

# APPENDIX B: LISTS OF APPROVED MATERIALS

## B5 – Water Distribution System

**APPENDIX B5****WATER DISTRIBUTION SYSTEM MATERIAL LIST**

<b>MATERIAL</b>	<b>CERTIFICATION</b>	<b>SPECIFICATIONS</b>	<b>MANUFACTURER</b>	<b>CATALOGUE NO.</b>
<b>1.0 WATERMAIN</b>				
PVC Pipe	AWWA C900 (Pipe ≤ 350mm) AWWA C900 (Pipe ≥ 350mm)  CSA B137.3	- DR18, Class 235 - Rubber gasket in integral bell and spigot joints - Colour coded "Blue" - 6 m pipe length - CI OD	IPEX NAPCO Royal Pipe & Fittings Rehau Diamond Pipe National Pipe	As per individual manufacturer
Ductile Iron	AWWA C151/A21.51 AWWA C104/A21.4 AWWA C111	- Minimum Pressure Class 350 (100 mm to 300 mm diameter) - Cement Mortar Lined - Rubber gasket in integral bell and spigot joints - Polyethylene encasement in aggressive soil - 6 m pipe length	U.S. Pipe Canada Pipe Atlantic States Clow Pacific States McWane Griffin Pipe	As per individual manufacturer
Polyethylene	AWWA C906 CSA B137.1	- DR17, Class 100 - Thermal butt fusion joining of pipe - CI OD	KWH Pipe	As per individual manufacturer
Concrete	AWWA C301(L)	- Pre-stressed concrete lined cylinder pipe	Munro Pipe Hanson Pipe	As per individual manufacturer
Concrete	AWWA C301(E)	- Pre-stressed concrete lined embedded cylinder pipe	Munro Pipe Hanson Pipe	As per individual manufacturer

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<b>2.0 WATER SERVICES</b>				
Copper	ASTM B88-88	<ul style="list-style-type: none"> <li>- Type 'K'</li> <li>- Heavy wall</li> <li>- Soft copper</li> <li>- Horizontal gooseneck</li> </ul>	Great Lakes Copper Inc.	As per manufacturer
Polyethylene	CSA B137.1	<ul style="list-style-type: none"> <li>- Series 200</li> </ul>	Trinus Pipes & Tubes Ltd. IPEX	As per manufacturer
<b>3.0 WATERMAIN FITTINGS</b>				
Ductile Iron Compact Ductile Iron	AWWA C110/A21.10 AWWA C153/A21.53 AWWA C104/A21.4 AWWA C111/A21.11	<ul style="list-style-type: none"> <li>- Minimum Pressure Class 350</li> <li>- Cement Mortar Lined</li> <li>- Mechanical joint</li> </ul>	Magotteax Sigma Star Bibby St. Croix Tyler Pipe	As per manufacturer
<b>4.0 WATERMAIN VALVES</b>				
Gate Valves	AWWA C509 AWWA C515 AWWA C111/A21.11	<ul style="list-style-type: none"> <li>- Non-rising stem and 50 mm square operating nut</li> <li>- Open counter clockwise</li> <li>- Resilient seat gate</li> <li>- Epoxy coating internal and external per AWWA C550</li> <li>- Mechanical joints with restrainers</li> <li>- Bond breaker between concrete support and valve body</li> <li>- Stainless steel bolts</li> </ul>	Mueller Clow AVK Bibby Concord Daigle  AFC	A2360 F-6100 Series 25/00 As per manufacturer Compression C2000M  As per manufacturer

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MATERIAL	CERTIFICATION	SPECIFICATIONS	MANUFACTURER	CATALOGUE NO.
Pressure Reducing Valves	AWWA C530	<ul style="list-style-type: none"> <li>- Flanged</li> <li>- Epoxy coating internal and external as per AWWA C116/ A21.16</li> </ul>	Singer OCV	106 PR-2PG As per manufacturer
Reduced Pressure Principle Back Flow Preventer	AWWA C511		Watts	#909 Series
Air Release Valve	NSF 61 AWWA C512-07		Apco CLA-VAL A.R.I.	Model #65 34AR-332-3/4" As per manufacturer
<b>5.0 FIRE HYDRANTS</b>				
Fire Hydrant	AWWA C502 AWWA C509-01	<ul style="list-style-type: none"> <li>- 1.98 m barrel length</li> <li>- Post type dry barrel compression shutoff with ball valve closing with flow, opening counter clockwise</li> <li>- M.J elbow</li> <li>- 125mm valve ball</li> <li>- 2 side outlets with 2.5" CSA standard hose nozzle threads</li> <li>- 1 - 4" Storz pumper nozzle outlet</li> <li>- Breakaway flange</li> <li>- Self draining</li> <li>- PVC DR18 Hydrant laterals</li> <li>- Bond breaker between concrete support and fittings</li> <li>- Hydrant colour shall be Fire Engine Red</li> </ul>	Mueller Concord Daigle McAvity          Tremclad - Benjamin Moore (paint)	Century 67-M Brigadier M-67

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Hydrant Marker		<ul style="list-style-type: none"> <li>- Top and side nozzle caps shall be painted based on hydrant flows (front storz nozzle to remain black).</li> <li>- Anti-tamper device</li> <li>- 48" in height fluorescent yellow</li> <li>- Installed on side port</li> </ul>	Flexstake	FH 800 Series
<b>6.0 VALVE BOXES</b>				
		- 150 mm cover	Bibby Emco/Concord	VB800 4SL-48
		- Guide Plate	Bibby Emco/Concord	VB875 GP
		- Extension 300 mm	Bibby Emco/Concord	VB700 4SL-18E
		- Extension 450 mm	Bibby Emco/Concord	VB705 4SL-18E
		- Extension 600 mm	Bibby Emco/Concord	VB710 4SL-24E
		- Adjustable valve box upper section	Bibby	VB404-7393
<b>7.0 VALVE STEM EXTENSIONS</b>				
		<ul style="list-style-type: none"> <li>- Required for additional depth over 1.7 m</li> <li>- 52 mm top operating c/w set screw</li> </ul>	Bibby	VB950

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<b>8.0 JOINT RESTRAINT DEVICES</b>				
MJ Restraining Gland for Ductile Iron Water Main		- Colour code black for ductile iron use	Uni-Flange Stargrip EBAA Iron	Series 1400 Series 3000 Series 1100
MJ Restraining Gland for PVC Water Main	- ASTM standard F1674-96 - ANSI/AWWA C111/A21.11 where applicable	- Ni-bell standard UNI-B-13-94	Uni-Flange Stargrip EBAA Iron	Series 1300 Series 4000 Series 2000
Split Ring Restrainers and Tie Bolts		- The split ring restraint design shall incorporate a series of non-directional machined serrations (not 'as cast') on the inside diameter to provide positive restraint, exact fit, 360 degree contact and support of the pipe wall. - if machined serrations are directional, additional safeguards must be built into casting.	Uni-Flange Stargrip EBAA Iron	Series 1390 Stargrip 1100C Series 1500
Joint Restraint System In-line for PVC Water Main	- AWWA standard C900 - CSA standard B137.3 - ASTM F1674 - NSF 61	- Integral Joint Restraint System for use with 100 mm to 300 mm dia. PVC Water Main - PVC DR18 pressure pipe	IPEX NAPCO Royal Pipe & Fittings	Terrabrute Cobra Lock

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Mechanical Restraint	- ANSI/AWWA C111/A21.11	- Cam-Lock and Bell-Lock joint restraints - One-Lok Series joint restraint	Smith-Blair Sigma Corporation	As per individual manufacturer
<b>9.0 FITTING RESTRAINT DEVICES</b>				
Mechanical Joint (MJ fitting restrainers)	- AWWA standard C111 - ANSI A21.11 - ASTM A536	- Body must be epoxy coated or equivalent - Corrosion protection coatings	Smith-Blair Sigma Corporation Stargrip EBAA Iron Clow (TUF Grip Dual Wedge)	As per manufacturer
<b>10.0 CATHODIC PROTECTION</b>				
Cathodic Nuts and Sacrificial Caps		- 99.9% high grade Zinc - Steel core - Coated with low resistant depolarizing material: 175 grams ASTM B-418-73-type II	Protecto Caps (Maple Agencies) Duratron	175P190 DSN0750
<b>11.0 METALLIC CAUTION TAPE</b>				
		- Mylar marking tape c/w metallic backing - Metallic Backing Tape "Caution Water Main" Blue and Silver	Maple Agencies	As per manufacturer
<b>12.0 TRACER WIRE</b>				
		- 12 Gauge TWU stranded copper, white plastic coated - For splicing, use Copperhead DryConn Direct Bury Twist On	Electrical Suppliers Canada Wire Phillips Pirelli Maple Agencies	As per individual manufacturer

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			Copperhead Industries	
<b>13.0 TIE RODS (19mm)</b>				
		- Stainless Steel		As per manufacturer
<b>14.0 SERVICE BOXES</b>				
		- Steel boot only	Mueller Emco Concord Clow Bibby/Trojan Rossland Supply Sigma Corporation	D1, D3, Size 8 A-714, A-715, A-716 Size 8 As per manufacturer As per manufacturer As per manufacturer
<b>15.0 SERVICE BOX RODS</b>				
		- 36" stainless steel - Stainless steel cotter pins	Mueller Emco Concord Clow Bibby/Trojan	As per manufacturer
<b>16.0 SERVICE SADDLES</b>				
PVC Water Main (19 mm to 50 mm)		- Cast bronze service saddle - Double strap	Robar Cambridge Brass	2706 Series 812
Ductile Iron Water Main (19 mm to 50 mm)				
Tapping Sleeve – PVC and Ductile	NSF/ANSI 61	- Stainless Steel, Type 663	Smith-Blair	As per manufacturer



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Iron Water Main			AFC Robar	6606
<b>17.0 SPACERS</b>				
Casing End		- Seal-virgin SBR and Bands - T-304 stainless steel	Cascade  PSI	As per manufacturer As per manufacturer
Casing Spacers		- Fusion coated steel casing insulators	Cascade  PSI	As per manufacturer As per manufacturer
<b>18.0 MAIN STOPS</b>				
19mm	AWWA C800		Mueller Cambridge Brass Ford  EMCO	H25008 301-A3H3 19mm-FB1000-3-Q 17072 Compression
25mm	AWWA C800		McDonald Brass Mueller Cambridge Brass Ford  EMCO	4701B-T H25008 301-A4H4 25mm-FB1000-4-Q 17072 Compression
38mm	AWWA C800		McDonald Brass Mueller Cambridge Brass Ford  EMCO	4701B-T H25008 301-A6H6 38mm-FB1000-6-Q 17072 Compression
52mm	AWWA C800		McDonald Brass Mueller	4701B-T H25008

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			Cambridge Brass Ford  EMCO	301-A7H7 52mm-FB1000-7-Q 17072 Compression
<b>19.0 CURB STOPS</b>				
19mm	AWWA C800	- Non Self-draining	Mueller Cambridge Brass Ford EMCO	H-15-209 202-H3H3 B44-333 17402 Ball Compression
25mm	AWWA C800	- Non Self-draining	Mueller Cambridge Brass Ford EMCO	H-15-209 202-H4H4 B44-444 17402 Ball Compression
38mm	AWWA C800	- Non Self-draining	Mueller Cambridge Brass Ford EMCO	H-15-209 202-H6H6 B44-666 17402 Ball Compression
52mm	AWWA C800	- Non Self-draining	Mueller Cambridge Brass Ford EMCO	H-15-209 202-H7H7 B44-777 17402 Ball Compression
<b>20.0 COUPLINGS</b>				
19mm	AWWA C800		Mueller	H-15-403

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			Cambridge Brass Ford McDonald Brass	118-H3H3 C44-33 4758T
25mm	AWWA C800		Mueller Cambridge Brass Ford McDonald Brass	H-15-403 118-H4H4 C44-44 4758T
38mm	AWWA C800		Mueller Cambridge Brass Ford McDonald Brass	H-15-403 118-H6H6 C44-66 4758T
52mm	AWWA C800		Mueller Cambridge Brass Ford McDonald Brass	H-15-403 118-H7H7 C44-77 4758T
Asbestos to PVC Cast Iron to PVC	NSF/ANSI 61	- Hymax 2000 Coupling and Hymax 2100 Flanged Adapter - Omni Coupling System Cast Couplings	Krausz Industries  Smith-Blair GF multi joint	As per individual manufacturer
<b>21.0 SAMPLING STATION</b>				
		1.7 m minimum depth of bury	Kupferle	Eclipse #88-55
<b>22.0 FRAMES &amp; GRATES – VALVE CHAMBER MAINTENANCE HOLE</b>				
Cast Iron	OPSS 1850  OPSS 1850	- Grate as per OPSD 401.010 (closed cover) with date cast into the cover - Adjustable/Autostable Frame - C-50M-ONT	Bibby-Ste-Croix Star Pipe Canada, Inc.  Bibby-Ste-Croix	As per individual manufacturer

MATERIAL	CERTIFICATION	SPECIFICATIONS	MANUFACTURER	CATALOGUE NO.
Ductile Iron		<ul style="list-style-type: none"> <li>- MH62502-D</li> <li>- SELFLEVEL – MC401010243</li> </ul>	Sigma EJ Canada	
<b>23.0 ADJUSTMENT UNITS</b>				
Concrete	CSA A257.4	<ul style="list-style-type: none"> <li>- Pre-cast concrete grade adjustment units with Moduloc tape between layers</li> </ul>	OCPA Plant Pre-qualification Member	As per individual manufacturer MH-640102 DI (38 mm) MH-640102 DI (51 mm)
Ductile		<ul style="list-style-type: none"> <li>- Riser rings (only to be used when approved by the Town)</li> </ul>	Sigma	

