



APPROVED PRODUCTS



DESIGN AND CONSTRUCTION MANUAL

Linear Municipal Infrastructure



SANITARY SEWER APPROVED PRODUCTS

PRODUCT	SPECIFICATION	APPROVED MANUFACTURER
Polyvinyl Chloride (PVC) Pipe	SDR35, CSA B182.2, 320 KPa Stiffness, 50 psi Joints 200mm to 600mm	IPEX, Rehau, Royal
	SDR28, CSA B182.2, 625 KPa Stiffness, 50 psi Joints 100mm and 150mm Service Laterals	IPEX, Rehau, Royal
Concrete Pipe	Non-Reinforced, CSA A257.1 Extra Strength 200mm to 250mm	Forterra, Concast, Coldstream
	Reinforced, CSA A257.2 300mm and Larger	Forterra, Concast, Coldstream
Precast Maintenance Holes	CSA A257.4, OPSS 407 and 1351 1200mm TO 3000mm	Forterra, Concast, Coldstream
Maintenance Hole Frames and Covers	OPSS 1850, OPSD 401.010 Type A	Bibby, EJ (McCoy), Mueller Canada, Sigma, Star
Maintenance Hole Adjustment Units	Precast Concrete	Armtec, Forterra
	Polyethylene or Polypropylene (adjustment rings for top lift asphalt)	IPEX, Turner
Fittings	PVC CSA B182.2	IPEX, Rehau, Royal
Saddles	compatible with PVC CSA B182.2 pipe	ADS Canada, Fernco, IPEX
Couplings and Adapters	ASTM D 5926, C 1173 and CSA B602	Fernco

STORM SEWER APPROVED PRODUCTS

PRODUCT	SPECIFICATION	APPROVED MANUFACTURER
Polyvinyl Chloride (PVC) Pipe	SDR35, CSA B182.2 ,320 KPa Stiffness, 50 psi Joints 200mm to 600mm	IPEX, Rehau, Royal
	SDR28, CSA B182.2 ,625 KPa Stiffness, 50 psi Joints 100mm and 150mm Service Laterals	IPEX, Rehau, Royal
Concrete Pipe	Non-Reinforced, CSA A257.1 Extra Strength 200mm to 250mm	Forterra, Concast, Coldstream
	Reinforced, CSA A257.2 300mm and Larger	Forterra, Concast, Coldstream
Precast Maintenance Holes	CSA A257.4, OPSS 407 and 1351 1200mm TO 3000mm	Forterra, Concast, Coldstream
Maintenance Holes Frames and Covers	OPSS 1850, OPSD 401.010 Type A	Bibby, EJ (McCoy), Mueller Canada, Sigma, Star
Maintenance Hole Adjustment Units	Precast Concrete	Armtec, Forterra
	Polyethylene or Polypropylene (adjustment rings for top lift asphalt)	IPEX, Turner
Fittings	PVC CSA B182.2	IPEX, Rehau, Royal
Saddles	compatible with PVC CSA B182.2 pipe	ADS Canada, Fernco, IPEX
Couplings and Adapters	ASTM D 5926, C 1173 and CSA B602	Fernco
Catch Basin Frames and Covers	OPSD 400.010, OPSD 400.020 and OPSD 400.082 (inlet)	Bibby, EJ (McCoy), Mueller Canada, Sigma, Star
Catch Basins	OPSS 407 and OPSS 1351 Form 700	Forterra, Concast, Coldstream
Ditch Inlet	OPSS 407 and OPSS 1351 Form 700	Forterra, Concast, Coldstream
Culvert Pipe	High Density Polyethylene CSA B182.6, 320 Kpa Stiffness	Armtec, Ideal Pipe

ROADS APPROVED PRODUCTS

PRODUCT	SPECIFICATION	APPROVED MANUFACTURER
Cast Iron Detectable Warning Plate/ Tactile Surface Walking Indicator	OPSD 310.031 OPSD 310.033 OPSD 310.039	EJ Duralast
Noise Attenuation Barrier	MOECC Accoustical Standards Ontario Building Code and CSA Materials: Precast Concrete Wood and Vinyl	Alcuf International Inc. Homeland Vinyl Fence Limited Durisol Inc., National Vinyl Products Design Concrete Systems Ltd. Atlantic Industries Limited
Coloured Concrete	Charcoal Grey Synthetic Oxide Pigment as per ASTM C979 and C494, Type A, Cement Dispersing/ Water Reducing	ColorTech
Bollard	High Strength Steel Tube Size: 200mm Diameter x 2400 mm Length Install: 1200mm buried w/ concrete footing Color: Black Yellow reflective tape-2 stripes @ 50mm wide	
Precast Block Retaining Wall	Gravity Wall System designed by a Professional Engineer Colour: Natural Stone	Permacon
Cold Plastic Durable Pavement Marking Material	OPSS 1713 Thermoplastic Pavement Marking; and OPSS 1714 Field Reacted Polymeric Paevment Marking	
Traffic Paint	Unleaded Waterborne Paint Only M.T.O. Approved and as per OPSS 532, OPSS 1712, OPSS 1716 and OPSS 1750	

STREET LIGHTING APPROVED PRODUCTS

PRODUCT	SPECIFICATION	APPROVED MANUFACTURER
LED SIDE MOUNT COACH FIXTURE	Decorative Street Light with Scroll Arm	King Luminaire
		Acutiy
LED ACORN FIXTURE (DOWNTOWN)	Post Top Mount Acorn LED Fixture	King Luminaire
		Acutiy
LED COBRA HEAD LUMINAIRE	Cobra Head Street Light with 7 Pin Receptacle	General Electric ELR Series
		American Electric ATBM / ADBM-F
PHOTOCELL STANDARD TWIST LOCK TYPE / BUTTON TYPE	TRS - LED Specific	FP Outdoor Lighting Control
	DSS - HPS / Metal Halide	DTL Fisher-Pierce
STREET LIGHT BRACKET ARM	Elliptical - 2.44m	Aluminous Lighting Products Stresscrete Group
	Victorian Style with Scroll Arm - 2.44m	Stresscrete Group
CONCRETE STREET LIGHT POLE - STANDARD DUTY - ALL LENGTHS	Direct Buried Concrete Spun Pole	Stresscrete Group Utility Structures Inc.
CONCRETE POLE - HEAVY DUTY - ALL LENGTHS	Direct Buried Concrete Spun Pole	Stresscrete Group Utility Structures Inc.
CONCRETE POLE - DECORATIVE - OCTAGONAL	Direct Buried Concrete Spun Pole	Stresscrete Group Utility Structures Inc.
CONCRETE POLE - DECORATIVE - POST TOP	Direct Buried Concrete Spun Pole	Stresscrete Group Utility Structures Inc.
ALUMINUM POLE - ALL LENGTHS	Direct Buried Aluminum Pole	Stresscrete Group Utility Structures Inc.
POWER SUPPLY WIRING	Single Conductor, stranded copper wire #2 AWG (minimum)	Anixter Canada General Cable
POLE TO POLE AND BRANCH FEEDER WIRING	Single Conductor, stranded copper wire #6 AWG (minimum)	Anixter Canada General Cable
IN POLE / IN ARM RISER WIRE	Single Conductor, stranded copper wire #12 AWG (minimum)	Anixter Canada General Cable
ELECTRICAL CONDUIT	Type II rigid polyvinyl chloride (PVC)	IPEX ROYAL
POWER SUPPLY PEDESTAL	Complete Pedestal Assembly with metering provision	Pedestal Solutions INC (Brantford Spec)
JUNCTION BOX	8x8x7 Square Grey / Quazite Open Bottom 13x24 - with Lid "Street Light Logo"	Hubbel Power Systems

WATERMAIN APPROVED PRODUCTS

PRODUCT	MATERIAL/TYPE	MANUFACTURER	MODEL/SERIES	REMARKS	SPECIFICATIONS
WATERMAIN PIPE	Ductile Iron (DI)	Canada Pipe Company	Class 52 & 54 Pressure Class 350, Tyton Joint, AWWA C104/A21.3, C110/A21.10, OPSS 441 Cement lined	Project specific basis as accepted by the City and determined by design review process. AWWA C104, C105, C110, C111, C115, C150, C151, C153	
	Concrete Pressure Pipe (CPP)	Forterra	AWWA C300, C301, C302 & C303, OPSS 441 Plant prequalified by OCPA All pipe and grout for diapering must be Type 50 Cement	AWWA C301 (L), C303, 304, 400 mm & 500 mm AWWA C301(E) & C304, > 1350 mm	
	Molecularly Oriented Polyvinyl Chloride (PVCO) ≤ 300mm	IPEX	Bionax AWWA C909-DR18 PC150, OPSS 441	Use of PVCO for distribution main only Service saddles or service tees shall be used when connecting services to PVCO mains	Pipe: NSF 14 & 61 ASTM D1784, D3139, F477 & F1483 AWWA C909 CSA B137.3.1 FM1612. Fittings: Match PVC
	Polyvinyl Chloride Pipe (PVC) ≤ 300mm	IPEX Royal Pipe	Blue Brute Centurion TerraBrute Royal Seal AWWA C905-DR18, OPSS 441	Designer shall determine pressure class and rating based on project requirements Use of PVC for distribution main only Service saddles or service tees shall be used when connecting services to PVC mains	Pipe: AWWA M23 AWWA C900 CSA 137.3 FM 1612 approved UL 1285 listed NSF 61 certified Fittings: (100 to 300mm) AWWA C907 CSA B137.2 (250 to 300mm) AWWA C900 CSA B137.3 FM 1612 approved UL 1285 listed NSF 61 certified
	High Density Polyethylene (HDPE)			AWWA C906	Project specific basis as accepted by the City and determined by design review process. AWWA C906
WATERMAIN FITTINGS	Metallic Fittings	Sigma Bibby Star Pipe Product	AWWA C104, C110 and C111 Cement lined Petrolatum material protected	Hyprotec coated Petrolatum protected fittings and bolts	Cast iron or ductile iron as per A.W.W.A. Specification C110 Cement lined as per A.W.W.A. C104 Mechanical joint type as per A.W.W.A. C111 or "Tyton" rubber gasket joints conforming to A.W.W.A. Specification C104
	PVC	IpeX Royal Pipe	100mm-200mm AWWA C907, B137.3, OPSS441 Injection molded 250mm and 300mm AWWA C900 and C905, B137.3 OPSS441 Bonded and over-wrapped with fiberglass- reinforced polyeste		A.W.W.A. Specification C900 or C905 and C.S.A. Standard B137.3
					A.W.W.A. Specification C900 or C905 and C.S.A. Standard B137.3
					A.W.W.A. Specification C110 Cement lined fittings as per A.W.W.A. Specification C104 Mechanical joint type as per A.W.W.A. Specification C111, or "Tyton" rubber gasket joints as per A.W.W.A. Specification C104

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PRODUCT	MATERIAL/TYPE	MANUFACTURER	MODEL/SERIES	REMARKS	SPECIFICATIONS
JOINT RESTRAINTS	Mega-lug	EBAA Iron, Inc.	Series 2000 PV for PVC pipe Series 1100 for ductile iron pipe	Restrained joints will be used on fittings and within all calculated restrained distances.	
	Uni-flange restrainers	Ford Meter Box Company, Inc.	Series 1300, 1350 & 1390 for PVC and ductile iron pipe Series 1400 for ductile iron pipe Series 1500 for PVC pipe for PVC and ductile iron pipe		
	M.J. Field Lok	US Pipe Mueller Co.			
	Grip Ring restrainers	Romac	for PVC and ductile iron pipe		
	TufGrip restrainers	Tyler Union Clow	Series 2000 for PVC pipe Series 1000 for ductile iron pipe		
	Clow series 300	Clow	Series 300 restrainers		
	One-Lok Wedge-Action Restraint	Sigma	Series SLC & DVM for PVC pipe Series SLD for Ductile iron pipe		
	Star Pipe Restraints	Star Pipe Products	Stargrip Series 3000 for Ductile iron pipe Allgrip Series 3600 for PVC and ductile iron pipe PVC Grip Series 3500 for PVC pipe PVC Grip Series 4000G2 PVC pipe Star 1000G2C Series - 1000G2 for PVC/PVCO, Ductile iron pipe 100mm – 300mm to mechanical joint fitting Star 1000G2C Series - 1100G2 for PVC/PVCO, Ductile iron pipe standard bell to spigot push on joint Star 1000G2C Series - 1200G2 for PVC/PVCO, Ductile iron pipe to C907 injection molded fittings		
Cam-Lock	Smith-Blair	111/120 Service for PVC and Ductile iron pipe			
VALVES	100mm - 300mm: Gate Valves	McAvery Mueller Clow AVK EJW	20075-0 & 20075-R A-2360 F 6100 Series 25 resilient seated gate valve Flowmaster resilient seated gate valve	Mechanical joints	Gate valves as per A.W.W.A. Standard C-500 Resilient seat gate valves as per A.W.W.A. Standard C-509
	≥ 300mm - Butterfly valves	Dezurik Mueller Pratt Keystone M & H Val-Matic American Darling	Line Seal III 2 F II F504 or F506 4500	American Darling is only acceptable for Duocitil Iron and Concrete Pressure Pipe	
	Combination air release / vacuum valves	ARI Vent-O-Mat	Model D-040 (metal clad) Series RBX - Model RBX 2521 & 2531		
VALVE BOXES	Valve Boxes	Mueller Bibby Star	A759TF VB625 VBDF514-48	130mm (5 1/4") slide type only	
	Road Leveller	Star McCoy (MCC) Sigma	VB514AP		
CAPS & PLUGS	NSF61 certified epoxy coated			All mechanical joint/tyton caps or plugs used on watermain installations are to be epoxy coated on the inside	NSF61 certified epoxy coating

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PRODUCT	MATERIAL/TYPE	MANUFACTURER	MODEL/SERIES	REMARKS	SPECIFICATIONS
TAPPING SLEEVES	Ductile Iron ≥ 100mm Ductile iron Hyprotec coated ≥ 100mm PVC and Cast Iron Watermain ≥ 100mm	Mueller Canada Valve Romac SST Ford Fast Robar Smith-Blair Powerseal	H615 M.J. Tapping Sleeve M.J. Tapping Sleeve Stainless Steel Tapping Sleeve 6606 Stainless Steel Tapping Sleeve 663 All Stainless Steel Tapping Sleeve 3480 All Stainless Steel Tapping Sleeve		
	Asbestos Cement Watermain ≥ 100mm	Robar Rockwell Smith-Blair Smith-Blair	6606 Stainless Steel Tapping Sleeve 622 c/w Stainless Steel Bolts and Nuts Type 304 622 Tapping Sleeve 663 All Stainless Steel Tapping Sleeve	Gasket: 1 dia. on Gland Flange (EPDM). Grout seal - ¼" x ¼" Rubber Gasket Studs & Nuts: Stainless Steel Type 304	Body: Mild Steel ASTM A36 Flange: Combination Flange with ANSI 150 lb. drilling recessed for Tapping Valves MSS SP-60
	Concrete Pressure Pipe ≥ 100mm	Forterra Ayotte	Forterra A-900 Saddle and A-Saddle		Coating: An average of 20 ml thick of Thermoplastic A-571 is applied on sleeve, gland and straps with extra thickness in the waterway of gland.
WATER SERVICE MATERIALS	Pipe-Copper New service min. 25mm		Type 'K' Soft Copper	All service pipe shall be Type 'K' soft copper tube, nominal diameter of 19mm, 25mm, 38mm or 50mm Kinked, crushed or distorted tubing shall not be used Solder type fittings shall not be used.	
	Pipe-Cross-linked polyethylene Min. 25mm	IPEX	Blue904 SDR9 PEX		CSA B137.5, NSF 61 and ASTM F876, F877 and F2023
	Service Saddles (ductile iron, hyprotec coated and asbestos cement watermain)	Robar Cambridge Brass Romac Smith-blair Powerseal	2616 DB Series #403 teck clamp (S.S. Double Bolted) 306 372 (Double Bolted) 3412 AS (Double Bolted)	Service saddles shall be used on all services larger than 25mm on ductile iron watermain pipe All service saddles will use a double bolt closure	
	Service Saddles (PVC Watermain Pipe)	Robar Smith-Blair Cambridge Brass Romac Ford Preper Powerseal	2606 DB 372 (Double Bolted) Series #403 teck clamp (S.S. Double Bolted) 306 RS 303 (Double Bolted) H-Tech (S.S. Double Bolted) 3412 AS (Double Bolted)	Service saddles shall be used on all services installed off of PVC C900 or C905 and asbestos cement watermain pipe All service saddles will use a double bolt closure	
	PVC Watermain Pipe Service Tee	IPEX	Blue brute tapped coupling		
	Corporation Stops 19 mm	Mueller Ball Main (Low Lead) Cambridge Brass Ball N/L Ford Ball Main No Lead	B25008.20NPB 301NL-A3H3 FB1000-3-NL	Corporation ball stops are required to use No-Lead brass	CSA Classified to NSF Standard 61 A.W.W.A. inlet thread and copper flare or compression style outlet
	Corporation Stops 25 mm	Mueller Ball Main (Low Lead) Cambridge Brass Ball N/L Ford Ball Main No Lead	B25008.25NPB 301NL-A4H4 FB1000-4-NL		
	Corporation Stops 38 mm	Mueller Ball Main (Low Lead) Cambridge Brass Ball N/L Ford Ball Main No Lead	B25008.38NPB 301NL-A8H6 FB1000-6-NL		
	Corporation Stops 50 mm	Mueller Ball Main (Low Lead) Cambridge Brass Ball N/L Ford Ball Main No Lead	B25008.50NPB 301NL-A7H7 FB1000-7-NL		
	Curb stops 19 mm	Cambridge Brass Ball N/L Ford Ball Main No Lead Mueller Ball Main (Low Lead)	202NL-H3HE3 B44-333-Q-NL B2500W88.20NPB	Curb stops are required to use No-Lead brass All Ball curb stops shall come complete with an electrical grounding clamp	Curb stops are required to be CSA Classified to NSF Standard 61
	Curb stops 25 mm	Cambridge Brass Ball N/L Ford Ball Main No Lead Mueller Ball Main (Low Lead)	202NL-H4HE4 B44-444-Q-NL B2500W88.25NPB		
	Curb stops 38 mm	Cambridge Brass Ball N/L Ford Ball Main No Lead Mueller Ball Main (Low Lead)	202NL-H6HE6 B44-666-Q-NL B2500W88.38NPB		
	Curb stops 50 mm	Cambridge Brass Ball N/L Ford Ball Main No Lead Mueller Ball Main (Low Lead)	202NL-H7HE7 B44-777-Q-NL B2500W88.50NPB		
	Service Boxes 19 and 25 mm services	Mueller Bibby Clow Sigma Star Pipe Products	A726 VSB1 D1-9 CBA 178 D & D1 - #9		
Service Boxes 38 and 50 mm services	Mueller Bibby Clow Star Pipe Products	A753 VSB2 D2-9 D2 - #9			

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PRODUCT	MATERIAL/TYPE	MANUFACTURER	MODEL/SERIES	REMARKS	SPECIFICATIONS
ANODES	Zinc Anodes		Packaged Zinc Anodes	The anode must have a metallic core, or fusion bonded sleeve and have a depolarizing gypsum base material surrounding the anode An insulated copper (AWG 10-14) wire 3 metres in length shall be brazed to the end of the core wire	High Purity Zinc 99.99% pure as per A.S.T.M. B-418-73 type 11
TEST POINTS	Test Boxes Colour coded grey labelled 'WATER'	Distributed by: Hall Telecommunications Ltd. Manufactured by: Brooks and marketed by: Fargo MFG Company (Canada) Ltd. and supplied by: Bel Volts Sales Ltd. Manufactured by: NDS Inc. and marketed by: Gravenhurst Plastic Ltd.		Colour coded grey and the cover labelled 'WATER'	City's Standard Drawings W-308-B and W-308-C
TRACER WIRE	Wire #8 gauge, stranded, insulated copper wire with 60mil of black, cross-linked polyethylene (XLPE) insulation specifically manufactured for direct burial applications.			Number eight gauge Stranded, insulated copper wire with 60 mil of black, cross-linked polyethylene (XLPE)	
	Coating pad for cadweld connection		Royston Handy Cap IP		
	Spliced or repaired		Dryconn Waterproof Connector Wing Nut Wire Connector, Model Number 454, Catalogue Number 30-454 Klik-It II Number C8816 Buried Service Wire Closure Raychem GHFC-2-90 H-Frame Gel Closure Approved equivalent		
TEMPORARY WATERMAIN AND SERVICING MATERIAL	Aquamine high impact PVC as per OPSS 493 Yelomine CertainTeed Impact PVC Polyethylene DR 9 pipe PEX pipe Copper Type 'K' pipe	Victaulic International Pipe		All materials will be delivered new to the site or used material will be pressure washed and capped at the site prior to installation	NSF/ANSI Standards 61
PETROLATUM COATING SYSTEMS	Denso Petrolatum Tapes and Paste Premtape Systems Trenton Tape Products Petrowrap Anti-Corrosion System	Denso Premier Coatings Ltd. Trenton Corporation Innovative Manufacturing			

