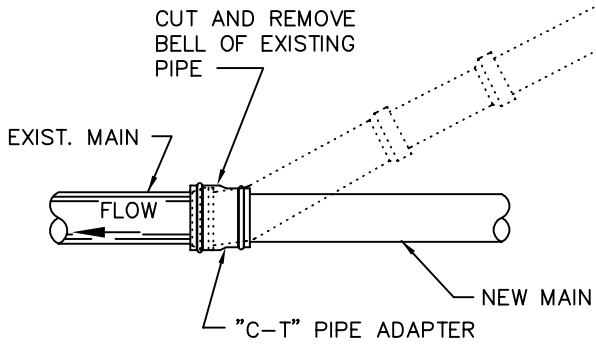
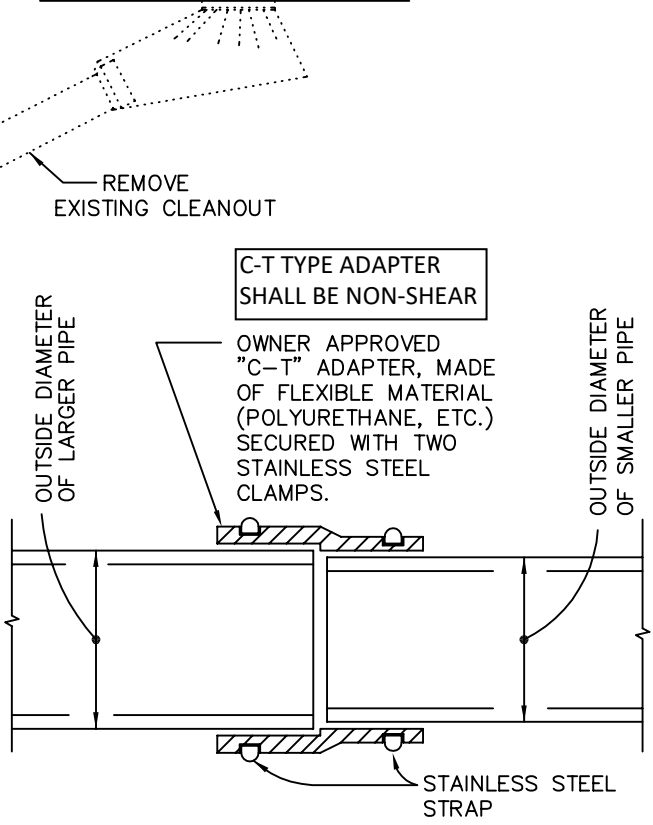


AT STUBOUT
N.T.S.




AT CLEANOUT
N.T.S.



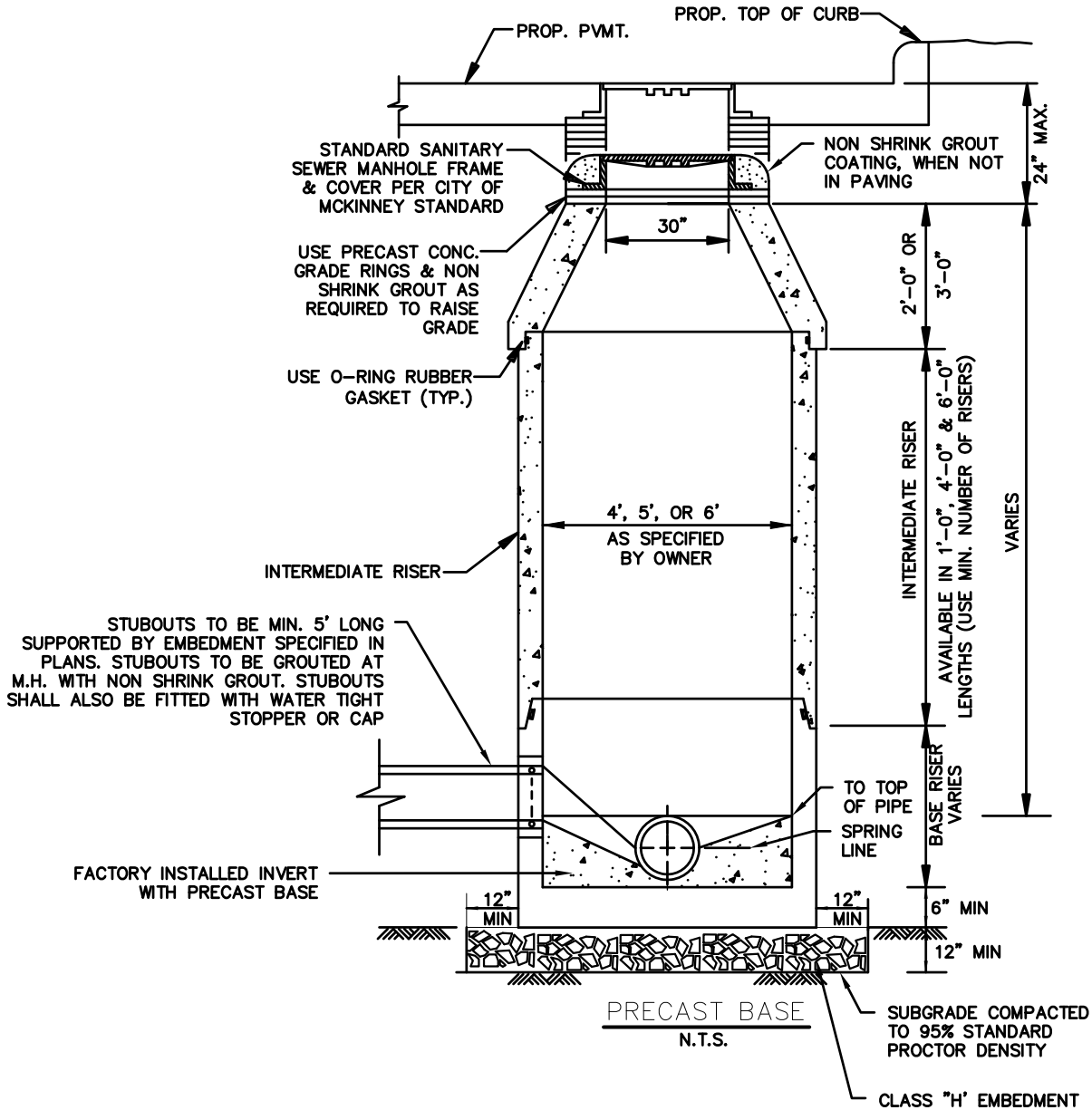
"C-T" PIPE ADAPTER
N.T.S.

NOTE:
THIS DETAIL FOR USE ONLY WHEN NEW MAIN WILL NOT MATE WITH EXISTING MAIN JOINT DUE TO DIFFERENT DIMENSIONS OR MATERIALS AND A MANHOLE IS NOT REQUIRED.

WASTEWATER MAIN TIE-IN AT CLEANOUT OR M.H. STUBOUT	CITY OF ROCKWALL 	STANDARD SPECIFICATION REFERENCE 502.10	
		DATE Mar. 2018	STANDARD DRAWING NO. R-5010

NOTES:

1. FIRST MAIN LINE JOINT TO BE A MIN. OF 5' LONG.
2. IF FALSE M.H. ARE REQUIRED, THEY SHALL BE CONSTRUCTED, INSTALLED AND REMOVED PER STD. DWG. NO. 5100.
3. M.H.'S LOCATED OUTSIDE OF PAVING SHALL BE CONSTRUCTED WITH A CONCRETE MOW STRIP PER STD. DWG. NO. R-7005.
4. REFER TO STD. DWG. NO. R-5031 FOR INFLOW PROTECTION AT MANHOLE GRADE RINGS, MANHOLE JOINTS AND ON OUTSIDE OF STRUCTURE.
5. REFER TO STD. DWG. NO. R-5032 FOR CORROSION PROTECTION.
6. CONCRETE SHALL BE 4,200 PSI (7.0 SACK/CY) 28 DAY STRENGTH.
7. REINFORCING SHALL MEET OR EXCEED ASTM C478 REQUIREMENTS.
8. INSTALL GREEN EMS DISK AT ALL MANHOLES.
9. LIP TO BE PRECAST.



WASTEWATER MANHOLE

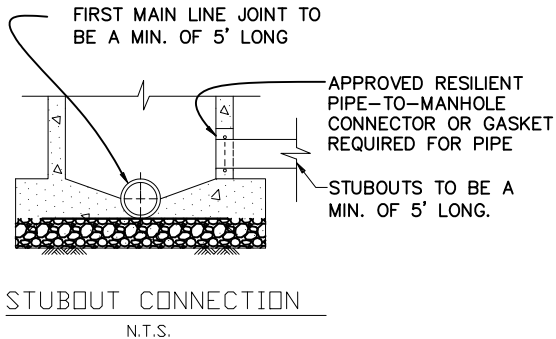
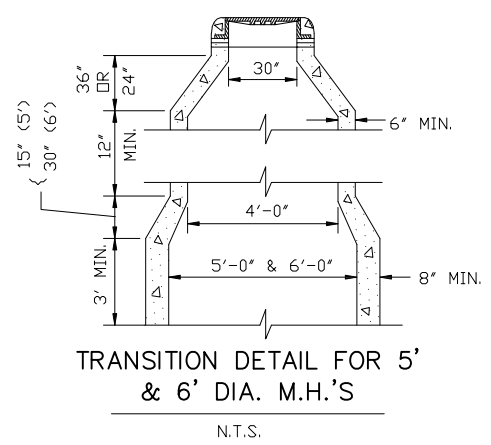
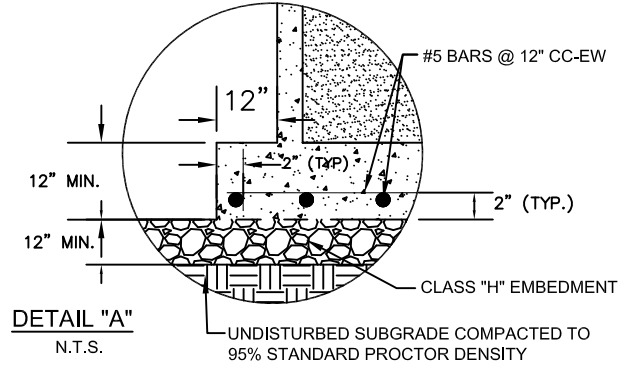
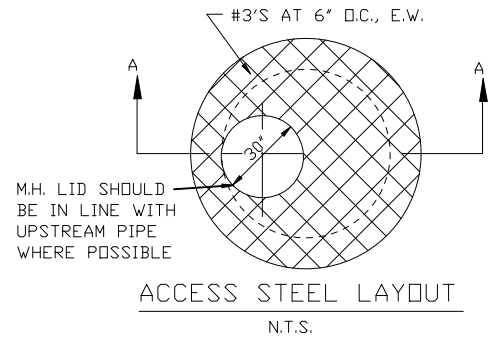
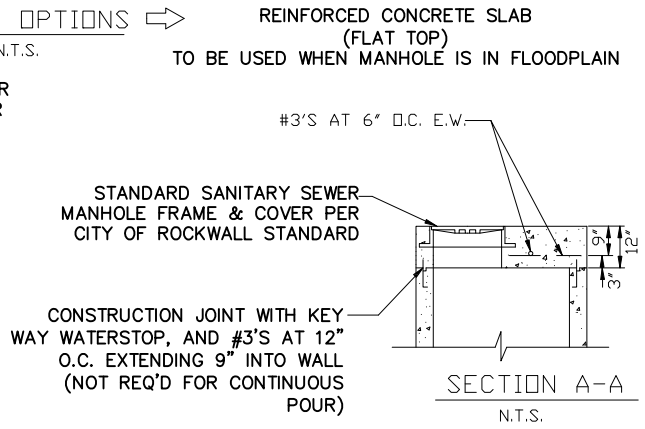
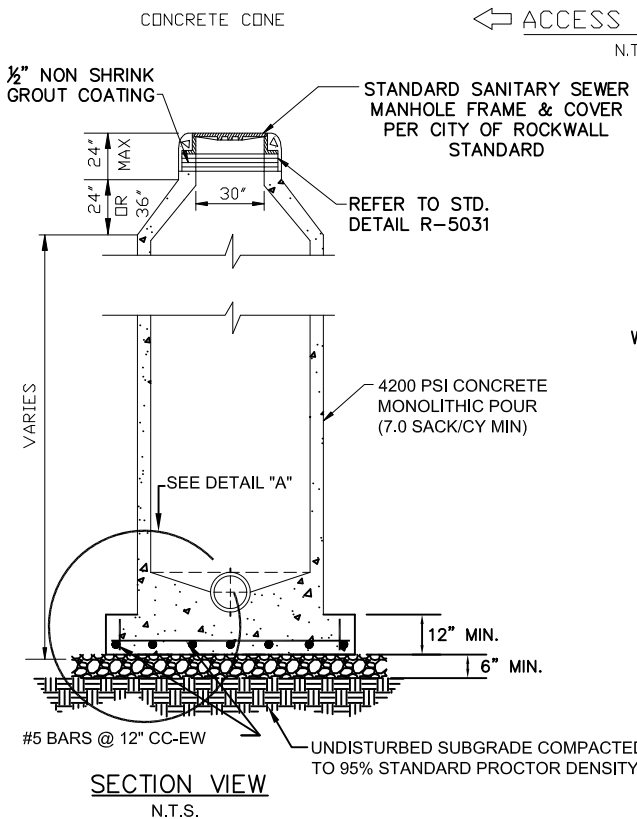
CITY OF ROCKWALL

PRECAST




DATE
AUG '19

DRAWING NO.
R-5020

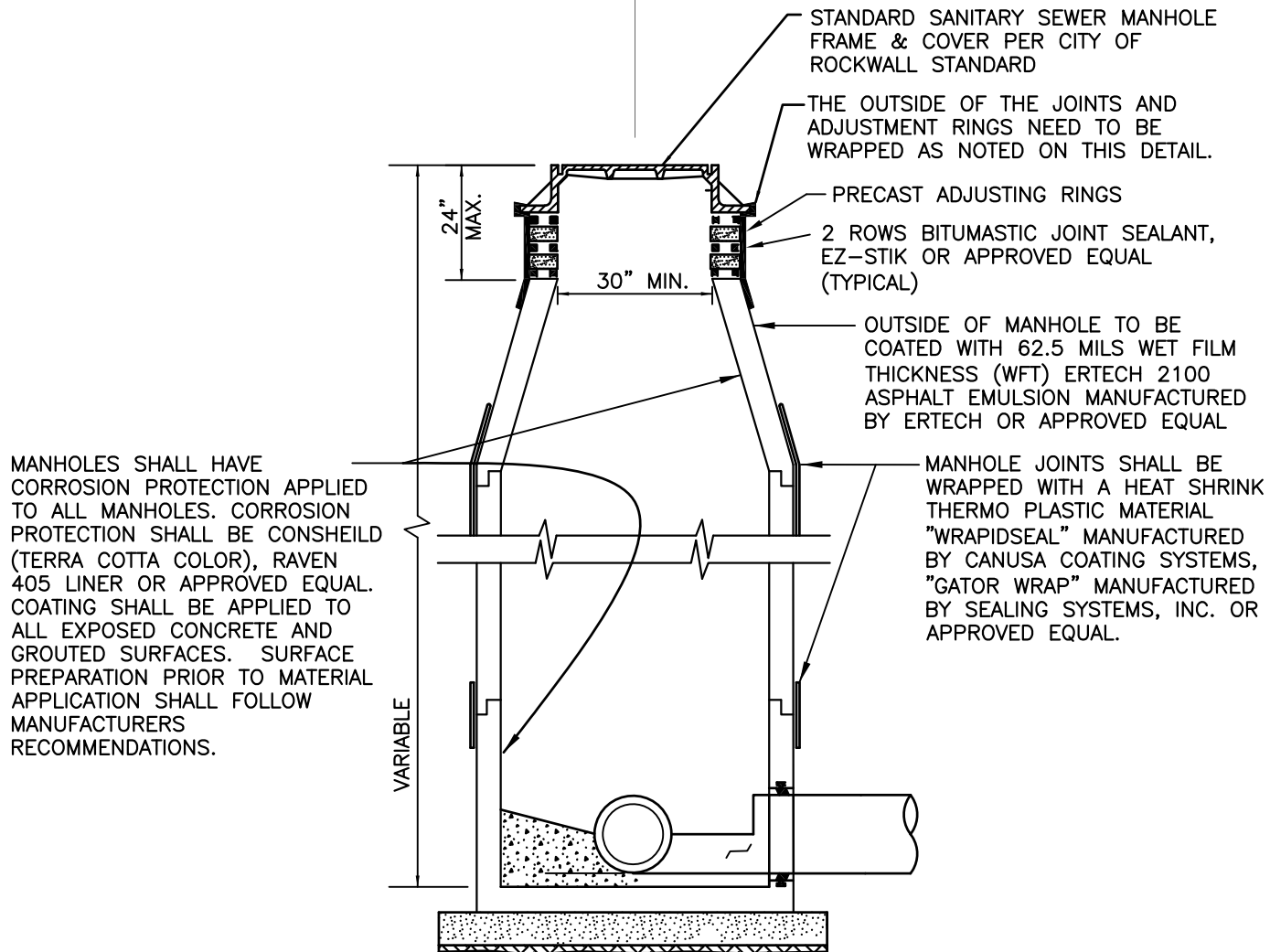


- NOTES:
1. IF FALSE M.H. BOTTOMS ARE REQUIRED THEY SHALL BE CONSTRUCTED, INSTALLED AND REMOVED. PER STD. DWG. NO. 5100
 2. M.H.'S LOCATED OUTSIDE OF PAVING SHALL BE CONSTRUCTED WITH A CONCRETE MOW STRIP PER STANDARD DETAIL R-7005.
 3. REFER TO STD. DWG. NO. R-5031 FOR INFLOW PROTECTION AT MANHOLE GRADE RINGS AND ON THE OUTSIDE OF MANHOLE STRUCTURE.
 4. CAST IN PLACE BASE MUST BE A MINIMUM 12" THICK WITH #5 BARS @ 12" OC-EW (EACH WAY) AND SHALL EXTEND 1' BEYOND MANHOLE.
 5. CONCRETE SHALL BE 4,200 PSI (7.0 SACK/CY) 28 DAY STRENGTH.
 6. REINFORCING SHALL MEET OR EXCEED ASTM C478 REQUIREMENTS.
 7. INSTALL GREEN EMS DISK AT ALL MANHOLES.

WASTEWATER MANHOLE		CITY OF ROCKWALL	
CAST-IN-PLACE			

CORROSION PROTECTION ← →

INFLOW PREVENTION



ELEVATION


N.T.S.

INFLOW PREVENTION NOTES:

1. REQUIRED ON ALL SANITARY SEWER MANHOLES AND LIFT STATION WET WELLS AND VALVE VAULTS.

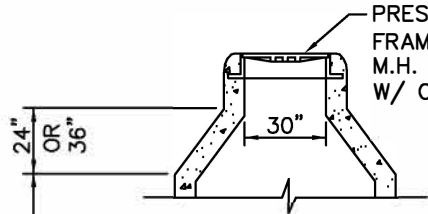
CORROSION PREVENTION NOTES:

1. TO CORROSION PROTECTIVE COATING PROCESS, PRESSURE WASH AND CLEAN STRUCTURE. FILL BUG HOLES, JOINTS, HONEYCOMBS AND AROUND PIPE PENETRATIONS WITH A CEMENTITIOUS REPAIR MATERIAL (CRM) AS NEEDED. USE STRONG SEAL MS2C MANUFACTURED BY THE STRONG COMPANY, INC. OR APPROVED EQUAL. THEN APPLY A MINIMUM OF 125 MILS (1/8 INCH) THICKNESS OF A POLYURETHANE COATING MATERIAL (EXISTING MANHOLES REQUIRE A MINIMUM OF 250 MILS THICKNESS OF POLYURETANE COATING MATERIAL). FOR THE POLYURETHANE COATING MATERIAL USE RAVEN 405 LINER OR APPROVED EQUAL.
2. ADDITIONAL CLEANING, PREPARATION, AND REPAIR METHODS MAY BE REQUIRED FOR EXISTING MANHOLES DEPENDING ON CONDITION ASSESSMENT OF THE MANHOLE. CONTACT ENGINEERING DIVISION FOR ADDITIONAL SPECIFICATIONS.
3. SPARK TESTING IS REQUIRED FOR COATINGS. COST FOR TESTING IS SUBSIDIARY TO OTHER BID ITEMS. CITY INSPECTOR TO BE PRESENT FOR SPARK TESTING. CONTRACTOR TO PROVIDE WRITTEN SPARK TEST RESULTS TO CITY.
4. EXISTING BRICK MANHOLES SHALL BE REPLACED.
5. REQUIRED ON ALL WASTEWATER MANHOLES AND LIFT STATION WET WELLS.

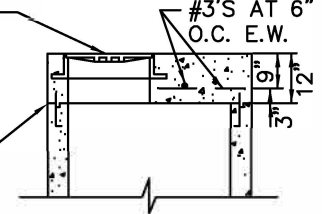
WASTEWATER MANHOLE	CITY OF ROCKWALL		
INFLOW PREVENTION & CORROSION PROTECTION		DATE AUG '19	DRAWING NO. R-5031

CONCRETE CONE ← ROOF OPTIONS → REINFORCED CONCRETE SLAB

N.T.S.

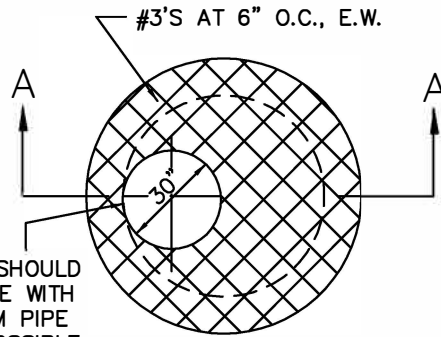
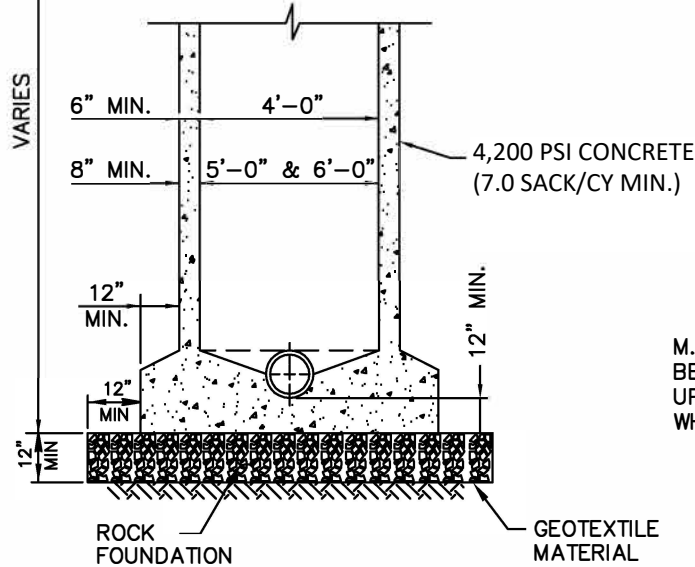


PRESSURE-TYPE M.H. FRAME & COVER AS SPECIFIED BY OWNER. M.H. FRAME CAST IN ROOF W/ CONTINUOUS POUR FROM BASE.



CONSTRUCTION JOINT WITH KEY WAY WATERSTOP, AND #3'S AT 12" O.C. EXTENDING 9" INTO WALL (NOT REQ'D FOR CONTINUOUS POUR)

SECTION A - A
N.T.S.

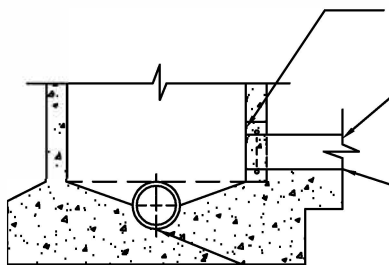


M.H. LID SHOULD BE IN LINE WITH UPSTREAM PIPE WHERE POSSIBLE

ROOF STEEL LAYOUT
N.T.S.

INSTALL GREEN EMS DISKS AT ALL MANHOLES.

APPROVED RESILIENT PIPE-TO-MANHOLE CONNECTOR OR GASKET REQUIRED FOR PIPE OTHER THAN CLAY OR CONCRETE.

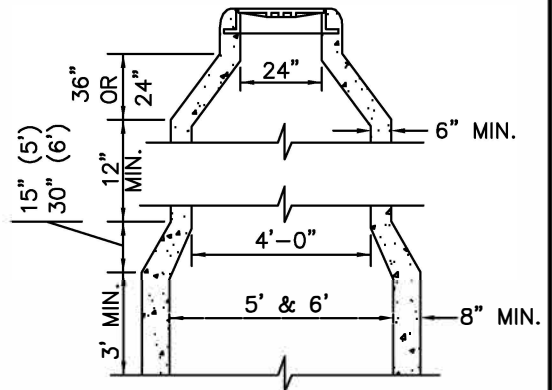


STUBOUT TO BE FITTED WITH WATER TIGHT STOPPER OR CAP

STUBOUTS TO BE A MIN. OF 5' LONG WITH CONC. CRADLE (FROM SAME POUR AS BASE) UNDER ENTIRE LENGTH.

FIRST MAIN LINE JOINT TO BE A MIN. OF 6' LONG WITH CONC. CRADLE (FROM SAME POUR AS BASE) UNDER THE ENTIRE LENGTH.

STUBOUT CONNECTION
N.T.S.



TRANSITION DETAIL FOR 5' & 6' DIA. M.H.'S
N.T.S.

WASTEWATER MANHOLE
PRESSURE-TYPE

CITY OF ROCKWALL

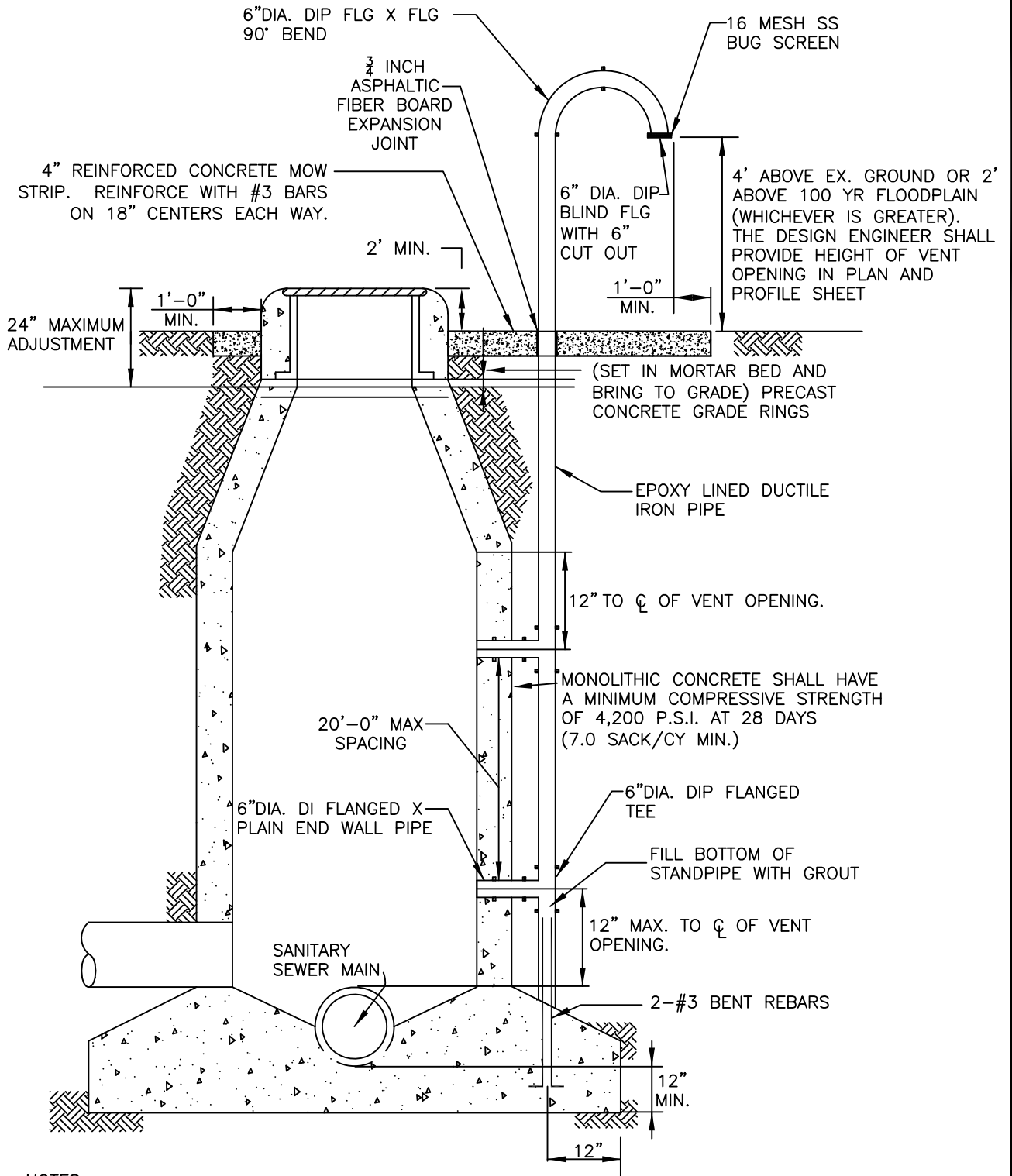


STANDARD SPECIFICATION REFERENCE
502.1.4.15*

DATE
Mar. 2018

STANDARD DRAWING NO.
R-5050

*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*



NOTES:

1. REFER TO STANDARD DETAIL R-5030 FOR MANHOLE. CONCRETE SHALL BE MONOLITHIC POUR.
2. REFER TO STD. DWG. NO. R-5031 FOR INFLOW PROTECTION AT MANHOLE GRADE RINGS, MANHOLE JOINTS, AND ON OUTSIDE OF STRUCTURE.

SHEET 1 OF 2

WASTEWATER MANHOLE

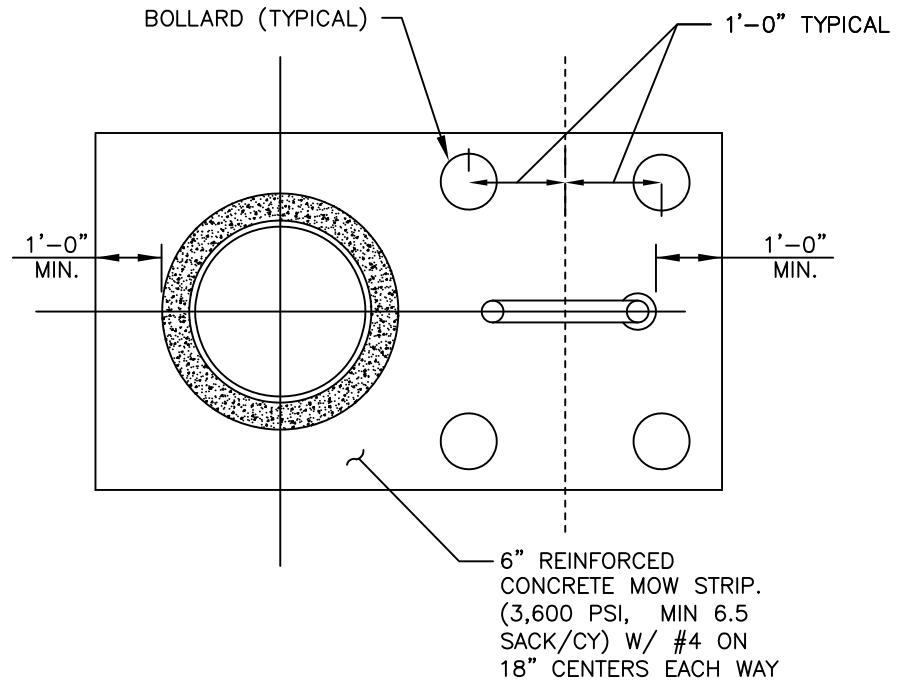
CITY OF ROCKWALL

VENTED

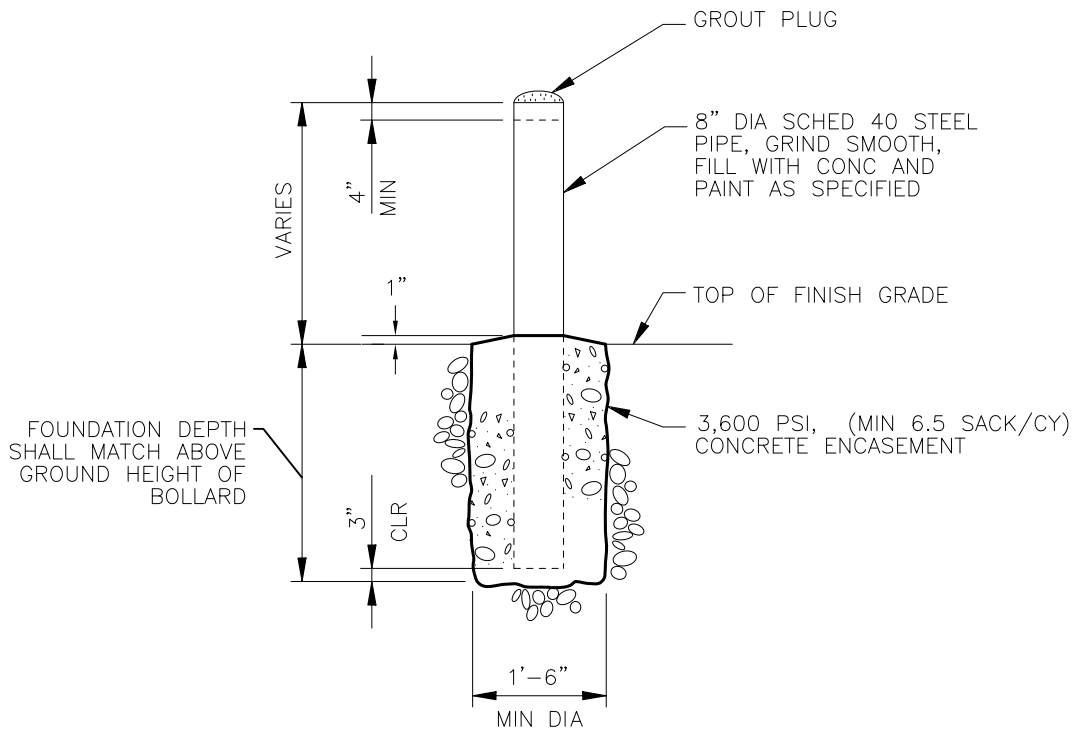


DATE
AUG '19

DRAWING NO.
R-5060



NOTES:
 1. BOLLARD HEIGHT SHALL EXTEND TO 1 FOOT ABOVE THE OVERALL HEIGHT OF THE VENT PIPE.



SHEET 2 OF 2

WASTEWATER MANHOLE

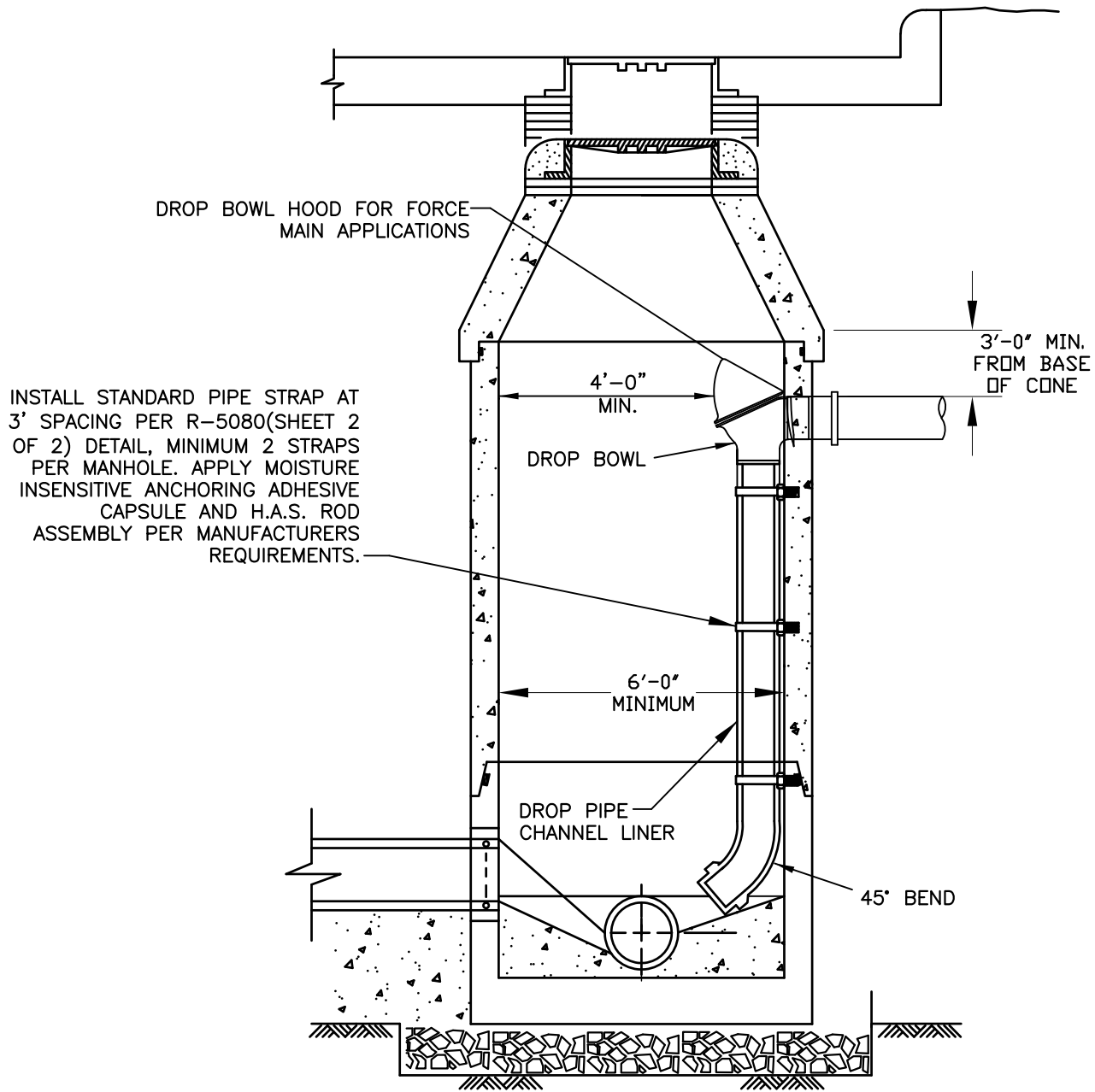
CITY OF ROCKWALL

VENTED




DATE
AUG '19

DRAWING NO.
R-5060



ELEVATION
N.T.S.

NOTE:
1. DROP BOWL, DROP PIPE CHANNEL LINER AND STAINLESS STEEL PIPE CLAMPS AS MANUFACTURED BY RELINER/DURAN INC. OR APPROVED EQUAL.

WASTEWATER MANHOLE	CITY OF ROCKWALL		
DROP CONNECTIONS		DATE AUG '19	DRAWING NO. R-5080

HVA ADHESIVE CAPSULE ANCHOR

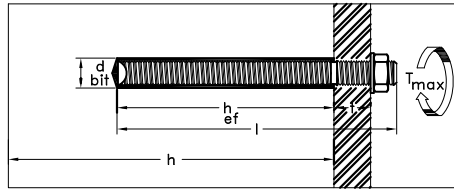
- A. DRILL HOLES WITH ANSI B212.15 MATCHED TOLERANCE CARBIDE TIPPED DRILL BITS WITH DRILL IN ROTO-HAMMER MODE OR USE A MATCHED TOLERANCE DIAMOND CORE DRILL BIT OF DIAMETER SPECIFIED BY HILTI.
- B. DRILLED HOLE SPECIFICATIONS (DIAMETER & DEPTH) SHALL COMPLY WITH HILTI SPECIFICATION OR ICC ESR 1562.
- C. ALLOWABLE LOADS MAY BE INCREASED BY 33-1/3% FOR SHORT-TERM WIND OR SEISMIC LOAD RESISTANCE IAW ICC ESR 1682 UNLESS NOT PERMITTED BY THE APPLICABLE BUILDING CODE.
- D. WHEN CONDUCTED, PROOF TEST ANCHORS IN THE FIELD TO 150-200% OF HILTI PUBLISHED ALLOWABLE TENSION LOAD UNLESS NOTED OTHERWISE IN A PROOF TEST LOAD TABLE. TORQUE TESTING IS NOT PERMITTED.
- E. ANCHORS SHALL BE TIGHTENED WITH A CALIBRATED TORQUE WRENCH. USE OF AN IMPACT WRENCH IS NOT PERMITTED.
- F. CONTACT HILTI TECHNICAL SUPPORT AT 1-800-879-8000 FOR INSTALLATION INSTRUCTIONS IN SUBMERGED WATER CONDITIONS.
- G. CONTACT HILTI TECHNICAL SUPPORT AT 1-800-879-8000 FOR ADDITIONAL ASSISTANCE WITH HVA ADHESIVE ANCHOR INSTALLATIONS.
- H. INSTALLATION INSTRUCTIONS:
 - H.1. FOR HVA ADHESIVE CAPSULES WITH H.A.S. THREADED RODS:
 1. DRILL ANCHOR HOLE WITH A CARBIDE BIT (SEE NOTE 1 ABOVE), TO SPECIFIED EMBEDMENT DEPTH.
 2. CLEAN HOLE WITH COMPRESSED AIR OR BLOW OUT PUMP. INSERT NOZZLE TO BOTTOM OF HOLE.
 3. IF USING MATCHED TOLERANCE CORE BIT, REMOVE STANDING WATER FROM HOLE.
 4. INSERT APPROPRIATE HVU CAPSULE INTO HOLE WITH POINTED END FIRST. CAPSULE LENGTH IS LONGER THAN STANDARD EMBEDMENT AND WILL PROTRUDE FROM HOLE. DO NOT CUT OFF ANY PART OF THE HVU CAPSULE.
 5. THREAD NUT ONTO ROD.
 6. PLACE A WASHER ON FIRST NUT AND THREAD BLACK SETTING NUT DOWN ON WASHER.
 7. TIGHTEN NUTS TOGETHER SO THAT BLACK SETTING WASHER IS AT TOP OF ROD.
 8. INSERT SQUARE DRIVE SHAFT INTO HAMMER DRILL AND ATTACH PROPER IMPACT SOCKET.
 9. WITH HAMMER DRILL ON ROTARY HAMMER, ENGAGE TOP NUT OF HAS ROD ASSEMBLY AND ROTOHAMMER ROD THROUGH CAPSULE(S) INTO THE HOLE. STOP DRILL ROTATION IMMEDIATELY UPON REACHING BOTTOM OF HOLE.
 10. DO NOT DISTURB OR LOAD ANCHOR BEFORE CURING TIME ELAPSES.

HVA INSTALLATION SPECIFICATION TABLE FOR H.A.S. RODS

DETAILS \ HAS Rod Size	in.	3/8	1/2	5/8	3/4	7/8	1	1-1/4
d _{bit} : nominal bit diameter	in.	15/32	9/16	11/16	7/8	1	1-1/8	1-3/8
h _{nom} = std. depth of embed. = capsule length	in.	3-1/2	4-1/4	5	6-5/8	6-5/8	8-1/4	12
t : max. thickness fastened	in.	1	1-1/2	1-3/4	2	2-1/4	2-1/2	2-3/4
t _{max} : max. tightening torque	All Hilti Rods ft-lb	18	30	75	150	175	235	400
h : minimum base material thickness	h _{ef} = h _{nom}	in.	5-1/4	6-3/8	7-1/2	10	10	12-3/8
	h _{ef} ≠ h _{nom}	in.	1.0h _{ef} / 2	1.0h _{ef} / 2	1.0h _{ef} / 2	1.0h _{ef} / 2	1.0h _{ef} / 2	1.0h _{ef} / 2
Recommended Hilti Rotary Hammer Drill			TE-5,15,18M,25	TE-18M,25,55,76		TE-55,76		TE-76

For Sl: 1 inch - 25.4mm, 1ft-lb = 1.4 Nm
Curing Time Table (Approximate)

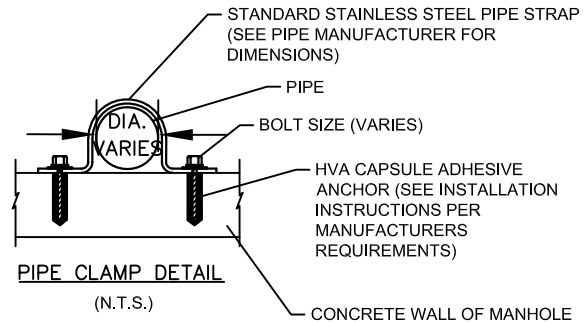
Approx. Curing Time	Base Material Temperature
20 Minutes	ABOVE 68° F/20° C
30 Minutes	50° F/10° C
1 Hour	32° F/0° C
5 Hour	23° F/-5° C



HILTI HVA ADHESIVE CAPSULE ANCHOR
OR APPROVED EQUAL

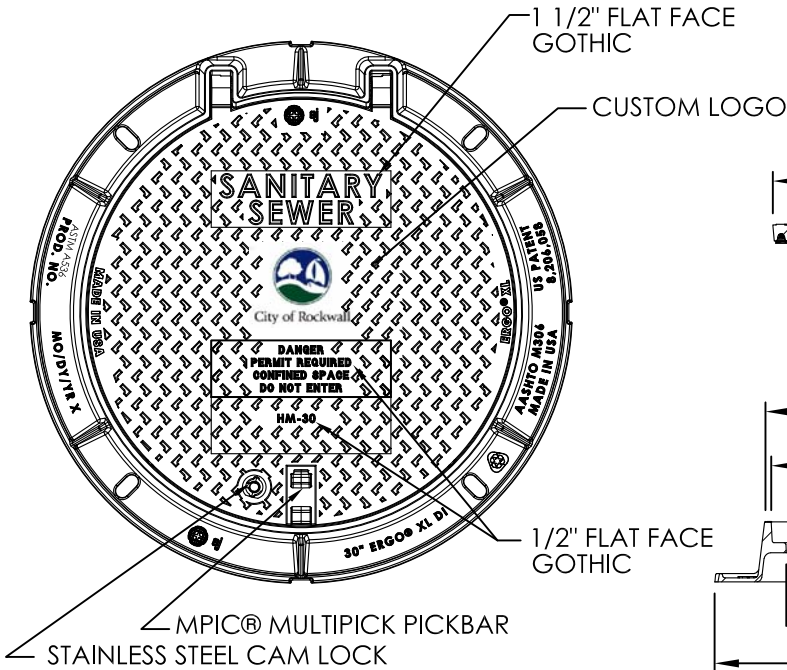
INSTALLATION INSTRUCTIONS:

1. SET THE DRILL DEPTH GAUGE AND DRILL A HOLE TO THE REQUIRED HOLE DEPTH. IMPORTANT: CLEAN OUT DUST AND DEBRIS. USE COMPRESSED AIR OR VACUUM AT BOTTOM OF THE HOLE. WHEN USING THE HILTI MATCHED TOLERANCE DIAMOND CORE BIT, IMMEDIATELY REMOVE STANDING WATER.
2. INSERT APPROPRIATE DIAMETER HVU ADHESIVE CAPSULE INTO PRE-DRILLED HOLE IN BASE MATERIAL. NOTE: THE BEST METHOD FOR SETTING MULTIPLE CAPSULES IS TO CRUSH THE FIRST CAPSULE(S) INTO THE HOLE AND THEN INSERT THE NEXT CAPSULE. DO NOT CUT OFF CAPSULES PARTIALLY PROTRUDING FROM THE HOLE.
3. CAPSULE LENGTH IS LONGER THAN STANDARD EMBED, DEPTH AND WILL PROTRUDE FROM THE HOLE.
4. THREAD A H.A.S. NUT ON THE H.A.S. ROD. PLACE A WASHER ON TOP OF THE FIRST NUT AND THEN THREAD A BLACK SETTING NUT DOWN ON TOP OF THE WASHER. TIGHTEN THE TWO NUTS TOGETHER "LOCKING" THE WASHER BETWEEN THEM. THE TOP NUT SHOULD BE FLUSH WITH THE TOP OF THE ROD.
5. INSERT A SQUARE DRIVE SHAFT INTO THE HAMMER DRILL AND ATTACH THE PROPER IMPACT SOCKET. AT THE ROTARY HAMMER DRILL SETTING, ENGAGE THE TOP NUT OF THE HAS ROD ASSEMBLY WITH THE SOCKET AND DRIVE THE ROD DOWN THROUGH THE CAPSULE(S). STOP DRILL ROTATION IMMEDIATELY UPON REACHING BOTTOM OF HOLE.
6. DO NOT DISTURB OR LOAD THE SET ANCHOR BEFORE THE SPECIFIED CURING TIME ELAPSES.

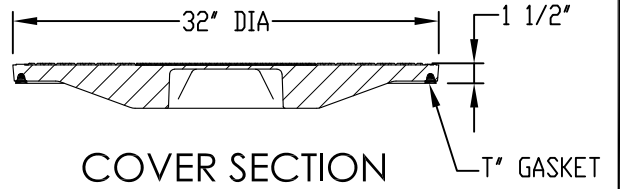


DROP FIXTURE ANCHOR
(N.T.S.)

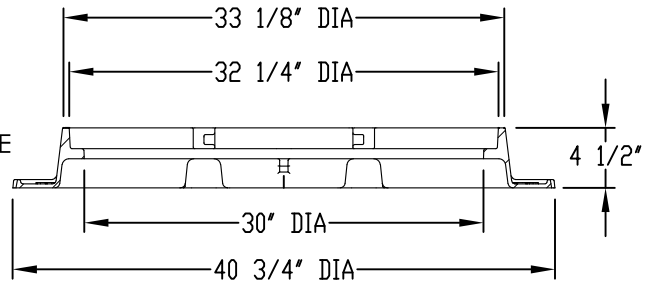




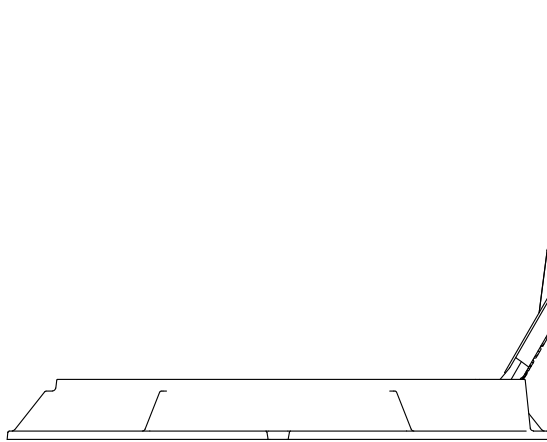
PLAN VIEW



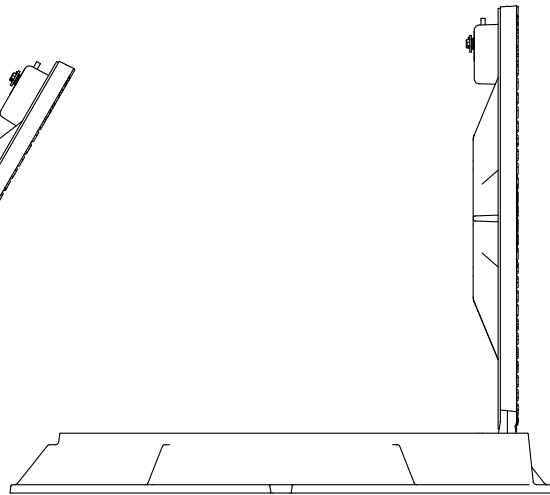
COVER SECTION



FRAME SECTION



FULLY OPENED
POSITION AT 120°



SAFETY LOCK & REMOVAL
POSITION AT 90°

WASTEWATER MANHOLE

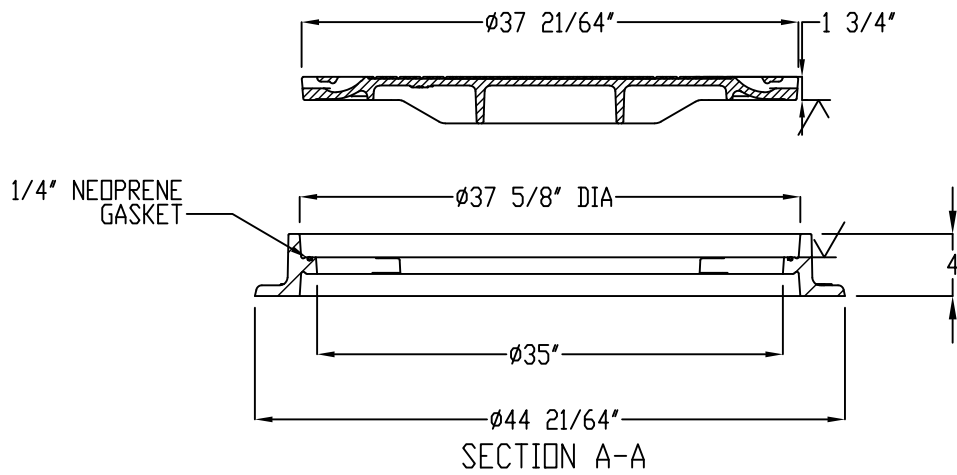
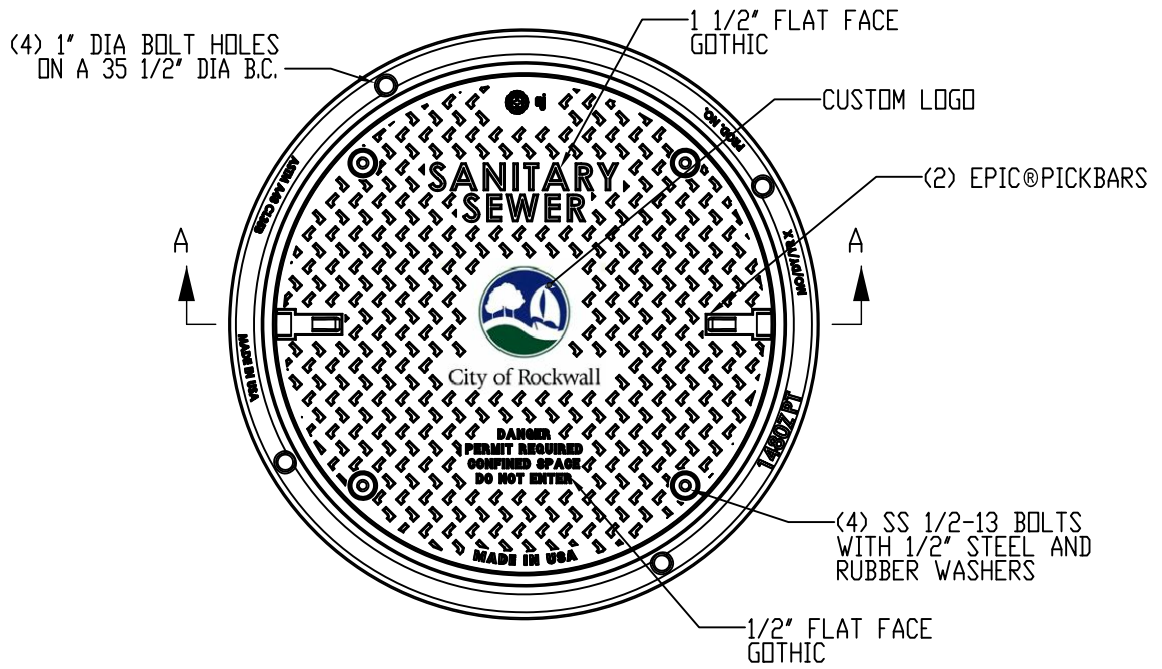
HINGED RIM AND COVER

CITY OF ROCKWALL



DATE
AUG '19

DRAWING NO.
R-5101



WASTEWATER MANHOLE

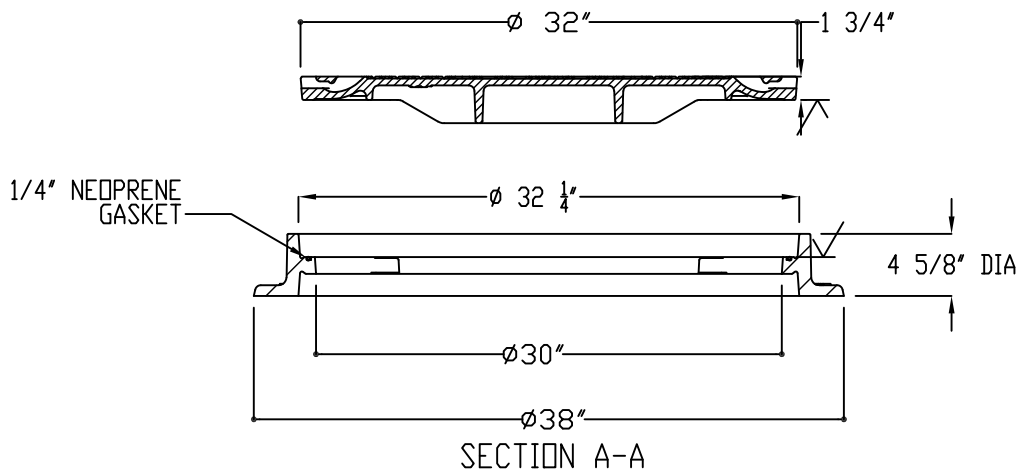
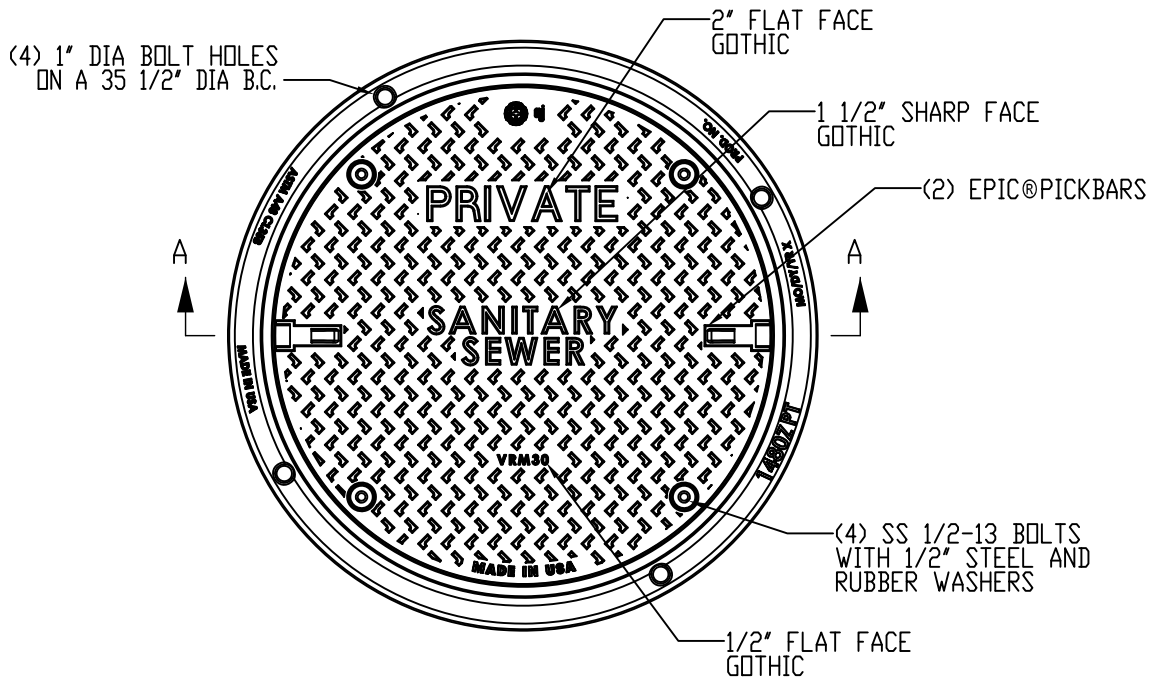
CITY OF ROCKWALL

BOLT AND GASKET RIM AND COVER



DATE
AUG '19

DRAWING NO.
R-5102



WASTEWATER MANHOLE

CITY OF ROCKWALL

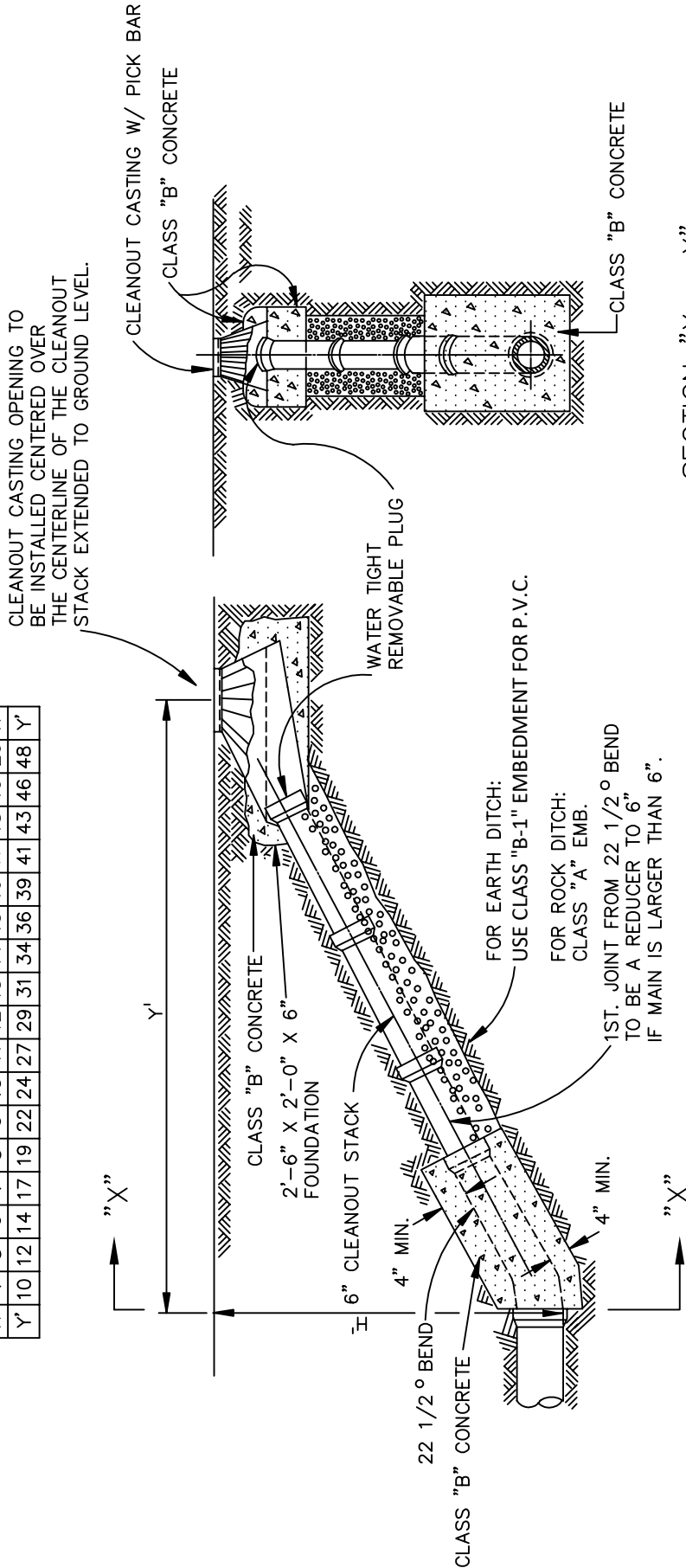
PRIVATE RIM AND COVER



DATE
AUG '19

DRAWING NO.
R-5103

H'	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	H'
Y'	10	12	14	17	19	22	24	27	29	31	34	36	39	41	43	46	48	Y'



SECTION "X - X"
N.T.S.

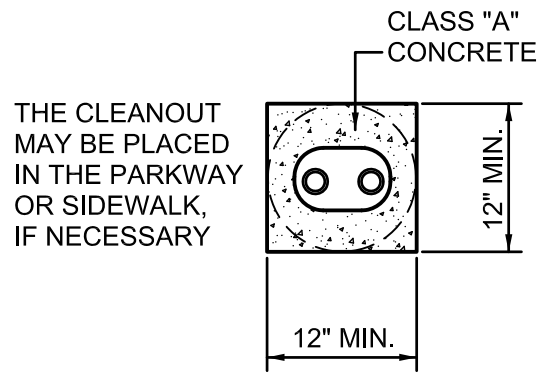
PROFILE VIEW
N.T.S.

- NOTES:
- IF CLEANOUT IS PLACED IN ADVANCE OF PAVEMENT PLACE SAND AROUND CLEANOUT CASTING IN LIEU OF CLASS "B" CONCRETE.
 - IF CLEANOUT IS OUTSIDE OF PAVEMENT, CENTER CASTING IN 15"x15" CLASS "A" CONCRETE PAD "4" THICK.

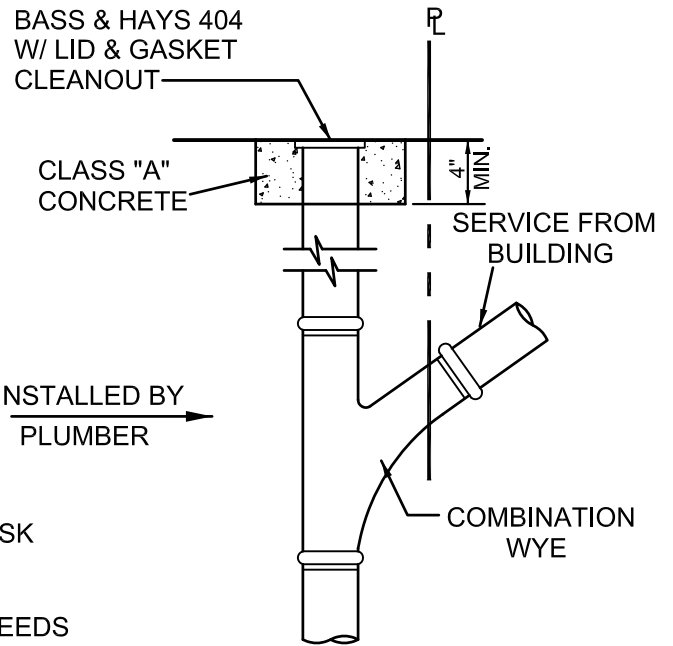
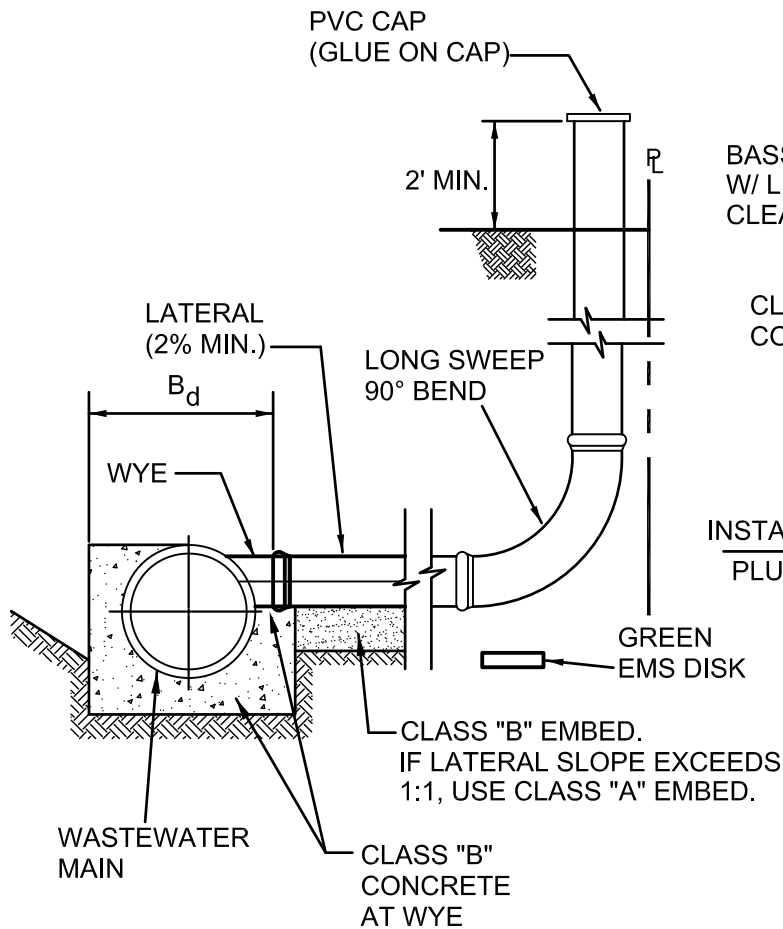
WASTEWATER MAIN CLEANOUT		STANDARD SPECIFICATION REFERENCE 502.2
		STANDARD DRAWING NO. R-5110
		DATE Mar. 2018

STANDARD DRAWING NO.
R-5110

CLASS CONCRETE	BAGS CEMENT PER C.Y.	MIN. STRENGTH 28 - DAY PSI
A	5.5	3000
B	4	2000



TOP VIEW OF CLEANOUT



PLUMBER TO CUT CLEANOUT RISER TO INSTALL COMBINATION WYE TO CORRESPOND W/ GRADE OF THE PIPE LEADING FROM BUILDING. AFTER INSTALLATION OF THE WYE, INSERT CLEANOUT INTO THE TOP OF THE RISOR.

WASTEWATER LATERAL

CONNECTIONS – RESIDENTIAL

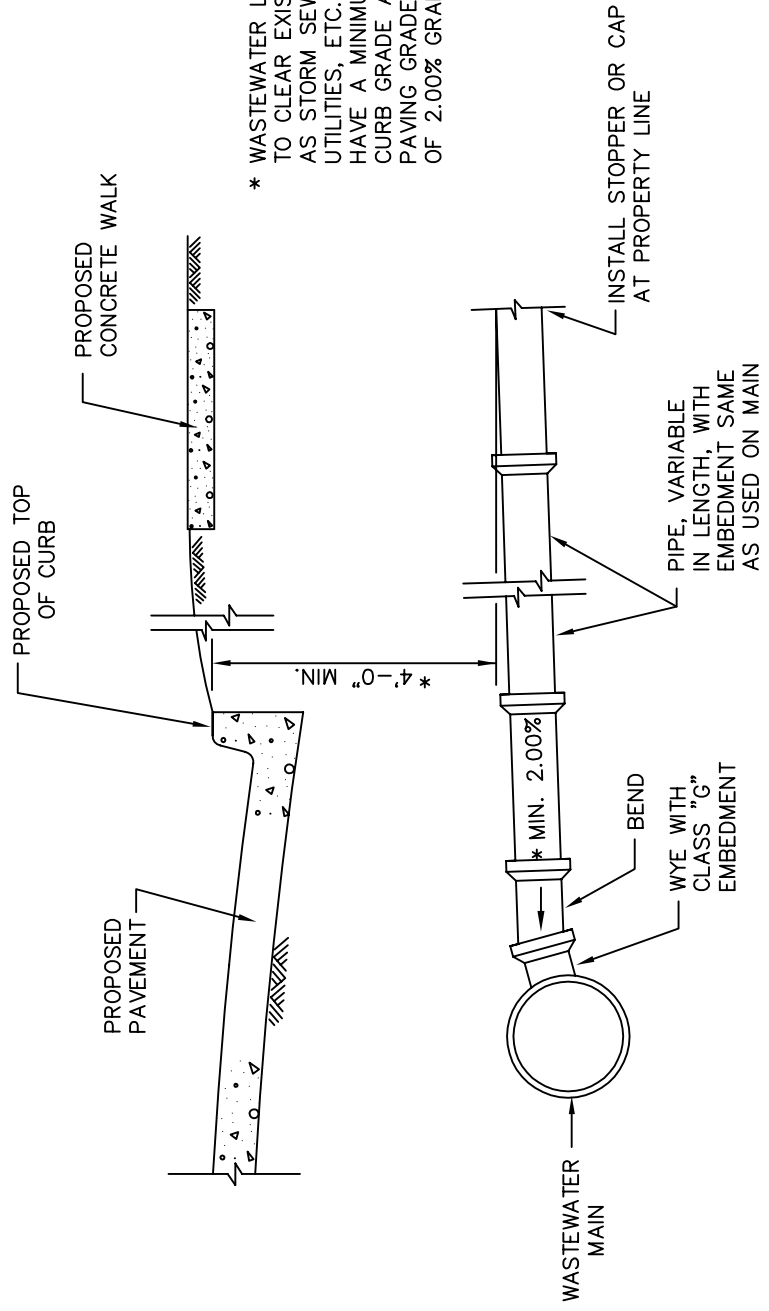
CITY OF ROCKWALL



DATE
AUG. '15


DRAWING NO.
R-5120

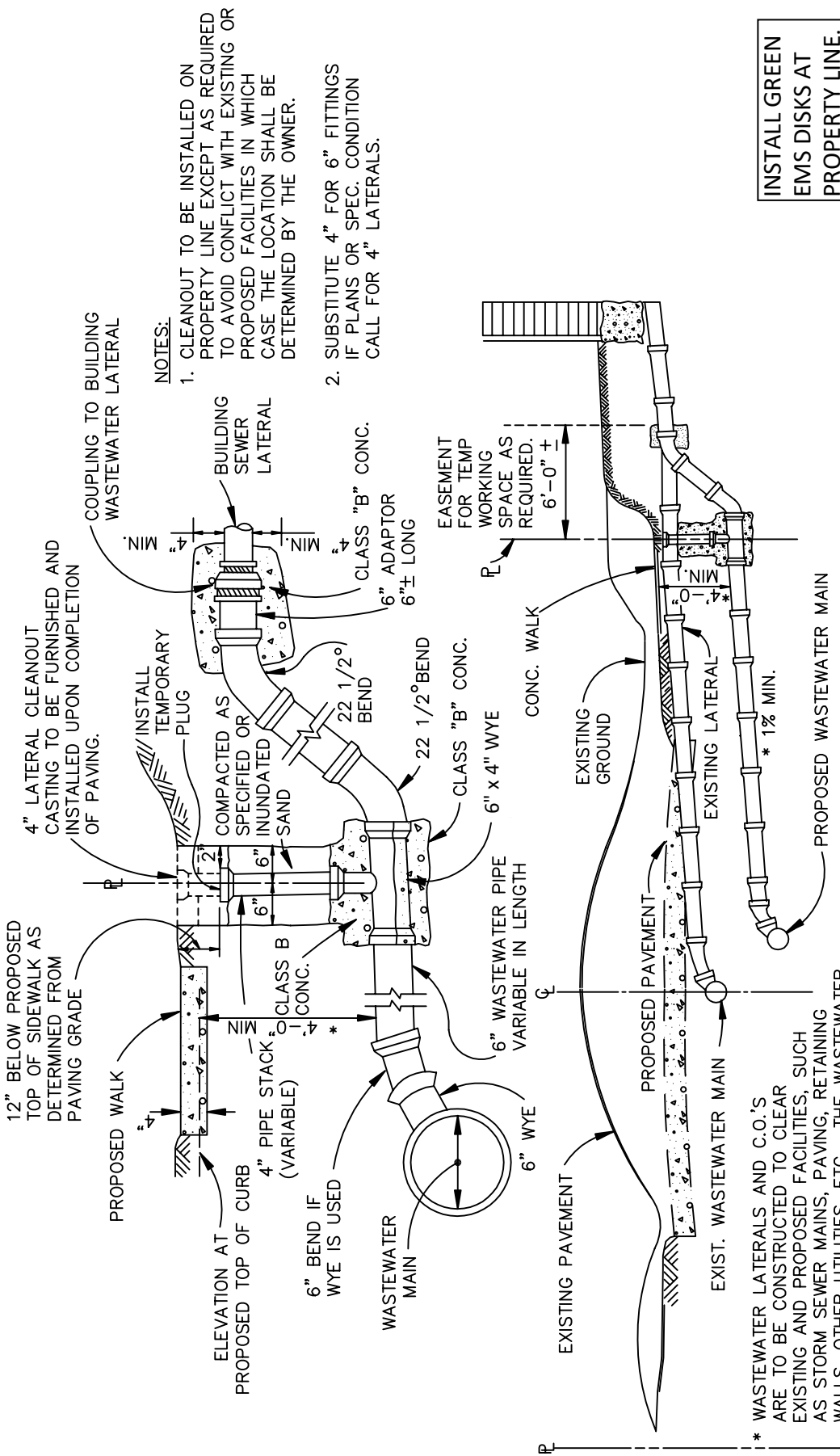
INSTALL GREEN
EMS DISKS AT
END OF LATERAL.



* WASTEWATER LATERALS ARE TO BE CONSTRUCTED TO CLEAR EXISTING AND PROPOSED FACILITIES, SUCH AS STORM SEWER MAINS, RETAINING WALLS, OTHER UTILITIES, ETC. THE WASTEWATER LATERAL SHALL HAVE A MINIMUM COVER OF 4'-0" BELOW THE PROPOSED CURB GRADE AT THE PROPERTY LINE, DETERMINED FROM PAVING GRADE, OR AS REQUIRED TO MAINTAIN A MINIMUM OF 2.00% GRADE, OR AS DIRECTED BY THE OWNER.

WASTEWATER LATERAL STUBOUT
(FOR FUTURE CONNECTION, 4" OR 6" AS SPECIFIED)
N.T.S.

 CITY OF ROCKWALL		STANDARD SPECIFICATION REFERENCE	502.10
		DATE	Mar. 2018
WASTEWATER LATERAL STUBOUT IN ADVANCE OF PAVING		STANDARD DRAWING NO.	R-5150
STANDARD DRAWING NO. R-5150			



INSTALL GREEN EMS DISKS AT PROPERTY LINE.

WASTEWATER LATERAL REPLACEMENT

N.T.S.

WASTEWATER LATERAL REPLACEMENT
IN ADVANCE OF PAVING

CITY OF ROCKWALL



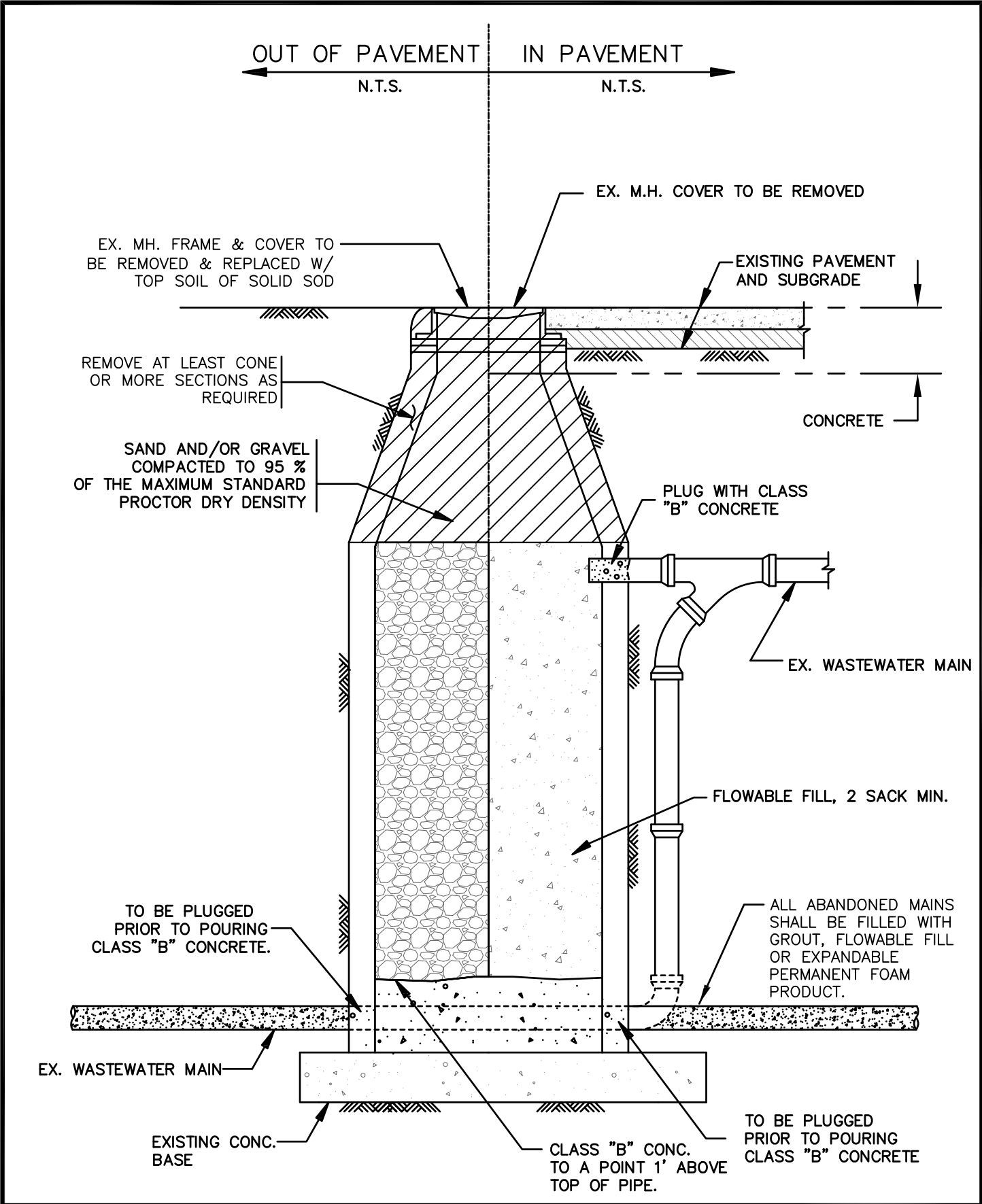
STANDARD SPECIFICATION REFERENCE
502.10


DATE
Mar. 2018

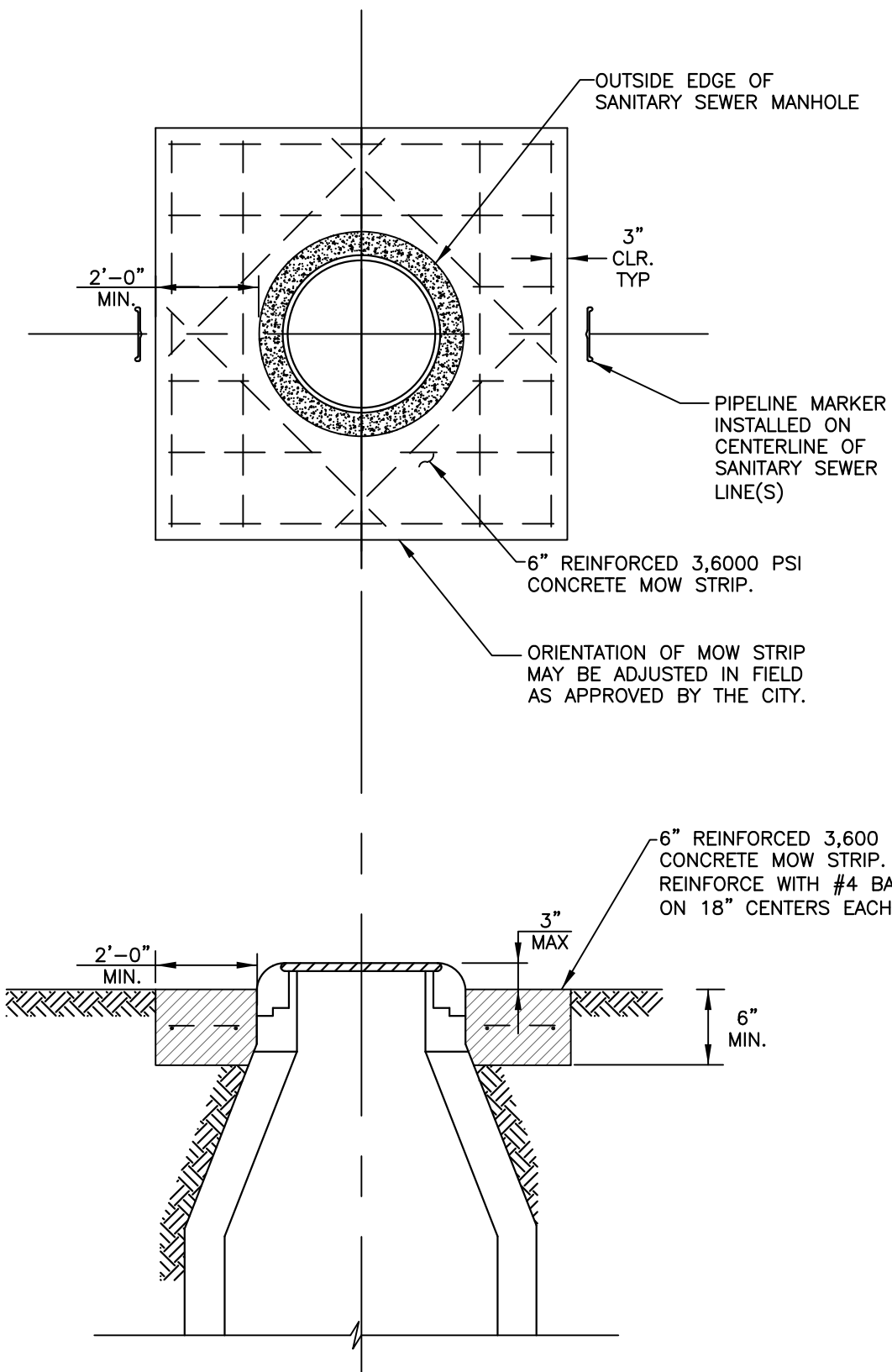
STANDARD DRAWING NO.
R-5160

STANDARD DRAWING NO.
R-5160

* WASTEWATER LATERALS AND C.O.'S ARE TO BE CONSTRUCTED TO CLEAR EXISTING AND PROPOSED FACILITIES, SUCH AS STORM SEWER MAINS, PAVING, RETAINING WALLS, OTHER UTILITIES, ETC. THE WASTEWATER LATERAL SHALL HAVE A MIN. COVER OF 4' BELOW THE PROPOSED CURB GRADE AT THE PROPERTY LINE, OR AS REQUIRED TO MAINTAIN A MINIMUM OF 1.00% GRADE, OR AS DIRECTED BY THE OWNER.



<p align="center">ABANDONMENT OF MANHOLE</p>	<p align="center">CITY OF ROCKWALL</p>		
<p align="center">INSIDE AND OUTSIDE OF PAVEMENT</p>		<p align="center">DATE AUG '19</p>	<p align="center">DRAWING NO. R-5170</p>



MANHOLE AND VALVE VAULT

CITY OF ROCKWALL

MOW STRIP



DATE
AUG '19

DRAWING NO.
R-5180