NOTES:
1. PC’S & PT’S ARE TO BE WITHIN THE MANHOLE.
2. ALL INVERTS TO BE U-SHAPED CHANNEL EQUAL TO PIPE I.D. AND SHALL BE CONSTRUCTED WITH SWEEPS.
4. MANHOLE PIPE CONNECTOR SHALL BE A RESILIENT WATER TIGHT SEAL.

RADIUS (R) SHALL BE AS LARGE AS POSSIBLE AND PC’S & PT’S SHALL BE AT THE MANHOLE SIDE WALLS

INVERT ELEVATION SHALL BE A MINIMUM 0.05’ BELOW BRANCH INVERT IN OR NOT LESS THAN THE PIPE SLOPE OF THE BRANCH IN

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT
STANDARD MANHOLE DETAIL WITH MONOLITHIC BASE (48” & 60”)

DATE: 5–1–07
SEC. SHT.
9–1
* STANDARD SHALLOW MANHOLE SHALL BE USED FOR INSTALLATIONS WITH MANHOLE DEPTHS LESS THAN 5.5’

NOTES:

1. PC’S & PT’S ARE TO BE WITHIN THE MANHOLE.

2. ALL INVERTS TO BE U-SHAPED CHANNEL EQUAL TO PIPE I.D. AND SHALL BE CONSTRUCTED WITH SWEEPS.


4. MANHOLE PIPE CONNECTOR SHALL BE A RESILIENT WATER TIGHT SEAL.
### Minimum Invert Angles for Sanitary Manholes

<table>
<thead>
<tr>
<th>Outlet Pipe Dia.</th>
<th>Inlet Pipe Dia.</th>
<th>Min. Angle &quot;A&quot; in Degrees</th>
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<tbody>
<tr>
<td></td>
<td>Inches</td>
<td>48&quot; Dia.</td>
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<tr>
<td>8</td>
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<td>106</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>117</td>
</tr>
</tbody>
</table>

**NOTE:**

"A" angles less than 90° require the design engineer to submit a written request and justification for a design exception, and obtain city approval. In no case shall the "A" angle be less than 75°.
EXTEND SEWER PIPE AND CUT OFF TOP HALF OF PIPE

INVERT ELEVATION PER PLANS

U-SHAPED CHANNEL DEPTH EQUAL TO PIPE I.D. 1:10 TO VERTICAL (TYP)

INVERT ELEVATION PER PLANS

REFER TO STANDARD MANHOLE DETAIL

TYPE 1 BEDDING TO 3" ABOVE CLEAN OUT LEG PIPE

45° WYE

Dx Dx D

CLEAN OUT LEG

8" TO 12"

MINIMUM 1\能在管道内壁

LOW STRENGTH CONCRETE TO BE PLACED ON UNDISTURBED SOIL BUT AT A MINIMUM 1" BELOW PIPE INVERT

LOW STRENGTH CONCRETE TO THE SPRINGLINE OF THE CLEANOUT LEG

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

STANDARD DROP MANHOLE DETAIL
FOR INVERT CHANGES LESS THAN 4'

DATE: 5-1-07
SEC. SHT.
9-4
EXTEND SEWER PIPE AND CUT OFF TOP HALF OF PIPE

INVERT ELEVATION PER PLANS

REFER TO STANDARD MANHOLE DETAIL

TYPE 1 BEDDING TO 3" ABOVE CLEANOUT LEG PIPE

45° WYE DxDxD

45° STREET ELBOW

U-SHAPED CHANNEL DEPTH EQUAL TO PIPE I.D. 1:10 TO VERTICAL (TYP)

1"/FT

INVERT AT CHANNEL MINIMUM 0.05" BELOW INVERT IN

INVERT ELEVATION PER PLANS

4xD (MAXIMUM)

LOW STRENGTH CONCRETE TO BE PLACED ON UNDISTURBED SOIL BUT AT A MINIMUM 1" BELOW PIPE INVERT

LOW STRENGTH CONCRETE TO THE SPRINGLINE OF THE CLEANOUT LEG

45° ELBOW

1" BELOW PIPE PENETRATION

CITY OF RAPID CITY

PUBLIC WORKS DEPARTMENT

DATE: 5-1-07

STANDARD DROP MANHOLE DETAILS FOR INVERT CHANGES MORE THAN 4’

SEC. 9-5

SHT.
BREAKOUT 3" MINIMUM & 6" MAXIMUM FULL CIRCUMFERENCE

GROUT SHALL EXTEND A MINIMUM OF "D" BEYOND THE MANHOLE SIDEWALL

MANHOLE ADAPTOR WATER STOP PER STANDARD SPECIFICATIONS

WATERSTOP—RX PLACED AGAINST MANHOLE AROUND ENTIRE CIRCUMFERENCE OF HOLE, EMBEDED IN GROUT

NOTE:
THIS TYPE OF INSTALLATION REQUIRES PRIOR APPROVAL BY ENGINEER.

NON-SHRINK GROUT PER STANDARD SPECIFICATIONS

6" MINIMUM OVERLAP FULL CIRCUMFERENCE

NEW SEWER MAIN

6" MINIMUM OVERLAP FULL CIRCUMFERENCE

PIECE
NOTES:
1. DEPENDING ON LOCATION, CROSS-SLOPE OF STREET, HEIGHT ADJUSTMENT REQUIREMENTS, ETC.. THE INSPECTOR/ENGINEER RESERVES THE RIGHT TO REQUIRE A LARGER CUT TO ASSURE THAT ALL TRANSITIONS AND TOLERANCES AS CALLED FOR IN CITY SPECIFICATIONS WILL STILL BE MET.
2. BLOCKS FOR SHIMMING PER SPECIFICATIONS.
3. 0.25 INCH MAX.. SURFACE DEVIATION IN 10 FEET.
   MINIMUM PATCH DEPTHS SHALL BE:
   *PCC–6” PCC PAVEMENT OR MATCH MINIMUM EXISTING PAVEMENT DEPTH WHICHEVER IS GREATER.
   *ASPHALT–5” MINIMUM. (2 LIFTS COMPACTED OR MATCH EXISTING PAVEMENT DEPTH WHICHEVER IS GREATER.

MANHOLE CASTING TO BE SET PER SPECIFICATIONS
CONTROLLED LOW STRENGTH MATERIAL (FLOW ABLE FILL) PER SECTION 200
INTERNAL CHIMNEY SEAL AS PER SPECIFICATIONS
FINISH SURFACE MUST MEET SPECIFICATION USING 10’ STRAIGHT EDGE
MATCH LONGITUDINAL & TRANSVERSE SLOPE

MANHOLE ADJUSTMENT AND PATCH DETAIL
NOTE:
AS BUILT, RECORD FLOW LINE ELEVATION IN RELATION TO NEAREST MANHOLE PRIOR TO BACK FILL

THE INSTALLATION OF A STANDARD SEWER MAIN TERMINATION CLEAN OUT IS NOT PERMITTED WITHIN THE JURISDICTIONAL BOUNDARIES OF THE CITY OF RAPID CITY UNLESS WRITTEN APPROVAL FROM THE CITY ENGINEER IS OBTAINED AND THEN IS ONLY PERMITTED IF THERE ARE OR WILL NOT BE ANY SANITARY SEWER SERVICES CONNECTED TO THE SEWER MAIN BETWEEN THE CLEAN OUT AND THE NEXT DOWN STREAM MANHOLE.
NOTES:
1. ALL FITTINGS SHALL BE GASKETED.
2. CLEAN OUTS TO BE SAME DIAMETER (D) AS SERVICE LINE.
ELEVATION

NOTES:
1. ALL FITTINGS SHALL BE GASKETED
2. CLEAN OUTS TO BE SAME DIAMETER (D) AS SERVICE LINE
CONDOMINIUMS ARE INCLUDED IN THIS CLASSIFICATION

NOTES:
1. 4" & 6" SERVICES SHALL BE CONNECTED TO THE SEWER MAIN, 8" OR LARGER SERVICES SHALL BE CONNECTED TO THE MAIN AT A MANHOLE.

2. CLEANOUT (CO) SPACING & LOCATION PER DESIGN CRITERIA AND PLUMBING CODE.
CONCRETE OR ASPHALT SURFACE

CENTER OPENING OVER OUTLET PIPE

CASTING & RING AS PER SPECIFICATIONS

INTERNAL CHIMNEY SEAL AS PER SPECIFICATIONS

SET CHIMNEY ADJUSTING RINGS AS PER SPECIFICATIONS

2" OR 4" ADJUSTING RINGS (TYP)

27" DIA.

PRECAST CONCRETE MANHOLE W/ECCENTRIC CONE

NEOPRENE O-RING TYPE GASKET

SLOPE MANHOLE INVERT SO THAT ANY FLOW ENTERING MANHOLE WILL FLOW INTO PIPE PENETRATION. 'U' SHAPED CHANNEL REQUIREMENTS ARE NOT REQUIRED FOR TERMINATION MANHOLES

NOTE:

MANHOLE PIPE CONNECTOR SHALL BE A RESILIENT WATER TIGHT SEAL.