MINIMUM OF 12" PRECAST WALL BETWEEN PIPE CORES.

KOR-N-SEAL OR APPROVED EQUAL MANHOLE ADAPTOR

SLOPE SHELVES 1:12 TYP.

PLAN

SET IN NON-SHRINK MORTAR

MANHOLE FRAME AND COVER PER PLANS AND SPECIFICATIONS.

GRADE RINGS 3" MINIMUM AND 12" MAXIMUM HEIGHT WITH NO SPACES.

STEPS SHALL BE ORIENTED OVER THE LEAST OBSTRUCTED SHELF AND SHALL NOT CONFLICT WITH ANY PIPE.

18" MAX FOR RIGID PIPE.

12" MAX

48" INSIDE DIA.

12" TYP.

VARIABLE

36"

4" MIN.

12" MIN

6" MIN.

FORM CHANNEL TO 2/3 PIPE I.D. HEIGHT

6" MINIMUM THICKNESS OF 3/4"-0" COMPACTED CRUSHED ROCK UNDER BASE.

SECTION A-A

STANDARD MANHOLE FOR 27" AND LESSER DIAMETER PIPES
### Minimums

<table>
<thead>
<tr>
<th>Pipe DIA. IN.</th>
<th>Barrel DIA.* IN.</th>
<th>&quot;A&quot; DIM. IN.</th>
<th>&quot;B&quot; DIM. IN.</th>
<th>&quot;C&quot; DIM. IN.</th>
</tr>
</thead>
<tbody>
<tr>
<td>30&quot;</td>
<td>72&quot;</td>
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<td>12&quot;</td>
<td>11&quot;</td>
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<tr>
<td>96&quot;</td>
<td>132&quot;</td>
<td>12&quot;</td>
<td>12&quot;</td>
<td>11&quot;</td>
</tr>
</tbody>
</table>

* Applies to (2) pipe manholes with 0° deflection. Other numbers of pipes or deflection will require larger size.

**Notes:**

- Steps to be as detailed in Standard Detail 210
- Reducing top slab to be designed & constructed for depth and traffic conditions by manufacturer. For slabs within 1/7" of street, opening to be 25"
PLAN

MANHOLE FRAME AND COVER PER PLANS AND SPECIFICATIONS

GRADE RINGS - 3" MINIMUM AND 12" MAXIMUM HEIGHT WITH NO SPACES.

REDUCING TOP SLAB TO BE DESIGNED AND CONSTRUCTED BY MANUFACTURER FOR DEPTH AND TRAFFIC CONDITIONS (SEE NOTE).

STEPS SHALL BE ORIENTED OVER THE LEAST OBSTRUCTED PORTION OF THE SHELF AND SHALL NOT CONFLICT WITH ANY PIPE, SEE NOTE. STEPS SHALL BE INSTALLED IN THE FIELD.

KOR-N-SEAL OR APPROVED EQUAL MANHOLE ADAPTER (TYP.)

6" MINIMUM THICKNESS OF 3/4"-0" COMPACTED CRUSHED ROCK.

FORM CHANNEL TO 2/3 PIPE I.D.

SECTION A-A

SHALLOW MANHOLE FOR 27" AND LESSER DIAMETER PIPES

NOTE:
FOR MANHOLES LESS THAN 2' DEEP A CONCENTRIC FLATTOP SHALL BE USED (NOT SHOWN), AND NO STEPS SHALL BE INSTALLED.

MANHOLE LESS THAN 4' DEEP (SEE NOTE FOR MH LESS THAN 2' DEEP)

18" MAX FOR RIGID PIPE

12" MAX.

12" MIN.

3" MIN.

48" INSIDE DIA.

24" MAX.

6" MIN.

SET IN NON-SHRINK MORTAR

3,300 PSI PCC SLOPE SHELVES 1:12 TYP.

MINIMUM OF 12"
PRECAST WALL BETWEEN PIPE CORES

APPLICATIONS ETC.
GRADE RINGS - 3" MINIMUM AND 12" MAXIMUM HEIGHT

NOTES:
1. JOINTS SHALL BE WATER TIGHT AND COATED WITH WATERPROOF RUBBERIZED MASTIC MATERIAL BEFORE SETTING RISERS AND TOP. INSIDE JOINTS SHALL BE GROUTED.

2. MANHOLEs SHALL HAVE A 12" MIN., 24" MAX. BOTTOM RISER. RISER TO BE BEDDED IN THE CAST-IN-PLACE CONCRETE AS THE BASE TAKES ITS INITIAL SET.

3. 3" TO 12" CLEARANCE BETWEEN BOTTOM RISER SECTION AND TOP OF PIPE. RISER SECTION MUST BE CAST TO ACCOMODATE PIPE (DOG HOUSE) NO SAWING OR BREAKING OF RISER WILL BE ALLOWED.

4. AFTER SHELF IS FORMED REMOVE TOP OF PIPE.

SECTION A-A

CAST-IN-PLACE MANHOLE

3,300 PSI PCC SLOPE SHELVES 1:12 TYP.
NOTES:
1. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30, APPROXIMATE WEIGHT = 237 LBS.
2. TO BE USED IN ASPHALT GREATER THAN 4" IN DEPTH.
NOTES:
1. THIS MANHOLE FRAME MAY BE USED ONLY FOR LOCAL ROAD LOCATIONS.
2. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30. APPROX. WEIGHT = 172 LBS.

SECTION A-A

PLAN SECTION

MACHINE TO TRUE 25"

27"

1"

1/2"

23"

24 1/2"

31"

3"

7/8"

3"

1/2"

6"

23"

SECTION A-A

NOTES:
1. THIS MANHOLE FRAME MAY BE USED ONLY FOR LOCAL ROAD LOCATIONS.
2. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30. APPROX. WEIGHT = 172 LBS.
NOTE:
1. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30.
   APPROXIMATE WEIGHT = 237 (INDUSTRIAL) AND
   APPROXIMATE WEIGHT = 172 LBS +/- (SUBURBAN).
2. ONE BOLT DOWN TAB MUST BE
   ORIENTED DIRECTLY OVER CENTER OF MANHOLE STEPS

FOR WATERPROOF FRAME MACHINE
9/32" WIDE x 3/16" DEEP GROOVE ON
23 3/4" I.D. CIRCLE, AND INSTALL 23 3/4"
I.D., 1/4" WIDE X 1/4" DEEP NEOPRENE
GASKET.

PLAN

SECTION A-A

WATERPROOF AND TAMPERPROOF
MANHOLE FRAME
OFF-ROAD ELEVATED FRAME ASSEMBLY (PIN)

(4) 1" DIA. HANDLING HOLES ON A 29 3/4" DIA. B.C.

(1) HEX HEAD 3/8"-16 X 1 3/4" LONG ZINC PLATED BOLT WITH ZINC WASHER & REMOVABLE ZINC COATED SS NUT FOR CUSTOMER TO ADD PADLOCK.

CAST-IN GROOVE FOR 1/4" DIA. NEOPRENE GASKET.
3-3/8" FOR PLASTIC SAFETY STEP

1/2" GRADE 60 REINFORCEMENT

NOTE:
MANHOLE STEPS MUST BE TIGHT AND FIRMLY EMBEDDED. THEY MUST ALSO MEET THE ASTM TEST FOR WITHSTANDING PULLING OUT.

MATERIALS:
PLASTIC: MUST CONFORM WITH ASTM C478.
STEEL REINFORCING BAR MINIMUM 1/2" GRADE 60 MEETING REQUIREMENTS OF ASTM A615
ENCAPSULATED WITH INJECTION MOLDED COPOLYMER POLYPROPYLENE WITH SERRATED SURFACES.
UNDISTURBED EARTH BASE

FOR CONCRETE PIPE INSTALL 6" THICKNESS 3,000 PSI CONCRETE CRADLE FULL WIDTH OF TRENCH

GRANULAR TRENCH BACKFILL

CAST IRON CLEANOUT FRAME AND COVER
INSTALL MECHANICAL SEAL

TOP VIEW

1/2" SHARP FACE GOTHIC

(2) 3/8"-16 X 1 1/4" SS BOLTS & ZINC. WASHERS

45° SHORT BEND

1/2"Ø X 6" S.S. HEX HEAD BOLT & S.S. HEX NUT

FRAME SHALL BE ON 1/2" MIN. GROUT SEAL

GRANULAR TRENCH BACKFILL

1" CL.

4" X 18" X 24" POURED-IN-PLACE 3,000 PSI CONCRETE PAD

IF IN GRAVEL STREET, PLACE A 2" THICKNESS OF 1/2" LEVEL 2, A.C. PAVEMENT IN A 4' DIAMETER CIRCLE AROUND THE CLEANOUT SLOPING AWAY

TOP VIEW

COVER SECTION

FRAME SECTION

ELEVATION

STANDARD CLEANOUT
NOTES:

1. ALL CONCRETE SHALL BE 3,000 PSI 28 DAY COMpressive STRENGTH, WITH 2" TO 4" SLUMP.

2. ANCHOR WALLS MUST BE USED WITH PIPES WITH SLOPES OVER 20%. ANCHOR WALLS TO BE EQUALLY SPACED. PROPORTION SPACING WITH SLOPE.

3. PLACE WALL IMMEDIATELY BELOW BELL OF PIPE WHERE POSSIBLE.

### DIMENSION TABLE

<table>
<thead>
<tr>
<th>PIPE DIA.</th>
<th>X, MIN. (ft)</th>
<th>Y (ft)</th>
<th>MIN VOL (CY)</th>
</tr>
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<tbody>
<tr>
<td>6&quot; TO 10&quot;</td>
<td>4</td>
<td>3</td>
<td>0.29</td>
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<td>12&quot; TO 15&quot;</td>
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<td>0.37</td>
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<td>18&quot; TO 24&quot;</td>
<td>5</td>
<td>4</td>
<td>0.42</td>
</tr>
<tr>
<td>&gt; 24&quot;</td>
<td>TO BE DETERMINED BY ENGINEER OF RECORD</td>
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<td></td>
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</table>

PIPE SLOPE | WALL SPACING
---|---
20% | 21'
100% | 12'
> 100% | NOT ALLOWED
VERTICAL SECTION

NOTES:
1. ALL CONCRETE SHALL BE 3,000 PSI, 3" TO 5" SLUMP.
2. STEEL REINFORCING SHALL BE NO. 5 IN CONFORMANCE WITH ASTM A615, GRADE 60, WITH DEFORMATIONS PER ASTM A305.

<table>
<thead>
<tr>
<th>DIMENSIONS (IN.)</th>
<th>BARS REQ'D</th>
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<tbody>
<tr>
<td>&quot;A&quot;</td>
<td>&quot;B&quot;</td>
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</tr>
<tr>
<td>27</td>
<td>50</td>
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</tbody>
</table>
NOTES:

1. WHERE REQUIRED BY THE ENGINEER OF RECORD OR THE CITY, GRANULAR TRENCH STABILIZATION SHALL BE PLACED PRIOR TO THE PIPE ZONE MATERIAL. SIZE AND DEPTH TO BE BASED ON SOIL CONDITIONS.

2. USE CLSM WHERE SPECIFIED AND WHERE REQUIRED BY THE ENGINEER.

3. IN AREAS WHERE NATIVE BACKFILL IS BROUGHT TO THE SURFACE AND IS TO BE SEEDED, DO NOT COMPACT THE Top 2".