ALL AMENDMENTS INCLUDED IN THE
MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS
NOVEMBER 2009 EDITION

CITY OF NANAIMO
MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS
AMENDMENT RECORD

Manual Revision # 9 **Revision Date: November 2009**

The November 2009 Edition of the Manual of Engineering Standards and Specifications (MoESS) will be re-printed in its entirety due to formatting, consistency and technical changes.

Grammar consistency amendments were completed throughout the entire manual that include:
• Table of Contents (for each section) lists all the sub-section titles.
• Table of Contents (for each section) lists all the sub-sections accurately.
• Standard Drawings are referenced as per sample, Standard Drawing No. T-11.
• Sections are referenced as per sample, Section 4.11 – Disposal of Excavated Material.

A footer that represents this revision 'November 2009 Edition' has been incorporated to the MoESS. This represents the most current edition of the manual and will be used as a benchmark edition.

In addition to the footer, the manual text continues to include the revision date in (BOLD ITALICS) at the end of the paragraph affected by the technical amendment. This represents the technical amendments that are incorporated into the MoESS for this revision year.

The standard drawings all include a benchmark footer that reads;

Engineering Standards and Specifications
November 2009 Edition

Other amendments to all the standard drawings include:
• Changing the crest logo to the wave logo.
• Changing the 'Date:' to 'Rev. Date:' The latest revision date for that standard drawing will be shown there and this will be the only date shown.

Each Manual holder is responsible for determining implementation dates of the Manual of Engineering Standards and Specifications revisions. Therefore, manual holders are cautioned about immediately discarding superceded and cancelled standards.

The Manual of Engineering Standards and Specifications is revised as follows:

Superseded / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
Title Page	Title Page	Title Page	Updated to November 2009 and updated City of Nanaimo logo.
Superseded	All	Introduction	Section 1.0 title changed from General Design Requirements to General Drafting Requirements. Addition of identifier footer.
Superseded	All	1.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer.
-	1-3	1.01	General Requirements: Added '…as determined by the City Engineer.' for the construction drawing list content. Added 'Plan of proposed landscaping and irrigation to the list of construction drawings. Revised software version to be Autodesk Civil 3D. Revised minimum height of proposed work text to be 2.25mm.
-	1-5	1.02	Site Plan and Key Plan: Revised existing and proposed information for the site plan to 'include but is not limited to the following:'. Added street addresses to the list of requirements.
-	1-5	1.03	Plan and Profile Drawings - General: Removed 1.03.7 including software project name, drawing and layout name. Removed 1.03.12 completely.
-	1-6	1.04	Roads: Removed 'Proposed' monuments from 1.04.16.
-	1-7	1.05	Storm and Sanitary Sewers: Added 'for mains' to the offset requirement. Added '…at the discretion of the City Engineer.' to 1.05.13.
-	1-8	1.06	Waterworks: Added 'pertinent' to the requirement of showing other service crossings, 1.06.4.
-	1-9	1.07	Ornamental Street Lighting, Traffic Control Signals, Hydro, Phone, Gas and Cablevision Fibre Optics (Commercial and Private): Added '…included as attribute data or in…'. Added 1:250 as an option for the plan view scale.
-	1-9	1.08	Signage and Pavement Markings: Revised 1.08.1(d) for the requirement of the completed Traffic Signs Table. Added 1:250 as an option for the plan view scale.
-	1-11	1.12	Design Submissions for City of Nanaimo Capital Projects: Added 1.12.8.

ALL AMENDMENTS INCLUDED IN THE
MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS
NOVEMBER 2009 EDITION

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-	1-14	1.13	Asbuilt Submissions: Added '… or abandoned' works during construction to be shown and shall be retained on the proper layer in plan view only. Added 'elevations and inverts' shall be shown and reflect the as-built conditions. Added a tolerance of >0.3m for moving features within the profile view. Added reference to 1.25.3 in 1.13.5. Added requirements for as-built drawing content to include 1.13.6(d) and 1.13.6(e). Added '...if required' to 1.13.11. Added 1.13.20 CAD Standards Checker Report to be included in the submission of the as-built package.
Removed	-	1.14	Utilities in Private Lands: Incorporated into Sections 5.0, 6.0 & 7.0
Removed	-	1.17	Number of Service Connections Per Lot: Incorporated into Sections 5.0, 6.0 & 7.0
-	1-18	1.20	Computer Aided Drafting Standards: Revised software version to be Autodesk Civil 3D. Added 1.20.4 'A CAD Standards Checker program to aid in producing drawings to City Standards is avaible on the City website.'
-	1-18	1.21	Prototype Drawings: Revised prototype drawing names.
-	1-18	1.23	Layer naming Conventions: Revised 1.23.2 and 1.23.2(a). Added to 1.23.2(e). Added 1.23.2(f) and 1.23.2(g). Added '…or CAD Checker program…' to 1.23.3.
-	1-19	1.24	Drawing Organization: Added 1.24.3 and 1.24.4.
-	1-20	1.25	Base Plan Preparation: Added 1.25.3. Revised 1.25.4 text style options table.
-	1-20	1.26	Standard Symbols and Abbreviations: Removed 'survey' from 1.26.1. Added 1.26.5.
Removed	-	1.27	Land Desktop Standards
-	1-20	1.28	Plotting Conventions: Revised 1.28.2, colour plot style tables shall be obtained from the City of Nanaimo website or from the City of Nanaimo project manager.
-	1-21	1.30	Survey Standards: Revised software version to be Autodesk Civil 3D.
-	1-21	1.31	Standard Files Provided to Consultants: Revised template drawing names. Added 'City of Nanaimo CAD Standards Checker software.'
-	G-1	G-1	Standard Layer Names: Revised title from 'Standard Layer Names - Existing' and incorporated content from G-1A. Revised Line Type for EX-WAT-PROF, EX-SAN-PROF, EX-STM-PROF, EX-TEL-PROF. Added FUT-CAT2-CAT3, REM-CAT2-CAT3, ABN-CAT2-CAT3.
Removed	-	G-1A	Standard Layer Names - Proposed
-	G-2	G-2	Standard Symbols and Abbreviations Sheet 1: Revised Catchbasin, Fire Hydrant and Cleanout Symbols.
-	G-4	G-4	Standard Drawing Symbols Library: Revised existing catchbasin, existing cleanout, existing fire hydrant, proposed cleanout, proposed fire hydrant, proposed lamp standard and existing sign. Removed catchbasin tee and new edge of pavement.
-	G-7	G-7	Street Light Table & Traffic Sign Table: Added sign diagram column for the Traffic Sign Table.
-	G-8	G-8	Survey Code Descriptions Sheet 1: Revised symbol code for air valve, rectangle catchbasin, catchbasin junction box (not a manhole), fire hydrant and gas valve.
-	G-8A	G-8A	Survey Code Descriptions Sheet 2: Revised symbol code for storm drain cleanout, sign, sanitary sewer cleanout and water valve.
-	G-13	G-13	Utilities Tables - Sheet 1 Water Pipe, Node and Valve Tables: Revised Class - Fields to be DR - Fields.
Superseded	All	2.0	Entire section is superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer.
Superseded	All	3.0	Entire section is superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer.
Superseded	All	4.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer.
-	4-11	4.18	Specifications added to provide secondary option for trench dams along storm sewer mains. Specifications modified for trench dams along all utility mains.
-	4-17	4.28	Specifications added to provide construction options.
-	T-4	T-4	Pavement Restoration - Type 1: Modified to be an option for permanent restoration.
New	T-4A	T-4A	Pavement Restoration - Type 2: Added an option for permanent restoration.
-	T-7	T-7	Typical Location of Service Connections to Residential Vacant Lots

ALL AMENDMENTS INCLUDED IN THE
MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS
NOVEMBER 2009 EDITION

The Manual of Engineering Standards and Specifications is revised as follows:

Superseded / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
-	T-8	T-8	Trench Dams - Type 1 For all Utility Mains: Added a plan view of the trench dam construction, modified profile views to specify 19mm clean crushed drain rock and a cap to be added at the highest end of the trench dam drain pipe.
New	T-8A	T-8A	Trench Dams - Type 2 For Storm Sewer Mains: Added secondary option for trench dams along storm sewer mains.
Superseded	All	5.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the addition identifier footer.
-	5-4	5.01A	Water Demand: Revised Design Criteria to clarify fire flow requirements.
-	5-6	5.05	Water Distribution Piping: Revised Design Criteria to clarify AWWA C900 PVC standard to acknowledge the Dimension Ratio (DR) rather than the Class.
New	5-6	5.06	Sevice Connections: Added 5.06.5, 'Each lot shall be serviced by one only service connection for water.' that was removed from Section 1.0
New	5-8	5.10A	Utilities in Private Lands: Added sub-section that was removed from Section 1
-	5-15	5.22.4	Polyvinyl Chloride (P.V.C.) Pipe: Revised 5.22.4(b) specification to clarify AWWA C900 PVC standard to acknowledge the Dimension Ratio (DR) rather than the Class. Revised 5.22.4(c) to read 'All PVC water pipe shall be blue in colour.
-	5-17	5.24.3	Watermain Valves: Revised section 5.24.3(a) - Gate Valves and section 5.24.3(c) - Resilient Wedge Gate Valves to add extension rod requirements and revise the specifications to read valve riser guide rather than rock guard.
Removed	-	5.25	Water Main Valve Boxes: Removed 5.25.4
-	5-19	5.28	Flushout: Revised valve box to be MR type rather than previous standard, Nelson type.
-	5-20	5.29	Air Valves and Fittings: Revised specification to have two 12mm ball-type drain valves.
-	5-21	5.30.5	Meter Service Boxes, Box Extensions and Lids: Revised specification for water service boxes to be concrete in all applications unless approved by the City Engineer to be used in an existing landscaped area.
-	5.24	5.34	Meter Chamber: Revised to incorporate sub-sections including Precast Manhole Sections, Precast Manhole Bases, Manhole Tops, Manhole Covers and Frames, Manhole Steps, Concrete, Precast Concrete Grade Ring, Cleanout Frames and Covers, Touch Read Meter Bracket.
-	5-29	5.50	Valves: Added installation standards for Abondoned Valve Box Removal
-	5-29	5.52	Hydrants
-	5-30	5.53	Flushout Installation: Added 'drain hole and drain rock' for the installation of the flushout to provide adequate drainage when the gate valve is closed.
-	5-30	5.54	Air Valve Installation
-	5-30	5.56	Water Service Connection Installation
-	5-32	5.58	Meter Chamber: Revised to incorporate sub-sections including Precast Manhole Sections, Manhole Concrete Bases, Precast Manhole Bases, Concrete, Frames and Covers, Manhole Steps.
-	W-1	W-1	Water Service Connection Detail (19mm to 50mm): Revised to show concrete meter box, added note for plastic meter boxes to be used in existing landscaped areas only and requires approval from City Engineer. Revised the wood service marker and ground preparation at the meter box. Added service size ranges to notes and 'touch read' for the meter box lids.
-	W-2A	W-2A	Above Ground Flushout Detail c/w Thrust Block and Optional Restrained Method: Removed plan view of thrust block method. Added optional restrainer method diagram. Added width dimension to concrete thrust block note. Revised the valve box to be MR type. Removed tar paper option. Added height and depth requirements for the post and stand pipe.
-	W-2B	W-2B	Below Ground Flushout Detail c/w Thrust Block and Optional Restrained Method: Removed plan view of thrust block method. Added optional restrainer method diagram. Added width dimension to concrete thrust block note. Revised the valve box to be MR type. Removed tar paper option. Removed brick filler note and added precast concrete grade rings requirement.

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-	W-4	W-4	Air Release Valve Assembly and Chamber for 150mm - 300mm Main: Added additional 12 dia. ball drain valve to air release valve. Added note 'Precast CB barrel acceptable alternative to barrel and poured in place base.' Removed brick filler note and added precst concrete grade rings requirement.
-	W-5	W-5	Hydrant Connection: Revised the valve box to be MR type. Added C-900 loading requirement for valve riser pipe. Removed valve nut extension on diagram. Add reference to Standard Drawing W-16. Removed roofing or tar paper option. Added 'zinc plated' to the non-galzanized tie rod note.
Removed	-	W-6	Hydrant Connection - Type 2
-	W-9	W-9	Valve Boxes in Unpaved Areas: Revised the valve box to be MR type. Added C-900 loading requirement for valve riser pipe. Removed valve nut extension on diagram. Add reference to Standard Drawing W-16. Added the dimension size for the asphalt apron. Revised the marker to dipict actual product.
-	W-10	W-10	Standard Plastic Meter Box (For 19mm to 25mm): Added service size range to title name. Added touch read hole on the cover c/w note.
-	W-10A	W-10A	Standard Concrete Meter Box - Type 37 (For 19mm to 25mm): Added service size range to title name. Added touch read hole on the cover c/w note.
-	W-10B	W-10B	Standard Concrete Meter Box - Type 66 (For 38mm to 50mm): Added service size range to title name. Added touch read hole on the cover c/w note.
-	W-11	W-11	Circular Precast Meter Chamber: Added 500mm dimension line from first rung to top of grade. Removed brick filler note and added precast concrete grade rings requirement.
-	W-16	W-16	Gate Valve and Valve Nut Extensions: Added '& Valve Nut Extensions' to the title name. Revised extension rod detail. Added requirements for extension rod use. Revised note to read 'Valve box shall be MR type as per STD DWG No. W-16A. Nelson type valve box shall be used in non-paved areas at the discretion of the engineer."
-	W-16A	W-16A	MR Type Water Valve Box
New	W-19	S-9	Heavy Duty Manhole Cover and Frame: Created a new drawing for Section 5 from the shared sanitary drawing 'S-9' and revised the drawing notes to suit.
New	W-20	S-10	Utility Chamber - Manhole Frame, Ring and Cover: Created a new drawing for Section 5 from the shared sanitary drawing 'S-10' and revised the drawing notes to suit.
New	W-21	S-15	Watertight Manhole Frame and Cover: Created a new drawing for Section 5 from the shared sanitary drawing 'S-15' and revised the drawing notes to suit.
Superseded	All	6.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer. Revised Section 6.0 drawings to individualize the content, removing all water and storm affiliation.
-	6-4	6.01A.5	Peak Inflow and Infiltration (I&I): Revised and added to the I&I values for use in the design of new developments.
New	6-8	6.04.3A	Utilities in Private Lands: Added sub-section that was removed from Section 1.
New	6-9	6.04.4A	Number of Service Connections per Lot: Added sub-section that was removed from Section 1.
-	6-16	6.22	Piping, Fittings and Services: Added 6.22.3(d) 'All PVC sanitary gravity main pipes shall be green in colour'. Revised 6.22.5(a) to read 'inspection assemblies' instead of 'connection pipe and fittings'. Added 6.22.6(e) All PVC sanitary force main pipe shall be white in colour.
-	6-19	6.25A	Precast Manhole Bases: Added 'and concrete' to 6.25A.3
-	6-19	6.27	Manhole Covers and Frames: Added '…with the bearing faces of the cover to be frame machined for a non-rocking fit.' to 6.27.1. Added 6.27.4 'Utility chamber manhole frame and cover shall conform to Standard Drawing No. S-10.'
-	6-20	6.31	Precast Concrete Grade Ring: Revised title of section from 'Brick'. Revised 6.31 so concrete grade rings shall be the preferred material and bricks may be used at the discretion of the Engineer.
-	6-21	6.35	Manhole and Cleanout Lid Markers
-	6-24	6.47	Connections to Existing Piping and Appurtences: Added 6.47.4 and 6.47.5 entirely.
-	6-26	6.49	Manhole Concrete Bases: Added to 6.49.5 '…to ensure that all pipes are installed at the design elevation.'

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NOVEMBER 2009 EDITION

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-	6-53	6.53	Frames and Covers: Revised 6.53 so concrete grade rings shall be the preferred material instead of bricks. Revised so that steel manhole rings shall be used in special circumstances in low traffic area. Low traffic area have been descrided.
-	6-30	6.60	Cleaning and Flushing: Revised to reflect current contract standards.
-	6-33	6.64	Video Inspecting Mains: Revised to reflect current contract standards.
-	6-35	6.67	Pipe Video and Manhole Condition Report Format: Revised to reflect current contract standards.
-	S-1	S-1	Sanitary Manhole Benching Details
-	S-2	S-2	Typical Sanitary Manhole Details Standard Precast Type: Added 500mm dimension line from first rung to top of grade. Removed brick filler note and added precast concrete grade rings requirement.
-	S-3	S-3	Typical Drop Sanitary Manhole Details Standard Precast Type For Sewers 375mm dia. or Less & Over 1.35m in Depth
-	S-4	S-4	Sanitary Manhole Platform Detail: Added 500mm dimension line from first rung to top of grade.
-	S-5	S-5	Sanitary Standard Service Connection: Added notes, 'Cap and stake at property line for developed lots' and 'Note: Riser pipe, cap and property side stub to be white.
-	S-6	S-6	Sanitary Riser Service Connection: Added notes, 'Cap and stake at property line for developed lots' and 'Note: Riser pipe, cap and property side stub to be white.
-	S-7	S-7	Commercial Areas Sanitary Service Connection Detail Riser and Non Riser Types: Added notes "...c/w 4 stainless steel clamps and stainless steel anti shear band' and 'Note: Riser pipe, cap and property side stub to be white.
-	S-8	S-8	Detail of Sanitary Service Box & Inspection Assembly Installation in Untravelled Areas: Removed the service box extension from the drawing. Added notes, 'Concrete' to the service box note, 'Lid and cap to be white' and 'Note: Riser pipe to be white'.
-	S-8A	S-8A	Detail of Sanitary Service Box & Inspection Assembly Installation in Paved Lanes and High Traffic Areas: Removed the lid detail and replace with the Mechanical Screw Plug Detail. Added notes for the valve box to read 'sewer', referenced lid detail, and noted that the riser pipe shall be white.
-	S-9	S-9	Heavy Duty Sanitary Manhole Cover and Frame: Individualized the drawing. Removed the 'min' from the 18mm dimension requirement from the Carrage Bolt Detail.
-	S-10	S-10	Utility Chamber Sanitary Manhole Frame, Ring and Cover
-	S-12	S-12	Sanitary Cleanout Structure Type 1: Removed brick filler note and added precast concrete grade rings requirement.
-	S-13	S-13	Sanitary Cleanout Structure Type 2: Removed brick filler note and added precast concrete grade rings requirement.
-	S-14	S-14	Sanitary Manhole and Cleanout Lid Marker: Revised the marker to dipict actual product.
-	S-15	S-15	Watertight Sanitary Manhole Frame and Cover
-	S-17	S-17	Sewage Pump Station 'Pig Loader' Detail: Removed brick filler note and added precast concrete grade rings requirement.
-	S-18	S-18	Standard Plastc Sanitary Service Box for Untraveled Areas (Special Applications Only): Revised note to read 'Plastic service boxes shall be used in existing landscape areas. Application must have approval from City Engineer.'
-	S-19	S-19	Standard Concrete Sanitary Service Box (For Twin Service)
-	S-20	S-20	Standard Concrete Sanitary Service Box (For Single Service)
-	S-21	S-21	MR Type Steel Sanitary Service Box
Superseded	All	7.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer. Created new Section 7.0 drawings from the shared Section 6.0 drawings to individualize the content, removing all water and sanitary affiliation.
New	7-9	7.06.7A	Utilities in Private Lands: Added sub-section that was removed from Section 1.
New	7-10	7.06.8A	Number of Service Connections per Lot: Added sub-section that was removed from Section 1.
-	7-11	7.06.10	Manhole Platforms
-	7-20	7.22A	Piping, Fittings and Services: Added 7.22A.3(d) 'All PVC storm pipe shall be green in colour'.
-	7-23	7.25B	Precast Manhole Bases: Added 'and concrete' to 7.25B.3
-	7-23	7.25D	Manhole Covers and Frames: Added '…with the bearing faces of the cover to be frame machined for a non-rocking fit.' to 7.25D.1. Added 7.25D.4 'Utility chamber manhole frame and cover shall conform to Standard Drawing No. S-10.'

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NOVEMBER 2009 EDITION

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-	7-24	7.27	Precast Concrete Grade Ring: Revised title of section from 'Brick'. Revised 7.27 so concrete grade rings shall be the preferred material and bricks may be used at the discretion of the Engineer.
-	7-27	7.37	Manhole and Cleanout Lid Markers
-	7-27	7.38	Service Boxes: Revised text to read concrete services box covers to be marked 'Storm' rather than 'Drain'.
-	7-29	7.47	Connections to Existing Piping and Appurtences: Added 7.47.4 and 7.47.5 entirely.
-	7-31	7.50	Manhole Channelling
-	7-32	7.54	Frames and Covers: Revised 7.54 so concrete grade rings shall be the preferred material instead of bricks. Revised so that steel manhole rings shall be used in special circumstances in low traffic area. Low traffic area have been descrided.
-	7-33	7.56	Drop Structures
-	7-33	7.60	Catchbasins: Added 7.60.6 and 7.60.7.
-	7-34	7.61	Service Connection Installation
-	7-35	7.62A	Cleaning and Flushing: Revised to reflect current contract standards.
-	7-36	7.63	Video Inspecting Mains: Revised to reflect current contract standards.
-	7-40	7.70	Pipe Video and Manhole Condition Report Format: Revised to reflect current contract standards.
-	ST-1	ST-1	Curb Type Catch Basin for Formed Curbs Type 1 & Type 2: Added 50mm protrusion of the lead into the catchbasin, grouted inside and out. Added 400mm minimum clearance between the outside of the manhole barrel and the trench wall. Revised compacted base from '75 minus pitrun gravel' to '25 drain rock' and added 'on approved sub-grade'.
-	ST-1A	ST-1A	Curb Type Catch Basin for Formed Curbs Type 3: Added 50mm protrusion of the lead into the catchbasin, grouted inside and out. Added 400mm minimum clearance between the outside of the manhole barrel and the trench wall. Revised compacted base from '75 minus pitrun gravel' to '25 drain rock' and added 'on approved sub-grade'.
-	ST-2	ST-2	Boulevard Drainage Type 4 Catch Basin for 250mm dia. & 300mm dia. Pipe: Added 50mm protrusion of the lead into the catchbasin, grouted inside and out. Added 400mm minimum clearance between the outside of the manhole barrel and the trench wall. Revised compacted base from '75 minus pitrun gravel' to '25 drain rock' and added 'on approved sub-grade'. Added inside dimension for catchbasin lead.
-	ST-2A	ST-2A	Lawn Basin Type 5 for 150mm dia. Pipe: Added 50mm protrusion of the lead into the catchbasin, grouted inside and out. Added 400mm minimum clearance between the outside of the manhole barrel and the trench wall. Revised compacted base from '75 minus pitrun gravel' to '25 drain rock' and added 'on approved sub-grade'.
-	ST-8	ST-8	Time of Concentration Table: Revised spelling error
New	ST-14	S-1	Storm Manhole Benching Details
New	ST-15	S-2	Typical Storm Manhole Details for Laterals to 375mm dia. Standard Precast Type: Added 500mm dimension line from first rung to top of grade. Removed brick filler note and added precast concrete grade rings requirement.
New	ST-16	S-3	Typical Drop Storm Manhole Details Standard Precast type for Sewers 375mm dia. or less & over 1.35m in Depth
New	ST-17	S-4	Storm Manhole Platform Detail: Added 500mm dimension line from first rung to top of grade.
New	ST-18	S-5	Storm Standard Service Connection: Added notes, 'Cap and stake at property line for developed lots' and 'Note: Riser pipe, cap and property side stub to be green.
New	ST-19	S-6	Storm Riser Service Connection: Added notes, 'Cap and stake at property line for developed lots' and 'Note: Riser pipe, cap and property side stub to be green.
New	ST-20	S-7	Commercial Areas Storm Service Connection Detail Riser and Non Riser Types: Added notes "...c/w 4 stainless steel clamps and stainless steel anti shear band' and 'Note: Riser pipe, cap and property side stub to be green.
New	ST-21	S-8	Detail of Storm Service Box & Inspection Assembly Installation in Untravelled Areas: Removed the service box extension from the drawing. Added notes, 'Concrete' to the service box note, 'Lid and cap to be green' and 'Note: Riser pipe to be green'.
New	ST-21A	S-8A	Detail of Storm Service Box & Inspection Assembly Installation in Paved Lanes and High traffic Areas: Removed the lid detail and replace with the Mechanical Screw Plug Detail. Added notes for the valve box to read 'sewer', referenced lid detail, and noted that the riser pipe shall be green.

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MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS
NOVEMBER 2009 EDITION

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New	ST-22	S-9	Heavy Duty Storm Manhole Cover and Frame: Removed the 'min' from the 18mm dimension requirement from the Carrage Bolt Detail.
New	ST-23	S-10	Utility Chamber Storm Manhole Frame
New	ST-24	S-12	Storm Cleanout Structure Type 1: Removed brick filler note and added precast concrete grade rings requirement.
New	ST-25	S-13	Storm Cleanout Structure Type 2: Removed brick filler note and added precast concrete grade rings requirement.
New	ST-26	S-14	Storm Manhole and Lid Marker: Revised the marker to dipict actual product.
New	ST-27	S-15	Watertight Storm Manhole Frame and Cover
New	ST-28	S-18	Standard Plasic Storm Service Box for Untravelled Areas (Special Applications Only): Revised note to read 'Plastic service boxes shall be used in existing landscape areas. Application must have approval from City Engineer.' Added lid cover to be labelled 'Storm'.
New	ST-29	S-19	Standard Concrete Storm Service Box (For Twin Service)
New	ST-30	S-20	Standard Concrete Storm Service Box (For Single Service)
New	ST-31	S-21	MR Type Steel Storm Service Box
Superseded	All	8.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer.
-	8-15	8.51	Curb and Sidewalk Edging and Finishing: Removed the no-skid surface finishing requirement along the joint edges between the sidewalk panels.
-	CS-5	CS-5	Typical Sidewalk and Driveway Crossing - Type 1: Added '8.6%' grade label to the driveway letdown.
-	CS-6	CS-6	Typical Sidewalk Construction and Finishing Details: Removed the no-skid surface finishing requirement along the joint edges between the sidewalk panels.
Superseded	All	9.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, formatting and the inclusion of an identifier footer. The entire section revised to be consistent with the new City of Nanaimo Official Community Plan, the Traffic and Transportation Group Functional Road Classification Working Plan, the Traffic and Transportation Group Traffic and Highway Installation Guidelines and to update the BC Ministry of Transportation Infrastructure (MOTI) title.
-	9-4	9.02	Minimum Width of Right-of-Way
-	9-4	9.03	Minimum Width of Pavement
-	9-5	9.04	Design Cross Sections
-	9-5	9.05	Description of Road Class
-	9-8	9.09	Geometrics
-	9-9	9.12	Access Driveways: Design Criteria modified to include to 4 options for the design of an access driveway. There are two options for fronting Arterial and Collector roads, and two options for fronting Urban Local and Rural Local roads.
-	9-15	9.38	Street Markings
-	9-22	9.61	Street Name and Traffic Signs: Sign post bases shall be installed in accordance with MoESS rather than the manufactures recommendations.
-	R1-XS1	R-1	Urban Arterial (Four Lanes)
-	R1-XS2	R-1A	Urban Arterial (Five Lanes)
-	R2-XS1	R-2A	Major Collector (Four Lanes)
-	R2-XS2	R-2B	Major Collector (Five Lanes)
-	R3-XS1	R-2	Minor Collector (Two Lanes)
-	R4-XS1	R-8	Commercial (Two Lanes and Parking)
New	R5-XS1	-	Industrial (Two Lanes and Parking)
-	R6-XS1	R-3	Neighbourhood Collector (Two Lanes and Parking)
-	R7-XS1	R-4	Urban Local
-	R7-XS2	R-4A	Urban Local (Hillside Cross-Section)
-	R7-XS3	R-5	Urban Local (Low Volume)
-	R7-XS4	R-5A	Urban Local (Low Volume in Existing 20.0m R/W)
-	R7-XS5	R-6	Rural Local
-	R8-XS1	R-9	Lane
-	R9-XS1	R-7	Half Road Section
-	R10-XS1	R-9A	Alternative Sidewalk Location with Boulevard
New	R11-DW1	-	Access Fronting Roads without Concrete Curbs - Type 1: Added option for fronting Arterial and Collector roads.
New	R11-DW2	-	Access Fronting Roads with Concrete Curbs - Type 1: Added option for fronting Arterial and Collector Roads.
-	R11-DW3	R-16	Access Fronting Roads without Concrete Curbs - Type 2: Added option for fronting Urban Local and Rural Local roads.
-	R11-DW4	R-17	Access Fronting Roads with Concrete Curbs - Type 2: Added option for fronting Urban Local and Rural Local roads.

ALL AMENDMENTS INCLUDED IN THE
MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS
NOVEMBER 2009 EDITION

The Manual of Engineering Standards and Specifications is revised as follows:

Superseded / Cancelled / Removed	Page Revised / New Insert / New Dwg No.	Section No. / Dwg No. Affected	Remarks
-	R12-ME1	R-18	Raised Center Median (River Rock)
-	R4-CU1	R-10	Commercial Offset Cul-de-Sac
-	R4-CU2	R-11	Commercial Standard Cul-de-Sac
New	R5-CU1	-	Industrial Offset Cul-de-Sac
New	R5-CU2	-	Industrial Standard Cul-de-Sac
-	R7-CU1	R-12	Urban Local Offset Cul-de-Sac
-	R7-CU2	R-13	Urban Local Standard Cul-de-Sac
-	R7-CU3	R-14	Urban Local (Low Volume) Offset Cul-de-Sac
-	R7-CU4	R-15	Urban Local (Low Volume) Standard Cul-de-Sac
Superseded	All	10.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer.
-	E-14.1	E-14.1	Round Traffic Signal Detector Loop: Removed the diamond loop option.
-	E-14.5	E-14.5	Detector Loop Procedure & Rules: Modified procedure and rules to remove the diamond loop content.
-	E-14.6	E-14.6	Detector Loop Procedure & Rules (Continued): Modified procedure and rules to remove the diamond loop content.
-	E-14.7	E-14.7	Layout for Round Traffic Signal Loops: Removed the diamond loop option from drawing.
Superseded	All	11.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer.
Superseded	All	12.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer.
Superseded	All	13.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer.
Superseded	All	14.0	Entire section, including written specifications and standard drawings, are superceded in MoESS due to grammar consistencies, updating and formatting and the inclusion of the identifier footer.
-	14-20	14.36	Irrigation Plastic Piping: Specification revised to read that PVC piping shall be schedule 40 PVC rather than a class of 160 or 200.
-	14-20	14.38	Swing Joint Assemblies: Material for fittings to be brass rather than the previous galvanized standard. Removed the option of using Polyethylene swing pipe for swing joints from the MoESS.
-	14-22	14.46	Irrigation Casing Sleeves: Added the words 'and staked' to the specification.
-	14-22	14.49	Valve Boxes: Added the words 'The valve boxes are to be bolted' to the specification.
-	14-37	14.87	Scope: Added the words '…or at the discretion of the engineer.' to the maintenance period requirement.
-	I-1	I-1	Irrigation Backflow Preventor & Point of Connection: Revised material list and removed both unions fittings and the male adapter fitting.
Removed	I-2	I-2	Irrigation Backflow Preventor & Point of Connection - Type 2
-	I-5	I-5	Drip System at Tree: Added note for emitter to be visible for inspection.
-	I-6	I-6	In-Line Drip Assembly and Layout: Added leader note, "Note: Emitter to be visible for inspection".
Superseded	All	Appendices	All Appendices are superceded in MoESS due to addition of an identifier footer.
-	Appendix A	Appendix A	Revision Request Summary Sheet for theManual of Engineering Standards and Specifications: Revised to incorporate Revision No. and submission date.
-	Appendix E	Appendix E	Substantial Completion Statistics Record Utilities & Works for Development forms: Added a Landscaping and Irrigation table. Revised Streets, Sidewalks, Curbs, Streetlights table to incorporate asphalt sidewalks, asphalt walkways and trails.
-	Appendix F	Appendix F	City of Nanaimo Service Sheet - Appendix F1 Revised to incorporate water meter data and additional criteria required.