



Montana Department of Transportation

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**VISION ZERO**

zero deaths  
zero serious injuries

**Memorandum**

To: e-Distribution  
See Below

From: James Combs, P.E.  
Highways Engineer

Date: July 23, 2020

Subject: Storm Drain Bid Item Changes

Revised 3/7/23

MC

The February 13, 2020 “Storm Drain Bid Item Changes” design memo is in conflict with the current MDT Standard Specifications. The February memo needed to be updated to reflect standard specification change to the measurement of the Additional Barrel. Additional barrel will now be measured by the even foot. This revised memo replaces the February 13, 2020 memo and reconciles with changes to the MDT Standard Specifications that will be effective beginning immediately as the standard specifications are already in place.

There are currently over 80 storm drain structure bid items. The number of current storm drain structure bid items is excessive and creates confusion related to the naming convention of the combination manholes. Storm drain structures will now be measured and paid for differently with new bid items. The new method of measuring storm drain structures is like the bidding method used by Montana Public Works. This will further standardize bidding practices for storm drain structures that contractors are familiar bidding. This method of bidding storm drain structures will improve the bid history reliability since depth of the structure is accounted for using this method. The changes will not affect the plan sheets other than changes to the summary frames.

Structure Base- Each storm drain structure (i.e. manhole, inlet, etc.) will be bid each for the first 5 vertical feet of the structure, or the entire structure if it is less than 5 vertical feet in total from the invert of the structure, or the lowest point in the structure if it has a sump, to the top rim elevation. Each diameter size will have a different bid item such as 48”, 60”, etc.

Additional Barrel- Additional vertical feet of barrel in excess of the 5 vertical feet included in the structure base will be included in the Additional Barrel bid item. There will be a bid item for each size of barrel to match the structure base bid items. For example, if a 48” manhole is a total of 8.4 feet from invert to lid elevation, there will be 4 vertical feet of additional barrel. The measured length of additional barrel will be the difference between

the manhole lid or inlet grate elevation and the structure invert elevation in excess of 5 feet rounded up to the even foot.

**Concrete Apron-** This item has in the past been incidental to the structure and bid separately in other cases. Concrete aprons are not always necessary for a structure and add a considerable cost to the structure. The concrete apron should be bid under the dedicated bid item for concrete apron.

**Granular Bedding Material-** Currently, granular bedding material is measured and paid separately for the storm drain pipe bid items. This creates complications as the bedding quantities between optional pipe materials is different, creating issues with plan quantities of granular bedding. Moving forward, granular bedding material will be incidental to storm drain pipe less than 54" in diameter. A reference to the detailed drawing has been added to the quantity frame directing the contractor to use the detailed drawing to calculate necessary bedding quantities.

**Storm Drain – Irrigation pipe bid items** are currently used for storm drain and irrigation applications. Irrigation pipe bid items used for storm drain applications currently specify the use of granular bedding meeting standard specification section 701. Storm Drain are new bid items to be used for storm drain pipe installations instead of the traditional RCP IRR bid items. Using the traditional RCP IRR bid items for storm drain can lead to confusion since bedding material is different in storm drain applications and traditionally granular bedding was paid separately on storm drain installations. These new bid items will help clarify the installation and what type of bedding is included in the item. As noted above, granular bedding will be incidental to storm drain bid items less than 54". The new bid items are listed in the frames below.

**Bedding material –**Bedding material meeting Standard Specification Section 701 is standard on all mainline and public approach culverts and irrigation applications with diameter less than 54". Bedding material is and will continue to be incidental to respective irrigation or culvert bid items.

**Manhole Frame and Lid, Curb Inlet Frame and Grate, and Drop Inlet Frame and Grate –** Due to material acceptance tracking, separate bid items for storm drain inlet frames and grates, and manhole frame and lid is necessary. Two new bid items are added for drop and curb inlets. Bid item currently exist to use for standard manhole lids. The new bid items are listed in the frames below.

The following are the existing bid items being replaced with this memo.

604010030	MANHOLE-36 IN TYPE 3
604010035	MANHOLE-48 IN (1220 MM) TYPE 1
604010045	MANHOLE-48 IN (1220 MM) TYPE 3
604010055	MANHOLE-54 IN (1370 MM) TYPE 3
604010061	MANHOLE-60 IN (1524 MM) TYPE 1
604010065	MANHOLE-60 IN (1524 MM) TYPE 3
604010070	MANHOLE-66 IN (1676 MM) TYPE 3
604010071	MANHOLE-72 IN (1830 MM) TYPE 1
604010075	MANHOLE-72 IN (1830 MM) TYPE 3
604010085	MANHOLE-84 IN (2100 MM) TYPE 3
604010090	MANHOLE-90 IN (2290 MM) TYPE 3
604010096	MANHOLE-96 IN (2440 MM) TYPE 3
604010097	EXTRA DEPTH MANHOLE 72 IN
604010100	MANHOLE -102 IN (2590 MM) TYPE 3
604010101	EXTRA DEPTH MANHOLE 48 IN
604010102	EXTRA DEPTH MANHOLE 60 IN
604010103	COMB 72 IN (1800 MM) T3 MH-T1 DR INLET
604010105	MANHOLE-108 IN (2745 MM) TYPE 3
604010106	COMB 66 IN (1676 MM) T3 MH-T4 DR INLET
604010107	MANHOLE-96 IN (2440 MM) TYPE 1
604010108	MANHOLE-120 IN (3050 MM) TYPE 3
604010210	INLET DROP-TYPE 3
604010212	INLET DROP-TYPE 4
604010213	INLET DROP-TYPE 5
604010214	INLET DROP-TYPE 6
604010221	INLET DROP-TYPE 1
604010222	INLET DROP-TYPE 2
604010230	INLET CURB-TYPE 1
604010240	INLET CURB-TYPE 2
604010245	INLET CURB-TYPE 3
604010247	INLET CURB-TYPE 4
604010253	INLET CURB-TYPE A
604010255	INLET CURB-TYPE B
604010509	COMB MANHOLE AND CURB INLET
604010510	COMB MANHOLE AND DROP INLET
604010512	COMB 48 (1220) T5 MH-48 (1220) RISER
604010514	COMB 48 IN T3 MH-T4 COVER
604010516	COMB 48 IN T3 MH-T5 COVER

604010518	COMB 48 IN T3 MH-TA CURB INLET (1220MM)
604010521	COMB 48 (1220) T1 MH-48 (1220) RISER
604010522	COMB 48 (1220) T4 MH-48 (1220) RISER
604010523	COMB 72 IN (1830) T3 MH-T4 CURB INL
604010524	COMB 66 IN (1680 MM) T3 MH-TB CURB INLET
604010525	COMB 60 IN T3 MH-TA CURB INLET
604010526	COMB 60 IN (1524 MM) T3 MH-TB CURB INLET
604010527	COMB 66 IN (1680 MM) T3 MH-T2 CURB INLET
604010528	COMB 60 IN (1524 MM) T3 MH-TA CURB INLET
604010529	COMB 84 IN T3 MH-TA CURB INLET
604010530	COMB 54 IN (1350 MM) T 3 MH-T 1 DROP INL
604010532	COMB 48 IN (1220 MM) T3 MH-T2 CURB INL
604010533	COMB 48 IN (1220 MM) T3 MH-T1 DROP INL
604010534	COMB 48 IN (1220 MM) T3 MH-T4 DROP INL
604010535	COMB 48 IN (1200 MM) T3 MH-T3 MED INL
604010537	COMB 72 IN (1830 MM) T 3 MH-T 4 DROP INL
604010538	COMB 72 IN (1830 MM) T3 MH-T 5 DROP INL
604010539	COMB 60 IN (1524 MM) T 3 MH-T 4 DROP INL
604010540	COMB 84 IN (2100 MM) T 3 MH-T 4 DROP INL
604010541	COMB 60 IN (1524 MM) T3 MH-T1 DR INLET
604010543	COMB 84 IN (2100 MM) T3 MH-T1 DR INLET
604010545	COMB 96 IN (2440 MM) T3 MH-T4 DR INLET
604010547	COMB 54 IN (1350 MM) T3 MH-T4 DROP INLET
604010548	COMB 96 IN (2440 MM) T3 MH-T1 DR INLET
604010549	COMB 48 IN (1220 MM) T3 MH-TB CURB INLET
604010550	COMB 96 IN T3 MH-TB CURB INLET (2440MM)
604010551	COMB 78 IN (1980 MM) T3 MH-T4 DROP INL
604010552	COMB 48 IN (1220 MM) T3 MH-T5 DROP INL
604010553	COMB 60 IN (1524MM) T3 MH-T5 DROP INLET
604010554	COMB 106 IN (2690 MM) T 3 MH-T 1 DR INL
604010555	RISER INLET
604010556	COMB 90 IN (2290 MM) T 3 MH-T 1 DROP INL
604010557	COMB 72 IN (1830 MM) T3 MH-TB INLET
604010559	COMB 90 IN (2290 MM) T 3 MH-T 4 DROP INL
604010561	COMB 120 IN (3050MM) T3 MH-T1 DROP INLET
604010570	COMB 54 IN TB MH-48 IN RISER
604010575	COMB 60 IN T1 MH-48 IN RISER
604010580	COMB 60 IN TA MH-48 IN RISER
604010581	COMB 60 IN T5 MH-48 IN RISER
604010582	COMB 66 IN TA MH-48 IN RISER
604010584	COMB 66 IN TB MH-48 IN RISER

604010586	COMB 66 IN T1 MH-48 IN RISER
604010590	COMB 72 IN TA MH-48 IN RISER

The following are the new bid items.

604010300	INLET STRUCTURE BASE 30"
604010301	INLET STRUCTURE BASE 32"
604010302	MANHOLE STRUCTURE BASE 48"
604010304	MANHOLE STRUCTURE BASE 60"
604010306	MANHOLE STRUCTURE BASE 72"
604010308	MANHOLE STRUCTURE BASE 84"
604010310	MANHOLE STRUCTURE BASE 96"
604010312	MANHOLE STRUCTURE BASE 108"
604010314	MANHOLE STRUCTURE BASE 120"
604010350	ADDITIONAL BARREL 30"
604010351	ADDITIONAL BARREL 32"
604010352	ADDITIONAL BARREL 48"
604010354	ADDITIONAL BARREL 60"
604010356	ADDITIONAL BARREL 72"
604010358	ADDITIONAL BARREL 84"
604010360	ADDITIONAL BARREL 96"
604010362	ADDITIONAL BARREL 108"
604010364	ADDITIONAL BARREL 120"
604010661	CURB INLET FRAME AND GRATE
604010662	DROP INLET FRAME AND GRATE
603017040	STORM DRAIN PIPE 12 IN
603017045	STORM DRAIN PIPE 15 IN
603017050	STORM DRAIN PIPE 18 IN
603017055	STORM DRAIN PIPE 21 IN
603017060	STORM DRAIN PIPE 24 IN
603017070	STORM DRAIN PIPE 30 IN
603017080	STORM DRAIN PIPE 36 IN
603017085	STORM DRAIN PIPE 42 IN
603017090	STORM DRAIN PIPE 48 IN

Attached to this memo are example storm drain pipe and storm drain structure summaries that will be effective with the April 23, 2020 letting.

If you have any questions please contact [the Engineering Cost Analyst. Chad Richards at 444-6944.](#)

copies:

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## STORM DRAIN PIPE #

<b>PIPE SECTION</b>			<b>ALLOWABLE PIPE MATERIALS</b>		<i>linear feet</i>			<b>REMARKS</b>
					<b>STORM DRAIN PIPE ##</b>			
<b>FROM</b>	<b>TO</b>	<b>NAME</b>	<b>RCP</b>	<b>PVC</b>	<b>12"</b>	<b>18"</b>	<b>24"</b>	
<i>DI-44</i>	<i>DI-43</i>	<i>SL-1(3)</i>						
<i>DI-43</i>	<i>DI-42</i>	<i>SL-1(2)</i>						
<i>DI-42</i>	<i>MH-7</i>	<i>SL-1(1)</i>						
<i>MH-7</i>	<i>DI-41</i>	<i>SL-2(1)</i>						
<i>DI-41</i>	<i>MH-6</i>	<i>SL-2(2)</i>	X	X	40.0			
<i>MH-6</i>	<i>DI-40</i>	<i>SL-2(3)</i>						
<b>TOTAL</b>					<b>40.0</b>	<b>0.0</b>	<b>0.0</b>	

# FUNDING -

## GRANULAR BEDDING MATERIAL INCIDENTAL TO STORM DRAIN PIPE, SEE DETAILED DRAWINGS FOR BEDDING QUANTITIES AND DETAILS.

### STORM DRAIN STRUCTURE SCHEDULE #

NAME	STATION	each						vertical feet		REMARKS
		STORM DRAIN STRUCTURE		MANHOLE LID & FRAME	CURB INLET FRAME & GRATE		DROP INLET FRAME & GRATE	CONCRETE APRON	ADDITIONAL BARREL	
		INLET BASE 30"	MANHOLE BASE 48"		TYPE A	TYPE B			TYPE 4	
I-1	113+10.00		1			1				23.62' RT.
I-2	113+16.00		1			1				26.16' LT.
I-3	113+75.50		1		1					39.78' LT.
MH-1	114+95.00		1	1					2	10.02' LT.
I-4	208+00.00		1			1				17.43' LT.
I-5	208+00.00		1			1				22.26' RT.
I-6	205+80.00		1			1				35.03' LT.
I-7	205+75.00		1			1			1	34.97' RT.
I-8	203+78.00		1			1				13.71' LT.
I-9	203+78.00		1			1				13.71' RT.
I-10	116+62.00		1			1				30.98' LT.
I-11	116+62.00		1			1				19.37' RT.
I-12	119+25.00	1					1	1		21.88' LT.
I-13	119+25.00		1				1	1		17.38' RT.
<b>TOTAL</b>		<b>1</b>	<b>13</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>HSIP FUNDING</b>

# SEE DETAIL SHEETS.