

SECTION 15065

MISCELLANEOUS MATERIALS

PART 1 - SCOPE

1.01 GENERAL

Miscellaneous materials necessary for a complete installation, not specified herein, shall be equal in quality to the specified materials suitable for the intended use, and shall conform to the details and notes shown on the Plans. All minor items implied, usually included or required for the construction of a complete operating system, shall be installed whether specified or shown on the Plans, or not.

- 1.02 The Contractor shall furnish and install where shown on the Plans or stated herein, the following materials or equals:

PART 2 - PRODUCTS

2.01	Anchors, chemical adhesive	Stainless Steel HVA type by Hilti Co, or approved equal
2.02	Anchor bolts, eyebolts, nuts washers-steel, including anchor bolts and tie-rods carbon steel	ASTM A325-88a, hot-dip galvanized
2.03	Anchor bolts, nuts, washers and screws-stainless steel	AISI Type 316 stainless steel
2.04	Anchor straps	1-1/2-inch by 1/8-inch hot dip galvanized each with two 1/2-inch by 3-inch anchor bolts and nuts (galvanized)
2.05	Angle Meter Stops	Conform with AWWA C800, 85-5-5-5 Brass, Inlet Type K Copper Tube, Outlet Meter swivel nut, Lock Wing, NSF 61 Certified, Mueller 14255W, Ford KV23-W, or approved equal.
2.06	Angle Meter Stops	Conform with AWWA C800, 85-5-5-5 Brass, Inlet Inside Iron Pipe Thread, Outlet Meter swivel nut, Lock Wing, NSF 61 Certified, Mueller 14265W, Ford KV13-W, or approved equal.
2.07	Angle valves (for air release valve and flushing valve outlet)	2-inch threaded inlet and outlet valves with hand wheel, bronze body and composition disc, replaceable disc and seat, screwed-in bonnet Nibco T-311Y, or approved equal.

2.08	Backflow preventer	Pressure reducing 2-inch Series 909, manu-factured by Watts Regulator, Co. (or other Department approved model for size and application)
2.09	Backflow preventer (hose)	3/4" bronze hose bibbs Watts No. 8
2.10	Ballast rock	Washed and graded limerock obtained from local sources. Aggregate size shall be 1-1/2 inch to 2-inches in diameter.
2.11	Banding straps for pipe skids	Hot-dip galvanized steel or stainless steel, 1/32-inch thick by 1-1/4 inch wide, minimum, with banding clamps of same material.
2.12	Bedding for copper tubing	Clean white masonry sand
2.13	Bentonite	Baroid Bentonite Mix as supplied by Southwest Florida Service and Supply, or Tony's Drilling Supply (Opa-Locka, FL).
2.14	Blind flanges, cast iron	AISI Standard B16.1, Class 125, plain-faced and drilled. "Hollow Back" flanges not acceptable.
2.15	Bolt, nuts and washers, Aluminum (where required on the Plans)	Aluminum bolts shall conform with AA 2024-T4 Alloy designation, anodized
2.16	Bolts and nuts for flanged pipe joints	Hot-dip galvanized steel, sized pipe joints per ANSI specifications. If in contact with aluminum or stainless steel, AISI Type 316 stainless steel, sized per ANSI specifications.
2.17	Bonding Agent for concrete	High polymer resin dispersed in water "Daraweld-C" by W. R. Grace Co.
2.18	Bore or bell donut adapters for tailpieces	Fernco, Inc.
2.19	Brackets and Pipe Support Clamps	ASTM A36, hot dip galvanized after fabrication
2.20	Branch Assembly (Meter)	Copper inlet with 2 meter swivel nut outlets, NSF 61 Certified, 85-5-5-5 brass, 7 1/2- inch spacing between outlets, Mueller 15362, Ford UV23-42W, James Jones, A.Y. McDonalds 0802M or approved equal.
2.21	Caulking Compound	Hornflex-L (two component compound based on Thiokol polysulfide liquid polymers), W.R. Grace & Co. Apply per manufacturer's recommendation.
		See Metropolitan Dade County Public Works

2.22	Catch Basins	Department Std. Detail SD 2.3, unless shown otherwise on Plans or detailed on specified herein.
2.23	Chain Rail	Chain shall be straight-link machine chain, Type 316L Stainless Steel with approx. 15 links per foot. Each chain section shall be fitted with Type 316L Stainless Steel snap fittings and eye bolt at both ends. Eye bolts shall be affixed to end posts.
2.24	Check valves in meter hook-ups	1-1/2 inch to 2-inch brass with neoprene poppet by Stataflo Products, Inc., or approved equal
2.25	Clean-Outs (toilet area)	Josam 58020, adjustable, with Nikaloy top, or approved equal.
2.26	Concrete louver ventilator blocks	16-inch by 16-inch with bird screen, Denmark's Artstone Co., Miami or approved equal.
2.27	Copper tube straps	Chase No. 1019, 1019R, 1019S. Copper straps for 1-inch tubing, Grinnel Fig. 9124
2.28	Concrete pipe support saddle liner	Neoprene rubber sheet, 1/4 inch thick w/ 4-ply fabric reinforcement durometer grade 70, cut width 1/2 inch less than saddle with.
2.29	Concrete protecting coating (interior of fuel tank containment top of bottom slab and interior walls from bottom slab up to 3-1/2 feet)	Base: Strongcote WB-114, 1/32-inch by Strongwall Systems Inc. or approved equal. Top: Strongcote SC-112, by 1/32-inch thick Strongway Systems, Inc. or approved equal.
2.30	Copper Tubing	ASTM Standard B-88, Type K annealed and coiled
2.31	Corporation Stops	1-inch Mueller H-15000 (for chlorination, testing and 1-inch service connection). 1-1/2 inch Mueller H-10003, (for air release assembly and 2-inch service connection).
2.32	Coupling Adapters	Flanged, cast iron, Type 912 by Rockwell International, or approved equal.
2.33	Coupling, Flexible (Groove type)	Cast iron Victaulic Style 31 or approved equal, complying with AWWA C606-87. Compatible with pipe material, dimensions and service, and furnished with neoprene gaskets and stainless steel bolts and nuts.

- 2.34 Coupling, Flexible
Vibration and noise insulating expansion joint, design pressure 150 psi, acceptable for drinking water shall be Style 110-A by Unaflex Rubber Corp., distributed by H.S. White Co., Inc., Ft. Lauderdale, or approved equal.
- 2.35 Coupling, No. Hub
Flexible PVC body conforming with ASTM D5926 and C1173. Stainless steel bands. Fernco or approved equal.
- 2.36 Coupling, Transition (Ductile Iron)
Center sleeve and end rings of ductile iron conform with ASTM A536 grade 65-45-12; Gaskets NBR (Sewage) SBR (Water). High strength low alloy steel bolting. Coupling conforms with AWWA C219.
- 2.37 Coupling, Transition (Steel)
Center Sleeve of ASTM A53 grade A steel. End rings of ASTM A795 steel. Gaskets of EPDM. Complies with NSF 61 and AWWA C219. Fusion bonded epoxy interior and exterior coating.
- 2.38 Disinfectant
As specified in Section UC-175, herein
- 2.39 Dowel Bars
Continuous threaded, w/ splicer, Type DBT by Richmond Screw Anchor Co.
- 2.40 Duct caps (Grab Sample Ports)
6" Bronze Andrew industrial Type "DC", Kamlock or equal with 6-inch NPT bronze adaptor Andrews Industrial Type "A", Kamlock, or approved equal.
- 2.41 Electronic Marker System
Separate frequency for Water, Sewer and Re-use. Any "approved equal" must be able to communicate with the markers called out below. Search and read mode range of five feet. Each ball to have a separate readable ID number. Ball diameter 4 to 6 inches or less. Filling of ball to be mixture of propylene glycol and water and shall be environmentally harmless if container is ruptured. Shell to be HDPE or other corrosion proof material and completely water tight. 3M 1400 series or approved equal.
- 2.42 Epoxy for polylining repairs
Two-part coal tar epoxy Madewell 1104 by Madewell Products Corp.

2.43	Epoxy grout, non-shrinking (for setting equipment)	See Specification Section 03600
2.44	Epoxy grout, non-shrinking (for setting handrails)	"Wall-Nu" (Trowel Mix), by Steelcote Mfg. available locally at Florida Wire and Rigging Works, Inc., "Five Star" by U.S. Grout Corp., or equal, available from Coastal Construction Products.
2.45	Exhaust fan (for dry wells)	See Specification Section 15860
2.46	Expansion anchors and shields	Redhead by ITT Phillips Drill Division or approved equal.
2.47	Fiberglass bar grating	Polyester I-beam, 1-1/2 inch bars for 24-inch span with uniform loading, spaced 1-3/16 inch O/C. Cross bars spaced 6-inch O/C. As manufactured by McNichols Fiberglass Co., or approved equal.
2.48	Fill Cap (emergency pump out connection to force main)	4", lock-type, OPW 634-TT with 4 x 4-inch adaptor, OPW 633-T, by Dover Corp., or equal.
2.49	Flange coupling adapters	Smith-Blair, Dresser.
2.50	Flanged joint material	ANSI sized and approved, full faced 1/8 inch thick neoprene (for sewer) SBR (for water) gaskets and hot-dip galvanized bolts and nuts (except as otherwise specified for a particular service). Properties of gaskets to conform with ANSI/AWWA C111/A221.11. Bolts and nuts hot dip galvanized steel properly sized for ANSI Standard Class 125 flanged joints.
2.51	Flexible couplings (Compression type, if required during installation).	Compression type sleeve Dresser Style 38, Baker, or equal, compatible with pipe dimensions and service, and furnished complete with grade 27 gaskets and 316 stainless steel bolts and nuts.
2.52	Flexible connections, (stainless steel)	Stainless steel bellows type with flanged connections as manufactured by Ram-Tech Sales, Inc., Shreveport, LA, or approved equal.
2.53	Floor drain with strainer 4-inch (if required)	Adjustable body 30604-64 Josam with adjustable Super-Flow strainer, Bronze Top finish.
2.54	Gasket lubricant	Vegetable soap lubricant as recommended by the pipe, valve or gasket manufacturer for

		installation of pipe in subaqueous trench.
2.55	Gauges - pump discharge	0-60 psi range, Kunkle, Style G1110, case type N or equivalent by John C. Ernst, or Ashccroft with diaphragm seal.
2.56	Gauges - pump suction	0-15 psi range, Kunkle, Style G1130, case type N with diaphragm seal, 4-1/2 inch dial size. Gauges shall be furnished by the manufacturer supplying the diaphragm seals assembled as a unit.
2.57	Gauges - Seal water pump	Kunkle, Style G1110, Case Type N, or equivalent by John C. Ernst, 0-60 psi range, 3-1/2 inch face.
2.58	Gauge cock	Bronze gauge cock Crane No. 744 equivalent by Stockam.
2.59	Gravel for venturi, valve or other pit (where required on Plans or herein)	Gravel shall be locally obtained from a fresh water source, free of deleterious matter and graded from 3/4 to 2-1/2 inches in size.
2.60	Grout for sealing between pipe and wall	Non-shrink, hydraulic cement grout. "Waterplug" by Thoro System Products.
2.61	Grout for boring and jacking	Portland cement-sand mixture. Type I (for water) Type II (for sewer) Portland cement and sand fineness that 100 percent will pass a standard 40-mesh sieve. Grout shall not contain greater than one part sand to one part cement.
2.62	Guard Post for hydrants	Galvanized steel pipe, Sch. 40, concrete filled. See Std. Detail 4.5
2.63	Hose bibbs	3/4" bronze, w/vacuum breakers where required by S. Fla. Building Code, American Valve Co., Fig. 76
2.64	Hose Clamps	All stainless steel, worm-gear type, Nos. 30032, 300188, by Breeze Corp, Inc. Hex head Type 316 Stainless Steel Series "68" Hy-Gear by Ideal
2.65	Hose, sump pump	2-inch I.D. Buna-N, "Plant Master" No. 119B by Gates.
2.66	Insulation guide support	1/2-inch insulation protection shield shall be ITT Grinnel, Fig. 167, or approved equal.
2.67	Insulation roll support	Pipe covering protection saddle shall be ITT Grinnel, Fig. 164, or approved equal. 20- inch adjustable roller stand with base plate shall be

		ITT Grinnell, Fig. 274, or approved equal.
2.68	Meter Box for Water Service	Per Department Standard Detail WS 2.10, by U.S. Precast , or approved equal
2.69	Meter Couplings	1-inch brass, NSF 61 Certified, Brass, straight, meter nut x pack joint or grip joint, Ford, Mueller or approved equal.
2.70	Meter Couplings	1-1/2 inch & 2-inch brass "Loc-Pak" by Ford Meter Box Co.
2.71	Neoprene pad (60 Durometer)	Neoprene Bearing Pad "Servicized" by W. R. Grace Co. Code No. 3340.
2.72	Neoprene (compressible pad)	Acmasel by Acme Highway Products, Corp., Amherst, N.J.
2.73	Oils and Lubricants	Type, quality and quantity as recommended by manufacturer of machinery or equipment.
2.74	Paint - Zinc rich for galvanized items with minor damage (if approved by the Engineer)	Dry galve by Force Chemical Division, American Soldering and Flux Co.
2.75	Paint, for guard post and fire hydrant repairs if necessary	Neutralizer – 1 coat Sherwin Williams Galvanized iron primer, B50 WZ1. Finish paint - 2 coats Sherwin Williams Industrial Enamel OSHA yellow B54 Y 37
2.76	Paint, bituminous	Bitumastic No. 300M and Bitumastic No. 50, Kop-Coat Co.
2.77	Pea Rock	Local washed rock, 100% passing 1-inch mesh and retained on 1/4-inch mesh.
2.78	Pipe clamps	Hot-dipped galvanized steel.
2.79	Pipe straps (2-inch by 3/8-inch)	AISI Type 316 stainless steel with 3/8-inch diameter stainless steel bolts.
2.80	Pipe straps for Vent Pipe	Galvanized 2-inch No. 3039T19 by McMaster-Carr
2.81	Pipe supports (where required)	Aluminum Strut Channel 1 5/8-inch X 1 5/8-inch unistrut,
2.82	Pipe support (other types)	Fabricated as shown on the Plans, ASTM A36/A36M-90 steel, hot dip galvanized after fabrication.
2.83	Pipe Hanger, Clevis Type (where required)	Adjustable clevis, carbon steel, galvanized, ITT Grinnel Fig. 260.

2.84	Pipe Support, Rod Attachment (where required)	Forged Steel Clevis Type with pins. ITT Grinnell Fig. 299.
2.85	Polyethylene encasement material for main and line valves	Virgin polyethylene material for ductile iron conforming to ANSI/AWWA C-105/A21.5-88, Type I Class C, extruded tube formed with approved polyethylene adhesive tape. Shall be 0.008-inch (8-mil) thick minimum and conform with WASD Std. Detail A-9.
2.86	Polyethylene sheet for vapor barrier and for use with concrete anchors	.060-inch (6-mil), "Visqueen" by Ethyl Corp., or approved equal. (See Std. Detail GS 1.1)
2.87	Polysulfide Rubber Sealant	Hornflex-L by W.R. Grace and Co.
2.88	PVC double bell repair couplings, No-stop (sleeves)	ASTM Standard D3034 and Section UC-250.
2.89	PVC pipe and fittings (for sewer lines and service laterals)	See Specification Section Section UC-250.
2.90	PVC double bell transition couplings or adapters PSM SDR-35 PVC Sewer Pipe to ductile-iron or AWWA C900 CI-PVC Pressure Pipe	ASTM Standard D3034 and Section 15105-2.07, herein for fittings.
2.91	Riprap	Sand-cement in burlap sacks, well mixed, in the proportion of 5:1. The sacks shall absorb moisture to set-up in the position placed.
2.92	Roofing felt (miscellaneous)	Standard 30-pound asphalt impregnated felt, ASTM Standard D226-88.
2.93	Restrained Joint Connectors	"Megalug" or approved equal. (May only be used where shown on the Plans)
2.94	Sand for bedding - copper tubing	Clean white masonry sand.
2.95	Sand for Casing	Such fineness that 100% will pass a standard 4-mesh sieve.
2.96	Sealant for concrete joints	Dow Corning 888 Silicon Joint Sealant with 3/8-inch Dia. Expanded closed-cell polyethylene foam backer rod or approved equal.
2.97	Service Insulator Assembly	Nylon dielectric bushing with bronze coupling-female I.P. thread by flared copper Ford Meter Co, Inc.
2.98	Service Saddle – Double Strap	Conform with AWWA C800, NSF 61 Certified, Copper alloy 85-5-5-5 body per ASTM B62 & B584, Gasket Buna N, Straps of silicon bronze. Ford Meter Box Co. 202B, James Jones #J-979

		or approved equal.
2.99	Service Saddle – Single Strap	Conform with AWWA C800, NSF 61 Certified, Copper alloy 85-5-5-5 body per ASTM B62, Gasket Nitrile, Straps of silicon bronze. Mueller Co. H-10475 H-10480 or approved equal.
2.100	Service terminal fittings _ single	One inch lock wing style valve, drilled for wire sealing, Cat. No. KV23-444W Ford Meter Box Co. or Cat. No 14255, Mueller Co.
2.101	Service terminal fittings - dual	One-inch branch valve assembly, with standard 7½-inch spacing between outlet centers, drilled for wire sealing, Cat. No. UV23-42W Ford Meter Box Co. or one inch branch connection with standard 71/2-inch spacing between outlet centers Cat. No. H-15362, fitted with angle stops for 5/8-inch meters, drilled for wire sealing, Cat. No. H-14265, (3/4" Inlet) Mueller Co.
2.102	Solder, potable water copper tubing	ASTM B32-89 Alloy grade Sn 94 or Sn 95
2.103	Strainer	3/4-inch with screwed connections and 20 mesh 18-8 stainless steel straining element. Type SY-70, as manufactured by Cash Acme or approved equal.
2.104	Stainless steel screws for ladders	AISI Standard Type 316.
2.105	Stainless steel cable	AISI Type 316 wire rope.
2.106	Stainless steel repair clamps, with stainless steel bolts, PSM SDR-35 PVC sewer pipe to ductile-iron or AWWA C900 CI-PVC pressure pipe	Wide range, single or multiple panel, Style 3121 or 3122, Clow Corporation. Coat with bituminous paint after installation.
2.107	Street elbow (90 Degrees)	150 psi, galvanized, malleable iron, screwed, ANSI Standard B2.1 threaded (NPT).
2.108	Stop, Angle Meter	For type K copper inlet. START HERE
2.109	Stop, Corporation, 1-inch	For chlorination, testing and 1-inch service connection, AWWA taper thread inlet, copper service thread outlet (Type K copper tubing), 85-5-5-5 brass alloy, Mueller H-15000, Ford F-600 or approved equal.
2.110	Stop, Corporation, 1 ½ x 2-inch	For 2-inch services, ARV's, AWWA taper thread inlet, Iron Pipe Thread Outlet, 85-5-5-5 brass alloy, Muelle H-10003, Ford FB-800-6, or approved equal.
2.111	Stop, Curb, ¾-inch	For copper thread one side, inside iron pipe thread other side, 85-5-5-5 brass alloy, Mueller H-15175, Ford B21-333W or approved equal.

2.112	Stop, Curb, 1-inch	For inside iron pipe thread both sides, or flare copper 1 side and inside Iron Pipe Thread other side. 85-5-5-5 brass alloy, Mueller H-15175, Ford B21-444 (copper x iron pipe), Mueller H-10201, Ford B11-444 (inside iron pipe thread both sides) or approved equal.
2.113	Stop, Curb, 1 ½-inch	For inside iron pipe threads both sides, 85-5-5-5 brass alloy, Mueller H-10255, Ford B11-666, or approved equal.
2.114	Stop, Curb, 2-inch	For inside iron pipe threads both sides, 85-5-5-5 brass alloy, Mueller H-10255, Ford B11-666, or approved equal. Mueller H-10255, Ford B11-777 or approved equal.
2.115	Suction Bend	Cast iron, flange and flare, long radius 90-degree bend, US Pipe and Foundry Co.
2.116	Tread Plate	¼-Inch galvanized steel (raised checkered design)
2.117	Threaded rods	½-inch, 5/8-inch and 3/4-inch hot-dip galvanized steel.
2.118	Tie rods	Threaded each end, hot-dip galvanized steel, with galvanized nuts, washers and eye bolts. The eyebolts shall be Star National Products, Figure No. 7.
2.119	Timber skids and block	Wolmanized pressure-treated Southern Pine at 2.5 pounds per cubic foot retention. Skids and blocking shall be size so that the top of the bells or restrained joints of the carrier main will be two inches or less below the inside top of the casing pipe.
2.120	Turnbuckles	Grinnell Fig. 230, hot-dip galvanized
2.121	U-bolts (galvanized)	Hot-dip galvanized steel
2.122	U-bolts (stainless)	AISI Type 316 stainless steel.
2.123	Vent Cap	2-inch, OPW-63, by Dover Corp.
2.124	Valve (Foot)	1-inch, double poppet, bronze, OPW 92 by Dover Corp.
2.125	Valve boxes and covers	See Standard Details and Section 05550.
2.126	Wall pipes (cast iron)	Clow F-1400 series, American Cast Iron or equal, flange and flange or flange and plain end, or bolted mechanical joint, as required or as shown on the plans. Length to fit wall thickness.

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| 2.127 | Wall Sleeves for Pipe 4" and Smaller | Schedule 40, hot-dip galvanized steel pipe, cut flush with face of wall or floor and reamed. |
| 2.128 | Wall Sleeves for Pipe larger than 4-inches | Cast iron, sized as shown on the Plans, conforming to AWWA Standards, Class "D" pattern, with intermediate flange. |
| 2.129 | Water proofing system (where required by the Plans) | "Penecrete" cementitious water proofing system at joint and 2-inches of "Penetron" all around joint area, mixed and applied as required by the product manufacturer, International Coating Systems, Inc. - Danko Sales, Inc. (404)922-3351 or approved equal. |

Note: All metal underground piping for this project shall be encased in virgin polyethylene

2.130 CASTINGS (See Section 05550)

A. General:

- 1) Materials used in the manufacture of the castings shall conform to ASTM Standard A48, "Gray Iron Castings", for Class 30 iron. Manhole and valve box covers shall have a roadway or pedestrian type surface as required by location, machined mating surfaces and shall be non-rocking.
- 2) Unless otherwise specified, castings shall be as manufactured by U.S. Foundry and Manufacturing Corp., Neenah Foundry, or approved equal.

B. Valve Boxes and Covers:

Valve boxes and covers shall be Department No. 52 or No. 53 in accordance with the Standard Details. Valve box covers shall be cast labeled with the letter "S". The foundry and country of origin shall be cast on the bottom of the covers.

C. Fill Cap Manhole:

Fill cap manhole shall be 12-inch, cast iron with rubber gasket, type OPW 104-A by Dover Corp., or approved equal.

PART 3 - EXECUTION (Not Used)

END OF SECTION