

CLTWater STANDARD DETAILS

NOTES:

- ALL FLANGE HARDWARE (BOLT/WASHER/NUT) SHALL BE STAINLESS STEEL - TYPE 304 WITH ANTI-SEIZE COMPOUND.
- ALL PIPE SHALL BE RESTRAINED JOINT DUCTILE IRON FROM TAP TO PROPERTY LINE VALVE.
- METER CONFIGURATION AND LENGTH / WIDTH MAY VARY DUE TO BRAND - VERIFY DIMENSIONS TO DETERMINE MINIMUM VAULT SIZE.
- VAULT SHALL BE SIZED AS NEEDED FOR MINIMUM CLEARANCE AS SHOWN AND RATED FOR NOT TO HOLOD - LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- ALL CONCRETE SHALL BE MINIMUM 4000 PSI COMPRESSIVE STRENGTH. DESIGN SHALL CONFORM TO ASTM C888 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE"
- STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C87 REBARS SHALL BE GRADE 60 PER ASTM A615
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185
- DIAGONAL REINFORCING SHALL BE ADDED AT ALL OPENINGS
- PIPE PENETRATIONS SHALL BE SEALED WITH FLEXIBLE CONNECTERS (MANHOLE BOOTS) OR WITH HANGES OF BRICK & MORTAR (AND 1/2 INCH THICK CONSTRUCTION EXPANSION MATERIAL)
- FRAME TO BE FLUSH WITH GROUND OR CONCRETE SIDEWALK, GROUND SHALL SLOPE AWAY FROM VAULT.
- ALL JOINTS SHALL BE MADE WATERTIGHT USING 2 RINGS OF BUTYL RUBBER JOINT MASTIC.
- ALL VALVES SHALL BE OPEN RIGHT - CLOCKWISE, EXCEPT NO. 11

NO. DESCRIPTION

- 6" TAPPING SLEEVE AND 6" FL x MJ TAPPING VALVE ON EXISTING MAIN.
- 6" MECHANICAL JOINT OUTLET TEE AND 6" MJ GATE VALVE ON NEW MAIN.
- STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES
- 6" DUCTILE IRON PIPE - RESTRAINED
- 6" MJ x FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 6" MJ x FL GATE VALVE ON LONG SIDE SERVICE (SHOWN)
- 6" ALL FLANGE DUCTILE IRON TEE
- 6" ALL FLANGE GATE VALVE
- 6" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 30" (MIN.) (SPECIAL CLASS S3)
- 6" FMCT METER ASSEMBLY (FLANGE x FLANGE) - SHOWN AS 6" x 2", MAY ALSO BE 6" x 1 1/2" - AS DETERMINED BY MANUFACTURER.
- STRAINER
- METER WITH AMR / TRANSMITTER
- CHECK VALVE
- 2" BRASS BALL VALVE WITH HANDLE (FNPT x FNPT)
- 2" BRASS 90° BEND (FNPT x FNPT)
- 2" METER (2 BOLT METER FL - EACH END) WITH AMR / TRANSMITTER
- 2" BRONZE CHECK VALVE (FNPT x FNPT)
- 2" BRONZE TEE (FNPT x FNPT x FNPT)
- 2" BRONZE PLUG (MNPT)
- 2" RED BRASS PIPE NIPPLES (TYP - AS READ) - (MNPT x MNPT)
- 2" (MIN.) SQUARE HEAD BRASS PLUG (MNPT)
- 6" DUCTILE IRON 90° BEND FLANGE x FLANGE
- 6" DUCTILE IRON PIPE - FLANGE x FLANGE SPOOL - L = 42" (MIN.) (SPECIAL CLASS S3)
- 6" x 1 1/2" SERVICE SADDLE WITH 1 1/2" BALL CORPORATION STOP - CC - TAPER TREAD
- 6" DUCTILE IRON PIPE - FLANGE x PE - L = 24" (MIN.) (SPECIAL CLASS S3)
- 6" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINT
- 6" DUCTILE IRON PIPE - FLANGE x PE - L = 18" (MIN.) (SPECIAL CLASS S3)
- 6" DUCTILE IRON PIPE - FLANGE x PE - L = 30" (MIN.) (SPECIAL CLASS S3)
- 6" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE
- 6" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT)
- 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80), RED BRASS (SCH 40), HOPE (DR9) OR DIP - END WITH THREADED COUPLING)
- GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORTS (NUMBER REQ'D = 3) (WITH STAINLESS STEEL ADHESIVE ANCHORS)
- AMR TRANSMITTERS (ERT)
- 5 FT x 5 FT ACCESS DOOR - SEE STD. DETAIL
- PRECAST REINFORCED CONCRETE VAULT - 8 FT x 6 FT x 5 FT (MIN.) SEE NOTES C AND D.
- JOINT REQUIRED AT FLAT TOP SECTION
- MINIMUM OF (3) STD. SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME - MAX. 2 FT.
- 3/8" DIA. GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL
- AWG #12 GAUGE COPPER TRACER WIRE (THWN) - WITH BLUE INSULATION - TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL)
- CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
- VALVE LOCK (FURNISHED BY CM/ID) - LOCK VALVE CLOSED.
- PLASTIC STEP - 12" OR 16" O.C. VERTICAL SPACING.

TYPICAL PLAN

TYPICAL ELEVATION

SECTION VIEW

ALTERNATE SCHEMATIC (FOR LIMITED SPACE INSTALLATIONS)

METER SIZE	A	B	C	D	E	F	G	H	8.11	J
6"	45"	11 1/16"	11 3/8"	21 1/4"	20"	19 1/2"	9 1/2"	16"	2"	3"

DIMENSION B - H VARY SLIGHTLY - AS DETERMINED BY MANUFACTURER.

RESTRAINED PIPE LENGTH REQUIREMENTS:

PIPE DIAMETER (INCHES)	REQUIRED RESTRAINED LENGTH: BARE DIP (FEET)	POLYWRAPPED DIP (FEET)
6	169	242
8	219	312
10	284	377
12	309	441

DESIGN BASIS:
 DIPRA THRUST RESTRAINT DESIGN FOR DIP[®] VERSION 3.3 DATED 05/08/2003
 LAYING CONDITION: TYPE 2
 SOIL DESIGNATION: SILT
 DEPTH OF COVER: 3.0 FT. MINIMUM
 DESIGN PRESSURE: 200 PSI
 SAFETY FACTOR: 2.0

APPROX. DEAD END THRUST SOIL BEARING PRESSURE

PIPE DIAMETER (INCHES)	TOTAL THRUST (POUNDS)	SQUARE FEET	BEARING PRESSURE (LBS/SQ. FT.)
2	724	0.89	813

APPROXIMATE SOIL BEARING CAPACITY (PSF)

SOIL TYPE	BEARING CAPACITY (PSF)
HARD CLAY	9,000
SANDY CLAY	6,000
SAND	4,000
SANDY SILT	3,000
SILT	2,000
CLAY	1,500
SOFT CLAY	1,000
MUCK	500
DESIGN POINT @ PIPE DIAMETER	250

NO. DESCRIPTION

- 2-INCH DR 13.5 PVC WATER MAIN (IPS)
- 2-INCH D.I. FC 350 ADAPTER (BELL x MNPT) - FUSION BONDED EPOXY - HARCO OR APPROVED EQUAL.
- 2-INCH GATE VALVE (FNPT x FNPT)
- 2-INCH RED BRASS NIPPLE - SCH 40 - (MNPT x MNPT), L = 30-INCH (MIN)
- 2-INCH RED BRASS 90° BEND (FNPT x FNPT)
- 2-INCH RED BRASS NIPPLE - SCH 40 - (MNPT x MNPT) - LENGTH AS REQUIRED
- 2-INCH THREADED COUPLING (FNPT x FNPT) - GALV. MALLEABLE IRON OR DUCTILE IRON (I.B.L.)
- STANDARD VALVE BOX ASSEMBLY - SEE DETAIL
- 5-INCH CAST IRON SOL. PIPE, L = 15-INCHES, OR VALVE BOX BOTTOM SECTION
- PRECAST CONCRETE SOLID BLOCK (16" x 8" x 4")

NO. ALTERNATE DESCRIPTION

WHEN USING 2-INCH SDR 9 HOPE (IPS) BLOW-OFF PIPE WITH STAINLESS STEEL BRASS OR BRONZE MNPT ENDS, USE THE FOLLOWING PRODUCTS:

- 2-INCH SDR 9 HOPE (POLY) - IPS PIPE (MNPT x MNPT) - L = 30-INCH (MIN)
- 2-INCH SDR 9 HOPE (POLY) - IPS PIPE (MNPT x MNPT) - LENGTH AS REQ'D.
- MJ CAP WITH WEDGE ACTION RESTRAINT GLAND, TAP 2-INCH THREADED OUTLET (FNPT)
- 2-INCH SDR 9 HOPE (POLY) - IPS PIPE (MNPT x MNPT) - L = 12-INCH (MIN)

2-INCH WATER MAINS

PLAN VIEW

ELEVATION VIEW

END VIEW

3/4 - INCH SERVICE LID

1 - INCH SERVICE LID

NOTES:

- MATERIAL - HIGH DENSITY POLYETHYLENE (HDPE) - RECYCLED
- COLOR - CHARLOTTE GREY
- LOAD RATING - HEAVY DUTY
- MANUFACTURER - DFW PLASTICS INC. OR APPROVED EQUAL

NO. DESCRIPTION

- OUTLET TAPPING SLEEVE AND 6" FL x MJ TAPPING VALVE ON EXISTING MAIN.
- 6" MECHANICAL JOINT OUTLET TEE AND 6" MJ GATE VALVE ON NEW MAIN.
- STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES
- 6" DUCTILE IRON PIPE - RESTRAINED
- 6" MJ x FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 6" MJ x FL GATE VALVE ON LONG SIDE SERVICE (SHOWN)
- 6" ALL FLANGE DUCTILE IRON TEE
- 6" ALL FLANGE GATE VALVE
- 6" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 30" (MIN.) (SPECIAL CLASS S3)
- 6" FMCT METER ASSEMBLY (FLANGE x FLANGE)
- STRAINER
- METER WITH AMR / TRANSMITTER
- CHECK VALVE
- 2" BRASS BALL VALVE WITH HANDLE (FNPT x FNPT)
- 2" BRASS 90° BEND (FNPT x FNPT)
- 2" METER (2 BOLT METER FL - EACH END) WITH AMR / TRANSMITTER
- 2" BRONZE CHECK VALVE (FNPT x FNPT)
- 2" BRONZE TEE (FNPT x FNPT x FNPT)
- 2" BRONZE PLUG (MNPT)
- 2" RED BRASS PIPE NIPPLES (TYP - AS READ) - (MNPT x MNPT)
- 2" (MIN.) SQUARE HEAD BRASS PLUG (MNPT)
- 6" DUCTILE IRON 90° BEND FLANGE x FLANGE
- 6" DUCTILE IRON PIPE - FLANGE x FLANGE SPOOL - L = 60" (MIN.) (SPECIAL CLASS S3)
- 6" x 1 1/2" SERVICE SADDLE WITH 1 1/2" BALL CORPORATION STOP - CC - TAPER TREAD
- 6" DUCTILE IRON PIPE - FLANGE x PE - L = 20" (MIN.) (SPECIAL CLASS S3)
- 6" MECHANICAL JOINT DUCTILE IRON LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINT
- 6" DUCTILE IRON PIPE - FLANGE x PE - L = 14" (MIN.) (SPECIAL CLASS S3)
- 6" DUCTILE IRON PIPE - FLANGE x PE - L = 30" (MIN.) (SPECIAL CLASS S3)
- 6" MECHANICAL JOINT (RJ) GATE VALVE - OPEN LEFT AT PROPERTY LINE
- 6" MECHANICAL JOINT PLUG WITH 2" TAP (FNPT)
- 2" TEMPORARY BLOW OFF ASSEMBLY (GALV. STEEL (SCH 80), RED BRASS (SCH 40), HOPE (DR9) OR DIP - END WITH THREADED COUPLING)
- GALV. STEEL OR S.S. ADJUSTABLE FLANGE PIPE SUPPORT (NUMBER REQ'D = 4) (WITH STAINLESS STEEL ADHESIVE ANCHORS)
- AMR TRANSMITTERS (ERT)
- 5 FT x 5 FT ACCESS DOOR - SEE STD. DETAIL
- PRECAST REINFORCED CONCRETE VAULT - 8 FT x 6 FT x 5 FT (MIN.) SEE NOTES C AND D.
- JOINT REQUIRED AT FLAT TOP SECTION
- 3/8" DIA. GALV. STEEL EYE BOLT (EPOXY ADHESIVE ANCHOR) - TYPICAL
- AWG #12 GAUGE COPPER TRACER WIRE (THWN) - WITH BLUE INSULATION - TERMINATE WITH 24" EXCESS WIRE (COILED) AT EYE BOLT AND VALVE BOX (TYPICAL)
- CAST IN PLACE CONCRETE SIDEWALK - BRICKWORK SHALL NOT EXTEND TO SURFACE. ACCESS DOOR FRAME SHALL REST ON SIDEWALK.
- VALVE LOCK (FURNISHED BY CM/ID) - LOCK VALVE CLOSED.
- PLASTIC STEP - 12" OR 16" O.C. VERTICAL SPACING.

WATER METER BOX - PLASTIC LID FOR 3/4 - INCH AND 1 - INCH WATER SERVICES

TYPICAL PLAN

TYPICAL ELEVATION

SECTION VIEW

ALTERNATE SCHEMATIC (FOR LIMITED SPACE INSTALLATIONS)

METER SIZE	A	B	C	D	E	F	G	H	8.11	J
6"	50"	11 13/16"	13 29/64"	25 7/8"	34 1/4"	21 3/4"	12 1/2"	17"	3"	3"

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- ALL VALVES SHALL BE OPEN RIGHT - CLOCKWISE, EXCEPT NO. 11

NO. DESCRIPTION

- 8" OUTLET TAPPING SLEEVE AND 8" FL x MJ TAPPING VALVE ON EXISTING MAIN.
- 8" MECHANICAL JOINT OUTLET TEE AND 8" MJ GATE VALVE ON NEW MAIN.
- STANDARD VALVE BOX ASSEMBLY (TYPICAL) - ALL VALVES
- 8" DUCTILE IRON PIPE - RESTRAINED
- 8" MJ x FL DUCTILE IRON ADAPTER ON SHORT SIDE SERVICE (NOT SHOWN), 8" MJ x FL GATE VALVE ON LONG SIDE SERVICE (SHOWN)
- 8" ALL FLANGE DUCTILE IRON TEE
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- 8" ALL FLANGE DUCTILE IRON PIPE SPOOL - L = 36" (MIN.) (SPECIAL CLASS S3)
- 8" FMCT METER ASSEMBLY (FLANGE x FLANGE)
- STRAINER
- METER WITH AMR / TRANSMITTER
- CHECK VALVE
- 2" BRASS BALL VALVE WITH HANDLE (FNPT x FNPT)
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8-INCH FIRE METER COMPOUND TYPE (FMCT) WATER METER AND PRECAST CONCRETE VAULT

TYPICAL PLAN

TYPICAL ELEVATION

SECTION VIEW

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2/6/2015
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 REV: 2/1/2012