

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 MAY VARY DUE TO BRAND - VERIFY LENGTH TO DETERMINE MINIMUM VAULT LENGTH.
- VAULT SHALL BE SIZED AS NEEDED FOR PIPE (8.5" MINIMUM) AND RATED FOR NCDOT HS-20 LOADING - SUBMIT SHOP DRAWINGS / P.E. SEALED FOR REVIEW.
- ALL CONCRETE SHALL BE MINIMUM 4000 PSI COMPRESSIVE STRENGTH.
- DESIGN SHALL CONFORM TO ASTM C898 - SPECIFICATIONS FOR "UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE".
- STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C857
- 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 CONNECTORS (MANHOLE BOOTS) OR WITH BUNCHES 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. 13

NO. DESCRIPTION

- 4" TAPPING SLEEVE AND 4" FLANGE x MJ TAPPING VALVE ON EXISTING MAIN, 4" MJ TEE AND 4" MJ GATE VALVE ON NEW MAIN.
- STANDARD VALVE BOX ASSEMBLY (TYP.) - ALL VALVES
- 4" RESTRAINED JOINT DUCTILE IRON PIPE
- FLANGE DUCTILE IRON TEE WITH ADJUSTABLE FLANGE SUPPORT
- FLANGE DUCTILE IRON 90°-BEND
- FLANGE x PLAIN END DUCTILE IRON PIPE (MIN. SPECIAL CLASS S3)
- 1/2" LONG PATTERN SOLID SLEEVE WITH RESTRAINED JOINTS
- 3/4" BALL CORPORATION STOP WITH TAPPING SADDLE
- FLANGE GATE VALVE; WITH 2" OPERATING NUT - OPEN RIGHT AND WITH ADJUSTABLE FLANGE SUPPORT ON BYPASS VALVE
- FLANGE STRAINER
- FLANGE COMPOUND METER ASSEMBLY W/AMR TRANSMITTERS, METER CONFIGURATION MAY VARY DUE TO BRAND SUPPLIED.
- FLANGE CHECK VALVE W/1/2" FLANGE-2" TAPIThreaded BRASS PLUG
- MECHANICAL JOINT (RJ) GATE VALVE-2" OPERATING NUT - OPEN LEFT @ PROPERTY LINE.
- MECHANICAL JOINT PLUG WITH 2" TAP
- 2" PIPE GALVANIZED STEEL (SCH 80), RED BRASS (SCH 40), HDPE (DR 9) OR DIP WITH STANDARD VALVE BOX/CONCRETE PAD
- 2" THREADED COUPLING
- ADJUSTABLE FLANGE SUPPORTS (3 REQUIRED)
- AMR TRANSMITTERS
- 4" x 9" DOUBLE LEAF ACCESS DOOR, SEE STANDARD DETAIL
- PRECAST REINFORCED CONCRETE VAULT
- MINIMUM OF (3) STANDARD SOLID CONCRETE BRICK COURSES UNDER ACCESS DOOR FRAME, MAXIMUM 2FT.
- JOINT REQUIRED AT FLAT TOP SECTION.
- 3/8" DIA. GALV. STEEL EYE BOLT (ADHESIVE ANCHOR) - TYPICAL
- AWG #12 GAUGE COPPER TRACER WIRE (TWN) - WITH BLUE INSULATION - TERMINATE WITH 24" EXCESS WIRE (COILED) @ 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 CMUD) - LOCK VALVE CLOSED
- PLASTIC STEP - 12" OR 18" O.C. VERTICAL SPACING

4 - inch COMPOUND WATER METER AND PRECAST CONCRETE VAULT

CHARLOTTE-MECKLENBURG UTILITIES STANDARD DETAILS WATER

NO. DESCRIPTION

- TYPE I ADJUSTMENT RISER.
- VALVE BOX - TOP SECTION.
- 18 - 8 SS 3/8"-16 x 3/8" HEX SET SCREW WITH PERMANENT THREAD LOCK (RED) - LOCITITE # 271, PERMANENT HM128, OR APPROVED EQUAL.
- 1/2" DIA. x 1/16" - FIELD DRILL HOLE.

TYPE II - ADJUSTMENT RISER

TH - TOTAL HEIGHT	AH - ADJUSTMENT HEIGHT	H	MINIMUM WEIGHT - LBS
< 4 1/2"	< 2 1/2"	NOT APPROVED	NOT APPROVED
4 1/2"	2 1/2"	0	16
5"	3"	1/2"	20
6"	4"	1 1/2"	22.5
7"	5"	2 1/2"	25
8"	6"	3 1/2"	27
10"	8"	5 1/2"	32

TYPE I - ADJUSTMENT RISER

TH - TOTAL HEIGHT	AH - ADJUSTMENT HEIGHT	MIN. WEIGHT LBS
3"	1"	7
3 1/2"	1 1/2"	9
4"	2"	15
> 4"	NOT APPROVED	N/A

NOTES:

- LOAD RATING - HEAVY DUTY.
- FERROUS CASTINGS MATERIAL - ASTM A48 - CLASS 35 GRAY IRON.
- COATING - UNDIPPED OR ASPHALT VARNISH.
- WEIGHT - 0% MINUS TOLERANCE.
- CASTINGS SHALL CONFORM TO DIMENSION AND WEIGHT REQUIREMENTS.
- TYPE II ADJUSTMENT RISERS MAY BE STACKED.
- TYPE I ADJUSTMENT RISERS MAY NOT BE STACKED.

4 - inch COMPOUND WATER METER AND PRECAST CONCRETE VAULT

CHARLOTTE-MECKLENBURG UTILITIES STANDARD DETAILS WATER

NOTES:

- NO BRANCHES, OUTLETS OR TAPS SHALL BE PERMITTED BETWEEN (1) AND (2).
- RP BACKFLOW ASSEMBLY MUST BE TESTED AND APPROVED BY CMU
- APPROVED TESTER PRIOR TO MOVING ANY WATER TO THE NEW MAIN.
- FLEXIBLE HOSE (3) SHALL BE REMOVED DURING PRESSURE / LEAKAGE TESTS.
- CMU FURNISHED PRESSURE GAUGE (4) AND METER (5) SHALL BE REMOVED DURING CHLORINATION.
- CMU METER SHALL BE INSTALLED AT PRIMARY LOCATION (6) AS SHOWN, UNLESS SPECIFICALLY APPROVED AT ALTERNATE LOCATION (7).
- CMU PRESSURE GAUGES SHALL BE INSTALLED AT LOWEST POINT IN NEW MAIN AND AT OPPOSITE END OF NEW MAIN.
- CMU PRESSURE GAUGE (8) SHALL BE INSTALLED WHILE NEW MAIN IS NOT UNDER PRESSURE. MAIN SHALL THEN BE PUMPED UP TO TEST PRESSURE.
- ALL TEMPORARY JUMPER PIPING FROM EXISTING BLOW-OFF TO NEW MAIN SHALL BE SAME DIAMETER AS EXISTING BLOW-OFF - 2" OR 4" DIAMETER.
- BRANCH PIPING TO AND FROM TANK AND INJECTOR PUMP SHALL BE SIZED AS DETERMINED BY CONTRACTOR.
- ALL WATER USED TO FILL, FLUSH, CHLORINATE, DE-CHLORINATE, REFLUSH, OR ACTIVATE NEW MAIN SHALL PASS THROUGH TURBINE METER (9).
- CMU INSPECTOR AND CONTRACTOR SHALL READ AND RECORD METER READING WHEN INSTALLED AND PRIOR TO REMOVAL OF METER (4).
- DURING COLD WEATHER MONTHS, PROVIDE FREEZE PROTECTION AS NECESSARY.

NO. DESCRIPTION

- EXISTING BLOW-OFF ASSEMBLY AND CONTROL VALVE ON EXISTING WATER MAIN
- 2" OR 4" RIGID HARD PIPING
- BALL VALVE (OPTIONAL)
- 2" OR 4" TURBINE METER - (GALS)
- CMU APPROVED 2" OR 4" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY.
- RIGID MECHANICAL SUPPORT
- QUICK CONNECT COUPLING
- FLEXIBLE HOSE WITH QUICK CONNECT COUPLINGS
- TEE
- 300 PSI INLINE SPRING LOADED CHECK VALVE (OPTIONAL)
- 300 PSI BALL VALVE
- CROSS WITH 1/4" OUTLET
- 300 PSI BRASS (OR STAINLESS STEEL) 1/4" QUICK CONNECT COUPLER (FEMALE)
- CMU FURNISHED 300 PSI PRESSURE GAUGE WITH BRASS (OR STAINLESS STEEL) 1/4" COUPLER PLUG (MALE)
- TEMPORARY BLOW-OFF ASSEMBLY AND CONTROL VALVE ON NEW WATER MAIN
- FLEXIBLE HOSE
- TANK - LIQUID CHLORINE (DURING CHLORINATION) OR FRESH WATER (DURING PRESSURE / LEAKAGE TESTS)
- SUCTION PIPE (FLEXIBLE HOSE OR RIGID PIPE)
- CMU FURNISHED 5/8" METER (GALS) - (PRIMARY LOCATION)
- CMU FURNISHED 5/8" METER (GALS) - (ALTERNATE LOCATION)
- INJECTOR PUMP

NEW WATER MAIN JUMPER SCHEMATIC FOR 2" - 24" MAINS

CHARLOTTE-MECKLENBURG UTILITIES STANDARD DETAILS WATER

NO. DESCRIPTION

- CONCRETE PAD - CAST IN PLACE.
- FINAL ASPHALT SURFACE COURSE.
- VALVE BOX COVER.
- TOP SECTION VALVE BOX.
- EXTENSION STEM AS REQUIRED.
- BOTTOM SECTION VALVE BOX.
- 6" PVC PIPE (C900 OR SDR35)
- STANDARD CONCRETE BRICK - 2 EACH.
- GATE VALVE (OR BALL VALVE AS APPLICABLE), 5" DIA. CAST IRON SOIL PIPE - BELL OF PIPE WILL RECEIVE BOTTOM SECTION OF VALVE BOX.
- EXISTING OR NEW PAVEMENT.
- COMPACTED AGGREGATE BASE COURSE (CABC).
- COMPACTED SUBGRADE.
- AWG #12 GAUGE COPPER TRACER WIRE (TWN) WITH BLUE INSULATION, TERMINATE WITH 24 INCH EXCESS WIRE (COILED) AT METER BOX AND VALVE BOX (TYP.).

NOTES:

- WATER VALVE ADJUSTMENTS WILL BE COMPLETED AT LEAST 36 HOURS BEFORE RESURFACING.
- MINIMUM WIDTH OF EXCAVATION AROUND VALVE BOX.
- DISTURBED AREAS AROUND STRUCTURE ADJUSTMENTS ARE TO BE TAMPED AND FILLED WITH 4000 PSI HIGH EARLY PORTLAND CEMENT CONCRETE.
- ALL DAMAGED OR MISALIGNED VALVE BOXES ARE TO BE REPORTED TO INSPECTOR, OTHERWISE CONTRACTOR ASSUMES RESPONSIBILITY FOR DAMAGE OR MISALIGNMENT.
- IF THE VERTICAL ADJUSTMENT CAUSES LESS THAN ONE INCH OVERLAP BETWEEN TOP SECTION AND RISER PIPE, CONTRACTOR WILL REMOVE AND REPLACE RISER PIPE FROM BOTTOM SECTION TO TOP TO PROVIDE 3 INCHES OF OVERLAP IN TOP SECTION FOR TYPE A OR IF THE VERTICAL ADJUSTMENT CAUSES LESS THAN ONE INCH OVERLAP BETWEEN TOP SECTION AND BOTTOM SECTION, CONTRACTOR WILL REMOVE AND RESET BOTTOM SECTION TO PROVIDE A MINIMUM OF 3 INCHES OVERLAP AT TOP SECTION/BOTTOM SECTION JOINT SECTION & BOTTOM SECTION RISER PIPE JOINT FOR TYPE B.
- ALL CONCRETE SHALL BE VIBRATED IN ACCORDANCE WITH N.C. DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
- TOP & BOTTOM SECTION TO BE CENTERED OVER NUT, NOT TO BEAR ON VALVE BODY.
- PROVIDE CLEARANCE BETWEEN VALVE BOX/BRICK AND THE VALVE.
- VALVE BOX ASSEMBLY SHALL CONSIST OF NO MORE THAN 3 VERTICAL SECTIONS - 1 TOP SECTION, 1 - BOTTOM SECTION AND 1 - PIPE RISER SECTION.

VERTICAL VALVE BOX ADJUSTMENT FOR PAVEMENT RESURFACING

CHARLOTTE-MECKLENBURG UTILITIES STANDARD DETAILS WATER

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