

KENNEBUNK, KENNEBUNKPORT & WELLS WATER DISTRICT

MATERIAL SPECIFICATIONS

10/11/2018

The following material specifications section is intended to apply to ALL new construction, both public and private. For the purposes of ensuring overall proper workmanship and compliance to these specifications, the District makes no distinction between extensions that are to be owned and maintained by the District, and private extensions, services or fire sprinkler systems installed to serve commercial, industrial or multi-unit type projects.

Any item not specifically listed in the Approved Manufacturers sections but meeting the general requirements may be submitted on an individual request basis for District review and possible approval.

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BOLTS AND NUTS

GENERAL SPECIFICATIONS

- 1.0 CorTen steel T-bolts shall be used for M/J fittings
- 2.0 Grade 5 bolts, A307B heavy head bolt/heavy duty nuts shall be used for flange fittings.

BUTTERFLY VALVES

GENERAL SPECIFICATIONS

- 1.0 For sizes 16" and larger only (for buried applications only)
- 2.0 Shall open right
- 3.0 Shall have MJ ends
- 4.0 Meets or exceeds all applicable requirements of ANSI/AWWA C504 latest revision
- 5.0 Factory epoxy-coated inside and outside
- 6.0 Shall be used only with prior approval of KK&WWD.

APPROVED MANUFACTURERS & MODELS

- Clow (4500 Series)
- Henry Pratt Co. (Groundhog)
- Mueller Co. (Linesal III)

CORPORATION STOPS

GENERAL SPECIFICATIONS

- 1.0 Shall be brass and shall conform to AWWA Standard C-800 latest revision
- 2.0 Shall be NO LEAD - UL Classified to NSF/ANSI Standard 61 and Standard 372
- 3.0 3/4" to 2" corporation stops shall be ball valve design with brass ball that is Teflon coated or brass ball with Teflon seats
- 4.0 Shall have AWWA taper thread (CC) inlet by Pack-Joint (compression) outlet for copper/CTS plastic.
- 5.0 Shall have a full port opening
- 6.0 The body of the corporation stop shall be of heavy duty design (working pressure of 300 psi)

APPROVED MANUFACTURERS

- A.Y. McDonald
- Cambridge Brass
- Ford Meter Box Co.
- Mueller Co.

CURB STOPS (BALL VALVES)

GENERAL SPECIFICATIONS

- 1.0 Shall be brass and shall conform to AWWA Standard C-800 latest revision
- 2.0 Shall be NO LEAD - UL Classified to NSF/ANSI Standard 61 and Standard 372
- 3.0 Shall be Pack Joint or female iron pipe (Brass nipples are not to be used with FIP curb stops – use Pack Joint adapters only).
- 4.0 $\frac{3}{4}$ " to 2" curb stops shall be ball valve design with brass ball that is Teflon coated or brass ball with Teflon seats.
- 5.0 Shall have a full-port opening.
- 6.0 Shall open with $\frac{1}{4}$ turn (90-degrees) with a stop.
- 7.0 Shall not have a drain.
- 8.0 The valve stem shall have 2 "O" rings and a bronze ring lock which holds the stem solidly in the valve body.
- 9.0 The valve body shall be of heavy-duty design (working pressure of 300 psi).

APPROVED MANUFACTURERS

- A.Y. McDonald
- Cambridge Brass
- Ford Meter Box Co.
- Mueller Co.

DUCTILE IRON PIPE

GENERAL SPECIFICATIONS

- 1.0 All Ductile Iron Pipe installations shall be encased in a protective polyethylene sleeve system. See "Polyethylene Encasement".
- 2.0 Ductile iron pipe shall meet requirements of AWWA Standard C-151 (latest revision) and be cement-lined and seal-coated to meet AWWA Standard C-104 (latest revision).
- 3.0 4 inch through 12 inch, Class 52 cement-lined, standard thickness. Push-on joint.
- 4.0 16 inch through 20 inch, Class 51 cement-lined, standard thickness. Push-on joint or approved equal.
- 5.0 Joints shall meet requirements of AWWA C-111 (latest revision).
- 6.0 Interior seal-coated, bituminous paint oil cut - Emulsion not acceptable
- 7.0 Exterior bituminous coated with minimum of 2 mils dry film thickness or zinc coated.
- 8.0 State nominal laying length and mark shorter lengths near bell.
- 9.0 Mechanical joint pipe to be furnished with gland, gaskets and Cor-Ten bolts and nuts.

APPROVED MANUFACTURERS

- American Cast Iron Pipe
- McWain
- U.S. Pipe

FIRE HYDRANTS

GENERAL SPECIFICATIONS

- 1.0 The hydrant shall open right.
- 2.0 The operating nut shall be 1-1/2" pentagon, no taper.
- 3.0 Nozzles shall be:
 - 3.1 2 each – 2-1/2" National Standard Thread
 - 3.2 1 each – 4-1/2" National Standard Thread
- 4.0 Port covers shall be supplied without chains
- 5.0 Traffic model hydrant with breakaway feature
- 6.0 Barrel length shall be the length required (available in 6" increments) to attain proper height of breakaway flange
- 7.0 Shall have plugged drain hole
- 8.0 Hydrant shoe or base shall have the following:
 - 8.1 6" MJ inlet;
 - 8.2 5-1/4" valve opening with non-draining bronze seat that is permanently plugged;
 - 8.3 Valve seat and sub-seat arrangement shall be bronze to bronze;
- 9.0 Bolts:
 - 9.1 All buried flange joint bolts shall be stainless steel (Type 304) or silicone bronze.
 - 9.2 All above-ground bolts shall be stainless steel (Type 304) or silicone bronze.
- 10.0 Hydrant, bonnet, and caps shall be epoxy coated yellow from the factory. Other colors require prior approval from the District.

FIELD TEST OF INSTALLED HYDRANT

- Hydrant flow shall completely stop with no more than 200 ft.-lb. of torque applied to the operating nut.
- Failure to shut completely at no more than 200 ft.-lb. of torque will be cause for rejection of that hydrant.

APPROVED MANUFACTURERS

- Mueller Super Centurion 250 #A423
- American Flow Control – Waterous Pacer

FITTINGS, BENDS, TEES, & SOLID SLEEVES

GENERAL SPECIFICATIONS

- 1.0 Materials shall be manufactured in North America
- 2.0 M/J compact Class 350 cement-lined fittings shall meet AWWA C153 (latest revision) for fittings 4" through 20".
- 3.0 Solid sleeves shall not be cement-lined, but shall be bituminous coated inside to 4 mils dry film thickness.
- 4.0 Mechanical joint with accessories furnished: D.I. glands, gaskets, Cor-Ten T-bolts and nuts.
- 5.0 4"-20" sizes shall have Class 350 pressure rating in accordance with AWWA C153.
- 6.0 The "compact design" fittings must provide adequate space for the MJ joint and accessories to be installed without special tools (i.e. Lowell wrench can be used).
- 7.0 Solid sleeves shall be long-body only.
- 8.0 PVC pressure fittings are not allowed.

APPROVED MANUFACTURERS

- Tyler Union
- US Pipe
- Others with prior approval from the District

MECHANICAL JOINT RESTRAINTS

GENERAL SPECIFICATIONS

- 1.0 The joint restraint ring and its wedging components shall be made of ductile iron conforming to ASTM A536-80.
- 2.0 Dimensions of the restrainer must allow use with standard MJ bell conforming to AWWA C111 and AWWA C153.
- 3.0 Restrainer must restrain up to 350 psi of working pressure in 4" to 20" sizes
- 4.0 Torque limiting twist-off nuts shall be used to ensure proper actuation of the restraining wedges

APPROVED MANUFACTURERS & MODELS FOR C-900 PVC PIPE

- Sigma – “ONE-LOK”
- The Ford Meter Box Company, Inc. – “Uni-Flange Series 1500”
- Ebba Iron, Inc. – “Mega Lug”
- Star Grip Series 3000
- Romac Industries, Inc. – “PVC-RomaGrip”
- Romac Industries, Inc. - “Alpha” Restraint
- Tyler Union - “TufGrip” Series 2000

APPROVED MANUFACTURERS & MODELS FOR C-909 PVC PIPE

- Romac Industries, Inc. – “PVC-RomaGrip”
- The Ford Meter Box Company, Inc. – “Uni-Flange Series 1500”

APPROVED MANUFACTURERS & MODELS FOR DUCTILE IRON PIPE

- Sigma – “ONE-LOK”
- The Ford Meter Box Company, Inc. – “Uni-Flange Series 1400”
- Ebba Iron, Inc. – “Mega Lug”
- Foster Adapter
- Star Grip Series 4000
- Romac Industries, Inc. – “RomaGrip”
- Romac Industries, Inc. - “Alpha” Restraint
- Tyler Union - “TufGrip” Series 1000
- **Grip tight wedge style D.I. gasket restraints are not allowed.**

POLYETHYLENE ENCASEMENT

GENERAL SPECIFICATIONS

- 1.0 Tube type polyethylene encasement shall be installed on all ductile iron pipe and fittings in accordance with AWWA Standard C105 – latest revision, Method A.
- 2.0 Polyethylene encasement shall be either linear low-density polyethylene (LLDPE) film with a minimum thickness of 8-mil or high-density, cross-laminated polyethylene (HDCLPE) film with a minimum thickness of 4-mil.
- 3.0 Ductile iron pipe shall be encased with “V-Bio” enhanced polywrap by U.S. Pipe or approved alternative.
- 4.0 The encasement shall be securely taped as necessary along the barrel of the pipe.

POLYETHYLENE PIPE AND ACCESSORIES

GENERAL SPECIFICATIONS

- 1.0 Polyethylene pipe systems are acceptable for special installations. Any proposed use of polyethylene pipe must be pre-approved by the District. Design review will include engineering application assessment and material and appurtenances approval.
- 2.0 Polyethylene pipe shall be installed with tracer wire as approved by the District

PVC PIPE

GENERAL SPECIFICATIONS

- 1.0 2 inch shall be SDR 21 Class 200.
- 2.0 4 inch through 16 inch shall be:
 - 2.1 C-900 DR-18, 235 psi pressure class minimum, or
 - 2.2 PVCO (Biaxially Oriented PVC pipe) C-909, 235 psi pressure class minimum, Cast Iron OD.
- 3.0 The gasket or O-ring material shall be rubber meeting ASTM F 477 and of the “permanent use” type.
- 4.0 AWWA C-900 PVC pressure fittings are not allowed.
- 5.0 IPS sized PVC pressure fittings for SDR-21 Class 200 pipe are not allowed.
- 6.0 Fuseable PVC pipe is not allowed
- 7.0 Restrained joint PVC pipe (such as Certa-Lok) is not allowed, except by prior approval by the District
- 8.0 PVC pipe installations shall include a tracer wire
- 9.0 2” PVC pipe shall use brass fittings with pack joint connections
- 10.0 Service saddles are required. See Section “Service Saddles” for more detail.
- 11.0 Glued (cemented) fittings are not allowed.
- 12.0 Tracer wire shall be installed as approved by the District.

APPROVED MANUFACTURERS

- All manufacturers

SERVICE BOX RODS

GENERAL SPECIFICATIONS

- 1.0 24-inch long 5/8 inch #316 stainless steel for 1-1/2 inch and larger ball valves;
- 2.0 24-inch long 1/2 inch #316 stainless steel for 3/4 inch and 1 inch ball valves.
- 3.0 Shall have a self-aligning design
- 4.0 Shall be made in the USA (except as approved on a case-by-case basis)
- 5.0 Stainless steel cotter pins are required

SERVICE BOXES/FOOT PIECES

GENERAL SPECIFICATIONS

- 1.0 Shall be North American made
- 2.0 Service Boxes
 - 2.1 Shall be 1.0" Schedule 40 steel pipe with top having 1.0" N.P.T. pipe threads for screw-on cover or coupling.
 - 2.2 1-inch services shall be Erie style with 5.5'-bury slide-type riser
- 3.0 Service Box Cover
 - 3.1 Shall be Quincy type (heavy duty) cover that screws on service box
 - 3.2 Shall be tapped with a 1" rope thread with a solid brass plug with pentagon operating head
- 4.0 Service Box Foot Piece
 - 4.1 The standard foot piece shall be heavy duty (Ford style or equal) cast iron design.
 - 4.2 For 1-1/4-inch to 2-inch valves

APPROVED MANUFACTURERS

- Tyler Union
- Mueller Co.
- Bibby-Ste-Croix
- Bingham & Taylor Corp.
- EJP
- Ford Meter Box Co. (foot pieces only)

SERVICE BRASS/MISC. BRASS

GENERAL SPECIFICATIONS

- 1.0 Sizes $\frac{3}{4}$ inch to 2 inch
- 2.0 All pack joint or female iron pipe (no flare)
- 3.0 NO LEAD - UL Classified to NSF/ANSI Standard 61 and Standard 372

APPROVED MANUFACTURERS

- Ford Meter Box Co.
- Cambridge Brass
- Mueller Co.
- A. Y. MacDonald

SERVICE SADDLES

GENERAL SPECIFICATIONS

- 1.0 The service saddle shall be all 304 or 316 stainless steel construction (for mains larger than 2")
- 2.0 2" diameter mains shall use brass service saddles
- 3.0 Shall have AWWA taper thread (CC) outlet thread.
- 4.0 The sealing gasket(s) shall be either Buna-N rubber or SBR rubber (ASTM D2000).
- 5.0 Service saddles shall be utilized for all 2" corporation stops on ductile iron pipe and all services on PVC pipe or as approved by the District. (Note that the District does not allow 1.25" or 1.5" corporations.)
- 6.0 PVC pressure fittings for all pipe systems are not allowed.
- 7.0 Service saddles for all polyethylene (PE) pipe systems shall be fusible type and be pre-approved by the District.

APPROVED MANUFACTURERS

- Smith-Blair
- Ford Meter Box Co.
- Romac Industries, Inc.
- Mueller Co.

TAPPING SLEEVES

GENERAL SPECIFICATIONS

- 1.0 Must meet or exceed ASTM A-240
- 2.0 Shall be all 304 or 316 stainless steel construction (ductile iron flange is not acceptable)
- 3.0 Shall have an MJ connection (unless otherwise approved by the District)
- 4.0 Tapping sleeves for all polyethylene (PE) pipe systems shall be fusible type and be pre-approved by the District.

APPROVED MANUFACTURERS AND MODELS

- JCM Industries, JCM 439
- Romac Industries, Inc., SST111-MJ
- Ford Meter Box Co., FAST-XXX-X-MJ-U100
- PowerSeal, 3490MJ/3490-CS

TAPPING VALVES

GENERAL SPECIFICATIONS

- 1.0 Valves shall open right
- 2.0 Shall have M/J outlet connection
- 3.0 Bolts – the seal plate and bonnet bolts and nuts shall be stainless steel (Type 304 or Type 316).

APPROVED MANUFACTURERS AND MODELS

- Clow Resilient Wedge #F-6114 Model 2638 C 515 4"-16"
- Mueller Resilient Wedge #T-2360-16 Mueller 2300 series 3"-12" A2361-A2362
- American Flow Control (AFC) series 2500 RW Gate Valve 2-12" , 14-24"

VALVE BOXES

GENERAL SPECIFICATIONS

Reference Standard Details

- 1.0 Valve boxes shall be made in North America
- 2.0 The valve box bottom section shall be slide-type with bell-type base with bottom lip, 36" long.
- 3.0 The valve box top section shall be slide-type, 5-1/4" diameter, 36" long (minimum). Top flange only with smooth body (no bead or bottom flange)
- 4.0 The valve box cover shall be a 2" drop-type cover to fit the 7-1/4" opening of the top section. It shall be marked "WATER".
- 5.0 Material shall be cast iron or ductile iron and free from defects
- 6.0 Interior and exterior of all components shall be bituminous coated with a minimum of 4 mils dry film thickness.

APPROVED MANUFACTURERS

- Tyler Union
- Mueller Co.
- Bibby-Ste-Croix
- Bingham & Taylor Corp.
- EJP
- Ford Meter Box Co.

VALVES (RESILIENT SEATED GATE VALVE)

GENERAL SPECIFICATIONS

- 1.0 Shall open right
- 2.0 Shall meet the latest revision of the AWWA C-509 or C-515 Standard
- 3.0 Shall have a smooth unobstructed water way which shall be a minimum diameter of the valve
- 4.0 Valve body – the body, including the stuffing box and the bonnet, shall be constructed of ductile iron, meeting the latest revision of AWWA C-153.
- 5.0 Shall have a non-rising stem
- 6.0 Valve Wedge:
 - 6.1 Shall be constructed of ductile iron (less guiding mechanism);
 - 6.2 Shall be fully encapsulated and permanently bonded with a resilient elastomer;
 - 6.3 Shall be constructed such to allow the flushing of any interior exposed surface during operations.
- 7.0 Coatings:
 - 7.1 The internal and external valve body, including the stuffing box, bonnet, and interior of the wedge shall be fusion bonded epoxy coated with a minimum 8 mils D.F.T.
 - 7.2 Interior shall meet latest version of AWWA C-550.
- 8.0 Operating nut shall be 2-inch square
- 9.0 Bolts – the seal plate and bonnet bolts and nuts shall be stainless steel (Type 316 or Type 304).

APPROVED MANUFACTURERS & MODELS

- Clow Resilient Wedge #F-6100 Model 2638 C 515 4"-16"
- Mueller Resilient Wedge #T-2360-16 Mueller 2300 series 3"-12" A2361-A2362
- American Flow Control (AFC) series 2500 RW Gate Valve 2-12", 14-24"