

APPENDIX 2-B – STANDARD DRAWINGS

Foreword

The City of Missoula has unique requirements that are not addressed in the *Montana Public Works Standard Specifications* (MPWSS), Sixth Edition, April 2010. This Appendix addresses those specific requirements related to standard drawings that are not addressed or are modified from the standard drawings in the MPWSS.

Where a City of Missoula standard drawing does not exist for a particular drawing of the MPWSS, it shall be assumed the work is to be completed in accordance with the appropriate MPWSS standard drawing.

Where a City of Missoula Standard Drawing does exist, the requirements of that drawing shall supersede the related MPWSS standard drawing. There are some standard drawings that do not replace or supersede the MPWSS standard drawing but are additional drawings created specifically for the City of Missoula.

Each drawing in the MPWSS that has been modified is listed below and contains a list of MPWSS Standard drawings followed by “Active” or “Replaced by” or “Deleted”.

“Active” – the standard drawing is usable as shown in MPWSS

“Replaced by” – the drawing has been replaced by a City of Missoula drawing

“Deleted” – the drawing is not to be used

Montana Public Works Standards & Specifications Standard Drawings

Drawing	Description	Status
02213-1	Manhole Adjustment	Active
02213-2	Water Valve Adjustment	Active
02221-1	Typical Utility Trench	Replaced by STD-401/744
02221-2	Pipe Bedding Alternate	Deleted
02222-1	Trench Plug Excavation	Deleted
02528-1	Standard Curb & Gutter	Replaced by STD-740
02528-2	Drive Over Curb & Gutter	Replaced by STD-741/746
02529-1	Double Gutter Detail	Replaced by STD-708/745
02529-2	Standard Fillet	Replaced by STD-708
02529-3	Type I Street Monument	Active
02529-4	Type II Street Monument	Active
02529-5A	Boulevard Drive Approach	Replaced by STD-771
02529-5B	Curb Walk Drive Approach	Replaced by STD-772
02529-6	Retrofit Drive Approach	Deleted
02529-7A	Boulevard Alley Approach	Deleted
02529-7B	Curb Walk Alley Approach	Deleted
02529-8	Accessibility Ramp	Replaced by STD-751
02529-9	Swale Crossing	Active
02529-10	Mail Box Mounting for Curb Delivery	Replaced by STD-760
02660-1	Thrust Blocking for Water Main Fittings	Replaced by STD-407
02660-2	Water and Sewer Main Separation	Replaced by STD-402
02660-3	Thrust Blocking for Water Main Valves	Replaced by STD-406
02660-4	Fire Hydrant Setting	Replaced by STD-408
02660-5	Hydrant Location Setting	Replaced by STD-415
02660-6	Water Service Line	Replaced by STD-403/404/404B
02660-7	Blow off Valve	Replaced by STD-409
02720-1	30" Standard Storm Drain Inlet	Replaced by STD-614
02720-2	24" Standard Riser Inlet	Replaced by STD-614
02720-3	Sanitary Sewer and Storm Drain Manhole	Replaced by STD-512/612
02720-4	Standard Straight Manhole	Replaced by STD-512/612
02720-5	48" Standard Manhole	Replaced by STD-512/612
02720-6	Precast Manhole Bases	Replaced by STD-512/612
02720-7	Typical Manhole Channel Details	Replaced by STD-512/612
02720-8	Standard Cast Iron Cover	Replaced by STD-510/604B/605
02720-9	Standard 24" Cast Iron Ring Manhole Frame	Replaced by STD-510/604A
02720-10	Storm Drain Service Line	Active
02730-1	Nomograph for Air Testing Gravity Sewer Mains	Active
02730-2	Sanitary Sewer Service Line	Replaced by STD-520
02730-3	Deep Sanitary Sewer Service Line	Replaced by STD-520

CITY OF MISSOULA STANDARD DRAWINGS

400 – Water System

- 401 Typical Utility Trench Detail
- 402 Typical Water Line Crossing @ Sewer Mains
- 403 Typical Commercial & Multi-Family Water Service Detail
- 404 Typical Residential Water Service Detail
- 404B Typical Residential Water Service Stub Detail
- 405 Valve Detail
- 406 Valve Thrust Blocking Detail
- 407 Thrust Block Detail 420 Hydrant Detail
- 408 Hydrant Detail
- 409 Typical Blow-Off Assembly
- 410 Manual Air Relief Detail
- 411 Air/Vacuum Relief Valve Detail
- 412 Large (1 1/2" and 2") Irrigation Meter Pit Detail
- 413 Typical 4-Inch and Larger Water Service Stub Detail
- 414 Sampling Station Detail
- 415 Typical Valve Locations
- 416 Typical Service Line Locations

500 – Sanitary Sewer System

- 500 Sanitary Sewer Service and Main Line Insulation Requirements
- 510 Sanitary Sewer Lid
- 512 Sanitary Sewer Manhole (3 pages)
- 513 Typical Internal Service Drop Structure and Standoff
- 514 Utility Access Road
- 520 Standard Sewer Service Stub
- 521 Typical Clean-out Detail
- 530 Hydrocarbons, Oil, Grit and Sand (HOGS) Wastewater Interceptor
- 531 Fats, Oils, Grease and Garbage (FOGG) Wastewater Interceptor
- 539 STEP Service Sewer Service Detail
- 540 Residential S.T.E.P. Tank
- 541 External Ejector Pump
- 542 High Water Alarm Manhole with On-site Transmitter
- 550 Standard Sewer Lift Station (3 pages)
- 555 Force Main Termination Detail

600 – Stormwater System

- 600 36" Combination Curb Inlet Frame & Grate
- 601 24" Combination Curb Inlet Frame & Grate
- 604A Stormwater Ring
- 604B Stormwater Solid Lid
- 604C Area Drain Grate
- 604D ADA Area Drain Grate
- 605 Stormwater Lockable Lid and Frame
- 607 Curb Opening

- 608 Curb Opening Through Sidewalk Section to Landscape
- 612 Stormwater Manhole (3 pages)
- 614 Standard Catch Basin
- 616 Standard 8' Precast Dry Well
- 620 Bioswale
- 630 Typical Fuel Island Canopy and Containment Cove Gutter
- 650 Temporary Gravel construction Entrance
- 651 Inlet Protection
- 652 Perimeter Control
- 653 Temporary Access to Construction Sites

700 – Transportation System

- 700 Local/Residential Street Sections
- 701 Collector Street Sections
- 702 Arterial Street Sections
- 703 Asphalt Paving Section / Residential Street
- 704 Asphalt Paving Section / Collector Street
- 705 Alley Paving - Crown Graded
- 706 Alley Paving - Invert Graded
- 707 Alley Paving - Offset Graded
- 708 Typical Public Street with Cove Gutter Intersection
- 709 Traffic Calming Circle
- 710 Modified Traffic Calming Circle
- 711 Visibility Obstruction Triangle
- 712 Bus-Stop Pull-Out (3 pages)
- 713 Mail-Stop Pull-Out (3 pages)
- 714 Typical End-of-Roadway Barricade Detail
- 720 Typical Boulevard Sign Base / Public Right-of-Way
- 721 Typical Street Sign Standard
- 722 Typical Sign Locations
- 730 Typical Street Marking Standard
- 740 Typical "L" Type Curb & Gutter
- 741 Modified "L" Type Curb & Gutter (laydown)
- 742 Typical "A" Type Curb & Gutter (monolithic)
- 743 Typical "B" Type Curb (landscape/standup curb)
- 744 Asphalt Cutting, Removal and Replacement / Adjacent to Curb & Gutter
- 745 Typical 2' Valley Gutter
- 750 Detectable Warning Panel
- 751 Curb Ramp Details (4 pages)
- 752 Typical Sidewalk Section
- 753 Typical Sidewalk Section / Downtown - Central Business District
- 754 Typical Sidewalk Specification / Downtown - Central Business District
- 760 Typical Mailbox Location and Mounting Height
- 761 Bike Rack Design
- 762 Typical End-of-Walkway Barricade Detail
- 770 Typical Driveway Locations
- 771 Standard Driveway Opening for Boulevard Sidewalk / Less than 25 Parking Spaces

- 772 Standard Driveway Opening for Curbside Sidewalk / Less than 25 Parking Spaces
- 773 Modified Driveway Opening / Less than 25 Parking Spaces
- 774 Commercial Driveway - Curbside Sidewalk / 25 or More Parking Spaces
- 775 Commercial Driveway - Boulevard Sidewalk / 25 or More Parking Spaces
- 776 Typical Driveway Controlled Entrance
- 777 On-Street Parking Space to Intersection Dimensions
- 778 Accessible Parking Spaces / On-Street Parallel
- 779 Accessible Parking Spaces / On-Street Angled
- 780 On-Street Parking Design Guidelines
- 781 Alley Access Parking Requirements
- 782 Accessible Parking Spaces Abutting Sidewalk (2 pages)
- 783 Accessible Parking Spaces with Access Aisle
- 784 ROW/PAE Parking Layout and Design Guidelines
- 785 Accessible Parking Spaces Requirements and Specifications
- 786 Parking Lot Design Elements (2 pages)
- 787 Accessible Parking Spaces Signage Requirements
- 788 Bollard Detail

Traffic Control

- TC-101 Residential Alley
- TC-102 Commercial Alley
- TC-103 LV Res - Shoulder Work / Curb SW
- TC-104 LV Res - Close One Driving Lane
- TC-105 LV Res - Close Entire Street
- TC-106 LV Res - Shoulder or Curb / SW Work on Corner
- TC-107 LV Res - Close One Traffic Lane on Corner
- TC-108 LV Res - Center of Intersection
- TC-109 LV Res - Close Intersection
- TC-201 2 Lane Col - Shoulder Work / Curb SW
- TC-202 2 Lane Col - Close One Driving Lane: Maintain Two-Way Traffic
- TC-203 2 Lane Col - Close One Driving Lane: Use Flagmen
- TC-204 2 Lane Col - Close One Driving Lane at Intersection: Maintain Two-Way Traffic
- TC-205 2 Lane Col - Close One Driving Lane
- TC-206 2 Lane Col - Close Street
- TC-207 2 Lane Col - Close Street
- TC-208 2 Lane Col - Center of Intersection
- TC-209 2 Lane Col - Close Center Lane: Maintain Two-Way Traffic
- TC-210 2 Lane Col - Close One Driving Lane
- TC-301 3 Lane Col - Shoulder Work / Curb SW
- TC-302 3 Lane Col - Close One Driving Lane: Maintain Two-Way Traffic
- TC-303 3 Lane Col - Maintain One-Way Traffic: Use Flagmen
- TC-304 3 Lane Col - Close One Driving Lane at Intersection: Maintain Two-Way Traffic
- TC-305 3 Lane Col - Close Driving and Turning Lane
- TC-306 3 Lane Col - Close Street
- TC-307 3 Lane Col - Close Street
- TC-308 3 Lane Col - Center of Intersection
- TC-309 3 Lane Col - Close Turning Lane: Maintain Two-Way Traffic

TC-401	4 Lane Art - Shoulder Work / Curb SW
TC-402	4 Lane Art - Close One Driving Lane
TC-403	4 Lane Art - Close Two Driving Lanes: Maintain Two-Way Traffic
TC-404	4 Lane Art - Close One Driving Lane at Intersection
TC-405	4 Lane Art - Close Two Lanes
TC-406	4 Lane Art - Close Street
TC-407	4 Lane Art - Close Street
TC-408	4 Lane Art - Center of Intersection
TC-409	4 Lane Art - Close Center Lane
TC-501	5 Lane Art - Shoulder Work / Curb SW
TC-502	5 Lane Art - Close One Driving Lane
TC-503	5 Lane Art - Close Two Driving Lanes: Use Center Lane
TC-504	5 Lane Art - Close Two Driving Lanes: Maintain Two-Way Traffic
TC-505	5 Lane Art - Close One Driving Lane at Intersection
TC-506	5 Lane Art - Close Two Lanes
TC-507	5 Lane Art - Close Street
TC-508	5 Lane Art - Close Street
TC-509	5 Lane Art - Close Turning Lane: Maintain Two-Way Traffic
TC-701	LV Residential Boulevard - Sidewalk Closure
TC-702	LV Residential Curbside - Sidewalk Closure
TC-703	Commercial Area - Sidewalk Closure Used When Closure is Appropriate
TC-704	Commercial Area - Sidewalk Channelization Used When Closure is Not Appropriate, Such as Downtown
TC-705	Commercial Area - Sidewalk Closure: Temporary Sidewalk