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| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.1 General | Reference: | 33 11 01 2.1.4 |
| Change Summary | | | |
| Currently | | | |
| Should Be | PVC pipe only in all areas west of the Burlington Northern Railway unless approved cathodic protection is provided | | |

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| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.2 Mainline Pipe, Joints and Fittings | Reference: | 33 11 01 2.2.1 |
| Change Summary | Indicate pressure class for pipes 100mm to 300mm diameter | | |
| Currently | <p>.1 Ductile iron pipe:</p> <p>.1 Pipes: to AWWA C151, to pressure Class or Special Thickness Class Specified in Contract Documents, and standard cement mortar lined to AWWA C104/A21.4.</p> | | |
| Should Be | <p>.1 Ductile iron pipe:</p> <p>.1 Pipe: to AWWA C151:</p> <p>.1 For pipes 100mm to 300mm diameter, pipes shall be Pressure Class PC 350;</p> <p>.2 For pipes 350mm diameter and larger, Pressure Class or special Class shall be as specified on Contract Drawings.</p> <p>.3 Standard cement mortar lined to AWWA C104/A21.4</p> <p>.2 Each pipe length shall have electrical conductivity strips attached or copper wedges shall be used at each joint unless specific cathodic protection provisions, approved by the Contract Administrator, have been specified on the Contract Drawings.</p> | | |

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|------------------------------|--|-------------|------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.2 Mainline Pipe, Joints and Fittings | Reference: | 33 11 01 2.2.4.5 |
| Change Summary | PVC Fabricated fittings | | |
| Currently | PVC fabricated fittings shall conform to either AWWA C900 or AWWA C905 and to be certified to CSA B137.3. Fabricated fittings to be made from CSA certified PVC pipe of the same pressure class or pressure rating as the pipe. | | |
| Should Be | PVC fabricated fittings shall conform to either AWWA C900 or AWWA C905 and to be certified to CSA B137.3. Fabricated One-Piece C900 DR18 are permitted provided that they are thermal formed from one continuous piece of C900 DR14 pipe. Bends shall be CSA certified per CSA B137.3. | | |

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|------------------------------|---|-------------|------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.2 Mainline Pipe, Joints and Fittings | Reference: | 33 11 01 2.2.4.7 |
| Change Summary | Flanged Joints | | |
| Currently | <p>.7 Flanged joints:</p> <ul style="list-style-type: none"> .1 Flat faced conforming to the face dimension and drilling of ANSI B16.1, Class 125 .2 On AWWA C110 fittings to AWWA C110 with minimum pressure rating 1035 kPa or higher as specified in Contract Documents. .3 On AWWA C153 fittings to AWWA C153 with minimum pressure rating of 1723 kPa or higher as specified in Contract Documents. | | |
| Should Be | <p>.7 Flanged joints:</p> <ul style="list-style-type: none"> .1 Flat faced conforming to the face dimension and drilling of ANSI B16.1, Class 125. .2 On AWWA C110 fittings to AWWA C110 with minimum pressure rating 1725 kPa or higher as specified in Contract Documents. .3 Compact ductile iron fittings – not acceptable. | | |

| Supplementary Specification: | 33 11 01 - Waterworks | | | | | | | | | | | | | | | | | |
|------------------------------|--|-------------------|-------------------|--------------|--------------------|-------------------|--------------|---|-------|--------------|---|-------|--------|---|-------|--------------|---|-------|
| Affected Document(s) | Volume II | Change Type | Replacement | | | | | | | | | | | | | | | |
| Section: | 2.2 Mainline Pipe, Joints and Fittings | Reference: | 33 11 01 2.2.4.10 | | | | | | | | | | | | | | | |
| Change Summary | Tie Rods and Nuts | | | | | | | | | | | | | | | | | |
| Currently | <p>.10 Tie Rods and Nuts:</p> <p>.1 Tie rods to be continuous threaded, quenched and tempered alloyed steel to ASTM A354, Grade BC. To be zinc plated to ASTM B633 or cadmium plated to ASTM B766. Tie rod sizes to be minimum 19mm diameter or greater as shown on Contract Drawings.</p> <p>.2 Nuts and internally threaded couplings to be heavy hex finish to ASTM A563. Washers to be flat hardened steel to ASTM F436. All to be zinc plated to ASTM B633 or cadmium plated to ASTM B766.</p> | | | | | | | | | | | | | | | | | |
| Should Be | <p>.10 Tie Rods and Nuts:</p> <p>.1 Tie Rods and Nuts:</p> <p>.1 Tie rods to be fabricated from carbon steel to ASTM A36 (redi rod with minimum yield strength of 36,000 psi) and shall be hot dip galvanized to ASTM A153 , zinc plated to ASTM B633 or cadmium plated to ASTM B766. Rods may be threaded over full length.</p> <p>.2 Nuts to be heavy hex carbon steel Grade A to ASTM A563. Washers to be hardened steel to ASTM F436. Nuts and washers to be zinc plated to ASTM B633 or cadmium plated to ASTM B766.</p> <p>.3 Field coating of all fittings, valves, hydrants, bolts, tie-rods, clamps, etc. and repair to damaged coated areas on fittings to be done with a minimum of one (1) coat of Coal Tar Mastic Polyguard CA-14, Royston Roskote A-51 Mastic or Tapecoat Canada Inc. T.C. mastic or PetroCor 45.</p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Fitting Size</th> <th style="text-align: center;">Min. # of Tie Rods</th> <th style="text-align: right;">Min. Tie Rod Size</th> </tr> </thead> <tbody> <tr> <td>100 - 200 mm</td> <td style="text-align: center;">2</td> <td style="text-align: right;">19 mm</td> </tr> <tr> <td>250 - 300 mm</td> <td style="text-align: center;">2</td> <td style="text-align: right;">25 mm</td> </tr> <tr> <td>350 mm</td> <td style="text-align: center;">4</td> <td style="text-align: right;">32 mm</td> </tr> <tr> <td>400 - 600 mm</td> <td style="text-align: center;">6</td> <td style="text-align: right;">32 mm</td> </tr> </tbody> </table> <p>Note: Low strength steel bars to ASTM A36 can be used at the above sizes and quantities for test pressures up to 225 psi. If higher pressures are to be encountered or smaller diameter bars are necessary (ie. mechanical joint fittings) high strength bars may be required.</p> <p>.2 High Strength Tie Rods (if specified)</p> <p>.1 Tie rods to be fabricated from alloy steel to ASTM A193, Grade B7. Rods may be threaded over full length. Tie-rods to be hot dip galvanized or zinc plated by approved methods for high strength steel.</p> <p>.2 Nuts to be to ASTM A194 Grade 2H. Nuts shall have heavy</p> | | | Fitting Size | Min. # of Tie Rods | Min. Tie Rod Size | 100 - 200 mm | 2 | 19 mm | 250 - 300 mm | 2 | 25 mm | 350 mm | 4 | 32 mm | 400 - 600 mm | 6 | 32 mm |
| Fitting Size | Min. # of Tie Rods | Min. Tie Rod Size | | | | | | | | | | | | | | | | |
| 100 - 200 mm | 2 | 19 mm | | | | | | | | | | | | | | | | |
| 250 - 300 mm | 2 | 25 mm | | | | | | | | | | | | | | | | |
| 350 mm | 4 | 32 mm | | | | | | | | | | | | | | | | |
| 400 - 600 mm | 6 | 32 mm | | | | | | | | | | | | | | | | |

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| | <p>hex finish and be zinc plated to ASTM B633 or cadmium plated to ASTM B766. Washers to be hardened steel to ASTM F436 and zinc plated to ASTM B633 or cadmium plated to ASTM B766</p> <p>.3 Field coating of all fittings, valves, hydrants, bolts, tie-rods, clamps, etc. and repair to damaged coated areas on fittings to be done with a minimum of one (1) coat of Coal Tar Mastic Polyguard CA-14, Royston Roskote A-51 Mastic or Tapecoat Canada Inc. T.C. mastic or PetroCor 45.</p> |
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|------------------------------|--|-------------|---------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.2 Mainline Pipe, Joints and Fittings | Reference: | 33 11 01 2.2.4.12.4 |
| Change Summary | Approved Manufacturer of Couplings and Flanged Coupling Adapters | | |
| Currently | | | |
| Should Be | <p>.12 Couplings and Flanged Coupling Adapters</p> <p>.4 Acceptable manufacturer:</p> <p>.1 Robar</p> <p>.2 Romac</p> <p>.3 Smith-Blair</p> <p>.4 Certainted HD PVC Coupling</p> | | |

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|------------------------------|---|-------------|----------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.2 Mainline Pipe, Joints and Fittings | Reference: | 33 11 01 2.2.4.13.12 |
| Change Summary | Approved Manufacturer of Joint Restraint Devices | | |
| Currently | | | |
| Should Be | <p>.13 Joint Restraint Devices: General Requirements:</p> <p>.12 Approved manufacturer:</p> <p>.1 Ford/Uni-Flange</p> <p>.2 EBAA Iron</p> <p>.3 Smith-Blair</p> | | |

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|------------------------------|---|-------------|-----------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.2 Mainline Pipe, Joints and Fittings | Reference: | 33 11 01 2.2.4.14.2.2 |
| Change Summary | Acceptable tapping sleeve models for taps other than size-on size. | | |
| Currently | <p>.2 Tapping sleeves for cast iron, ductile iron, asbestos cement, PVC to AWWA C900, pre-stressed concrete pressure pipe or steel mains for taps other than size-on size:</p> <p>.1 Split assembly to incorporate an annular gasket cemented or mechanically held in place on the branch end or split assembly incorporating ring seals and wrap around sleeve length gasket liner.</p> <p>.2 Acceptable models: as specified in Contract Documents</p> | | |
| Should Be | <p>.2 Tapping sleeves for cast iron, ductile iron, asbestos cement, PVC to AWWA C900, pre-stressed concrete pressure pipe or steel mains for taps other than size-on size:</p> <p>.1 Split assembly to incorporate an annular gasket cemented or mechanically held in place on the branch end or split assembly incorporating ring seals and wrap around sleeve length gasket liner.</p> <p>.2 Acceptable Manufacturers:</p> <p>.1 Robar 6606 or 6906</p> <p>.2 Romac</p> <p>.3 Smith-Blair</p> | | |

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|------------------------------|--|-------------|-----------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.2 Mainline Pipe, Joints and Fittings | Reference: | 33 11 01 2.2.4.14.3.2 |
| Change Summary | Acceptable tapping sleeve models for taps size-on size. | | |
| Currently | <p>.3 Tapping sleeves for size on size taps on cast iron, ductile iron, asbestos cement, PVC to AWWA C900, pre-stressed concrete pressure pipe or steel:</p> <p>.1 Split assembly incorporating ring seal and wrap around sleeve length gasket liner.</p> <p>.2 Acceptable models: as specified in Contract Documents</p> | | |
| Should Be | <p>.3 Tapping sleeves for size on size taps on cast iron, ductile iron, asbestos cement, PVC to AWWA C900, pre-stressed concrete pressure pipe or steel:</p> <p>.1 Split assembly incorporating ring seal and wrap around sleeve length gasket liner.</p> <p>.2 Acceptable Manufacturers:</p> <p>.1 Robar 6606 or 6906</p> <p>.2 Romac</p> <p>.3 Smith-Blair</p> | | |

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|------------------------------|--|-------------|-----------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.2 Mainline Pipe, Joints and Fittings | Reference: | 33 11 01 2.2.4.14.4.1 |
| Change Summary | Acceptable tapping sleeve models for size-on size tap on ductile iron pipe and PVC only. | | |
| Currently | <p>.4 Tapping sleeves for size on size taps on ductile iron pipe and PVC to AWWA C900 only:</p> <p>.1 Acceptable models: as specified in Contract Documents</p> | | |
| Should Be | <p>.4 Tapping sleeves for size on size taps on ductile iron pipe and PVC to AWWA C900 only:</p> <p>.1 Acceptable Manufacturers:</p> <p>.1 Robar 6606 or 6906</p> <p>.2 Romac</p> <p>.3 Smith-Blair</p> | | |

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|------------------------------|---|-------------|------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.3 Valves and Valve Boxes | Reference: | 33 11 01 2.3.2.7 |
| Change Summary | Acceptable manufacturers for mainline gate valves | | |
| Currently | .7 Acceptable manufacturers are as specified in Contract Documents. | | |
| Should Be | .7 Acceptable manufacturers: .1 Clow/Terminal City, .2 American AVK Series 25 .3 Mueller A-2360. | | |

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|------------------------------|--|-------------|----------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.3 Valves and Valve Boxes | Reference: | 33 11 01 2.3.3 |
| Change Summary | Mainline Butterfly Valves | | |
| Currently | .3 Mainline butterfly valves: Butterfly valves: to AWWA C504 Class 150B, as specified in Contract Documents. | | |
| Should Be | .3 Mainline Butterfly Valves .1 Butterfly valves to be wafer style conforming to AWWA C504. .2 Valves to be class 150 and bubble tight at the normal operating pressure of 1200 kPa. .3 Drilling and bolt circle to conform in dimension to ANSI 16.1 Class 125. .4 Valve operator to be permanently lubricated and sealed for buried service and equipped with a 50mm operating nut. .5 Valves to be equipped with a valve operator extension stem suitable for secure attachment to the operating nut. Length of stem to suit the installation. .6 Acceptable products: .1 Centreline series AA-M | | |

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|------------------------------|---|-------------|----------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.3 Valves and Valve Boxes | Reference: | 33 11 01 2.3.5.5 & 6 |
| Change Summary | Air Release, Air/Vacuum and Combination Air Valves | | |
| Currently | | | |
| Should Be | <p>.5 Air Release, Air/Vacuum and Combination Air Valves:</p> <p>.5 All air valves shall have a schedule 40 PVC or galvanized steel vent pipe as shown in the Delta Supplementary Standard Detail drawings L 4.7.</p> <p>.6 Acceptable products:</p> <p>.1 Apco Model 143C-1</p> <p>.2 Valmatic Model 201C</p> <p>.3 Crispin UL 101</p> | | |

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|------------------------------|---|-------------|----------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.3 Valves and Valve Boxes | Reference: | 33 11 01 2.3.6 |
| Change Summary | Mainline Valve Boxes | | |
| Currently | <p>.6 Mainline Valve Boxes:</p> <p>.1 To be as specified in Contract Documents: telescoping, cast iron, top flange type service box:</p> <p>.1 Rectangular type to be as specified in Contract Documents.</p> <p>.2 Circular type to be as specified in Contract Documents.</p> <p>.2 Valve box riser pipe to be 150mm diameter PVC DR 35 or better</p> | | |
| Should Be | <p>.6 Mainline Valve Boxes:</p> <p>.1 Valve boxes to be rectangular, telescopic, cast iron with drop-in cast iron lid, see Delta Supplementary Standard Drawing L4.2.</p> <p>.2 Valve box riser pipe to be 150 mm diameter PVC DR 18 or better.</p> <p>.3 Valve boxes to have concrete pad under box for support, see Delta Supplementary Standard Drawing L4.2.</p> <p>.4 Acceptable manufacturers:</p> <p>.1 Terminal City</p> <p>.2 Dobney D-1</p> | | |

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| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.3 Valves and Valve Boxes | Reference: | 33 11 01 2.3.7.2 |
| Change Summary | Service Valve Boxes | | |
| Currently | | | |
| Should Be | .4 Acceptable manufacturers: .1 Mueller A-726 with Mueller A-800 lids. .2 Trojan VSB-1 | | |

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|------------------------------|---|-------------|--------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.5 Service Connections, Pipe, Joints and Fittings | Reference: | 33 11 01 2.5.3.2.1 |
| Change Summary | Ductile Iron Service Saddles | | |
| Currently | .3 Service Saddles: .2 Saddles for ductile iron pipe: .1 Saddles for 19 to 50mm services to have ductile iron body to ASTM A536. | | |
| Should Be | .3 Service Saddles: .2 Saddles for ductile iron pipe: .1 Saddles for 19 to 50mm services to have bronze body to ASTM B62 or stainless steel to ANSI T304. | | |

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| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.5 Service Connections, Pipe, Joints and Fittings | Reference: | 33 11 01 2.5.3.2.4 |
| Change Summary | Ductile Iron Service Saddles | | |
| Currently | | | |
| Should Be | .3 Service Saddles: .2 Saddles for ductile iron pipe: .4 Acceptable products: .1 Robar 2706 bronze saddles: Robar 2616 saddles. .2 Canada Pipeline Style SC-2 stainless steel double bolt saddles with stainless steel fasteners tapped for iron pipe thread (I.P.T.) | | |

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|------------------------------|---|-------------|--------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replace |
| Section: | 2.5 Service Connections, Pipe, Joints and Fittings | Reference: | 33 11 01 2.5.3.3.3 |
| Change Summary | PVC Service Saddles | | |
| Currently | .3 All-stainless steel broadband saddle to ANSI T304: 19 and 25 mm services to have single bolt and minimum band width of 125 mm; 37 and 50 mm services to have double bolt and minimum width of 190 mm. | | |
| Should Be | .3 Service Saddles: .3 Saddles for PVC pipe to AWWA C900/AWWA C905: .3 Acceptable products: .1 Robar 2706 bronze saddles: Robar 2616 saddles. .2 Canada Pipeline Style SC-2 stainless steel double bolt saddles with stainless steel fasteners tapped for iron pipe thread (I.P.T.) | | |

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|------------------------------|--|-------------|----------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.5 Service Connections, Pipe, Joints and Fittings | Reference: | 33 11 01 2.5.6 |
| Change Summary | Tapping couplings for PVC pipe | | |
| Currently | | | |
| Should Be | .6 Tapped couplings for PVC pipe: .1 PVC tapped couplings must conform to AWWA C907 and CSA B137.2. .2 Threads on tapping to be AWWA iron pipe thread. .3 Acceptable only for use on PVC pipe 200mm diameter and under. | | |

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|------------------------------|--|-------------|----------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.6 Hydrants | Reference: | 33 11 01 2.6.3 |
| Change Summary | Acceptable products: | | |
| Currently | .3 Approved standard 150mm Fire Hydrants are as specified in Contract Documents or Municipal Supplementary Specifications. | | |
| Should Be | .3 Approved standard 150mm Fire Hydrants: .1 Terminal City C-71P .2 Canada Valve Century | | |

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| | .3 Clow – M93 Brigadier |
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| Supplementary Specification: | 33 11 01 - Waterworks | | | | |
| Affected Document(s) | Volume II | Change Type | Replacement | | |
| Section: | 2.7 Underground Service Line Valves and Fittings | Reference: | 33 11 01 2.7.2.2 | | |
| Change Summary | Corporation Stops: | | | | |
| Currently | .2 To be as specified in Contract Documents. | | | | |
| Should Be | .2 Acceptable products: | | | | |
| | Corp Stops | 19mm | 25mm | 40mm | 50mm |
| | Mueller | B-25028 | B-25028 | B-25028 | B-25028 |
| | Ford | FB1100-3Q | FB1100-4Q | FB1100-6Q | FB1100-7Q |
| | A.Y. McDonald | 4704BT | 4704BT | 4704BT | 4704BT |
| | Cambridge Brass | 301M3H3 | 301M4H4 | 301M6H6 | 301M7H7 |

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|------------------------------|--|--|--|---------------------------|---------------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | | | |
| Affected Document(s) | Volume II | Change Type | Replacement | | |
| Section: | 2.7 Underground Service Line Valves and Fittings | Reference: | 33 11 01 2.7.3.3 | | |
| Change Summary | Curb Stops: | | | | |
| Currently | .2 To be full flow, full port, as specified in Contract Documents. | | | | |
| Should Be | .2 To be full flow, full port, Acceptable products: | | | | |
| | Curb Stops | 19mm | 25mm | 40mm | 50mm |
| | Mueller | B-25172-3* B-25209-3 | B-25172-3* B-25209-3 | H-25172-3* B-25209-3 | H-25172-3* B-25209-3 |
| | Ford | Z44-333Q-R Z41-333Q-R* B44-333Q-R B41-333Q-R* | Z44-444Q-R Z41-444Q-R* B44-444Q-R B41-444Q-R* | B44-666Q-R B41-666Q-R* | B44-777Q-R B41-777Q-R* |
| | A.Y. McDonald | 6110T 6112T* | 6110T 6112T* | 6110T 6112T* | 6110T 6112T* |
| | Cambridge Brass | 232H3H3 232H3F3* | 232H4H4 232H4F4* | 232H6H6 232H6F6* | 232H7H7 232H7F7* |
| | * Indicates Compression Inlet X Female Iron Pipe Thread Outlet | | | | |

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|------------------------------|--|-------------|------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.7 Underground Service Line Valves and Fittings | Reference: | 33 11 01 2.7.3.6 |
| Change Summary | Curb Stops | | |
| Currently | | | |
| Should Be | <p>.6 Curb stops for Type B blow-off assemblies as per Delta Supplementary Standard Drawing L.4.4 to be 50mm Stop and Drain.</p> <p>.1 Acceptable Products:</p> <p>.1 Mueller H-10284</p> <p>.2 Ford B11-777SW</p> <p>.3 Cambridge Brass 203F7F7</p> | | |

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|------------------------------|--|-------------|----------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.7 Underground Service Line Valves and Fittings | Reference: | 33 11 01 2.7.3.7 & 8 |
| Change Summary | Curb Stop Fittings | | |
| Currently | | | |
| Should Be | <p>.7 Couplings used for the extension of service pipe:3 part union compression x compression.</p> <p>.1 Acceptable products:</p> <p>.1 Mueller H-15403</p> <p>.2 Ford C44-33Q, -44Q, -66Q, -77Q</p> <p>.3 A.Y. McDonald 4753T</p> <p>.4 Cambridge Brass 118H_H_ (sized to suit)</p> <p>.8 Adapters required for iron pipe thread fittings:</p> <p>.1 Acceptable products:</p> <p>.1 Mueller H-15428 (MIP); H-15451 (FIP)</p> <p>.2 Ford C84-33Q etc. (MIP); C14-33Q etc. (FIP)</p> <p>.3 A.Y. McDonald 4753T (MIP); 4754T (FIP)</p> <p>.4 Cambridge Brass 117H_M_(MIP sized to suit) 117H_F_(FIP sized to suit)</p> | | |

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|------------------------------|--|-------------|----------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 3.6 Pipe Installation | Reference: | 33 11 01 3.6.15 & 16 |
| Change Summary | Execution | | |
| Currently | | | |
| Should Be | <p>.15 A flexible joint shall be provided at locations where the pipe is held in fixed position by a rigid support or structure. The distance from the support or structure to depend on the diameter or type of pipe being installed and is to be in accordance with manufacturer's recommended practice. The purpose of the flexible joint is to prevent pipe failure due to uneven support under the pipe and settlement.</p> <p>.16 Pipe on horizontal or vertical curves to be laid true to the curve of the radius shown on the Contract Drawings and in accordance with field lines and grades for each curve supplied by the Engineer. Variations in vertical curves and grades within allowable pipe deflections may be allowed where deemed expedient or economical by the Engineer.</p> | | |

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|------------------------------|---|-------------|-------------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 3.7 Valve Installation | Reference: | 33 11 01 3.7.5,6,7, & 8 |
| Change Summary | Execution | | |
| Currently | | | |
| Should Be | <p>.5 Valves and fittings to installed in accordance with standard drawings and set plumb and directly on the centreline of the pipe.</p> <p>.6 Lifting straps not chains to be used when lifting/transporting all items.</p> <p>.7 The top of valve boxes to be painted with yellow traffic paint.</p> <p>.8 Ensure finished surface of valve box within paved surfaces has no irregularities in grade exceeding 6 mm when checked with a 3m straight edge in any direction.</p> | | |

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|------------------------------|---|-------------|----------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 3.9 Under-crossing | Reference: | 33 11 01 3.9.19 & 20 |
| Change Summary | Execution | | |
| Currently | | | |
| Should Be | <p>.19 Install a length of 6 mm polypropylene rope alongside carrier pipe to assist future retrieval.</p> <p>.20 Pipe lines under railway tracks to conform to current regulations regarding pipe line crossings under railroads as issued and amended by the Board of Transport Commissioners for Canada or where laws or orders of public authority prescribe a higher degree of protection, then the higher degree of protection as specified is to be adhered to.</p> | | |

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|------------------------------|---|-------------|---------------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 3.13 Thrust Blocks | Reference: | 33 11 01 3.13.7 & 8 |
| Change Summary | Concrete thrust block size | | |
| Currently | | | |
| Should Be | <p>.7 The area of thrust block bearing on pipe and on the ground shall be as shown on Standard Detail Drawing No. L 4.6</p> <p>.8 Concrete anchor blocks to be provided on 8% or steeper slopes as shown on Standard Detail Drawing No. L 1.4</p> | | |

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|------------------------------|---|-------------|-----------------|
| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 3.19 Testing Procedure | Reference: | 33 11 01 3.19.2 |
| Change Summary | Minimum pressure applied at lowest point of test section | | |
| Currently | .2 Before pipe is filled with water, pipe bedding, concreting of all valves and fittings and backfilling to be completed as required in this specification. Fill each section of pipe and allow to remain full of water for a period of at least 24 hours prior to commencement of any pressure tests. Submit pipeline to a test of 1.5x working pressure applied at highest elevation in each section, with a minimum of 1380kPa applied at lowest point of test section. Ensure that test pressure does not exceed pipe or thrust restraint design pressures. Maximum allowable leakage rate at test pressure to not exceed 1.25 litres per millimetre diameter of pipe per kilometre per 24 hour period. Minimum duration of test period to be 2 hours. Maximum test pressures should not exceed those specified in CSA B137.3 – Table 9 | | |
| Should Be | .2 Before pipe is filled with water, pipe bedding, concreting of all valves and fittings and backfilling to be completed as required in this specification. Fill each section of pipe and allow to remain full of water for a period of at least 24 hours prior to commencement of any pressure tests. Submit pipeline to a test of 1.5x working pressure applied at highest elevation in each section, with a minimum of 1550kPa applied at lowest point of test section. Ensure that test pressure does not exceed pipe or thrust restraint design pressures. Maximum allowable leakage rate at test pressure to not exceed 1.25 litres per millimetre diameter of pipe per kilometre per 24 hour period. Minimum duration of test period to be 2 hours. Maximum test pressures should not exceed those specified in CSA B137.3 – Table 9 | | |

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| Supplementary Specification: | 33 11 01 - Waterworks | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 3.19 Testing Procedure | Reference: | 33 11 01 3.19.7 |
| Change Summary | Testing procedure for HDPE | | |
| Currently | | | |
| Should Be | <p>.7 High Density Polyethylene (HDPE)</p> <p>.1 Before conducting pressure and leakage test, fill pipe with water and let sit for at least 24 hours to allow pipe and test water to reach temperature equilibrium.</p> <p>.2 Test pressure for HDPE pipe to be set at 1.5 times the system design operating pressure or as specified on the Contract Drawings. In no case shall test pressure exceed the pressure rating of the pipe or any other system component.</p> <p>.3 Non-Monitored Make-Up Water Test Procedure: test procedure consists of two phases: initial expansion and testing. During initial expansion phase, pipe is pressurized to test pressure and water is added as required to maintain the test pressure for three hours. For the test phase, the test pressure is reduced by 10 psi (the target value) and monitored for one hour. If the pressure remains within 5% of the target value for one hour, the test is successful.</p> <p>.4 Monitored Make-Up Water Test Procedure: in accordance with pipe manufacturers recommended procedures and allowances.</p> <p>.5 Do not subject pipe to test pressure for more than 8 hours.</p> | | |

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| Supplementary Specification: | 33 30 01 – Sanitary Sewers | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.1 Concrete Pipe | Reference: | 33 30 01 2.1 |
| Change Summary | Pipe size for non-reinforced and reinforced concrete pipe | | |
| Currently | <p>.1 Non-reinforced concrete pipe and fittings: to ASTM C14M maximum diameter 900 mm, strength class as shown on Contract Drawings, designed for flexible rubber gasket joints to ASTM C443M.</p> <p>.2 Reinforced circular concrete pipe and fittings: to ASTM C76M for all pipe greater than 900 mm dia., strength class as shown on Contract Drawings, designed for flexible rubber gasket joints to ASTM C443M.</p> | | |
| Should Be | <p>.1 Non-reinforced concrete pipe and fittings: to ASTM C14M maximum diameter 675 mm, strength class as shown on Contract Drawings, designed for flexible rubber gasket joints to ASTM C443M.</p> <p>.2 Reinforced circular concrete pipe and fittings: to ASTM C76M for all pipe greater than 675 mm dia., strength class as shown on Contract Drawings, designed for flexible rubber gasket joints to ASTM C443M.</p> | | |

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| Supplementary Specification: | 33 30 01 – Sanitary Sewers | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.2 Plastic Pipe, Mainline Smooth Profile | Reference: | 33 30 01 2.2.1 |
| Change Summary | DR rating for various pipe sizes | | |
| Currently | <p>.1 Polyvinyl Chloride pipe (PVC) up to 1200 mm in diameter, DR35. Pipe to have minimum pipe stiffness (F/Y) of 320 kPa at 5.0% deflection, ASTM D2412. Pipe to be manufactured to specifications for pipe size ranges as follows:</p> <p style="text-align: center;">100 mm dia. – 375 mm dia. To ASTM D3034 450 mm dia. – 1200 mm dia. To ASTM F679</p> | | |
| Should Be | <p>.1 Polyvinyl Chloride pipe (PVC) 100 mm dia. To 150 mm dia. DR28, 200 mm dia and up to 1200 mm in diameter, DR35. Pipe to have minimum pipe stiffness (F/Y) of 320 kPa at 5.0% deflection, ASTM D2412. Pipe to be manufactured to specifications for pipe size ranges as follows:</p> <p style="text-align: center;">100 mm dia. – 375 mm dia. To ASTM D3034 450 mm dia. – 1200 mm dia. To ASTM F679</p> | | |

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| Supplementary Specification: | 33 30 01 – Sanitary Sewers | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.3 Service Connections | Reference: | 33 30 01 2.3.11 |
| Change Summary | Sanitary Inspection Chambers | | |
| Currently | | | |
| Should Be | <p>.11 Le-Ron Plastics Ltd.:</p> <p>.1 Pre-plugged Inspection Chamber with Add a Flap Model 70A 4PP AF (100 mm dia. Service Connection) Model 70A 6PP AF (150 mm dia. Service Connection).</p> <p>.2 200 dia. Blue Locking Inspection Chamber Lid Model 71A LID088 GL</p> <p>.3 200 dia. Collar Adaptor and Lock Model 73A 08 HSL.</p> <p>.4 Factory installed plug to be removed by Delta Plumbing Inspector Only.</p> | | |

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| Supplementary Specification: | 33 30 01 – Sanitary Sewers | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 3.6 Pipe Installation | Reference: | 33 30 01 3.6.6.1 |
| Change Summary | Pipes on curved alignments | | |
| Currently | .1 Concrete pipe: Do not exceed permissible joint deflection recommended by pipe manufacturer. | | |
| Should Be | .1 Concrete pipe: Do not exceed half of permissible joint deflection recommended by pipe manufacturer. | | |

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| Supplementary Specification: | 33 34 01 – Sewage Forcemains | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.2 Pipe, Joints and Fittings | Reference: | 33 34 01 2.2.5.3 |
| Change Summary | Compact ductile iron fittings | | |
| Currently | .1 Compact ductile iron fittings to AWWA C153 suitable for pressure rating 2415 kPa. Cement mortar lined to AWWA C104/A21.4. | | |
| Should Be | .1 Compact ductile iron fittings to AWWA C153 suitable for pressure rating 2415 kPa will not be permitted. | | |

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| Supplementary Specification: | 33 34 01 – Sewage Forcemains | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.2 Pipe, Joints and Fittings | Reference: | 33 34 01 2.2.5.3 |
| Change Summary | Compact ductile iron fittings | | |
| Currently | .1 Compact ductile iron fittings to AWWA C153 suitable for pressure rating 2415 kPa. Cement mortar lined to AWWA C104/A21.4. | | |
| Should Be | .1 Compact ductile iron fittings to AWWA C153 suitable for pressure rating 2415 kPa will not be permitted. | | |

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| Supplementary Specification: | 33 40 01 – Storm Sewers | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.1 Concrete Pipe | Reference: | 33 40 01 2.1.1 |
| Change Summary | Non-reinforced Maximum Pipe Diameter | | |
| Currently | .1 Non-reinforced circular concrete pipe and fittings: to ASTM C14M maximum diameter 900mm, strength class as shown on Contract Drawings, designed for flexible rubber gasket joints to ASTM C443M. | | |
| Should Be | .1 675 mm dia. and smaller: .1 Non reinforced concrete pipe and fittings to ASTM C14M. .2 Strength class as shown on Contract Drawings. .3 Designed for flexible rubber gasket joints to ASTM C443M | | |

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| Supplementary Specification: | 33 40 01 – Storm Sewers | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.1 Concrete Pipe | Reference: | 33 40 01 2.1.2 |
| Change Summary | Reinforced Maximum Pipe Diameter | | |
| Currently | .1 Reinforced circular concrete pipe and fittings: to ASTM C76M for all pipe greater than 900mm diameter, strength class as shown on Contract Drawings, designed for flexible rubber gasket joints to ASTM C443M. | | |
| Should Be | .1 Over 675 mm dia.: .1 Reinforced concrete pipe and fittings to ASTM C76M. .2 Strength class as shown on Contract Drawings. .3 Designed for flexible rubber gasket joints to ASTM C443M | | |

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| Supplementary Specification: | 33 40 01 – Storm Sewers | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.2 PVC Pipe, Mainline Smooth Wall | Reference: | 33 40 01 2.2.1.1 |
| Change Summary | Wall Thickness | | |
| Currently | | | |
| Should Be | .1 Wall thickness: DR28 (100 mm dia. To 150 mm dia.) DR35 (200 mm dia. To 1200 mm dia.) | | |

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| Supplementary Specification: | 33 40 01 – Storm Sewers | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 2.3 PVC Pipe, Mainline Profile | Reference: | 33 40 01 2.3.1 |
| Change Summary | Perpendicular profile pipe size range | | |
| Currently | .1 PVC Profile Pipe: PVC profile pipes and fittings conforming to ASTM F794 and certified to CSA B182.4, 200 mm to 1200 mm diameters. Fittings to be certified to CSA B182.2 and conform to ASTM D3034 and ASTM F679. | | |
| Should Be | .1 PVC Profile Pipe: PVC profile pipes and fittings conforming to ASTM F794 and certified to CSA B182.4, 200 mm to 1200 mm diameters. Fittings to be certified to CSA B182.2 and conform to ASTM D3034 and ASTM F679. Pipe 200 mm to 600 mm diameters shall be perpendicular profile only. The use of spiral ribbed profile pipe for over 600 mm diameter shall be used only with the authority of the Engineer. | | |

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| Supplementary Specification: | 33 40 01 – Storm Sewers | | |
| Affected Document(s) | Volume II | Change Type | Addition |
| Section: | 2.11 Storm Inspection Chambers | Reference: | 33 40 01 2.11 |
| Change Summary | | | |
| Currently | | | |
| Should Be | <ul style="list-style-type: none"> .1 Le-Ron Plastics Ltd. <ul style="list-style-type: none"> .1 Non-plugged Inspection Chamber Model 70A 4W/OP AF (100 mm dia. Connection) Model 70A 6W/OP AF (150 mm dia. Connection) .2 200 dia. Green Lid Model IC CAP H 200 Green .2 Riser Pipe: <ul style="list-style-type: none"> .1 Length of 200 mm dia. type PSM PVC pipe to ASTM D3034 DR35 cut to suit. .3 Driveway Box: <ul style="list-style-type: none"> .1 Brooks precast concrete pull box 37 Series 305 x 508 mm c/w reinforced for H20 loading, complete with 13mm cast iron lid marked "Storm". | | |

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| Supplementary Specification: | 33 40 01 – Storm Sewers | | |
| Affected Document(s) | Volume II | Change Type | Replacement |
| Section: | 3.6 Pipe Installation | Reference: | 33 40 01 3.6.6.1 |
| Change Summary | Permissible joint deflection | | |
| Currently | .1 For Concrete, PVC, profile PVC and open profile HDPE pipe do not exceed permissible joint deflection recommended by pipe manufacturer. | | |
| Should Be | .1 For Concrete, PVC, profile PVC and open profile HDPE pipe do not exceed <u>half of</u> permissible joint deflection recommended by pipe manufacturer. | | |