Winnipeg

Water and Waste Department • Service des Eaux et des Déchets

March 17, 2003

REVISION INFORMATION FOR STANDARD CONSTRUCTION SPECIFICATIONS

This document is to provide information relating to revisions made to Division 3 – Underground Works Specifications, Standard Details and Approved Products for Underground Use in the City of Winnipeg.

Division 3 Underground Works Specifications Revisions, Additions and Deletions

Division 3 – Underground Works revisions have been made by a committee consisting of the following members.

Gordon Lee, P. Eng.	Nelson River Construction
WIlf Taillieu,	Taillieu Construction
Bob Reidy, P. Eng.	Taillieu Construction
Ron Watson, P. Eng.	Maple Leaf Construction
Keith Miller, P. Eng.	Stantec Consulting
Brad Morton, P. Eng.	UMA Engineering
Darwin Kupskay, P. Eng.	Public Works
Ron Sorokowski, P. Eng.	Water and Waste
Dan Wiwchar, P. Eng.	Water and Waste
Kas Zurek, P. Eng.	Water and Waste
Terry Whiteside, C.E.T.	Water and Waste (chair)

General

1. The existing 13 Part format has been revised to the following 4 Part format.

    1. DESCRIPTION
    2. MATERIALS
    3. CONSTRUCTION METHODS
    4. MEASUREMENT AND PAYMENT

2. The specifications have been written in a plain English streamlined format in the active tense.

3. The phrases “the Contractor shall” and “shall be” are understood to be included in the instructions contained in the specifications.

.4 The phrase “at own expense” is understood to mean the Contractor’s expense.

Specifications

CW 2020-R5 – Rock Excavation

- Included with CW 2030-R5 – Excavation, Bedding and Backfill.
- Specification number CW 2020 not used.

CW 2030-R4 – Excavation and Backfill

- **Title revised to CW 2030-R5 - Excavation Bedding and Backfill**
- General reorganizing into 4 part format and rewording of sections and clauses.
- Clause 1.2.1 - added definition for excavation.
- Clause 1.2.2 - added definition for shaft.
- Clause 1.2.3 - added definition for trench.
- Clause 1.2.4 - added definition for shoring.
- Clause 1.2.5 - revised classification of solid rock from 1.0 m^3 to 0.5m^3.
- Clause 1.2.5 - deleted classification of materials that do or do not require drilling, splitting, breaking and blasting.
- Clause 1.2.7 added definition for trenchless installation methods.
- Section 1.3 and 1.4 – added references to Standard Construction Specifications and Standard Details.
- Clause 2.1.1 & 2.1.2 - imported granular material now classified as Type 1, Type 2 and Type 3 material.
- Table CW 2030.2 – Revised grading requirements for Type 1, Type 2 and Type 3 material.
- Clause 3.7.2 – added requirement for granular foundation to be installed in shafts for trenchless installation except for watermains.
- Clause 3.7.6 – added description of classes of backfill to be used for excavation in boulevards and pavement.
- Section 3.8 – deleted Class 6, 7 and 8 Backfill.
- Clause 3.8.1 – revised Class 1 Backfill to have 1.0 metres of cement-stabilized fill beneath pavement and the remainder of the excavation backfilled with compacted or jetted Type 1 material.
- Section 3.9 – deleted reference to jetting nozzle to be in accordance with SD-003. Revised to jetting nozzle locations to be in accordance with SD-003.
- Section 3.10 – combined new mains crossing above and below existing mains into one section.
- Section 3.11 – added “excavation and Backfill of Parallel Pipes”.
- Section 4.3 – added measurement and payment section for Excavation of Unsuitable Material.
- Section 4.4 – revised measurement for solid rock to be made in its original position rather than in a stockpile.
- Section 4.5 – replaced measurement and payment of “Replacement of Unsuitable Soil” with “Backfill Material”.
- Section 4.7 – revised method of measurement for shoring left in place.
- Section 4.10 – added measurement and payment for Filling Underground Voids With Cement-Stabilized Fill.
- Section 4.11 – added measurement and payment for “Excavation and Backfill of Parallel Pipes”.

CW 2110-R5 – Installation of Watermains

- **Title revised to CW 2110-R6 - Watermains**
- General reorganizing into 4 part format and rewording of sections and clauses.
- Clause 1.1.1 – renamed “water connections” to “water services” to be consistent with new Waterworks By-Law.

- Clause 1.2.1, 2 , 3 & 4 – added definitions for fittings, appurtenances, hydrant assemblies and trenchless installation methods.
- Section 1.3, 1.4 and 1.5 – added references to Standard Construction Specifications, Standard Details and Approved Products.
- Section 2. – added material standards and requirements for pipe, hydrants, valves, fitting and appurtenances.
- Clause 2.1.1 added web page address for Approved Product for Underground Works.
- Section 3.4 - deleted reference to “Coring”. Now called “Installation using Trenchless Methods”.
- Section 3.5 – added watermain installation in a casing pipe.
- Section 3.6 – added requirement for extraction of existing watermain between shafts where new watermain will be installed directly below abandoned watermain.
- Section 3.8 – deleted requirement to wrap hydrant barrels with polyethylene.
- Clause 3.8.4 – added requirement to install hydrant with pumper nozzle perpendicular to and facing the street.
- Clause 3.8.5 – added requirement for hydrant flange to be 50 to 150 millimetres above finished grade.
- Section 3.9 – Deleted requirement to wrap valve boxes with polyethylene.
- Clause 3.9.2 – added by-pass valve assembly for watermains 350mm and larger.
- Clause 3.9.5 – added requirement for valves installed in pavement to have valve box lid close with direction of travel.
- Clause 3.10.2 – added requirement to install curb stops so the operating key is inline with the water service when the curb stop is in the open position.
- Clause 3.10.4 – added location requirements for curb stops and control valves for regular water services and fire protection services.
- Clause 3.10.6 – added requirement for no couplings on copper water services beneath pavement unless.
- Clause 3.11.2 – deleted requirement for installing polyethylene bond breaker between PVC fittings and concrete thrust blocks.
- Section 3.12 – added watermain and water service insulation.
- Clause 3.13.3 – added requirements for perpendicular connection to an existing watermain.
- Clause 3.13.8 – added requirement to use 150 x 150 x 150 tee with 150 to 100 reducers when making perpendicular connection to an existing 100 watermain.
- Section 3.14 – added connecting to existing watermain with tapping sleeve and valve.
- Section 3.15 – added reconnecting existing water services to new watermains.
- Clause 3.16.2 – deleted requirement for mild steel retaining clamp to be used for plugging of watermains
- Clause 3.17.7 – added requirement for continuity bonding wire between ends of cast and ductile iron watermains that have been repaired with a length of PVC pipe..
- Clause 3.18.1, .2, &.3 – added requirement for locations where 10.9 kg sacrificial zinc anodes are to be installed on cast and ductile iron watermains and copper water services.
- Section 3.19 – added Installation of continuity bonding between copper water services and abandoned cast and ductile iron watermains.
- Section 3.21 – added Exposing existing watermains and sewer services.
- Section 3.22 – added connecting to existing lead water services.
- Section 3.23 – added replacement of existing lead water services.
- Section 3.24 – added temporarypressurized water supply.
- Section 3.26 – added boulevard and pavement restoration.
- Clause 4.1.1 – added measurement of watermains in a trench to identify type of bedding.
- Clause 4.1.3 – added measurement of watermains installed by trenchless methods to include shafts.
- Clause 4.1.4 – added measurement and payment of watermains installed by trenchless methods between watermains installed in a trench to be measured from face to face of the trench excavation.

- Section 4.2 – added measurement and payment for extraction of existing watermains to be abandoned.
- Clause 4.3.4 & .5 – added payment for hydrant assemblies to include up to 3.0 metres of hydrant lead pipe. Hydrant lead pipe longer than 3.0 metres to be paid for in accordance with Watermains.
- Clause 4.5.1 – added measurement of water services in a trench to include type of bedding.
- Clause 4.5.3 - added measurement of water services installed by trenchless methods to be through shafts.
- Clause 4.5.5 - added measurement and payment of water services installed by trenchless methods between water services installed in a trench to be measured from face to face of the trench excavation.
- Section 4.10 – added measurement and payment for watermains and water service insulation.
- Clause 4.11.1 – added Items of Work to measurement and payment.
- Section 4.12 – added measurement and payment for "Connecting to Existing Watermains With Tapping Sleeve and Valve".
- Section 4.13 – added measurement and payment for "Connecting Existing Copper Water Services to New Watermain".
- Section 4.15 – revised measurement and payment for watermain repairs to be on a unit basis for the first 3.0 metres and on a per metre basis for length of watermain repairs longer than 3.0 metres.
- Section 4.16 –added Items of Work to measurement and payment of "10.9 kg Sacrificial Zinc Anodes".
- Section 4.17 – added measurement and payment for "Continuity Bonding Wire".
- Clause 4.18.2 – added requirement for contractor to replace missing or damaged valves and hydrants that have been salvaged and are to be taken to the Water Services Yards at 552 Plinguet Street.
- Section 4.20 – revised measurement and payment for sewer service regrading to be on a unit basis for the first 1.5 metres and on a per metre basis for length of service regrading longer than 1.5 metres.
- Section 4.22 – added measurement and payment for maintaining curb stop excavations for replacement of private lead water services.
- Section 4.24 – added measurement and payment sections for pavement restoration.
- Section 4.25 – added measurement and payment Sections for boulevard restoration.

CW 2112-R5 – Installation of Hydrants and Valves

- Included with CW 2110-R6 – Watermains
- Specification number CW 2112 not used in Standard Construction Specifications.

CW 2115-R3 – Installation of Prestressed Concrete Pressure Pipe

- Removed from Standard Construction Specifications.
- Specification number CW 2115 not used.

CW 2117-R3 – Supply and Delivery of Prestressed Concrete Pressure Pipe

- Removed from Standard Construction Specifications.
- Specification number CW 2117 not used.

CW 2120-R5 – Installation of Watermain Renewals

- Specification included with CW 2110-R6 – Watermains
- Specification number CW 2120 not used in Standard Construction Specifications.

CW 2125-R1 - Flushing, Hydrostatic Leakage Testing and Disinfection of Watermains and Water Services

- **New specification which includes CW 2310–R5 and CW 2330-R5.**
- General reorganizing into 4 part format and rewording of sections and clauses.
- Clause 1.1.1 – deleted feedermains from description.
- Section 1.2 and 1.3 – added references to Standard Construction Specifications and Industry Standards.
- Section 3.1 - renamed Filling and Flushing table in CW 2310 to Table CW 2125.1 Flushing Flow Requirements.
- Table CW 2125.1 – revised number of corporation stops or hydrant nozzles required for pipe size and flushing velocity.
- Table CW 2125.1 – revised minimum required flow for flushing velocity of 0.76 m/s increased for 300 to 450 diameter watermains.
- Table CW 2125.1 – added 450 millimetre watermain.
- Table CW 2125.1 – added note that Table CW 2125.1 is based on a discharge pressure of 0.25 MPa.
- Clause 3.2.4 – added hydrostatic leakage testing cannot be performed until concrete thrust blocks have developed sufficient strength to resist test pressure unless mechanical restraint or joint harness is used.
- Clause 3.2.5 – added hydrostatic testing to be against closed corporation stops where services are reconnected to a new watermain and against closed curb stops where new services are installed
- Clause 3.2.8 – reduced maximum length of hydrostatic leakage testing from 450 metres to 365 metres.
- Clause 3.2.12 – added that high pressure meter accuracy to be calibrated to AWWA Manual M6 no more than 1 year before date of use for testing.
- Clause 3.2.13 – revised length of watermain left out for closure increased from 4 metres to 5.5 metres.
- Clause 3.2.14 – added requirement to submit Leakage Test Form CW 2125.1 to the Contract Administrator.
- Clause 3.3.5 – deleted requirement to disinfect water services smaller than 50 millimetres.
- Clause 3.3.15 – added chlorine solution water to be discharged to wastewater or combined sewer.
- Clause 3.3.7 – added requirement for disinfection to be performed by person(s) having as a minimum Class II Water Distribution Operator and Class II Water Treatment Operator certification from the Manitoba Water and Waste Association or approved equivalent association.
- Clause 3.3.16 – added requirement to disinfect closure piece and repairs by swabbing or spraying with maximum 5% solution of chlorine or 1% hypochlorite solution before or after installation.
- Clause 3.4.1 – added Contract Administrator will take 2 samples for bacteriological testing.
- Clause 3.4.3 deleted requirement to take bacteriological test samples to Cadham Provincial Laboratory. Revised to samples will be taken to an accredited laboratory.
- Clause 3.4.3 – added samples to be delivered to accredited laboratory within 30 hours of being taken and are to be kept in an iced cooler at 4 degrees Celsius while being transported to the laboratory.

- Clause 3.4.4 – added requirement that bacteriological samples be tested for Heterotrophic Plate Count (HPC). Count not to exceed 500 cfu per millilitre.
- Clause 3.4.6 – revised procedure for resampling, reflushing and redisinfection if bacteriological samples fail testing.
- Clause 3.5.1 – deleted notification will be made to District Office or Customer Accounts Section. Revised to indicate the Contract Administration Supervisor of Water and Waste will advise Water Services the new watermain can be put into service.
- Renamed Allowable Leakage Table CW 2310.1-R5 to Table CW 2125.2 – Leakage Test Pressure For PVC Watermains.
- Table CW 2125.2 - removed all pressure rates except for 1.0 MPa.
- Table CW 2125.2 - removed watermains larger than 450 millimetres.
- Renamed Form CW 2310.1-R5 Leakage Test Form to Form CW 2125.1 – Leakage Test.
- Form CW 2125.1 – revised information to be recorded.
- Renamed Table CW 2330.1 Disinfection Feed Rate to Table CW 2125.3 – Disinfection Feed Rate Table.
- Table CW 2125.3 - Removed watermains larger than 450 millimetres.
- Renamed Form CW 2330.1-R5 Disinfection Report Form to Form CW 2125.2 – Disinfection Report.
- Form CW 2125.2 – revised additional information to be recorded.

CW 2130-R5 – Installation or Reconstruction of Wastewater sewer and Land Drainage Sewer

- **Title revised to CW 2130-R6 – Gravity Sewers**
- General reorganizing into 4 part format and rewording of sections and clauses.
- Section 1.2 – added definitions for fittings, appurtenances, sewer services, sewer service riser and trenchless installation methods.
- Section 1.3, 1.4 and 1.5 – added references to Standard Construction Specifications, Standard Details and Approved Products.
- Section 2.0 – added material standards and requirements for pipe, manholes, fitting and appurtenances.
- Clause 2.1.1 - added web page address for Approved Product for Underground Works.
- Section 3.4 – deleted reference to “Coring”. Now called “trenchless installation methods”.
- Clause 3.3.1 – added requirement to use same material, class and type of pipe between adjacent manholes.
- Section 3.8 – deleted requirement to wrap manholes and catch basins with polyethylene.
- Section 3.9 – added requirements for new manholes installation on existing sewers
- Clause 3.10.5 – added use of 45 degree bends or less only on sewer services.
- Section 3.11 – added requirements for sewer repairs.
- Section 3.12 – added requirements for existing manhole and catch basin repairs.
- Section 3.13 – added requirements for replacement of existing catch basins and curb inlets.
- Section 3.14 – added requirements for catch basin leads connection to existing manholes.
- Section 3.15 – revised requirements for connection of new sewer or sewer service to existing sewer.
- Section 3.18 – revised requirements for plugging and abandoning existing sewers and sewer services.
- Section 3.19 – added requirements for abandoning and removal of existing manholes, catch basins and curb inlets.
- Section 3.20 – revised requirements for existing sewer flow control.
- Clause 3.22.1 – revised requirements for reinforced concrete pipe three edge bearing test.
- Clause 3.23.1 – revised requirements for sewer cleaning to be done in accordance with CW 2140.
- Clause 3.24.1 - revised requirements for sewer inspection to be done in accordance with CW 2145.

- Section 3.25 – added requirements for restoration of boulevards and pavement.
- Clause 4.1.1 – revised measurement of sewers in a trench to identify type of bedding.
- Clause 4.1.3 – revised measurement of sewer installed by trenchless methods to include shafts.
- Clause 4.1.4 - added measurement and payment of sewers installed by trenchless methods between sewers installed in a trench to be measured from face to face of the trench excavation.
- Clause 4.1.5 - revised depth classification to be in from 0 to 4 metres and then in 1 metre increments. Depth to be the average between adjacent manholes.
- Clause 4.2.1 – revised supply and installation of fittings to be included in payment for sewer.
- Section 4.3 – revised measurement for manholes to include frame, cover, risers and rungs. Vertical measurement to be from lowest sewer invert to top of finished rim elevation.
- Clause 4.5.1 – revised measurement of sewer services in a trench to identify type of bedding.
- Clause 4.5.3 - revised measurement of sewer services installed by trenchless methods to include shafts.
- Clause 4.6.2 – revised measurement of sewer service riser to be from top of sewer to top of sewer service.
- Section 4.7 – revised measurement and payment for sewer repairs.
- Section 4.8 – added measurement and payment for existing manhole and catch basin repairs.
- Section 4.12 – added measurement and payment for connecting new sewer services to existing sewer services.
- Section 4.13 – revised measurement and payment for plugging and abandoning sewers and sewer services.
- Section 4.14 – added measurement and payment for abandoning and removal of existing manholes, catch basins and curb inlets.
- Section 4.19 – added measurement and payment for concrete pipe three edge bearing test.
- Section 4.20 & 21 - added measurement and payment for pavement and boulevard restoration.

CW 2131-R3 – Installation of Sewer Manholes and Catch Basins

- Included with CW 2130-R6 – Gravity Sewers.
- Specification number CW 2131 not used.

CW 2140-R1 – Sewer and Manhole Cleaning

- New specification.

CW 2145-R1 – Sewer and Manhole Inspection

- New specifications.

CW 2150-R4 – Construction of Tunnel Sewers

- Removed from Standard Construction Specifications.
- Specification number CW 2150 not used.

CW 2160-R4 – Concrete to be Used in Underground Works

- **Title revised to CW 2160-R5 – Concrete Underground Structures and Works**
- General reorganizing into 4 part format and rewording of sections and clauses.
- Section 1.2 and 1.4 – added references to Standard Construction Specifications and Industry Standards.
- Section 2.0 – added supplementary cementing materials, Fly ash, form work and form ties.
- Clause 2.7.1 to .4 – added waterstops including type, tensile strength requirements and elongation allowance.
- Table CW 2160.1 – Combined Type A i) structures and Type A ii) structures to Type A) Structures.
- Table CW 2160.1 – increased 28 day compressive strength for Type A) and B) structures from 30 MPa to 32 MPa.
- Table CW 2160.1 - Increased maximum and minimum air content range from 3 – 6% to 4 – 7% for Type A) and B) structures.
- Table CW 2160.1 – added Type C) Cement Stabilized Fill and Type D) Flowable Cement Stabilized Fill.
- Table CW 2160.1 – revised minimum cement materials to be as required to meet compressive strength.
- Section 2.18 – added Shop Drawings.
- Section 3.1 – added Excavation to CW 2030.
- Section 3.10 – “Stripping Forms” revised to “Removal of Concrete Formwork”.
- Clause 3.10.1 – revised minimum time until removal of formwork reduced from 2 days to 24 hours.
- Section 3.11 – added requirements for concrete finishing.
- Section 4.1 – deleted measurement and payment for placing additional concrete and steel reinforcement.
- Clause 4.1.1 – added measurement and payment for “Concrete Underground Structures” to be on a unit basis.

CW 2165-R1 – Stormwater Retention Basin Revetment and Soil Sterilization

- **Combined CW 3616.1 Lakeshore Revetment and CW 3617** – Soil Sterilization of Stormwater Retention Basins from Division 3 Surface Works, moved into Division 3 Underground Works and renamed.
- General reorganizing into 4 part format and rewording of sections and clauses.
- Section 1.2 and 1.4 - added references to Standard Construction Specifications and Standard Details.
- Section 2.1 - renamed fabric blanket to “Geotextile Fabric”.
- Clause 2.1.1 – added requirement for geotextile fabric to be of the woven type.
- Renamed Table 1 CW 3616-R1.1 Table CW 2165.1 – Revetment Surface Course Gradation.
- Table CW 2165.1 - revised the gradation of the revetment surface course.
- Clause 3.2.6 – added repair requirements of damaged geotextile fabric.
- Clause 3.3.1 – drop height of revetment surface course reduced from 500 millimetres to 300 millimetres.
- Clause 4.2.2 – added measurement of geotextile fabric to include specified overlap.

CW 2210-R5 – Installation of Water Connections (20 millimetre to 50 millimetre)

- Included with CW 2110-R6 – Watermains.
- Specification number CW 2210 not used.

CW 2215-R5 - Installation of Large Water Connections (150 millimetre and larger)

- Included with CW 2110-R6 – Watermains
- Specification number CW 2215 not used.

CW 2230-R5 – Installation of Sewer Connections

- Included with CW 2130-R6 – Gravity Sewers.
- Specification number CW 2230 not used.

CW 2310-R5 – Flushing and Hydrostatic Leakage Testing of Feedermains, Watermains and Water Connections

- Combined with CW 2330-R5 and renamed to CW 2125-R1 - Flushing, Hydrostatic Leakage Testing and Disinfection of Watermains and Water Services.
- Specification number CW 2310 not used.

CW 2330-R5 – Disinfection of Feedermains, Watermains and Water Connections

- Combined with CW 2310-R5 and renamed CW 2125-R1 - Flushing, Hydrostatic Leakage Testing and Disinfection of Watermains and Water Services.
- Specification number CW 2330 not used.

CW 2410-R1 – Products Approved for Use in Underground Works

- Removed from Standard Construction Specifications.
- Products Approved for Use in Underground Works will only be listed on the following City of Winnipeg web site http://www.city.winnipeg.mb.ca/matmgt/info.stm

Standard Detail Drawings Revisions, Additions and Deletions

SD-001 – Standard Beddings and Backfills

- Title revised to Standard Pipe Bedding Classes
- Revised to show Type A (concrete cradle) and Type B (sand, Type 1 or Type 2 material) pipe bedding.
- Identifies pipe bedding zones.
- Identified as Revision 1.

SD-002A – Standard Beddings and Backfills

- Title revised to Standard Trench and Excavation Backfill Classes
- Deleted the A from the SD number.
- Revised Class 1 backfill to have a varied amount of compacted Type 1 fill and 1.0 metre of cement stabilized fill at the top of the trench or excavation.
- Deleted Class 6, 7 and 8 backfill details.
- Identified as Revision 1.

SD-003 – Perforated Jetting Nozzle

- Title revised to Jetting Nozzle Insertion Locations
- Deleted drawing of jetting nozzle and replaced with drawings of jetting nozzle locations for trenches up to 1500 millimetres wide, greater than 1500 millimetres wide and for circular shafts.
- Identified as Revision 1.

SD-004 – Horizontal Thrust Block Details

- Title revised to Concrete Thrust Blocks for Horizontal Watermain Fittings
- Added section view of typical concrete thrust block.
- Revised table to add bearing area values for thrust blocks for various degrees of bends.
- Identified as Revision 1.

SD-005 - Vertical Thrust Block Details

- Title revised to Concrete Thrust Blocks for Vertical Watermain Fittings
- Revised dimension values for thrust blocks in table and added a column indicating concrete volume for vertical bend up.
- Identified as Revision 1.

SD-006A – Standard Fire Hydrant Connection

- Title revised to Standard Fire Hydrant Assembly
- Deleted the A from the SD number.
- Added bury depth.
- General note and drafting revisions.
- Identified as Revision 1.

SD-007 – Short Fire Hydrant Connection

- Title revised to Short Fire Hydrant Assembly
- Added bury depth.
- General note and drafting revisions.
- Identified as Revision 1.

SD-008 – Direction for Opening for Waterworks Valves

- Title revised to Location Map for Waterworks Valve Closing Direction.
- Revised Lottie Street to Hurst Way on boundary line.
- Identified as Revision 1.

SD-009 – Connection to Interceptor or Land Drainage Sewer 1350 Diameter or Larger

- Title revised to Sewer or Sewer Connection to Existing 1050 Diameter and Larger Sewer
- Added requirement for cement-stabilized fill in shaft beneath connecting sewer or sewer service.
- General note and drafting revisions.
- Identified as Revision 1.

SD-010A – Standard Manhole (for up to 525 millimetre pipe)

- Deleted the A from the SD number.
- Title revised to Standard Precast Concrete Manhole (for up to 525 Diameter Pipe).
- Revised manhole risers from 900 millimetre diameter to 1200 millimetre diameter with a flat top reducer under the frame.
- General note and drafting revisions.
- Identified as Revision 1.

SD-011A – Standard Manhole (for 600 millimetre to 1500 millimetre pipe)

- Title revised to Standard Precast Concrete Pipe Manhole (for 600 to 1500 Diameter Pipe).
- Revised manhole risers to 900 millimetre diameter with a flat top reducers under the frame.
- Deleted the A from the SD number.
- Identified as Revision 1.

SD-012 – Water Connection (20 millimetre to 50 millimetre)

- Replaced with SD-111, drawing number stays as SD-012.
- Title revised to Water Service 20 Millimetre to 50 Millimetre.
- Added 10.9 kg anode on water a service adjacent to corporation stop.
- General note and drafting revisions.
- Identified as Revision 1.

SD-013 – Watermain Looping Arrangement in a Cul-de-Sac

- Title revised to Small Diameter Copper Watermain for Cul-de-Sac Loop.
- Added installation of anodes on copper watermain adjacent to water service connections.
- Added installation of control valves on the copper watermain within 1 metre of the connection to the PVC watermain.
- General note and drafting revisions.
- Identified as Revision 1.

SD-014 – Sewer Connection Riser – Alternative “A”

- Title revised to Sewer Service with Alternative “A” Riser.
- Identified limits of riser.
- General note and drafting revisions.
- Identified as Revision 1.

SD-015 - Sewer Connection Riser – Alternative “B”

- Title revised to Sewer Service with Alternative “B” Riser.
- Identified limits of riser.
- Revised riser connection from top of sewer to 45 degrees from vertical.
- Revised long sweep 90 degree bend to 2-45 degree bends.
- General note and drafting revisions.
- Identified as Revision 1.

SD-103 – Mandrel and Proving Ring

- Title revised to Nine Arm Mandrel and Proving Ring for 5.25% Deflection testing of SDR 35 PVC Pipe
- Drawing number revised to SD-020.
- General note and drafting revisions.

SD-111 – Water Connection (20 millimetre to 50 millimetre) Using Minneapolis Style Curb Stop

- Replaces SD-012.
- General note and drafting revisions. See SD-012.

The following SD drawings have been removed from Division 3 – Underground Works. They have been renamed Approved Product (AP) Drawings and are included with Approved Products for Underground Works listed on the following City of Winnipeg web site http://www.city.winnipeg.mb.ca/matmgt/info.stm

See Approved Products for Underground Use in the City of Winnipeg section below.

SD-100A	SD-106A	SD-112
SD-101A	SD-107A	SD-113
SD-102	SD-108	SD-114
SD-104A	SD-109	SD-115
SD-105A	SD-110	

The following are new Standard Detail Drawings have been added to Division 3 – Underground Works

SD-016 – Standard Watermain Valve Installation
SD-017 – By Pass Valve Assembly for 350 to 450 Diameter Watermains
SD-018 – Watermain and Water Service Insulation
SD-019 – Backflow Protection Arrangement for Water Supply from Hydrant
SD-021 – Sewer Service Abandonment Beneath Pavement
SD-022A – Sewer Repair Up to 3.0 Metres Long
SD-022B – Sewer Repair Longer Than 3.0 Metres

The following Standard Detail Drawings were moved from Division 4 – Surface Works into Division 3 – Underground Works

SD-223 – Curb and Gutter Inlet With Catch Pit

- Drawing number revised to SD-023
- General note and drafting revisions.

SD-224 – Catch Basin With Curb and Gutter Inlet

- Drawing number revised to SD-024
- General note and drafting revisions.

SD-225 – Standard Catch Basin

- Drawing number revised to SD-025
- General note and drafting revisions.

SD-244 – Lakeshore Revetment

- Drawing number revised to SD-026
- General note and drafting revisions.

Approved Products for Underground Use in the City of Winnipeg

Approved Products for Underground Use in the City of Winnipeg is now a separate section included with Division 3 – Underground Works as part of the City of Winnipeg Standard Construction Specifications available on the following web site http://www.city.winnipeg.mb.ca/matmgt/info.stm.

The Approved Products Handbook (PASS book) will no longer be maintained or updated as a printed document.

The section will include:

- An Update section – all changes including the approval and revoking of products will be documented in this section.
- Approved Water and Sewer product section – product specific information pages relating to each approved product. (previously in PASS book)
- Detail Drawing section – product related drawings (previously included in Standard Construction Specifications)
- Product Specification section – all product specifications (previously only available from the Water and Waste Dept.)

Standard Detail drawings that have been removed from the Standard Construction Specifications and included in the Approved Products For Underground Use Within The City of Winnipeg section are referred to as Approved Product drawings (AP). These revisions include:

SD-100 – Hinged Cover Valve Box

- Drawing number revised to AP-001
- Drawing revision February 1992

SD-101A – Valve Stem Extension

- Drawing number revised to AP-002

SD-102 – Curb Stop Box For 20mm and 25mm Curb Stops

- Drawing number revised to AP-003
- Title revised to Replacement Adjustable Curb Stop Box For Non Minneapolis Style 20 Millimeter and 25 Millimeter Curb Stops
- Drawing revision February 1997

SD-104A – Manhole Frame (521 Opening)

- Drawing number revised to AP-004

SD-105A – Manhole Cover (Solid) for 521 Opening

- Drawing number revised to AP-005

SD-106A – Manhole Cover (Grated) for 521 Opening

- Drawing number revised to AP-006

SD-107A – Lifter Ring

- Drawing number revised to AP-007

SD-108 – Barrier Curb and Gutter Inlet

- Drawing removed

SD-116A – Barrier Curb and Gutter Inlet Frame

- Drawing number revised to AP-008

SD-117 – Barrier Curb and Gutter Inlet Cover
- Drawing number revised to AP-009

SD-118A – Barrier Curb and Gutter Inlet Box
- Drawing number revised to AP-010

SD-109 – Mountable Curb and Gutter Inlet
- Drawing number revised to AP-011

SD-110 – Catch Basin Hood
- Drawing number revised to AP-012
- Drawing revisions Nov. 9, 1993

SD-112 – Minneapolis Style Curb Stop Box for 20 Millimeter and 25 Millimeter Minneapolis Style Curb Stops
- Drawing number revised to AP-013

SD-113 - Minneapolis Style Curb Stop Box for 20 Millimeter and 25 Millimeter Minneapolis Style Curb Stops
- Drawing number revised to AP-014

SD-114 – Boulevard Inlet Box Solid Covers
- Drawing number revised to AP-015

SD-115 – Hinged Cover Valve Box Extension
- Drawing number revised to AP-016

For information concerning Approved Products for Underground Use in the City of Winnipeg please contact:

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APPROVED PRODUCTS UPDATES

MARCH 17, 2003

1997

Water Approved

- 4.1.1.70 – Ford Meter Box Co. (April 18, 1997)

Sewer Approved

- 4.2.1.11 – Royal Flex Loc Pipe Ltd. (September 17, 1997)
- 4.2.1.84 – D. Martens Manufacturing Co. Ltd. (July 14, 1997)

1999

Water Revoked

- 4.1.1.60 – Terminal City Ironworks Ltd. (November 26, 1999)

Sewer Approved

- 4.2.1.60 – Le-Ron Plastics Inc. (November 26, 1999)
- 4.2.1.61 – Le-Ron Plastics Inc. (November 26, 1999)
- 4.2.1.61A – Le-Ron Plastics Inc. (November 26, 1999)
- 4.2.2.60 – Le-Ron Plastics Inc. (November 26, 1999)

2000

Sewer Approved

- 4.2.1.60 – Le-Ron Plastics Inc. (November 9, 2002)
- 4.2.2.60 – Le-Ron Plastics Inc. (November 9, 2002)

2001

Water Approved

- 4.1.2.41 – W.D. Valve Boxes Ltd. (March 14, 2001)
- 4.1.3.20 – Keylab Inc. (January 30, 2001)

2002

Water Approved

- 4.1.1.11 – Royal Pipe Systems (April 26, 2002)
- 4.1.1.80 – Clow Canada (May 3, 2002)
- 4.1.1.81 – Northern Pipe Products Inc. (April 26, 2002)
- 4.1.2.40 – A.Y. McDonald Mfg. Co. (May 2, 2002)

Sewer Approved

- 4.2.1.16 – Royal Pipe Systems (March 12, 2002)
- 4.2.1.83B – W.D. Valve Boxes Ltd. (May 27, 2002)

2003

Water Approved

- 4.1.1.10 – Northern Pipe Products Inc. (January 21, 2003)
- 4.1.1.11 – Northern Pipe Products Inc. (January 21, 2003)
- 4.1.1.11 – Rehau Incorporated (January 27, 2003)