

MANHOLE NOTES

1. PIPES LAID THROUGH MANHOLES ARE TO BE CAREFULLY REMOVED TO ALLOW ACCESS TO SEWER MAIN AFTER INVERT IS CONCRETED.
2. INVERT TO BE SHAPED AND FINISHED SMOOTH BY HAND FLOAT AND TROWEL.
3. STANDARD 4 FT. DIAMETER MANHOLES TO BE CONSTRUCTED ON PIPE 10 IN. AND SMALLER IN DIAMETER AND LESS THAN 10 FT. DEEP.
4. STANDARD 5 FT. DIAMETER MANHOLES TO BE CONSTRUCTED ON PIPE 12 TO 15 IN. DIAMETER AND LESS THAN 20 FT. DEEP. EXCEPT FOR THE CONE, MANHOLE RISER DIAMETER REDUCTIONS ARE NOT PERMITTED.
5. STANDARD 6 FT. DIAMETER MANHOLES TO BE CONSTRUCTED ON PIPE GREATER THAN 15 IN. IN DIAMETER. EXCEPT FOR THE CONE, MANHOLE RISER DIAMETER REDUCTIONS ARE NOT PERMITTED.
6. IN STREET SECTION ONLY, 2 IN. GRADE RINGS AND MORTAR SHALL BE APPLIED TO A MANHOLE CONE TO ALLOW FOR FUTURE ADJUSTMENT. TOTAL DEPTH OF GRADE RINGS AND MORTAR SHALL BE BETWEEN 4 IN. MINIMUM AND 12 IN. MAXIMUM. GRADE RINGS AND FRAME/RING AND COVER SHALL BE SECURED IN A SET BED OF MORTAR. APPLY GROUT BETWEEN AND ON THE INSIDE OF GRADE RINGS AND WIPE SMOOTH.
7. A MAXIMUM OF 2 IN. OF MORTAR MAY BE USED TO BRING FRAME/RING AND COVER TO GRADE.
8. MANHOLE COVERS SHALL HAVE THE WORDS "SANITARY SEWER", "CITY OF WACO", AND THE CURRENT "FLYING W" LOGO RAISED ON THE OUTWARD FACE.
9. STANDARD DETAIL [S-13](#) SHALL BE USED WHERE MANHOLES ARE INSTALLED IN UNDEVELOPED AREAS, SUCH AS FIELDS.
10. PRECAST CONCRETE MANHOLES, WITH APPROVED COATING, ARE PERMITTED. THE MANHOLES SHALL CONFORM TO CITY OF WACO MANHOLE DETAILS AND TO ASTM C-478. CONTRACTOR SHALL SUBMIT DESIGN INFORMATION ON PRECAST MANHOLES STAMPED BY A PROFESSIONAL ENGINEER FOR CITY ENGINEER'S APPROVAL. IF PRECAST MANHOLES ARE USED, THEY SHALL BE PLACED ON A BEDDING OF 6 IN. MINIMUM DEPTH OF AGGREGATE MEETING ASTM NO. 57 SPECIFICATIONS. SEE NOTE 17.
11. MEASUREMENT DEPTH FOR PAYMENT OF MANHOLES SHALL BE FROM THE FLOWLINE TO THE TOP SURFACE OF THE MANHOLE COVER.
12. VACUUM AIR TEST MANHOLES AFTER GRADE RINGS AND COVER RINGS ARE IN PLACE IN ACCORDANCE TO TESTING PROCEDURES IN SECTION 4.8 SANITARY SEWER A. CONSTRUCTION METHODS 3. SANITARY SEWER MANHOLE C. TESTING OF MANHOLES AS REPLACED BY SPECIAL PROVISION.
13. SURFACE REPLACEMENT SHALL BE INCLUDED IN THE PRICE FOR THE MANHOLE.
14. MANHOLE GRADE RINGS AND THE INTERIOR SURFACES OF THE MANHOLE SHALL BE PRIMED WITH TNEMEC SERIES 218 FOLLOWED BY A COAT OF TNEMEC SERIES 436 AT 60.0 DRY MILS. PROTECTIVE COATING SHALL BE ADDED TO THE MANHOLE EXTERIOR FOR ALL EXPOSED APPLICATIONS. EXTEND EXTERIOR COATING 18-INCHES BELOW GROUND. PROTECTIVE COATING SHALL BE: TNEMEC SERIES 218, PRIMED, THEN TNEMEC SERIES 436 (60 MIL MINIMUM). SEE [S-11](#) AND/OR S-12 FOR AN ALTERNATE REQUIRING A 5-YEAR MAINTENANCE BOND WARRANTY FOR PARTS AND LABOR FOR MANHOLE INSTALLATIONS.
15. CAST IN PLACE MANHOLE WILL REQUIRE A SEALED DESIGN SUBMITTED BY A LICENSED PROFESSIONAL ENGINEER, AND APPROVED BY CITY ENGINEER. CAST IN PLACE BASE MUST BE MINIMUM 8 IN. THICK WITH #5 BARS @ 12 IN. OCEW AND SHALL EXTEND 1 FT. BEYOND MANHOLE.
16. MAXIMUM MANHOLE SPACING IS 450 LF.
17. AGGREGATE MEETING ASTM NO. 57 SPECIFICATIONS INCLUDING GRADATION AS SHOWN IN THE TABLE BELOW SHALL BE COMPACTED BY MECHANICAL/VIBRATORY COMPACTION METHODS.

ASTM NO. 57 GRADATION SPECIFICATIONS	
SIEVE SIZE	PERCENTAGE PASSING
1 1/2 IN.	100
1 IN.	95-100
1/2 IN.	25-60
#4	0-10
#8	0-5



ENGINEERING DIVISION

DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF WACO FOR ANY PURPOSE WHATSOEVER. THE CITY OF WACO ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

REVISIONS			
NO.	COMMENTS	BY	DATE
1	MODIFY NOTES 6, 7, 12, AND 14	MZ	04/28/2025
##	DESCRIPTION	FL	MM/DD/YYYY

DATE
01/01/2024

S-5