH THE USE OF EXTERNALLY RESTRAINED JOINT DEVICES SUCH AS MEGA-LUGS IN LIEU OF CONCRETE BLOCKING. CONCRETE BLOCKING SHALL ONLY BE PERMITTED WHERE APPROVED BY THE AWWB AND SHALL NOT BE USED IN CONJUNCTION WITH MEGA-LUG RESTRAINTS. THE APPROPRIATE LENGTH OF RESTRAINT SHALL BE CALCULATED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
 2. BLOW OFF SHALL BE ANGLED TO PERFECT FLOW AWAY FROM BLOW-OFF AND VALVE, WHERE POSSIBLE
 3. VALVE SHALL BE LOCATED WITHIN 24" OF THE BACK OF CURB, MAY BE PLACED IN PAVEMENT.
 4. THE BLOW-OFF SHALL BE PLACED WITH AT LEAST 1" CLEARANCE BETWEEN GUTTER AND BOTTOM OF PIPE AND SHOULD BE POINTED SLIGHTLY UPWARD

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BEDDING REQUIREMENTS FOR TRENCHES



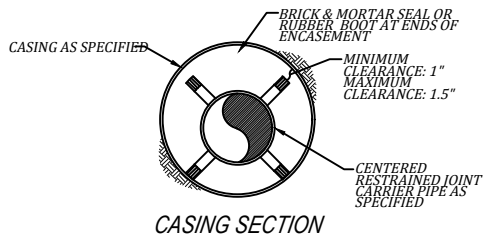
- NOTES:**
1. BEDDING MATERIALS SHALL BE 1/4" TO 1 1/2" GRADED CRUSHED STONE SUCH AS: 56, 57, 6, 67, 68, 7, OR 78, STONE PER ALDOT STANDARD SPECS.
 2. WIDTH VARIES BASED ON WALL STABILITY. STABLE WALLS WIDTH AS NEEDED TO JOIN PIPE AND COMPACT HAUNCHING AND INITIAL BACKFILL. UNSTABLE WALLS: WIDTH TO BE A MINIMUM OF FIVE TIMES PIPE DIAMETER.
 3. FLOWABLE FILL CAN BE USED AS BACKFILL, BUT MUST HAVE PRIOR APPROVAL AND MUST BE ALLOWED TO SET FOR 24 HOURS PRIOR TO TOPPING.
 4. APPROVED BACKFILL MATERIAL INCLUDES 825 B, FLOWABLE FILL AND APPROVED DIRT. ALTERNATIVE MATERIAL MUST BE APPROVED BY PROJECT MANAGER PRIOR TO USE.

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TYPICAL BORE ENCASEMENT

NOMINAL PIPE DIAMETER	CARRIER PIPE		STEEL ENCASEMENT	
	STANDARD PIPE BELL O.D.*	CASING BAND WIDTH	MINIMUM CASING THICKNESS	MINIMUM CASING DIAMETER**
4	6.40	8	0.25	14
6	8.60	8	0.25	16
8	11.16	8	0.25	18
10	13.25	8	0.25	20
12	15.22	8	0.25	22
14	17.73	12	0.25	24
16	19.86	12	0.3125	26
18	22.16	12	0.3125	30
20	24.28	12	0.3125	32
24	28.50	12	0.3125	36
30	34.95	12	0.5	42
36	41.37	12	0.5	48

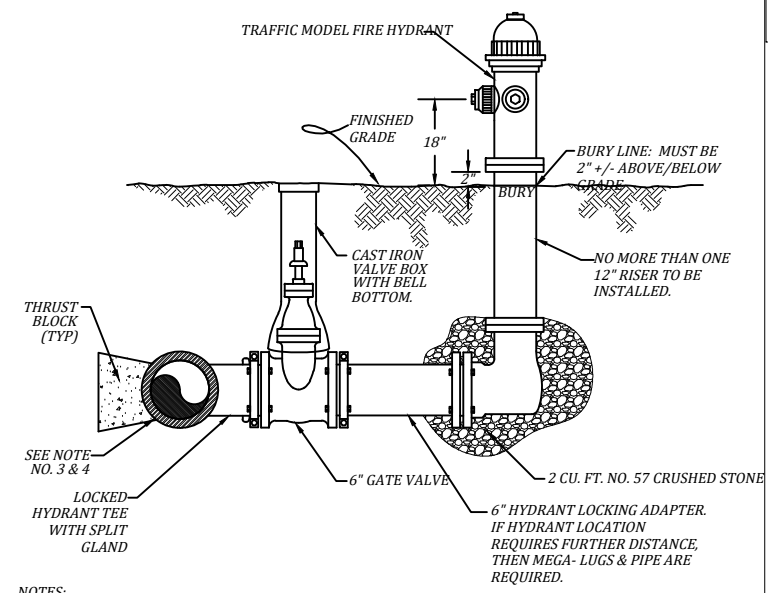
ALL SIZES INDICATED ARE IN INCHES
 *PIPE BELL OUTSIDE DIAMETER BASED ON PRESSURE CLASS 350 DUCTILE IRON PIPE
 **CASING DIAMETERS BASED ON BEING A MINIMUM OF 6 INCHES GREATER THAN THE OUTER DIAMETER OF THE JOINT BELL, TO THE NEAREST EVEN SIZE.



- NOTES:**
1. ALL SPACER BANDS SHALL BE MADE FROM T-304 STAINLESS STEEL OF A MINIMUM 1/4" GAUGE THICKNESS.
 2. ALL SPACERS SHALL HAVE A SYNTHETIC RUBBER OR PVC LINER TO INSULATE THE PIPELINE FROM THE SPACER.
 3. ALL SPACERS SHALL HAVE 1.5" WIDE GLASS REINFORCED PLASTIC OR UHMW POLYMER RUNNERS TO INSULATE THE SPACER.
 4. SPACERS TO BE MANUFACTURED BY CASCADE WATERWORKS MFG. CO. (PSI)
 5. PIPELINE SEAL AND INSULATOR, INC. OR EQUAL.
 6. 6" THRU 12" DIAMETER PIPELINE SHALL USE 8" WIDE BANDS: GREATER THAN 12" DIAMETER PIPELINES SHALL USE 12" WIDE BANDS.
 6. CENTERED RESTRAINED CASING SPACERS SHALL BE SPACED AT A MAXIMUM OF TEN FEET APART WITH A MINIMUM OF TWO SPACERS PER JOINT OF PIPE.

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TYPICAL FIRE HYDRANT INSTALLATION



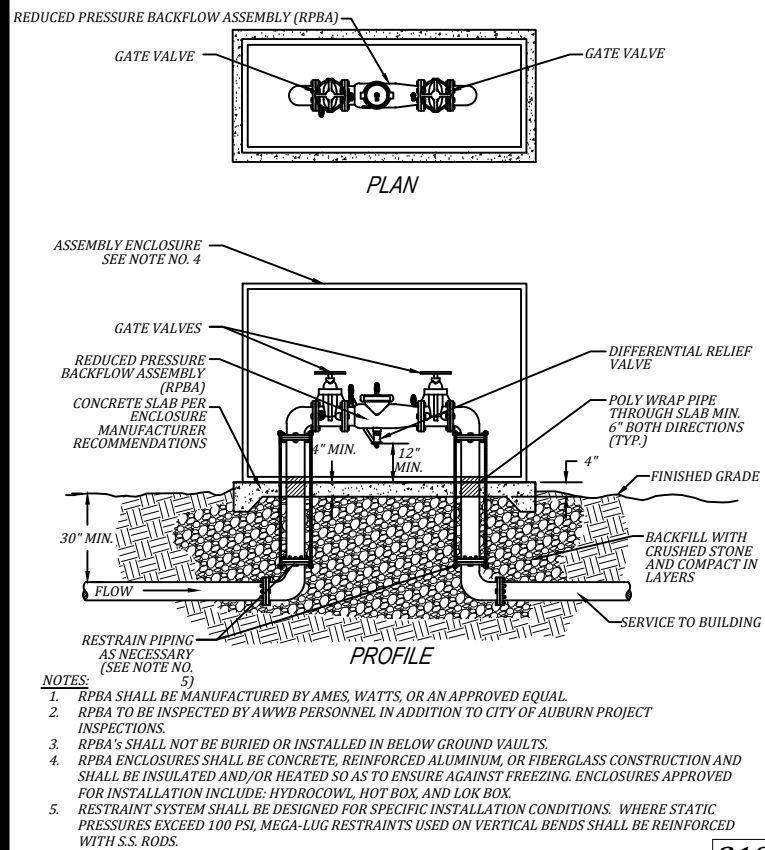
- NOTES:**
1. ALL FIRE HYDRANTS SHALL HAVE NATIONAL STANDARD THREADS, 4 1/2-INCH STEAMER & 2 1/2-INCH HOSE NOZZLE, AND SHALL BE MUELLER CENTURION, OR AMERICAN DARLING B-84-B, OR APPROVED EQUAL. BRONZE TO BRONZE SEATED. EPOXY COATED SHOES. WEATHER CAPS SHALL NOT BE MADE OF RUBBER.
 2. ALL FIRE HYDRANTS SHALL BE LEVELED AND PLUMBED DURING INSTALLATION.
 3. ALL MECHANICAL JOINT FITTINGS THAT REQUIRE THRUST BLOCKS SHALL BE WRAPPED IN PLASTIC. CONCRETE SHALL NOT BE POURED OVER JOINTS.
 4. THE PREFERRED METHOD OF THRUST RESTRAINT SHALL BE THROUGH THE USE OF EXTERNALLY RESTRAINED JOINT DEVICES SUCH AS MEGA-LUGS IN LIEU OF CONCRETE BLOCKING. CONCRETE BLOCKING SHALL ONLY BE PERMITTED WHERE APPROVED BY THE AWWB AND SHALL NOT BE USED IN CONJUNCTION WITH MEGA-LUG RESTRAINTS. THE APPROPRIATE LENGTH OF RESTRAINT SHALL BE CALCULATED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
 5. USE MEGA-LUGS BETWEEN HYDRANT AND GATE VALVE.
 6. HYDRANT LOCKING TEE TO BE USED IN LIEU OF STANDARD M.J. TEE ON ALL FIRE HYDRANT CONNECTIONS.

214

STANDARD DETAILS: WATER - SHEET 1 OF 4

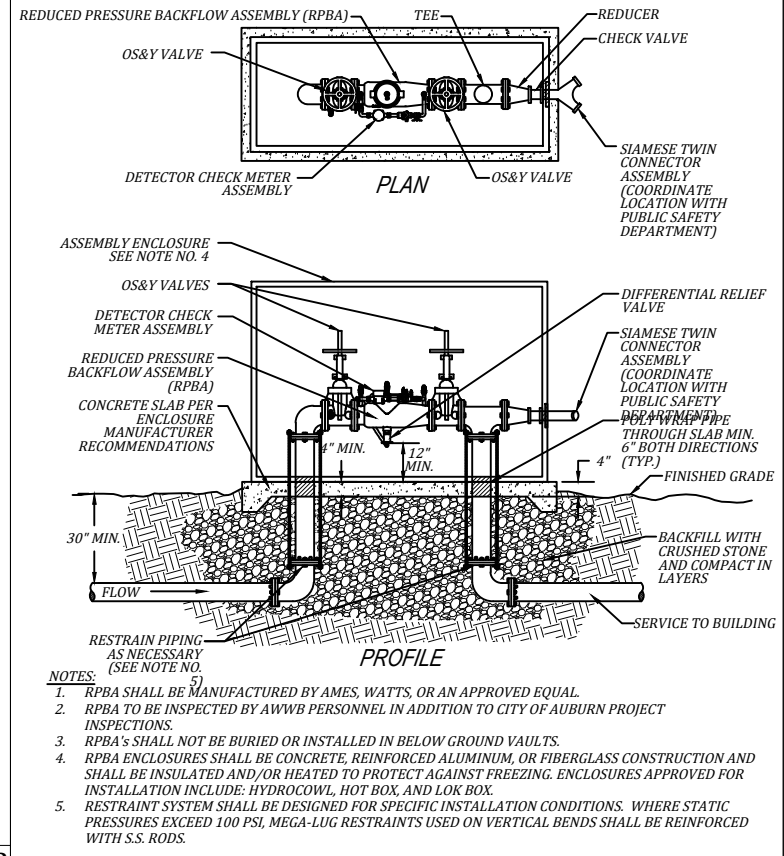
PROJECT TITLE:	DEPARTMENT:	WRM REVISIONS:	RS-10-25-07
			DCM 2010
			JC-10-2011
			JC-12-2012
			MW-12-2020
			JP-02-2024

TYPICAL REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)



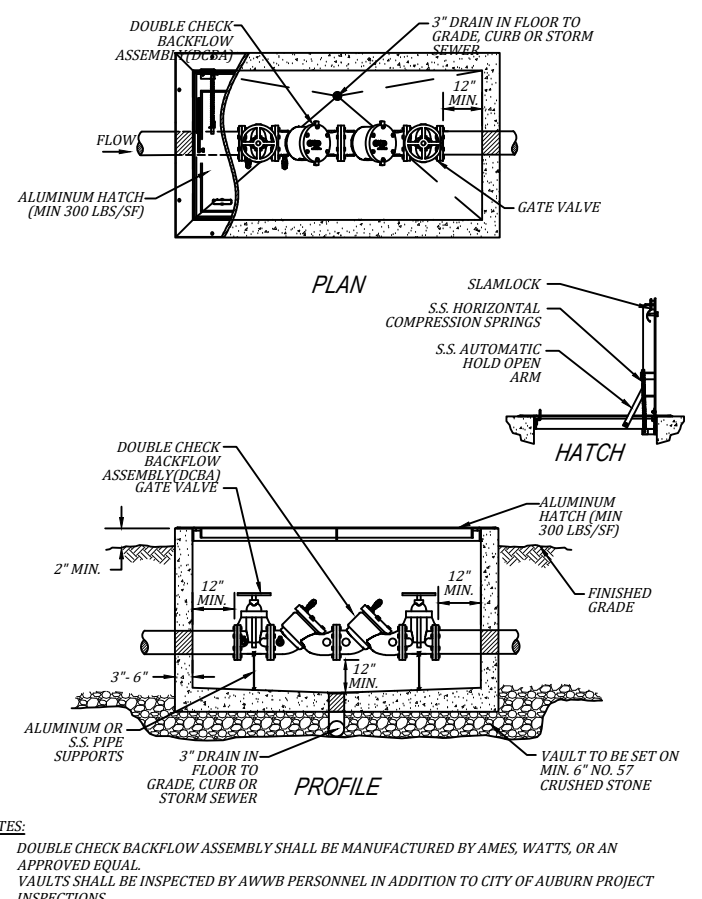
218

TYPICAL FIRE PROTECTION SYSTEM RPBA



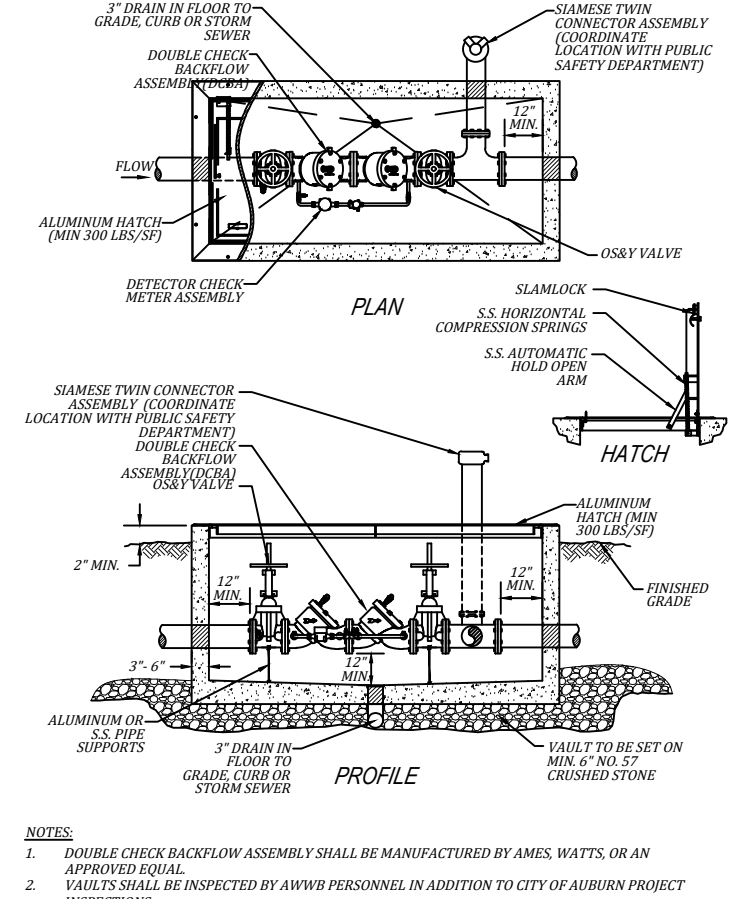
219

TYPICAL DOUBLE CHECK BACKFLOW ASSEMBLY (DCBA)



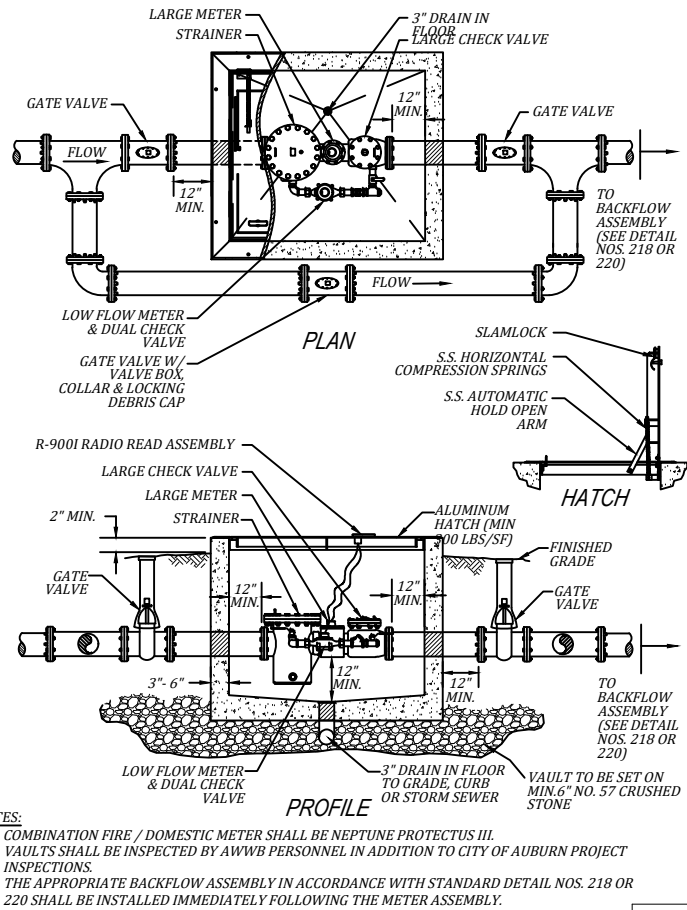
220

TYPICAL FIRE PROTECTION SYSTEM DCBA



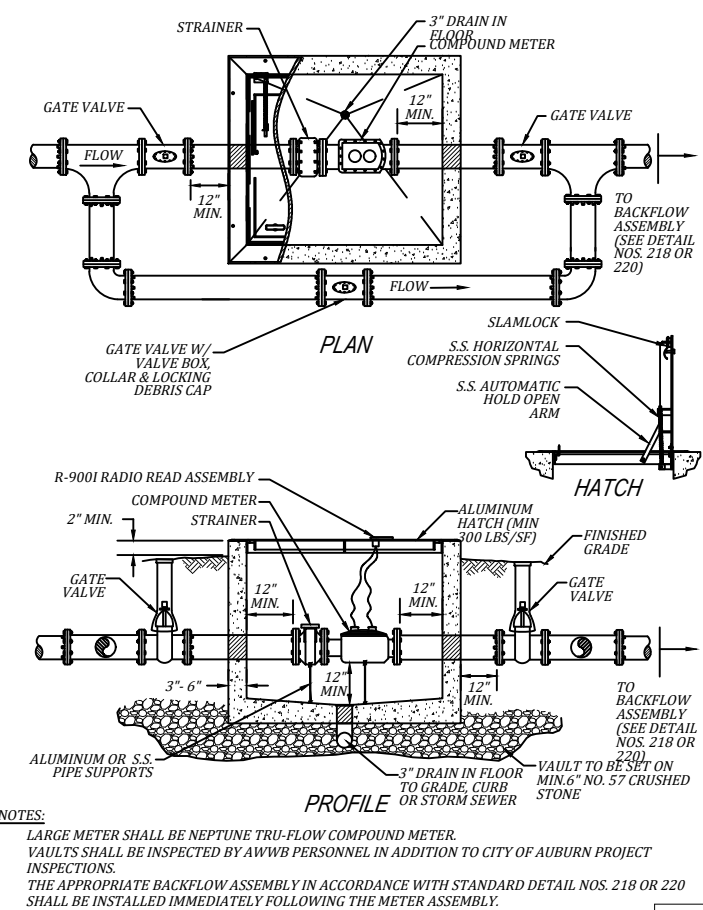
221

TYPICAL FIRE / DOMESTIC METER VAULT (4\"/>



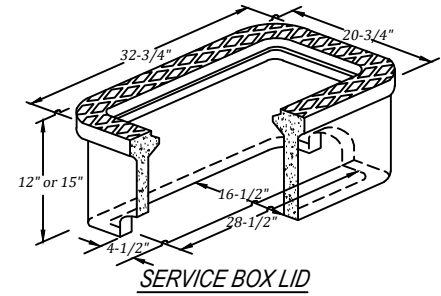
222

TYPICAL LARGE DOMESTIC METER VAULT (3\"/>

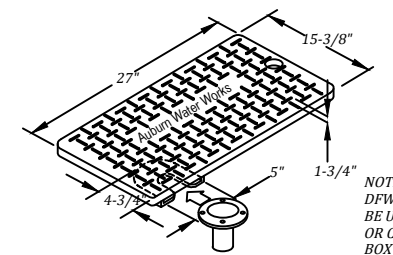


224

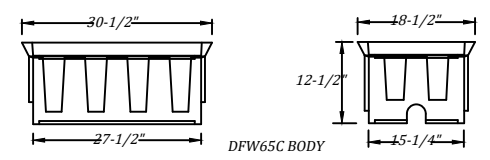
CONCRETE SERVICE BOX



SERVICE BOX LID

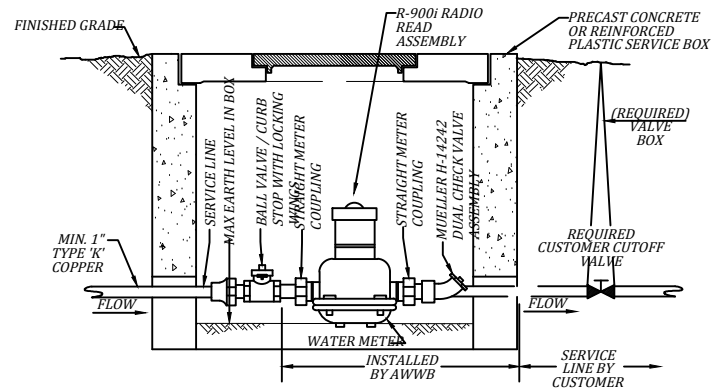


REINFORCED PLASTIC SERVICE BOX



230

TYPICAL 3/4\"/>

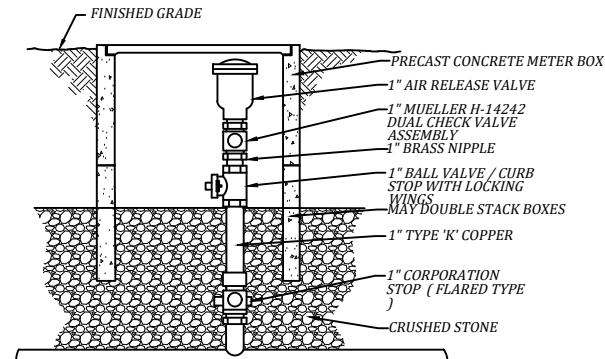


232

STANDARD DETAILS: WATER - SHEET 2 OF 4

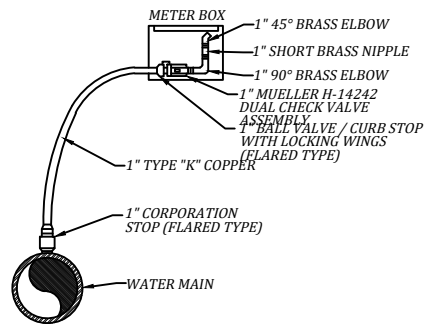
PROJECT TITLE:	DEPARTMENT:	WRM	REVISIONS:	BS-10-25-07
	SCALE:	N.T.S.		DCM 2010
	DRAWN BY:	GM		JC-10-2011
	REVIEWED BY:	IC		JC-12-2012
	APPROVED BY:	EC		MW-12-2020
	IMPLEMENTED:	JANUARY 2008		JP-02-2024

TYPICAL AUTOMATIC AIR RELEASE VALVE



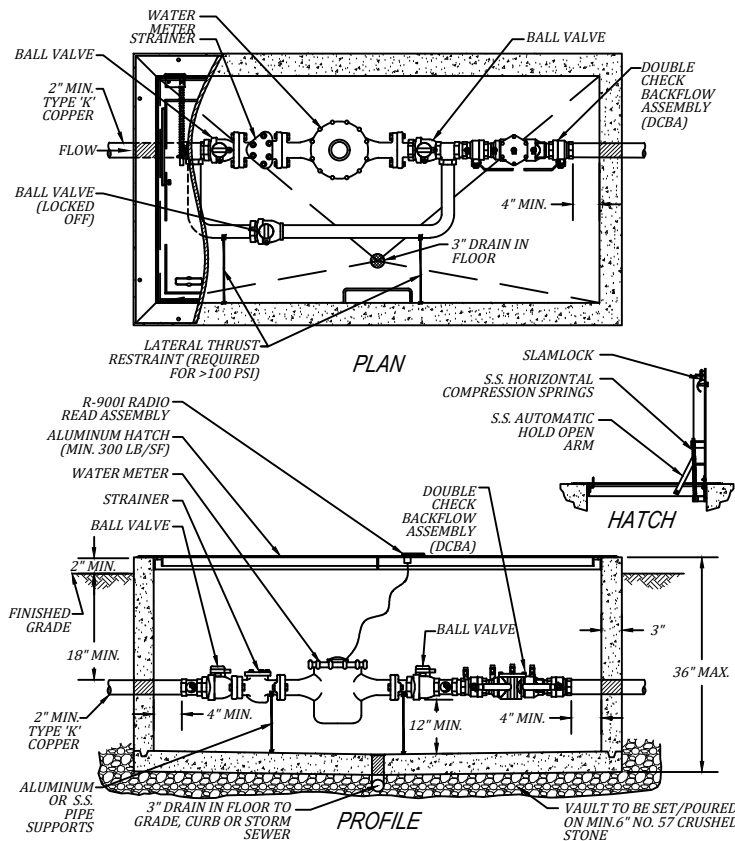
234

TYPICAL MANUAL AIR RELEASE VALVE



236

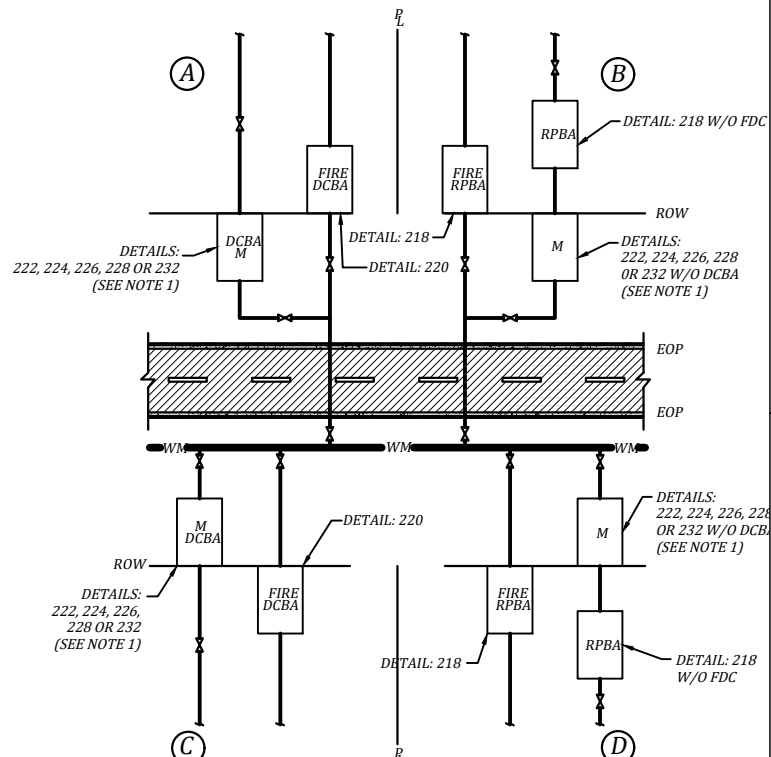
TYPICAL 1.5" TO 2.0" METER VAULT W/ DCBA



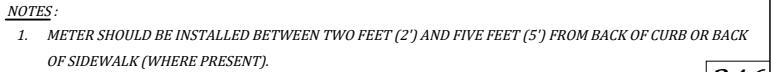
226

GENERAL SERVICE CONNECTION CONFIGURATIONS

LONG SIDE TAP CONFIGURATIONS



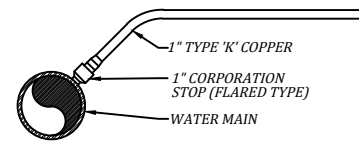
SHORT SIDE TAP CONFIGURATIONS



NOTES:
1. METER SHOULD BE INSTALLED BETWEEN TWO FEET (2') AND FIVE FEET (5') FROM BACK OF CURB OR BACK OF SIDEWALK (WHERE PRESENT).

246

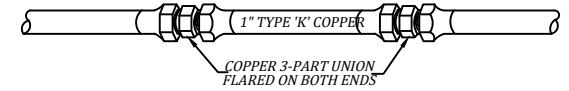
TYPICAL 1" SERVICE CONNECTION



NOTES:
1. TYPICAL 1" SERVICE CONNECTION SHALL BE USED AT A MINIMUM FOR ALL 3/4" AND 1" METER INSTALLATIONS.

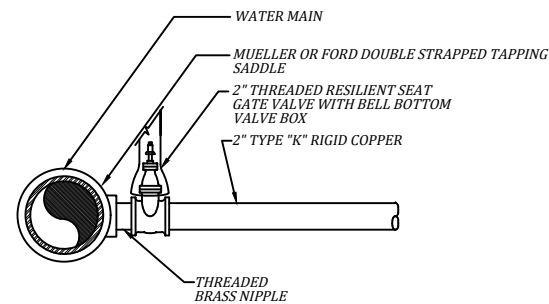
238

TYPICAL COPPER REPAIR (1" ONLY)



242

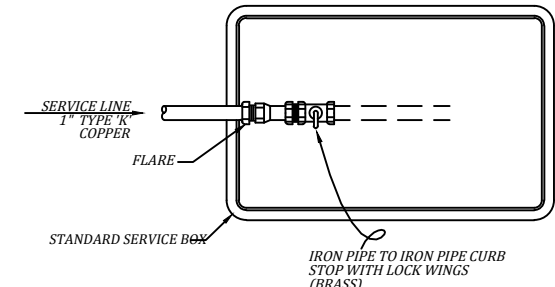
TYPICAL 2" SERVICE CONNECTION



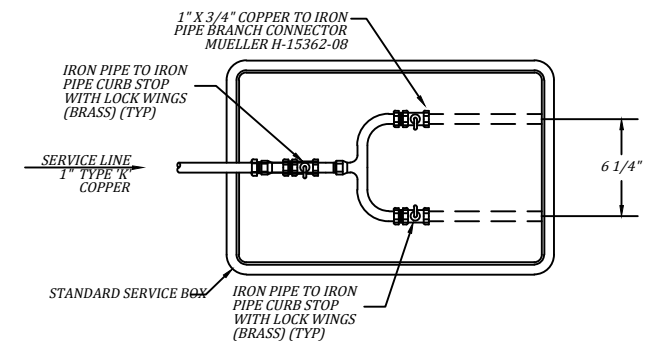
NOTES:
1. TYPICAL 2" SERVICE CONNECTION SHALL BE USED AT A MINIMUM FOR ALL 1-1/2" AND 2" METER INSTALLATIONS.

240

TYPICAL SINGLE SERVICE CONNECTION



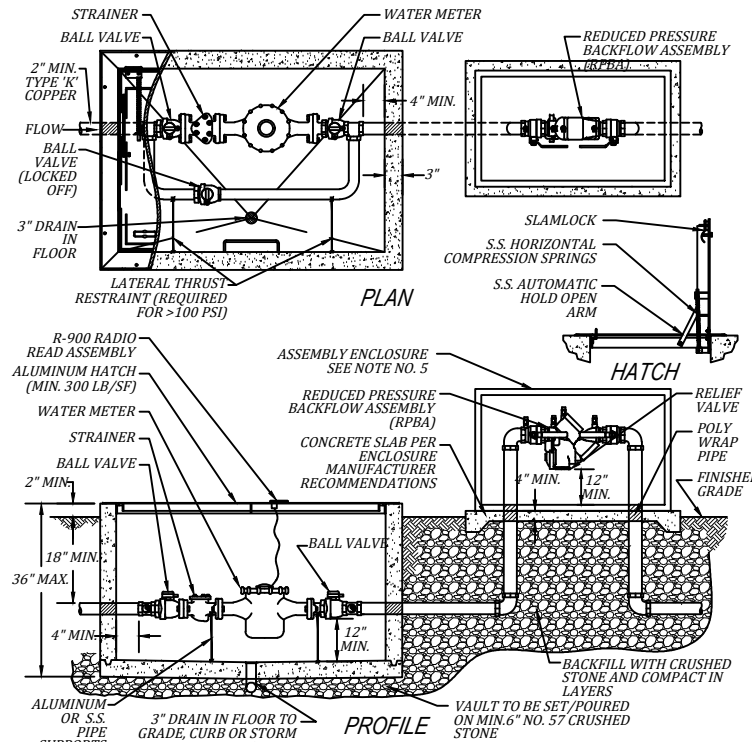
TYPICAL DOUBLE SERVICE CONNECTION



NOTES:
1. IN A SINGLE FAMILY DEVELOPMENT, BRANCH CONNECTORS WILL BE SET BY AWWB ONLY WHEN TWO (2) METERS HAVE BEEN REQUESTED (ONE DOMESTIC AND ONE IRRIGATION) FOR A SINGLE LOT AND ALL APPLICABLE FEES HAVE BEEN PAID
2. THE DOMESTIC METERS WILL NOT BE ALLOWED IN A SERVICE BOX.

244

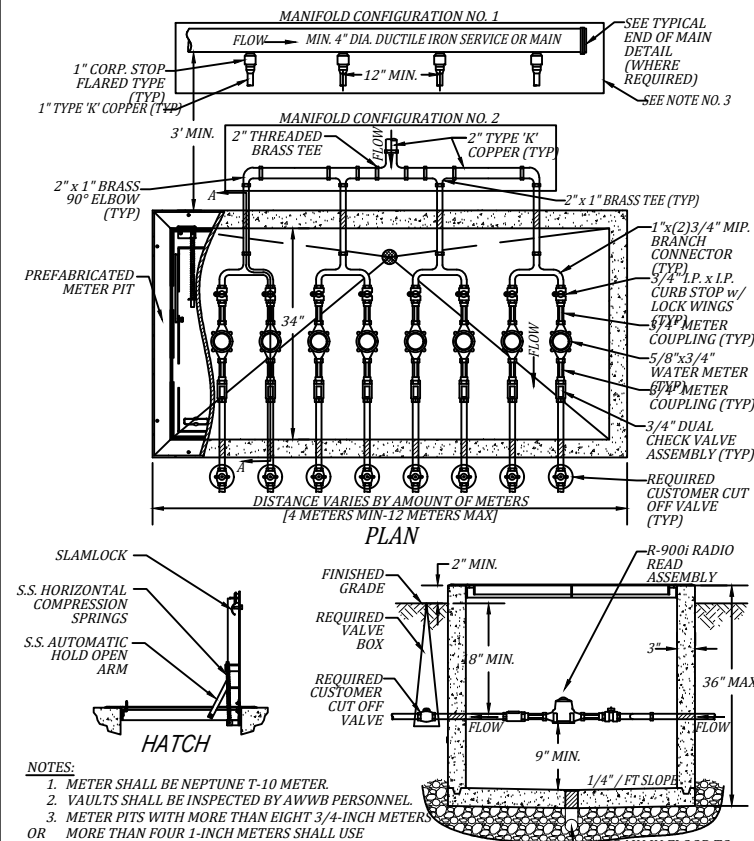
TYPICAL 1.5" TO 2.0" METER VAULT W/ RPBA



NOTES:
1. METER SHALL BE NEPTUNE T-10 METER, UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE AWWB.
2. RPBA SHALL BE MANUFACTURED BY AMES, WATTS, OR AN APPROVED EQUAL.
3. VAULTS AND RPBA SHALL BE INSPECTED BY AWWB PERSONNEL IN ADDITION TO CITY OF AUBURN PROJECT INSPECTIONS.
4. RPBA'S SHALL NOT BE BURIED OR INSTALLED IN BELOW GROUND VAULTS.
5. RPBA ENCLOSURES SHALL BE CONCRETE, REINFORCED ALUMINUM, OR FIBERGLASS CONSTRUCTION AND SHALL BE INSULATED AND/OR HEATED TO PROTECT AGAINST FREEZING. ENCLOSURES APPROVED FOR INSTALLATION INCLUDE: HYDROCOWL, HOT BOX, AND LOK BOX.

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TYPICAL MULTIPLE METER VAULT



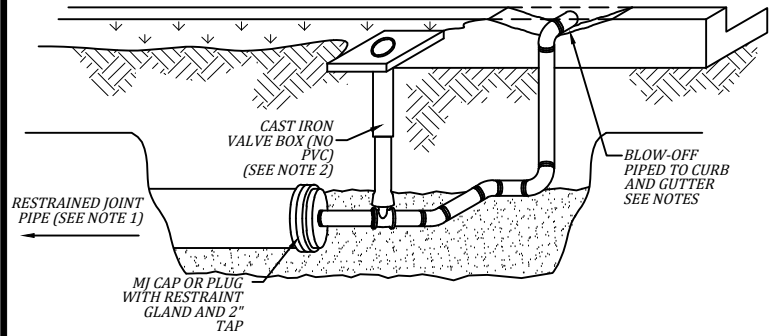
NOTES:
1. METER SHALL BE NEPTUNE T-10 METER.
2. VAULTS SHALL BE INSPECTED BY AWWB PERSONNEL.
3. METER PITS WITH MORE THAN EIGHT 3/4-INCH METERS OR MORE THAN FOUR 1-INCH METERS SHALL USE MANIFOLD CONFIGURATION NO. 1, AND THE SERVICE LINE OR MAIN SHALL BE INSTALLED PARALLEL TO THE SERVICE SIDE OF THE VAULT.
4. ALL LONG SIDE CONNECTIONS SHALL INSTALL A SINGLE SERVICE FROM THE MAIN TO THE MANIFOLD AT THE METER PIT.

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STANDARD DETAILS: WATER - SHEET 3 OF 4

PROJECT TITLE:	DEPARTMENT:	WRM	REVISIONS:	RS-10-25-07
SCALE:	N.T.S.			DCM 2010
DRAWN BY:	GM			JC-10-2011
REVIEWED BY:	IC			JC-12-2012
APPROVED BY:	EC			MW-12-2020
IMPLEMENTED:	JANUARY 2009			JP-02-2024

TYPICAL END OF MAIN IN CUL DE SAC

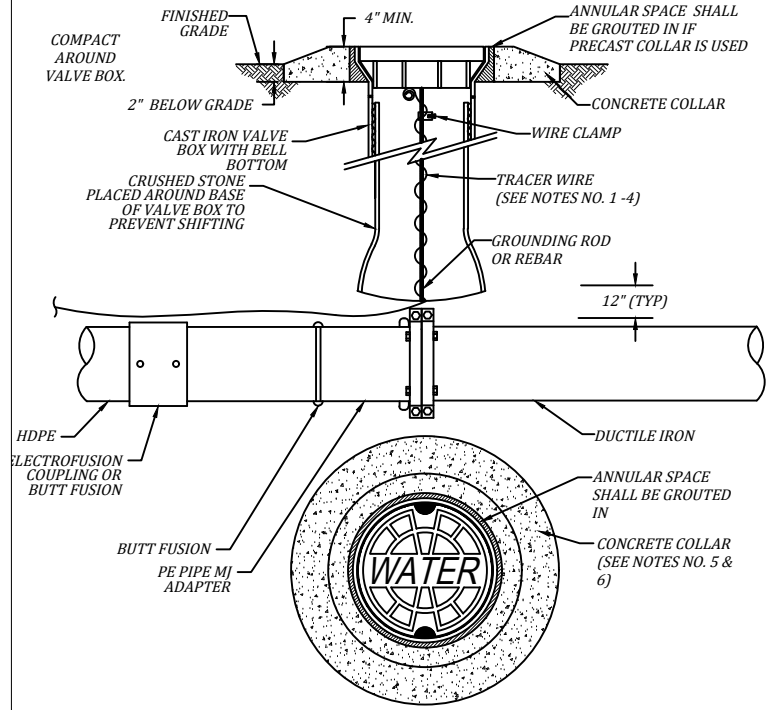


NOTES:

1. THE PREFERRED METHOD OF THRUST RESTRAINT SHALL BE THROUGH THE USE OF EXTERNALLY RESTRAINED JOINT DEVICES SUCH AS MEGA-LUGS IN LIEU OF CONCRETE BLOCKING. CONCRETE BLOCKING SHALL ONLY BE PERMITTED WHERE APPROVED BY THE AWWB AND SHALL NOT BE USED IN CONJUNCTION WITH MEGA-LUG RESTRAINTS. THE APPROPRIATE LENGTH OF RESTRAINT SHALL BE CALCULATED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
2. VALVE SHALL BE LOCATED WITHIN 24" OF THE BACK OF CURB, MAY BE PLACED IN PAVEMENT.
3. THE BLOW-OFF SHALL BE PLACED WITH AT LEAST 1" CLEARANCE BETWEEN GUTTER AND BOTTOM OF PIPE AND SHOULD BE POINTED SLIGHTLY UPWARD.
4. THE BLOW-OFF SHALL BE LOCATED WITHIN 18" OF A PROPERTY LINE AND BE ANGLED TO DIRECT FLOW AWAY FROM THE BLOW-OFF AND VALVE, AND TOWARDS A STORM DRAIN INLET.

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TYPICAL HDPE TO DUCTILE IRON MAIN TRANSITION




NOTES:

1. TRACER WIRE SHALL BE BROUGHT TO GRADE AT A MINIMUM OF EVERY 500 FEET IN A VALVE BOX.
2. TRACER WIRE SHALL WRAP AROUND GROUNDING ROD/ REBAR INSIDE VALVE BOX.
3. A MINIMUM OF 12 INCHES OF EXCESS WIRE SHALL BE COILED AND LEFT IN THE VALVE BOX.
4. TRACER WIRE SHALL BE NO. 14 A.W.G. COPPER CLAD STEEL W/ POLYETHYLENE INSULATION.
5. CONCRETE COLLAR MAY BE CAST-IN-PLACE OR PRECAST AND MAY BE ROUND OR SQUARE IN SHAPE.
6. CONCRETE COLLAR SHALL BE A MIN. 4" THICK.

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STANDARD DETAILS: WATER - SHEET 4 OF 4

	DEPARTMENT:	WRM	REVISIONS:	DCM 2010
	SCALE:	N.T.S.		JC-10-2011
	DRAWN BY:	MW		JC-12-2012
	REVIEWED BY:	JC		MW-12-2020
	APPROVED BY:	EC		MW-12-2021
	IMPLEMENTED:	JANUARY 2008		JP-02-2024