

SECTION 400

WATER MATERIAL SPECIFICATIONS

400-2

MATERIAL SPECIFICATION LIST

WATER UTILITY

General:

1. All manufacturers' products listed are preferred. Others may be submitted to the OFS Engineering for pre-approval, prior to construction.
2. All brass fittings are to be of Domestic manufacture only. Brass fittings from Mueller Co., or Ford Meter Box Co. (Ford) are acceptable.
3. Water distribution piping from 4" through 12" may be C-400 PVC or Ductile Iron, the minimum pressure class allowed is Class 150. Water transmission piping of 14" or greater shall be Ductile Iron only. Pressure classes higher than 150 may be required by the Utilities Division Director based on pipe sizes, materials, and system parameters. Polyethylene (PE) pressure piping will be approved on a case-by-case basis by OFS Engineering
4. Other materials typically used in well houses and pump stations are not included herein. Needs for information on these should be addressed to OFS Engineering
5. All backflow devices shall comply with the City of Las Cruces applicable Backflow Ordinances.
6. All specification references include any and all updates or replacements.
7. Abbreviations used herein:

AWWA	American Waterworks Association
ASTM	American Society for Testing and Materials

ITEM	DESCRIPTION	SIZE	SPECIFICATION	MANUFACTURER
1.	Polyvinyl Chloride Pipe (C-400 PVC) - Pressure Class 150 min. Integral bell end w/ elastomeric gaskets	4" – 12"	AWWA: C400-97	
2.	Ductile Iron Pipe (DI) - Mechanical Joints (MJ) or Push On Joints, Cement-Mortar Lining, Asphaltic Coating or Polyethylene Casement	4" – 64"	AWWA: C151/A21.51-96, C111/A21.11-00, C104/A21.4-95, C150/A21.50-96, C105/A21.5-99	U.S. Pipe, American Ductile Iron Pipe, McWayne.
3.	DI and Gray Iron Fittings, and Compact (Short Body) Fittings - MJ or MJ by Flanged, Asphaltic Coating, Cement-Mortar Lined and Asphaltic Lined or Epoxy Lined (see also Sewer Material Section)	4" – 48"	AWWA: C110/A21.10-98, C153/A21.53-00, C111/A21.11-00, C104/A21.4-95, C116/A21.16-98	
4.	Polyethylene (PE) Pressure Tubing for Water Service - Copper Tubing Sized (CTS), Codes 3406 or 3408, Minimum Pressure Class 160, Color to be Blue	¾" – 2"	AWWA: C901-96	
5.	Polyethylene (PE) Pressure Piping and Fittings -	4" – 63"	AWWA: C906-99	

ITEM	DESCRIPTION	SIZE	SPECIFICATION	MANUFACTURER
6.	Service Saddles - For C400 PVC pipe and DI pipe and A.C. pipe, sized 4"-12" for taps sized ¾" – 2", saddles may be nylon or epoxy coated Ductile Iron with double stainless steel (304L) straps. All saddle taps shall be threaded AWWA Taper (CC) thread.	¾" – 2"	AWWA: C800-01	Mueller Co. DR2S, SS5 and SS7 series. Smith Blair series 317. Romac 202N, 306. Ford Meter FS303, FC202.
7.	Corporation Stops - Brass plug type, 100psi rating for ¾" and 1", 300psi for 1 ½" and 2", inlet AWWA Taper (CC) thread, outlet (to PE tubing, CTS) by pack joint or Mueller Insta-Tite or compression connection.	¾" – 2"	AWWA: C800-01	Mueller B-25008, P-25008, B-25006, H-15013, P-15013, H-15008, P-15008, H-15006. Ford Meter F1000, FB1000 M ^c Donald – 4701 B-22
8.	Angle Meter Valves - Brass fitting, pack joint or Mueller Insta-Tite or Conductive Compression for PE tubing (CTS) by meter flange fitting (for 1 ½"-2"), or by meter swivel nut (for ¾" – 1")	¾" – 2"	AWWA: C800-01	Mueller- H-14258, P-14258, H-14267, H-14277, P14277. Ford Meter- FV43 Series, BA43 Series, KV43 Series M ^c Donald – 4602-22
9.	Valve Boxes - Two-piece, screw adjustable, w/"WATER" cast in lid, extension range of 27"-32" or as required.			Tyler Pipe, Star Pipe Products. East Jordan Iron Works.

ITEM	DESCRIPTION	SIZE	SPECIFICATION	MANUFACTURER
10.	Gate Valves - Resilient seat, non-rising stem (NRS), 2" square nut driver, epoxy coating, pressure ratings 4" – 12" = 200psi, 16" and 20" = 150psi. No Double Disc allowed. CCW opening, "O" ring stem seals. Tapping valves shall match the above, and sized for full size shell cutter use, and shall be flanged with alignment lip to fit tapping sleeve, outlet to be MJ with flange for attachment of drilling machine and adapter.	4" – 72"	AWWA: C509-01 or C515, C550-01	Mueller Co., Clow Valve Co.
11.	Butterfly Valves - Elastomeric seat, cast iron disc with stainless steel disc edge, gear actuator type, 2" square nut driver, MJ ends, Epoxy coating interior.	14" – 72"	AWWA: C504-00, C550-01	Mueller Linesal III, class 150. Clow Valve Co. Groundhog Valve
12.	Air Release, Air/Vacuum and Combination Air Valves –		AWWA: C512-99	APCO, Val-Matic.
13.	Control Valves, Pressure Actuating Valves, Pressure Sustaining Valves, Pressure Reducing Valves, Check Valves –	4" – 72"	AWWA: C510-97 C511-97 C512-99	Cla-Val, Watts, Bermad

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14.	Fire Hydrants - Dry barrel, compression, traffic type. 1 ½" Pentagon operating nut (bronze) w/weather proof and tamper resistant cap, opening CCW, Two each 2 ½" and one 4 ½" nozzles with N.S.T. threads, 5 ½" main valve opening, 6" inlet shoe, MJ connection for DI or C-400 PVC, ground line within 2" of a two piece breakaway flange, non-kinking nozzle cap chains, epoxy interior lining, exterior painted red, all hydrants shall be complete with all accessories included and shall be lubricated.		AWWA: C502-94, C111/A21.11-00, C110/A21.10-98, C151/A21.51-02, C550-01	Mueller Co. – Super Centurion 200, Clow – Medallion, Kennedy – Guardian K81D
15.	Restrained Joint Fittings - Couplings for DI, PVC, with MJ	4" – 72"		U.S. Pipe - Field Lok, TR Flex, XTRA Flex, USIFlex. JCM Ind. – SUR-Grip. Romac Ind. - GripRing, 600 Series, 400 Series. EBAA Iron – MEGALUG, 2000PV Series. Mueller – AquaGrip fitted components. Star Pipe Products – StarGrip. American Fast Grip Gasket
16.	Tapping Saddles - Full Circle type			Romac Ind.- SST Smith Blair - 662, 663 Mueller - H304, H300DI

ITEM	DESCRIPTION	SIZE	SPECIFICATION	MANUFACTURER
17.	Transition Fitting - Epoxy coating (Nylon optional), stainless steel bolts/nuts			Romac Ind. – 501 Viking Johnson Smith Blair – OMNI Mueller – 500series, MaxiFit series. Total Piping Solutions- Hymax 2000
18.	Tracing Wire - HMW-PE insulation, 45 mils, blue, solid copper conductor	#12 AWG		Paigespec, Kris-Tech Wire Co. Coleman Cable
19.	Direct Bury Splice Kits - 30 volt rating.		Per manufacturer instructions, applicable codes.	3M – DBR kits. King Safety Products – Direct Bury Wire Connectors.
21.	Casing Spacers (insulators) – Injection molded high-density polyethylene material with low friction coefficient and high dielectric strength.			T.D. Williamson, Inc. – M-2 Plastic Thinsolator Public Works Marketing – Raci casing spacers
22.	Casing End Seals – Complete with stainless steel adjustable band clamps.			T.D. Williamson, Inc. – Z seals PWM – Wrap-around End Seal
23.	Extruded Sealing Tape (Joint Sealant) - Butyl Resin Sealant formula, conforming to Federal and State Highway Specifications, summer grades or warmer climates.		ASTM C-990	Public Works Marketing, Inc.- Ram Neck. Concrete Sealants Inc. – CS 102, CS 102B

ITEM	DESCRIPTION	SIZE	SPECIFICATION	MANUFACTURER
24.	Test Station - Non conductive ABS plastic construction, 2 ½" I.D., 18" shaft length, with flared ends, and cast iron lid and collar. Terminal block of reinforced polyester laminate with 2 wire terminals. Blue, locking lid with pentagonal bolt cast in the center, allowing a quarter turn to open.			Handley Industries – PT5L C.P. Test Services – C.P. Mini Box.
25.	Casing – Black, plain end, standard schedule steel pipe.		API Grade B, or ASTM A 53	
26.	Curb Stops – Brass fitting, Pack Joint or Mueller Insta-Tite or conductive compression for PE tubing (CTS) Both ends.	¾" – 2"	AWWA: C800-01	Mueller H-15209, P-15209 - H-5215 Ford Meter B41-333
27	Warning Tape – Six-inch width, with a permanent APCA gas line yellow pigment at a minimum of 30" along its length reading " <i>CAUTION WATER LINE BURIED BELOW</i> ". The tape material shall be formulated from 100% virgin polyolefin resins. Resins shall be pigmented for chemical stability and resistance to sulfide staining. Tape shall be constructed by the mechanical lamination of two plies of three layer blown film as to produce a bi-axially oriented structure. Tape to be wound on a plastic core with a 3-inch inner diameter and made to 1,000 ft. lengths.		ASTM Method/ Property/ Value D2103 / Std. Weight/ 25.6 lb/1000s.f. D2103/ Thickness/ 6.0 mils D882/ 3" Tensile MD/ 85.0 lbs. D882/ 3" Tensile MD/ 4040 psi D882/ 3" Tensile TD/ 75.0 lbs. D882/ 3" Tensile TD/ 3570 psi D882/ Elongation MD/ 700% D882/ Elongation TD/ 500% D2582/ PPT Tear MD/ 18 lbs. D2582 PPT Tear TD/ 18 lbs. D1938/ Tongue Tear MD/ 2.6 lbs. D1938/Tongue Tear TD/ 2.2 lbs. D1712/ Sulfide Stain/ pass 48 hrs. (no discoloration, manufacturing tolerance +/- 10%)	PRO-LINE Safety Products – Non-detectable underground utility marking tape, super stretch. Reef Industries Terra Tape – Extra Stretch

