

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), Seventh Edition, April 2021. 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“Replaced by” – the drawing has been replaced by a City of Missoula drawing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
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-771/775
02529-5B	Curb Walk Drive Approach	Replaced by STD-772/774
02529-6	Retrofit Drive Approach	Deleted
02529-7A	Boulevard Alley Approach	Replaced by STD-773-1
02529-7B	Curb Walk Alley Approach	Replaced by STD-773-2
02529-8	Accessibility Ramp	Replaced by STD-751
02529-9	Swale Crossing	Active
02529-10	Mailbox 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	Typical Valve Locations	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
- 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
- 417 Private Service Line Easements

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
617	Remote 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

701	Right-of-Way Section
705	Alley Paving - Crown Graded
706	Alley Paving - Invert Graded
708	Typical Street with Cove Gutter Intersection
709	Traffic Calming Circle
711	Visibility Obstructions
712	Bus-Stop Pull-Out (2 pages)
713	Mail-Stop Pull-Out (2 pages)
714	Typical End-of-Roadway Barricade
715	Typical End-of-Walkway Barricade
720	Typical Boulevard Sign Base / Public Right-of-Way
721	Typical Street Name 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 & Sidewalk (Monolithic)
743	Typical "B" Type Curb (Landscape/Standup Curb)
744	Asphalt Cutting, Removal and Replacement / Adjacent to Curb & Gutter
745	Typical Valley Gutter
746	Mountable Curb & Gutter
749	Typical Shared Use Path Section
750	Detectable Warning Surface
751	Curb Ramp Details (4 pages)
752	Typical Sidewalk Section
753	Typical Wide Sidewalk Section / Downtown - Central Business District
760	Typical Mailbox Location and Mounting Height
761	Bike Rack Design
771	Approach for Boulevard Sidewalk / Less than 25 Parking Spaces
772	Approach for Curbside Sidewalk / Less than 25 Parking Spaces
773	Alley Approach (2 pages)
774	Approach for Curbside Sidewalk / 25 or More Parking Spaces
775	Approach for Boulevard Sidewalk / 25 or More Parking Spaces

778	Accessible Parking Spaces / On-Street Parallel
782	Accessible Parking Spaces Abutting Sidewalk (2 pages)
783	Accessible Parking Spaces with Access Aisle
784	ROW/PAE Parking Layout and Design Guidelines
787	Accessible Parking Spaces Signage Requirements
788	Bollard Detail
790	Typical Street Light 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