



**WATER
 RIVERVIEW PARK AND ZOO**

APPROVED MANUFACTURERS' PRODUCTS FOR THE PETERBOROUGH WATER SYSTEM

STANDARDS – GENERAL

The materials used in all structures shall comply with the requirements of the Building By-laws of the City of Peterborough and the National Building Code of Canada, except where a higher standard is specified herein.

Materials and products used in Commission contracts must meet the most current version of NSF/ANSI Standard 61, "Drinking Water System Components – Health Effects". NSF/ANSI Standard 61 products are to have been manufactured after July 1, 2012 and be 'lead-free' as defined by the Standard (≤5ppb leached; ≤0.25% by weight).

SPECIFICATIONS	MANUFACTURER / MODEL
ACCESS VAULT LEAK PROTECTION	
Manhole Seal	<ul style="list-style-type: none"> CCI Pipeline Systems – WrapidSeal Manhole Encapsulation System (engineered primer and wrap around heat-shrinkable sleeve) Cretex Inflow Dish (or PUC approved equivalent) Mel-Rol by W.R. Meadows (or PUC approved equivalent)
ANODES	
Magnesium: Alloy as per ASTM B107, 1961 M-1c or equal B843-13 7.2 kg (300mm+ long)(125x750 mm container) (for fittings, valves, hydrants) 14.5 kg (560mm+long) (200x700mm container) (for DI & CI mains) Anode Composition: Backfill wt > alloy wt x 1.75 & having elect. Resistivity <45 ohm-cm wet; backfill composition: gypsum 75-77%, NaSO4 5-8%, Bentonite 15-20%; c/w min. 1.8m of #10/7 strand AWG copper c/w orange TWH insulation	<ul style="list-style-type: none"> ICCC (Interprovincial Corrosion Control) - MaxMag HP model 32D5GG CorrPro Canada Inc. - Model BC-81-3220 (32 lb, 14.5 kg) Bren Technologies Inc. – MA-5, MA-9, MA-17, MA-32 Integrity Pipeline Products – ANM17 & ANM32
Zinc (for copper services, valves, restrainers, all metallic fittings): 5.4 kg zinc alloy casting ASTM B418-12 Type II or equal alloy; min. 610mm+ long) (200 x 700mm+ container) Anode Composition: Contained in cardboard container; backfill having elect. Resistivity <45 ohm-cm wet; backfill composition: gypsum 77%(+/-2%), NaSO4 8%(+/-1%), Bentonite 15%(+/-1%); c/w min. 1.8m of #10/7 strand AWG copper c/w orange TWH insulation Hydrants to have 2x5.4kg or 1x10.9kg Zinc Anode	<ul style="list-style-type: none"> ICCC - 12S1-4ZP Exothermal Industries Inc. - ANZ12.01, ANZ05.01, ANZ06.01, ANZ14.01 Maple Agencies – ANM05.01, ANM09.01, ANM17.01, ANM32.01 Bren Technologies Inc. – ZA-6, ZA-12, ZA-24 Integrity Pipeline Products – ANZ06, ANZ12, ANZ24
Anode Bonding Cables: #1/0 AWG, 19 strand copper TW insulated. Cable; min. length 450mm Fabricated using Erico Products Inc. #CAS05F copper sleeve & a #CAD-05 hammer die or equal.	<ul style="list-style-type: none"> North Flex (welding cable) – E91935 600 Volt
Anode Service Clamps: Brass, designated for direct bury, c/w brass screws	<ul style="list-style-type: none"> Thomas & Bett - Cat.# JD Iberville Mfg. (Emco Supply) - #3110-U Illsco of Canada Ltd - BGC-1DB

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SPECIFICATIONS	MANUFACTURER / MODEL
Corrosion Protection for Anode Lead Wire Welds	<ul style="list-style-type: none"> • Royston Handy Cap
BACKFLOW PREVENTION DEVICES	
All Backflow Preventors, to be used, require CSA B64 accreditation.	
Reduced Pressure Zone (RPZ) assemblies – for use on the temporary water main connection to hydrants, chlorination & bacteriological test point bypass.	<ul style="list-style-type: none"> • Apollo/Conbraco Model RP4A • Watts Model 009 • Zurn Wilkins Model 375 or Model 975XL
Double Check Valve Assembly units – for use on temporary bleeder lines and may be considered for use on temporary water main connections to hydrants in specific locations if approved by PUC.	<ul style="list-style-type: none"> • Apollo/Conbraco Model DC4A • Watts Model 007 ½" - 2" • Zurn/Wilkins Model 350 or Model 950XL
BACKWATER VALVES	
For use on discharge pipes to sewers at flush stations, air valve chambers, etc. CSA/CAN or approved equal.	<ul style="list-style-type: none"> • Canplas backwater valves • Royal backwater valves
CASING SEAL	
Rubber End Seal	<ul style="list-style-type: none"> • Pipeline Seal & Insulator Inc. – Model R end seal
CASING SPACERS	
#304 stainless steel Type	<ul style="list-style-type: none"> • Cascade Water Works Mfg., Phoenix Gold Series
Injection molded high-density polyethylene Type	<ul style="list-style-type: none"> • CCI Pipeline Systems model CSPB12-2.50-EXT-2.00 (for 12" spacers)
CORPORATION MAIN STOPS	
AWWA C800-14 or latest revision; open left; tracer wire (TW) terminals where required. Q = Quick Joint	<ul style="list-style-type: none"> • Cambridge Brass – 301 NL-A HE, AWWA x CB Comp • Ford – FB1000 – #THW-Q-NL; AWWA x QJ • Mueller H1500807N
CORROSION PROTECTION	
	<ul style="list-style-type: none"> • Denso – Prevention & Sealing products – paste, molding compound, tape • Sterling Varnish - Black Mastic
COUPLINGS	
Bolted couplings for greater than 300mm WM	<ul style="list-style-type: none"> • Use permitted by PUC approval only on a case by case basis
Two (2) Bolt Coupling System	<ul style="list-style-type: none"> • Smith-Blair – 421 top bolt • Hymax
Restrained Coupling System	<ul style="list-style-type: none"> • Hymax Grip Coupling • Romac Alpha Restrained Joint – Extended Range Coupling • GF Multi/Joint 3000 Plus – 3007, 3107, 3057, 3207, 3407

APPROVED MANUFACTURERS' PRODUCTS FOR THE PETERBOROUGH WATER SYSTEM 3

SPECIFICATIONS	MANUFACTURER / MODEL
CURB STOPS	
AWWA C800-14 or latest revision; O-ring seals; left open; tracer wire (TW) terminals where required.	<ul style="list-style-type: none"> • Mueller 300 – B2520907N – 110 Comp x 110 Comp • Mueller Oriseal H1520907N • Cambridge Brass 202NL-H-HE- CB comp.x CB comp • Ford (with Quick Joint) - B44-###-Q-NL or B44-###-TW-Q - NL
FITTINGS	
Ductile: ANSI/AWWA C153/A21.53-06, C111/A21.11-12 & C104/A21.4-13, Cement-lined; MJ ends, bolt packs to be 304 stainless steel	<ul style="list-style-type: none"> • Star, including MJ x MJ adaptor • Bibby • Sigma, including MJ x MJ adaptor
PVC: ANSI/AWWA C907-12, CSA B137.2, & NSF61; injection molded	<ul style="list-style-type: none"> • IPEX – Blue Brute • Harco • RCT Flex Tite (new installs only)
FLANGES	
Adaptor Flange, bolt packs to be 304 stainless steel	<ul style="list-style-type: none"> • Clow - Series 90S/90C – joins plain end PVC or DIC to equipment, valves, etc that are flanged (Not a restraint device) • UNI-Flange • EBAA Iron
FLUSHING STATIONS	
Automatic Flushing Station with PUC installed meter. Insulated as required to prevent freezing.	<ul style="list-style-type: none"> • Mueller Co. Hydro Guard – HG4
HYDRANTS	
Peterborough ANSI/AWWA C502-14; 114mm main valve size; two pc barrel c/w 2 – 63.5mm nozzles @ 90 deg. (Ptbo. Pattern) & 100mm pumper nozzle; open left; yellow	<ul style="list-style-type: none"> • Mueller Canada Valve – Century 4.5in175psi 2H90 12B43B 1L MJ Y (Peterborough Pattern)
INFLOW PREVENTION	
Water security item NSF61 Epoxy coating in & out; 316 SS float checks Size – 1, 2, 3, 4, 6 & 8”	<ul style="list-style-type: none"> • Val-Matic Flood Safe Inflow Preventer (used on vault installed air valves & reservoir vents) – Model SPK-130X where X = size
JOINT RESTRAINTS	
Restraints for DI Pipe Joint Restrainers can be tie rods, restrained harness and/or mechanical joint retainer gland rings, bolt packs to be 304 stainless steel	<ul style="list-style-type: none"> • Ford Uni-flange Series 1300 & 1390 • EBAA Iron 1100 Megalug Series • Star 9000C, 9100C • Ford Uni-flange – Series 1400 • EBAA Iron – 1000 Series • Sigma One-Lok • Stargrip 3000 • All Stargrip 4300 • Tyler – MJ Field Lok kit (gasket/gland/nuts & bolts) • Tyler Union – TufGrip TGD

APPROVED MANUFACTURERS' PRODUCTS FOR THE PETERBOROUGH WATER SYSTEM 4

SPECIFICATIONS	MANUFACTURER / MODEL
<p>Restraints for PVC Pipe Joint Restrainers can be tie rods, restrained harness and/or mechanical joint retainer gland rings, bolt packs to be 304 stainless steel</p>	<ul style="list-style-type: none"> • Ford Uni-flange Series 1300, 1350 & 1360 • EBAA Iron Series 1500, 2500 & 6500 • Sigma PV-Lok • Star Model 1100G2 • Uni-flange – Series 1500 • EBAA Iron – 2000 Series • Sigma One-Lok • Stargrip 4000/4000 G2 • All Stargrip 4300 • Tyler Union – TufGrip TGP • Clow – Series 300/350/360/390
<p>PVCO Mechanical Joint Restraints, bolt packs to be 304 Stainless Steel</p>	<ul style="list-style-type: none"> • Stargrip 4000/4000 G2 • All Stargrip 4300 • Star 1000G2, 1100G2, 1200G2 • Sigma One-Lok
<p>PIPE INSULATION</p>	
<p>Urethane Half Shell Pipe Insulation Systems</p>	<ul style="list-style-type: none"> • Urecon UIP kits; nominal 50mm thick rigid polyurethane foam; 0.305mm (12 mil) PE hand-roll tape jacket spirally applied with a 50% overlap
<p>50mm Styrofoam Board Insulation: Extruded Polystyrene Insulation, Styrofoam HI60 or equivalent (Case by case approval required)</p>	<ul style="list-style-type: none"> • Owens Corning Foamular 600
<p>PIPE – MAINS - >50mm</p>	
<p>Ductile DIC – Class 52, ANSI/AWWA C150/A21.50-14, C151/A21.51-09, c111/A21.11-12 Cement – C104/A21.4-13 Slip-on Tyton joint; poly wrapped ANSI/AWWA C105/A21.5-10; min. 8mil (Case by case approval required)</p>	<ul style="list-style-type: none"> • Canada Pipe Co. – 100 mm to 300 mm dia. <p>Exposed metal surfaces not wrapped to be coated with 2 coats corrosion resistant mastic (Sterling Varnish #1756 Black Mastic) or wrapped in Denso Tape T-1.</p> <ul style="list-style-type: none"> • Electrosteel USA-NuBlu – 100 mm to 600 mm dia.
<p>PVC – Class 150 (DR18): ANSI/AWWA C900-07 (CSA B137.3M) Bell & spigot slip on joint ASTM D3139 rubber rings Blue and marked</p>	<ul style="list-style-type: none"> • IPEX – Blue Brute • Royal • Rehau • Diamond Plastics • National Pipe • NEXT Polymers
<p>Oriented PVC - ANSI/AWWA C909, ASTM F1483 biaxially oriented PVC pipe CIOD 100mm – 300mm Use approved restraints for C909 PVC pipe</p>	<ul style="list-style-type: none"> • IPEX – Bionax PVCO • Westlake – AWWA C909/IB PVCO
<p>Fusible PVC Pipe for Trenchless Applications 100mm to 900mm (CIOD); CSA B137.3; AWWA C900 & C905; NSF-61; ASTM cell class 12454</p>	<ul style="list-style-type: none"> • IPEX Inc. – Fusible Brute - Available in 12.2m lengths; DR 14 (305psi), DR 18 (235psi) acceptable although lower pressure classes available (25, 32.5, 41)
<p>HDPE trenchless applications</p>	<ul style="list-style-type: none"> • To be approved by PUC prior to use
<p>CPP - Concrete Pressure Pipe (>300mm diameter pipe)</p>	<ul style="list-style-type: none"> • Forterra CPP unless approved otherwise by Engineer

APPROVED MANUFACTURERS' PRODUCTS FOR THE PETERBOROUGH WATER SYSTEM 5

SPECIFICATIONS	MANUFACTURER / MODEL
PVC PIPE C/W INTEGRAL JOINT RESTRAINT	
PVC C900 pipe w. coupling and locking splines; 100 – 300mm	<ul style="list-style-type: none"> • Napco (formerly Royal Pipe) Systems – Cobra Lock Pipe System - Class 150 (DR18) and Class 200 (DR14) (Case by case approval required) • Napco complete with Bulldog integral joint restrained system
PIPE – SERVICES – 50mm or less	
Insulated Pipe – Services	<ul style="list-style-type: none"> • Rehau Municipex PI Water Service Tubing, (Case by case approval required).
Type K soft copper Soft copper tubing annealed, min. pressure rating 1035; ASTM B88 – Meets watermain specs	<ul style="list-style-type: none"> • Case by case approval required.
Poly Tubing:	<ul style="list-style-type: none"> • IPEX Blue904 PEX Service Tubing (25mm min) • Hyperpure Bi-Modal Poly Tubing (25mm min) • Rehau Municipex (25 mm min.) (Preferred) • Polytubes – HDPE (25mm min.) (Case by case approval required)
SAMPLE STATION	
	<ul style="list-style-type: none"> • Mueller Hydro Guard Blow-off Sample Station
SERVICE BOXES	
Steel boxes 1500x1800mm long; 875mm stainless steel operating rod	<ul style="list-style-type: none"> • Mueller – A-726 • Clow • Bibby • Sigma - CBA160 or cb-196 • Mueller – A-7286 for 38 & 50 mm, w/ stainless steel rod • Star Pipe – Model SB#8DI
SERVICE FITTINGS – 50mm or less	
50 mm or less: brass c/w compression type joints, AWWA C800-14 or latest revision.	
SERVICE SADDLES	
Mandatory for use on PVC pipe; stainless steel band; double bolt; SS nuts & bolts and non-corrosive washer	<ul style="list-style-type: none"> • Teck – Cambridge Brass Series 8403 • Ford – Model FS303 • Robar – Model 2616 • Robar – Model 2706 (for air valve applications) • Powerseal – Model 3412AS • Smith-Blair – Model 375
STRUCTURAL LINED REPAIR EPOXY SEALANT	
High Performance, Professional Anchoring Adhesive, Fast Curing, NSF/ANSI 61	<ul style="list-style-type: none"> • Sika AnchorFix 2001
TAPPING SLEEVES	

APPROVED MANUFACTURERS' PRODUCTS FOR THE PETERBOROUGH WATER SYSTEM 6

SPECIFICATIONS	MANUFACTURER / MODEL
Two piece; mechanical joint on outlet half	<ul style="list-style-type: none"> • Smith-Blair – Type 622 • Mueller – Type H304MJ • Ford – Complete with MJ Outlet; FTSS or FTSC (SS or carbon steel) • Power – 3460 CS MJ • Robar 6606 Stainless Steel
TRACER WIRE (FOR PLASTIC PIPE)	
#12 (min.) AWG solid copper TWU c/w plastic coat	<ul style="list-style-type: none"> • Copperhead High Strength 1430B-HS (min), blue coating
TRACER WIRE CONNECTORS	
<p>#6 AWG type; Marr-type, brass split bolt; or soldered and wrapped with insulating tape</p> <p>Slice Service Lines w/o cutting main line: for low voltage tracers < 50V</p>	<ul style="list-style-type: none"> • Marr (copper services only) • Dryconn - #10666 (copper services only) • Thomas & Betts – 6AWG-6H3 (copper services only) • King Innovation – DryConn Waterproof Direct Bury Lug; waterproof, corrosion proof; #14 to #10 AWG wire range; silicone filled • Copperhead Snakebite Connectors LSC 1430, 1230, 1030
UNIONS	
Compression type; min. press. rating 1035kPa; AWWA C-800-14	<ul style="list-style-type: none"> • Mueller – H-15403 c/w bottom ridge • Cambridge Brass – CB x CB series 118 • Ford – “Quick Joint” • Cambridge Coupling – 119NL
VALVES	
<p>Air Valves:</p> <p>Air release, vacuum, combination valves: ASTM A-126 Class B & ANSI/AWWA C512-07; use up to 150psi</p>	<ul style="list-style-type: none"> • APCO • Empire • Valmatic • ARI (50mm or less)-D-040-C-ARI • ARI(>50mm)-D-060-C-HF-ARI • Vent-O-Mat–Series RBX Anti-shock
<p>Butterfly Valves:</p> <p>ANSI/AWWAC504-94;</p> <p>Peterborough - open right (clockwise)</p>	<ul style="list-style-type: none"> • Mueller • Clow • Pratt • Valmatic • VSI Series BFII (XX)(M)-DDSES-PS2 wh. XX=dia; M = Mech Jt)
<p>Gate Valves:</p> <p>ANSI/AWWA C509-09; or ANSI/AWWA C515; latest versions;</p> <p>Peterborough - open right (clockwise)</p>	<ul style="list-style-type: none"> • Mueller model 2361 • Clow • J&S Valves Mod. 6900 • VSI Series GV1 (XX)(M)N-DDSE-PS1 wh. XX=dia; M = Mech Jt)
Gate Valves w/ Restraint Couplers	<ul style="list-style-type: none"> • Mueller w/ Hymax Grip
VALVE BOXES	
Cast iron c/w inside screw config., 130mm dia. Shaft with No. 6 base	<ul style="list-style-type: none"> • Bibby complete with VB 825 cover • Star • Sigma
Valve box aligner	<ul style="list-style-type: none"> • Powerseal Model 5000
VALVE CHAMBERS	

APPROVED MANUFACTURERS' PRODUCTS FOR THE PETERBOROUGH WATER SYSTEM 7

SPECIFICATIONS	MANUFACTURER / MODEL
Concrete chambers as per OPSD 701.01; sized as per dwgs B-1682 & B-1810;	<ul style="list-style-type: none"> • MCON • Forterra • ConCast
VALVE CHAMBER FRAME & COVER	
Closed cover frame & grate Type A – OPSD 401.01; frost protection	<ul style="list-style-type: none"> • Sigma • Bibby • Mueller • McCoy • Star • Star – Model 401.03 (Case by case approval required)