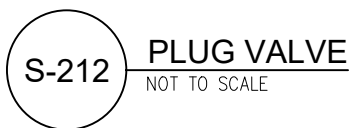


NOTES:

1. FOR DEPTHS GREATER THAN 4 FEET FROM FINISH GRADE TO VALVE NUT, PROVIDE EXTENSION WITH COLLAR AS REQUIRED AND BOLT TO VALVE NUT.
2. ELECTRONIC MARKERS SHALL BE REQUIRED AT ALL VALVES 2" OR LARGER.
3. FOR PRODUCTS AND MATERIALS SEE THE PROJECT SPECIFICATIONS AND THE CITY OF CAPE CORAL QUALIFIED PRODUCTS LIST.
4. INSTALL RFID LOCATION TAPE PER MANUFACTURER'S INSTRUCTIONS.

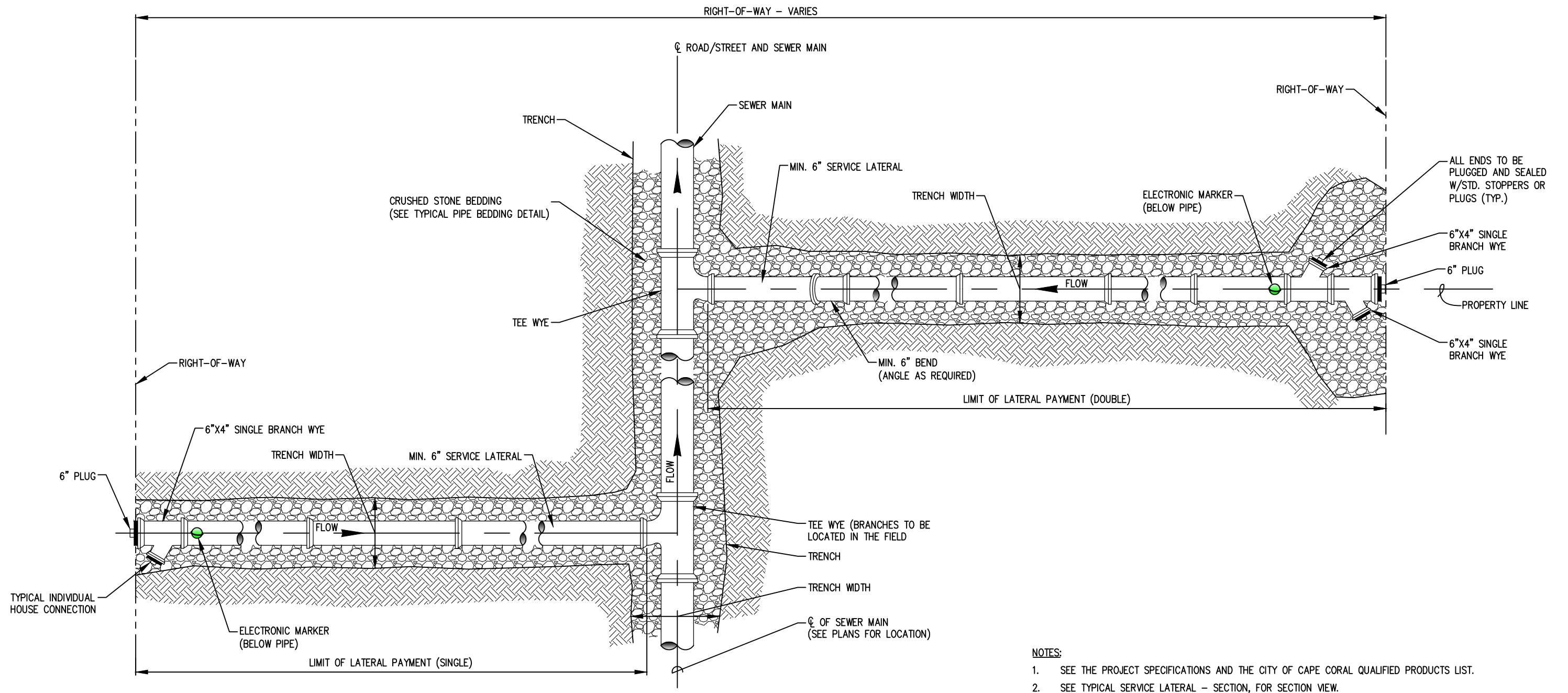


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07-14-2022
ADOPTION DATE
08-17-2022



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UTILITIES DEPARTMENT
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DETAIL NAME	DETAIL NO.
PLUG VALVE	S-212



S-261

TYPICAL SERVICE LATERAL - PLAN
NOT TO SCALE

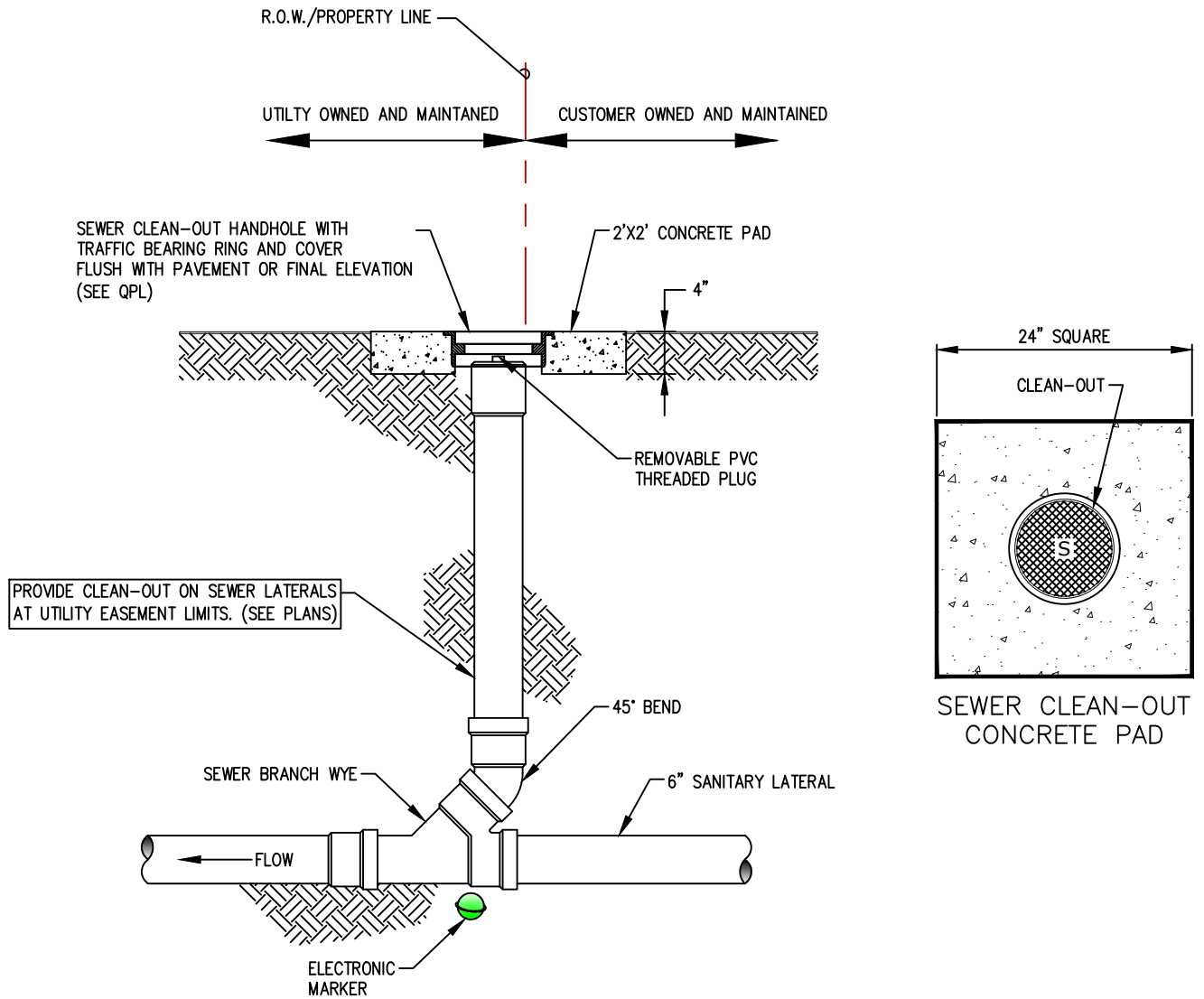
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07-14-2022
ADOPTION DATE
08-17-2022



CITY OF CAPE CORAL
UTILITIES DEPARTMENT
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CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME
TYPICAL SERVICE LATERAL - PLAN
(SEE SERVICE LATERAL SECTION)

DETAIL NO.
S-261



S-263

6" SEWER CLEAN-OUT - COMMERCIAL/MULTI-FAMILY

NOT TO SCALE

NOTES:

1. INSTALL CONCRETE PAD TO ADA SLOPE COMPLIANCE IF LOCATED WITHIN SIDEWALK.
2. ANY DAMAGE TO THE EXISTING ASPHALT SURFACE SHALL BE REPAIRED AS DEFINED IN THE ENGINEERING DESIGN STANDARDS.

REVISION DATE

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08-17-2022



CITY OF CAPE CORAL
UTILITIES DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME

6" SEWER CLEAN-OUT
COMMERCIAL/MULTI-FAMILY

DETAIL NO.

S-263

SCHEDULE FOR DROP MANHOLE

INLET PIPE I.D. DIAMETER "D2"	DROP PIPE DIAMETER "d"
6"	6"
8"	8"
10"	8"
12"	10"
15"	12"
18"	16"
21"	18"
24"	18"

STANDARD MANHOLE SCHEDULE OF INVERT CHANNEL DIMENSIONS

PIPE SIZE	ANGLE \angle	MH DIA.	R	X
6" TO 15"	0° TO 90°	4'-0"	1'-8"	0" TO 10"
8"	90° TO 120°	6'-0"	2'-0"	0" TO 10"
18", 21" & 24"	0° TO 60°	4'-0"	2'-0"	0" TO 4"
18" & 21"	60° TO 90°	6'-0"	2'-0"	4" TO 12"
30"	0° TO 60°	6'-0"	2'-0"	0" TO 6"
24" & 30"	60° TO 90°	6'-0"	2'-0"	6" TO 12"
OTHERS	ENGINEER APPROVED OR EQUAL			

MANHOLE GENERAL NOTES:

- ALL STUBS FROM MANHOLES AND ENDS OF PIPE TO WHICH CONNECTIONS ARE TO BE MADE UNDER THIS CONTRACT SHALL BE PROVIDED WITH TEMPORARY WATERTIGHT PLUGS OR CAPS. ALL STUBS FOR CONNECTIONS TO OTHER CONTRACTS SHALL BE PROVIDED WITH WATERTIGHT PLUGS PLACED FROM INSIDE OF THE MANHOLE. SUCH PLUGS LOCATED AT JUNCTIONS OF TWO CONTRACTS SHALL REMAIN IN PLACE AND SHALL BE REMOVED BY THE CONTRACTOR ON COMPLETION AND TURN-OVER OF THE CONTRACT. SEWERS WHICH ARE TO BE CONNECTED TO MANHOLES WHICH WILL BE BUILT UNDER OTHER CONTRACTS SHALL BE PROVIDED WITH WATERTIGHT PLUGS AND CAPS.
STUBS = ONE PIPE LENGTH.
- THE SHELF SHALL SLOPE TOWARD THE INVERT CHANNEL AT A MINIMUM OF ONE INCH/FT. A MINIMUM 3 INCH DIFFERENCE SHALL BE MAINTAINED FROM THE 0.8 POINT OF THE CHANNEL TO THE WALL.
- THE DEPTH OF THE INVERT CHANNEL SHALL BE EQUAL TO 0.8 OF THE LARGEST DIAMETER SEWER IN THE MANHOLE.
- MANHOLE SECTIONS SHALL BE JOINED TOGETHER PER THE SPECIFICATIONS SECTION 03400 AND DETAIL S-271.
- ALL MANHOLES TO BE CONSTRUCTED OF PRECAST CONCRETE (BASES, BARRELS AND ECCENTRIC CONES) WITH FLEXIBLE RUBBER MANHOLE SLEEVES, PER ASTM C-923 BY KOR-N-SEAL, LINK SEALS, OR CITY APPROVED EQUAL. PROVIDE COATING ON ALL INSIDE AND OUTSIDE WALLS AND BASES IN ACCORDANCE WITH SPECIFICATIONS SECTION 09800. NO BRICK MANHOLES WILL BE ACCEPTED UNLESS APPROVED IN WRITING. ALL CONCRETE SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS SECTION 03400.
- SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS AND PLACEMENT AND COMPACTION OF PIPE BEDDING AND CRUSHED STONE (SEE TYP. BEDDING DETAILS).
- REINFORCING FOR PRE-CAST MANHOLES SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS SECTION 03400.
- CONCRETE FOR MANHOLE STRUCTURE SHALL HAVE A COMPRESSIVE STRENGTH OF NO LESS THAN 4,000 PSI @ 28 DAYS.
- COATING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS SECTION 09800.
- RING AND LID SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS SECTION 03400.
- A 0.1-FOOT DROP IS REQUIRED ACROSS ALL MANHOLES.
- MANHOLE CHANNEL SHALL HAVE A UNIFORM SLOPE FROM UPSTREAM INVERT TO DOWNSTREAM INVERT.

S-270

MANHOLE AND DROP MANHOLE SCHEDULE AND GENERAL NOTES

NOT TO SCALE

REVISION DATE

07-14-2022

ADOPTION DATE

08-17-2022



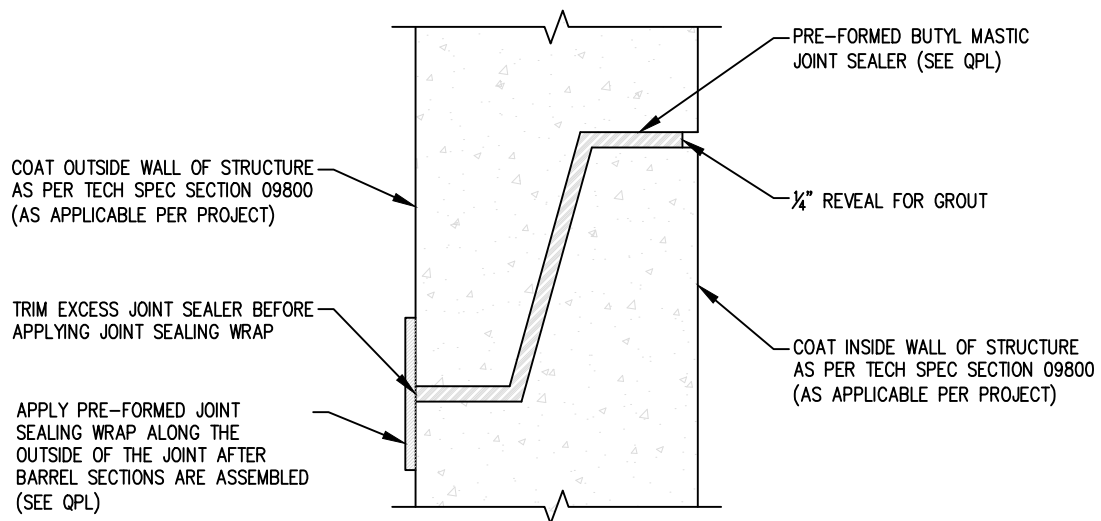
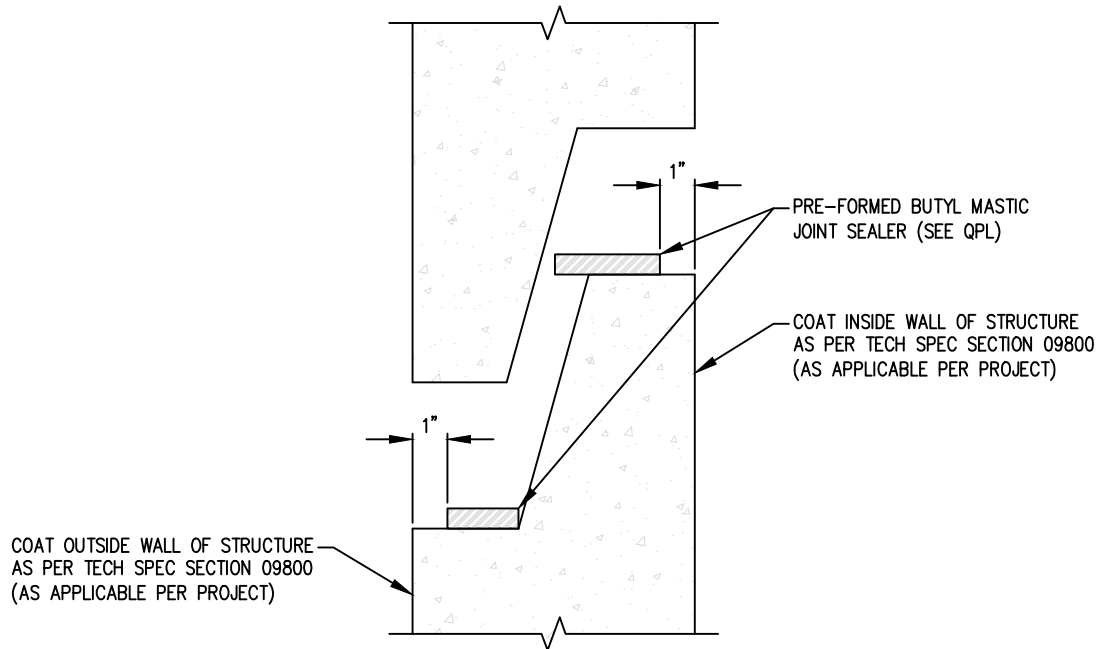
CITY OF CAPE CORAL
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P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME

**MANHOLE AND DROP MANHOLE
SCHEDULE AND GENERAL NOTES**

DETAIL NO.

S-270



NOTES:

1. CONSTRUCT MANHOLE AS PER TECHNICAL SPECIFICATION SECTION 03400.
2. MAINTAIN A MINIMUM OF $\frac{1}{4}$ " REVEAL ON INSIDE WALL JOINTS OF STRUCTURE FOR GROUTING PURPOSES, SEE TECHNICAL SPECIFICATION SECTION 03310.
3. COAT INSIDE AND OUTSIDE WALLS OF MANHOLE PER TECHNICAL SPECIFICATION SECTION 09800.
4. USE ONLY AS NOTED ON PLAN AND PROFILE SHEETS.
5. FOR PRODUCTS AND MATERIALS SEE THE PROJECT SPECIFICATIONS AND THE CITY OF CAPE CORAL QUALIFIED PRODUCTS LIST.

S-271

TYPICAL MANHOLE JOINT

NOT TO SCALE

REVISION DATE

07-14-2022

ADOPTION DATE

08-17-2022



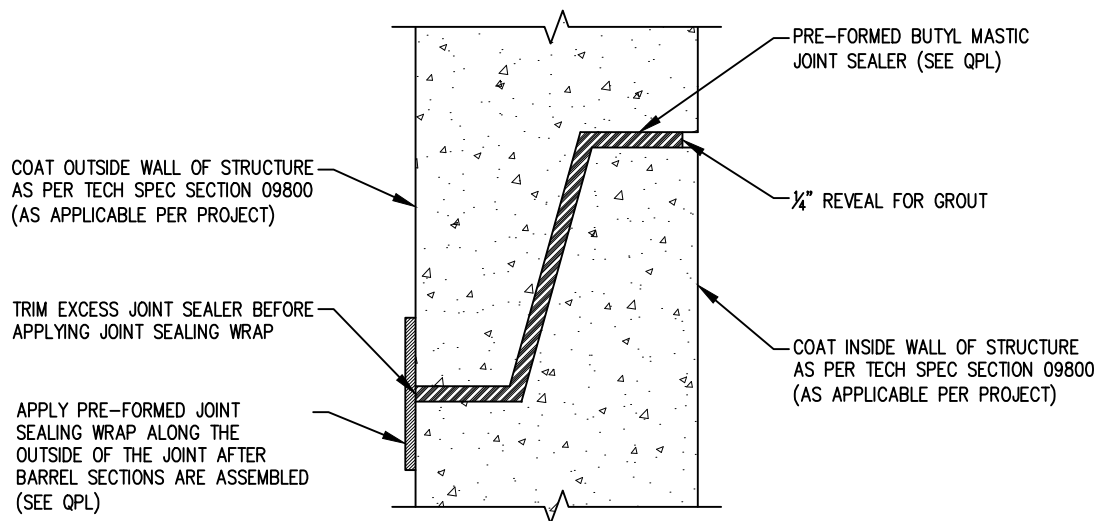
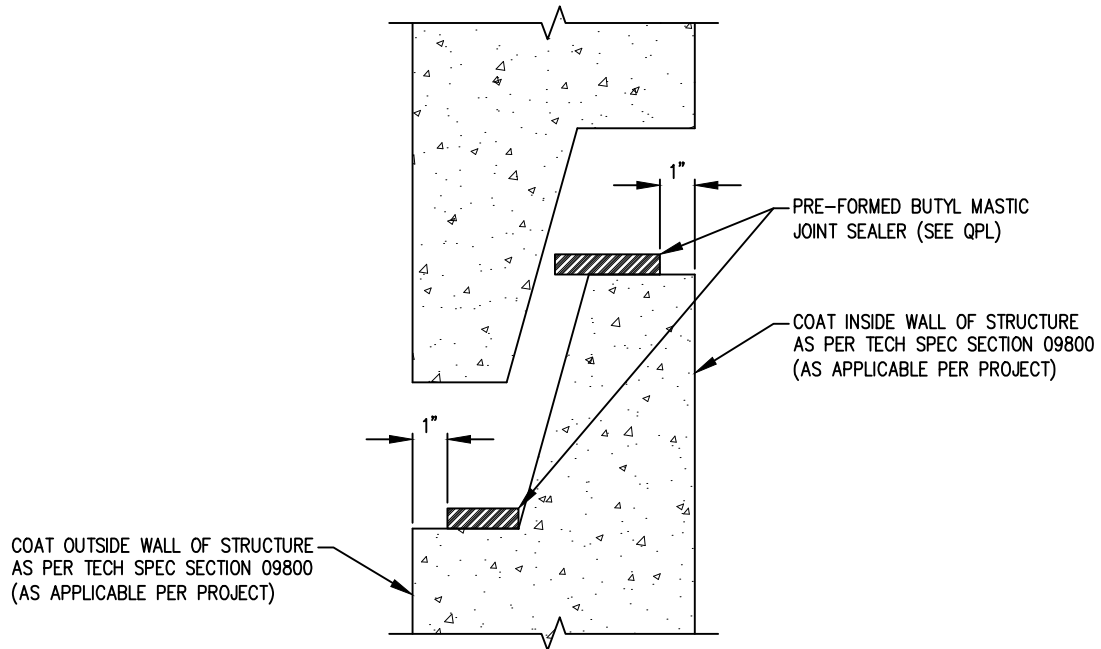
CITY OF CAPE CORAL
UTILITIES DEPARTMENT
 P.O. BOX 150027
 CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME

TYPICAL MANHOLE JOINT

DETAIL NO.

S-271



NOTES:

1. CONSTRUCT WET WELL AS PER TECHNICAL SPECIFICATION SECTION 03400.
2. MAINTAIN A MINIMUM OF 1/4" REVEAL ON INSIDE WALL JOINTS OF STRUCTURE FOR GROUTING PURPOSES, SEE TECHNICAL SPECIFICATION SECTION 03310.
3. COAT INSIDE AND OUTSIDE WALLS OF WET WELL PER TECHNICAL SPECIFICATION SECTION 09800.
4. USE ONLY AS NOTED ON PLAN AND PROFILE SHEETS.
5. FOR PRODUCTS AND MATERIALS SEE THE PROJECT SPECIFICATIONS AND THE CITY OF CAPE CORAL QUALIFIED PRODUCTS LIST.

S-272

TYPICAL WET WELL JOINT

NOT TO SCALE

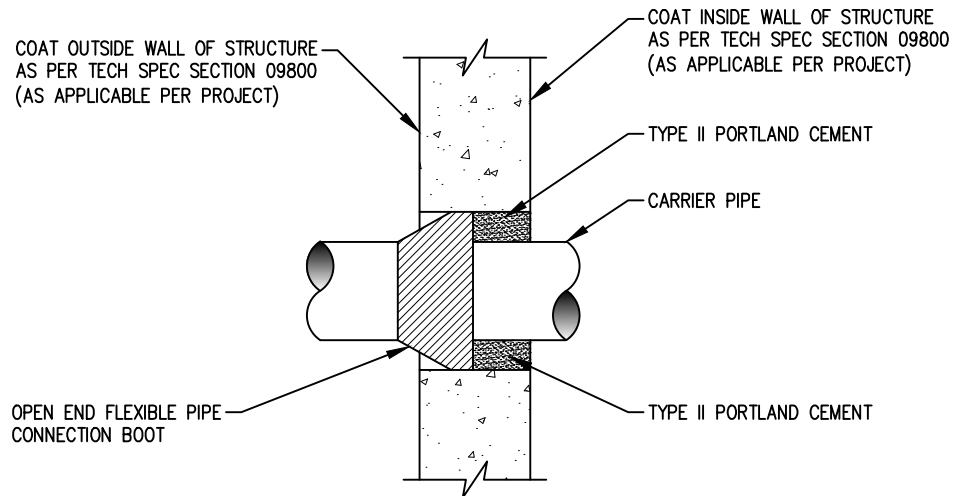
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08-17-2022



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UTILITIES DEPARTMENT
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CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME
TYPICAL WET WELL JOINT

DETAIL NO.
S-272



NOTES:

1. ALL METAL PARTS OF PENETRATION SEAL SHALL BE 316 U.S. MANUFACTURED STAINLESS STEEL (INCLUDING BANDS)
2. WALL PENETRATIONS SHALL BE CORE BIT DRILLED. ANY EXPOSED REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE SPECIFICATIONS SECTION 09800.
3. COAT INSIDE AND OUTSIDE WALLS OF WET WELL PER TECHNICAL SPECIFICATION SECTION 09800.
4. USE ONLY AS NOTED ON PLAN AND PROFILE SHEETS.
5. FOR PRODUCTS AND MATERIALS SEE THE PROJECT SPECIFICATIONS AND THE CITY OF CAPE CORAL QUALIFIED PRODUCTS LIST.



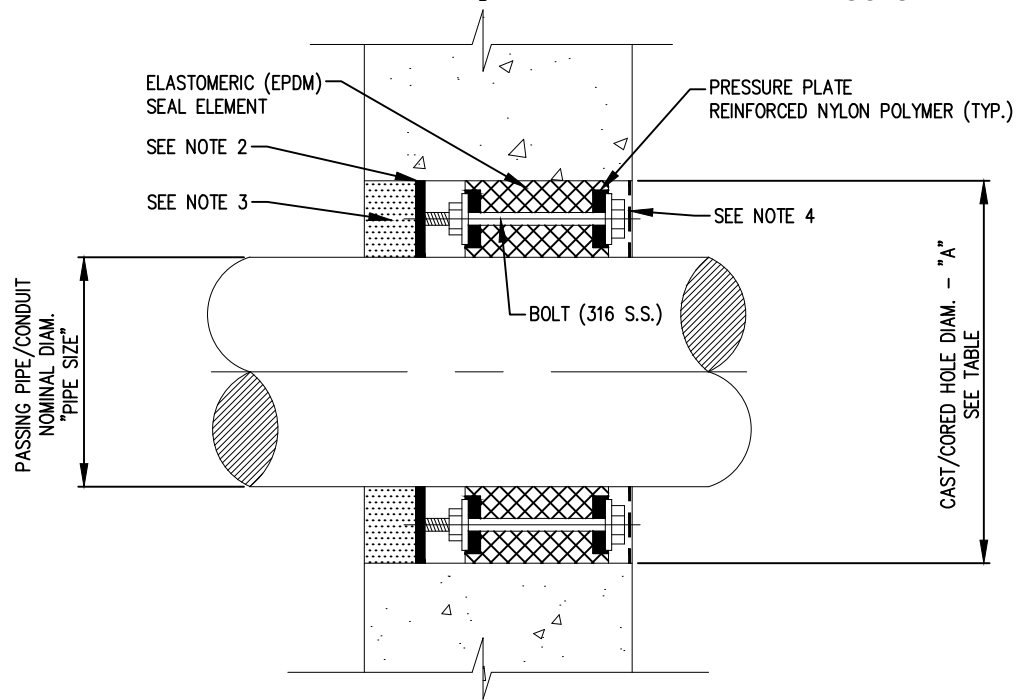
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CITY OF CAPE CORAL
UTILITIES DEPARTMENT
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CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME	DETAIL NO.
WALL PENETRATION	S-273

STRUCTURE EXTERIOR ← → STRUCTURE INTERIOR



PIPE SIZE	"A"	PIPE SIZE	"A"
2	4	14	18
4	8	16	20
6	10	18	24
8	12	20	26
10	14	24	28
12	16		

NOTE:

1. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
2. ON THE OUTSIDE FACE OF THE STRUCTURE, INSTALL #30 HD FELT PAPER AGAINST SEAL TO PREVENT GROUT INTRUSION INTO THE SEAL SEGMENTS AND FASTENERS.
3. ON THE OUTSIDE FACE OF THE STRUCTURE, FILL ANNULAR SPACE BETWEEN PIPE/CONDUIT AND CORE HOLE WITH GROUT. GROUT SHALL BE TYPE II PORTLAND CEMENT BASED AND BE SUITABLE FOR EXTERIOR AND UNDERGROUND/SUBMERGED EXPOSURE WITH HIGH CHLORIDE CONTENT SOILS.
4. ON THE INSIDE FACE OF THE STRUCTURE, TEMPORARILY COVER THE BOLT HEADS, HARDWARE AND SEAL SEGMENTS PRIOR TO APPLYING COATING SYSTEM. TEMPORARY COVERS TO BE REMOVED AFTER COATINGS HAVE BEEN APPLIED AND ACCEPTED. THE INSIDE ANNULAR SPACE SHALL REMAIN CLEAR OF OBSTRUCTIONS AND/OR EXCESS COATINGS FOR FUTURE ADJUSTMENTS TO SEAL.
5. ALL HARDWARE (BOLTS, NUTS, WASHERS, ETC.) AND MATERIAL SHALL BE U.S. MANUFACTURED 316 S.S.
6. THIS SHEET IS MEANT TO BE ADVISORY IN NATURE AND DEPICT TYPICAL STRUCTURES AND COMPONENTS ONLY. THE ENGINEER, PUMP MANUFACTURER, AND CONTRACTOR, ARE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, SIZES, CLEARANCES, ETC. PRIOR TO CONSTRUCTION.



PENETRATION SEAL LINK SEAL (CORE-DRILLED)

NOT TO SCALE

REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022

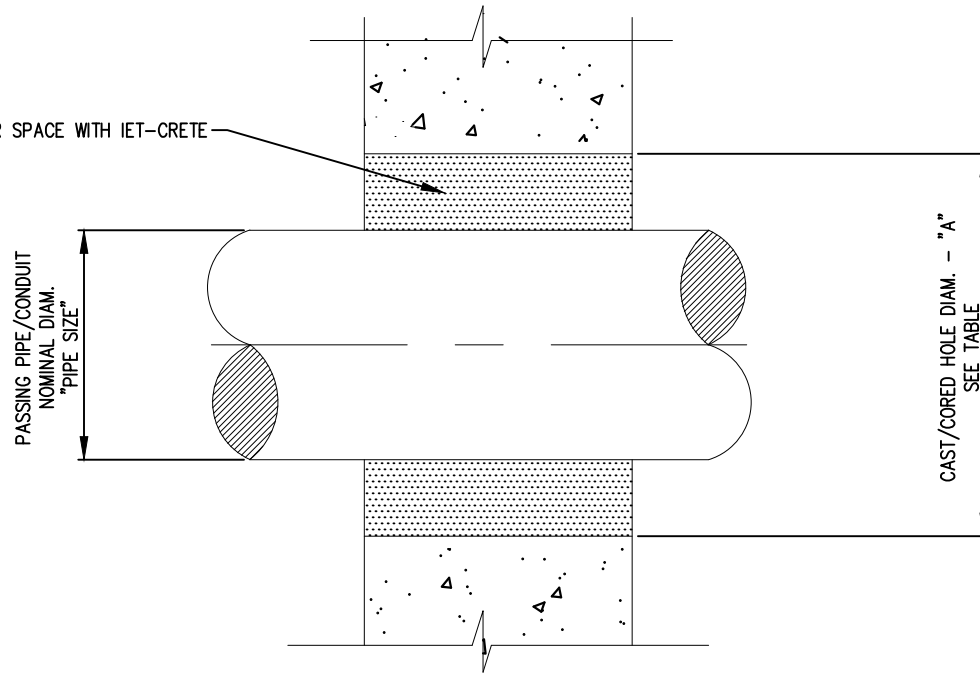


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DETAIL NAME
PENETRATION SEAL
LINK SEAL (CORE-DRILLED)

DETAIL NO.
S-274

FILL ANNULAR SPACE WITH IET-CRETE



PIPE SIZE	"A"
1/2"	2"
3/4"	2"
1"	2"
1-1/2"	2-1/2"
2"	3"

NOTE:

1. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
2. PENETRATIONS MAY BE CAST IN OR FIELD CORED.
3. THIS DETAIL APPLIES ONLY TO SMALL PLUMBING PIPES AND PUMP GROUND CONDUITS. FOR ELECTRICAL CONDUIT PENETRATIONS SEE IPE/CONDUIT PENETRATION SEAL DETAIL. FOR LIFT STATION INFLUENT AND PUMP DISCHARGE PENETRATIONS SEE WALL PENETRATION DETAIL.
4. INSIDE TO BE SMOOTH FINISHED AFTER PLACEMENT OF IET-CRETE AND PRIOR TO INSTALLATION OF INTERIOR COATINGS.
5. EXTERIOR FACE TO BE SMOOTH FINISHED AND EXTERIOR COATINGS TO BE TOUCHED UP AFTER PLACEMENT OF IET-CRETE.
6. THIS SHEET IS MEANT TO BE ADVISORY IN NATURE AND DEPICT TYPICAL STRUCTURES AND COMPONENTS ONLY. THE ENGINEER, PUMP MANUFACTURER, AND CONTRACTOR, ARE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, SIZES, CLEARANCES, ETC. PRIOR TO CONSTRUCTION.



SMALL PIPE/CONDUIT PENETRATION
NOT TO SCALE

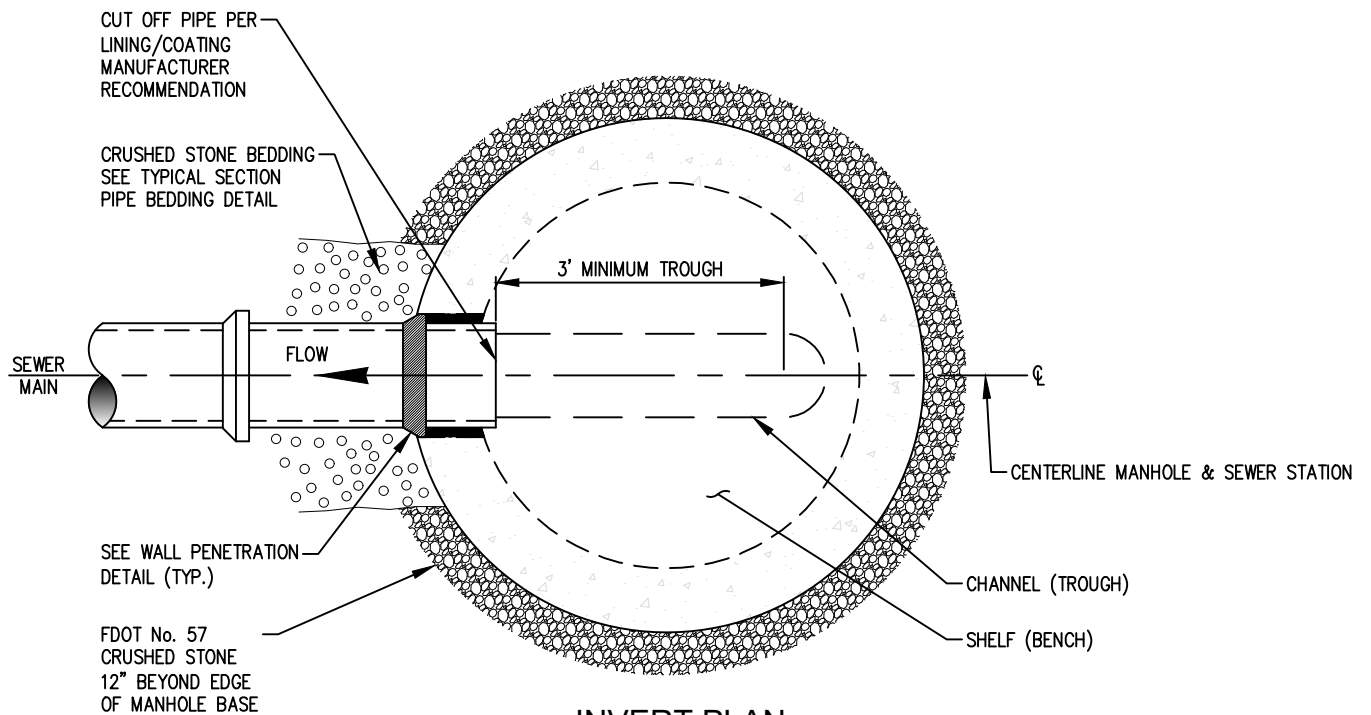
REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022



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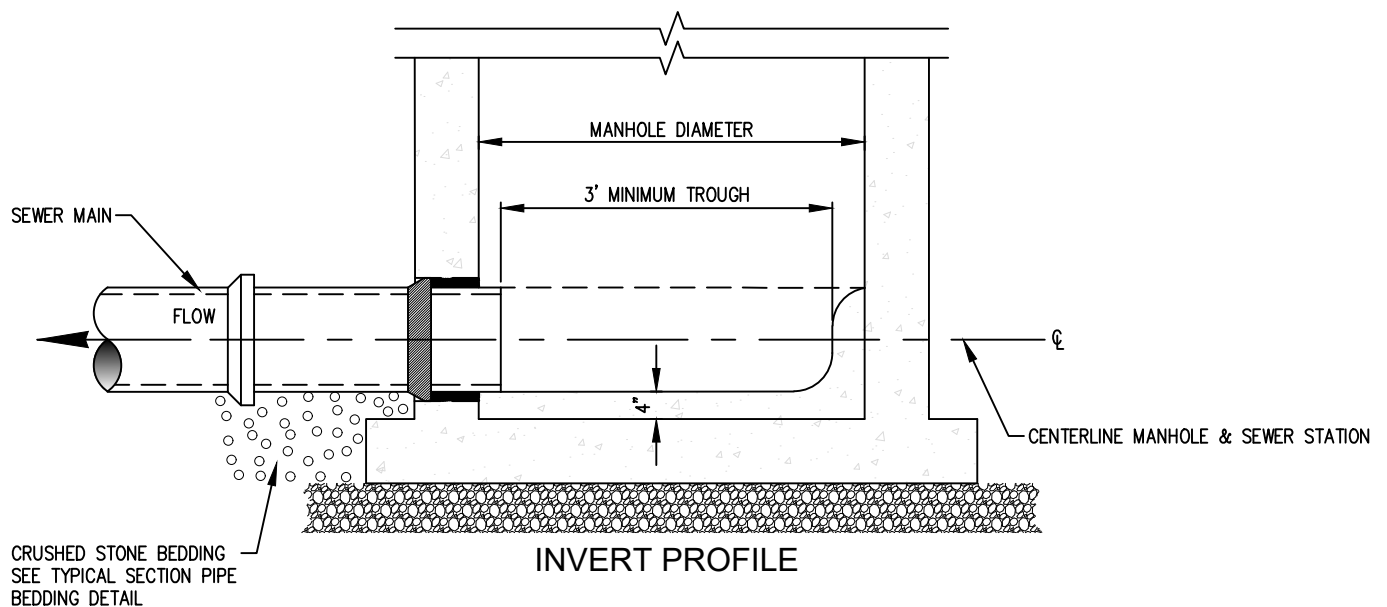
DETAIL NAME
SMALL PIPE/CONDUIT PENETRATION

DETAIL NO.
S-274A



INVERT PLAN

NOTE: SEE SCHEDULE OF INVERT CHANNEL DIMENSIONS



INVERT PROFILE

S-275

TERMINAL MANHOLE
NOT TO SCALE

REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022



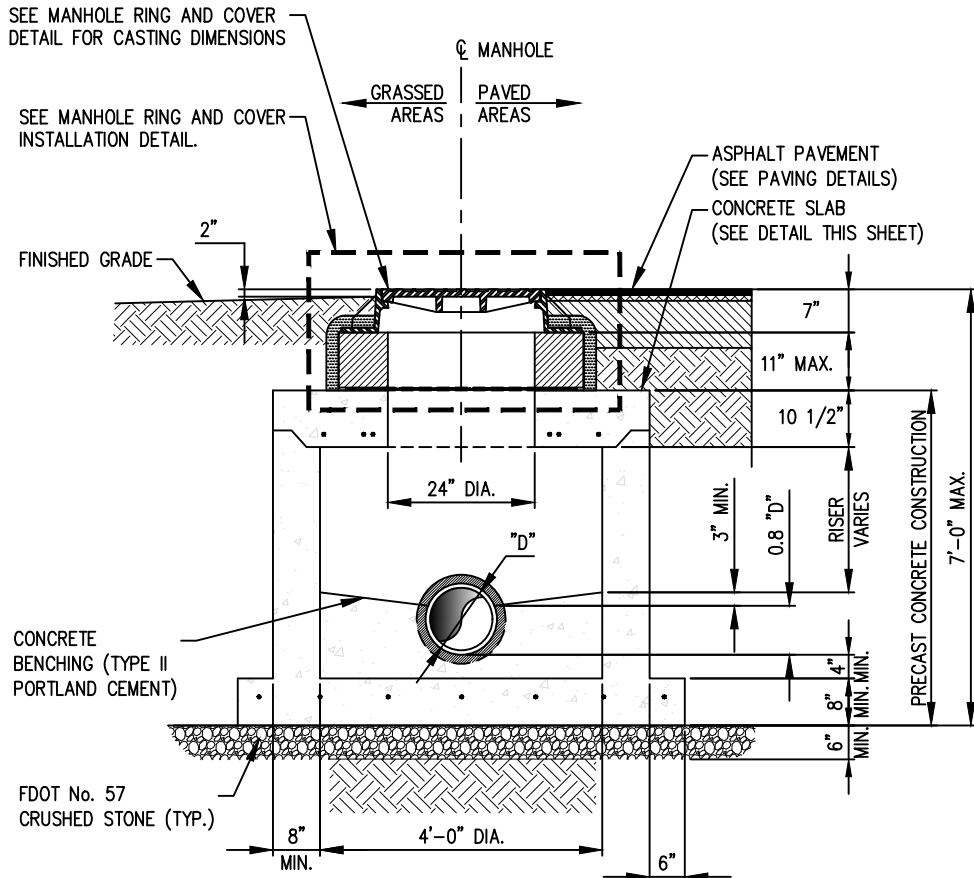
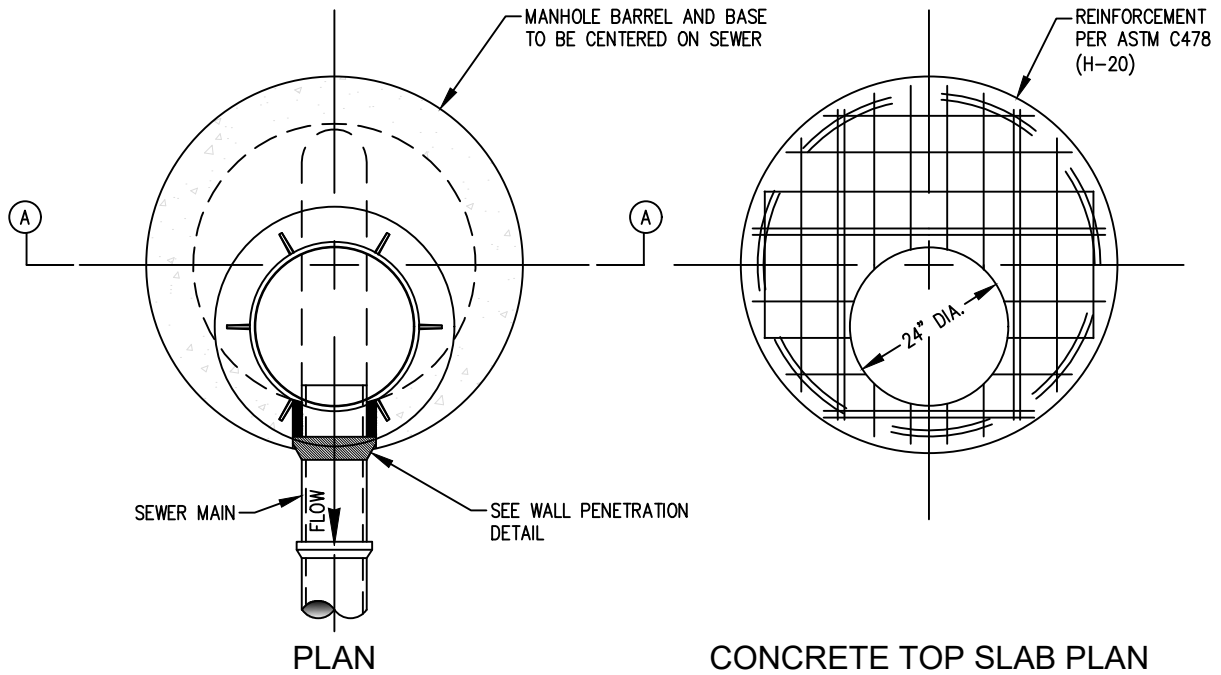
CITY OF CAPE CORAL
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P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME

TERMINAL MANHOLE

DETAIL NO.

S-275



NOTES:

1. SEE SECTIONAL INVERT PLANS FOR MANHOLE INVERT BENCHING DETAILS.
2. SEE CONSTRUCTION PLANS FOR INVERT ELEVATION DETAILS.
3. USE ONLY AS NOTED ON PLAN AND PROFILE SHEETS.
4. MANHOLE INTERIOR AND EXTERIOR COATINGS SHALL COMPLY WITH SPECIFICATIONS SECTION 09800.
5. FOR PRODUCTS AND MATERIALS SEE THE PROJECT SPECIFICATIONS AND THE CITY OF CAPE CORAL QUALIFIED PRODUCTS LIST (QPL).
6. SEE CONSTRUCTION PLANS FOR SANITARY SEWER MAIN INSIDE DIAMETER, "D". (MIN 8 INCH - MAX 24 INCH)
7. SANITARY SEWER SERVICE LATERALS ARE NOT TO BE CONNECTED DIRECTLY TO MANHOLES.

S-276

TYPICAL SHALLOW MANHOLE (TERMINAL)

NOT TO SCALE

REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022



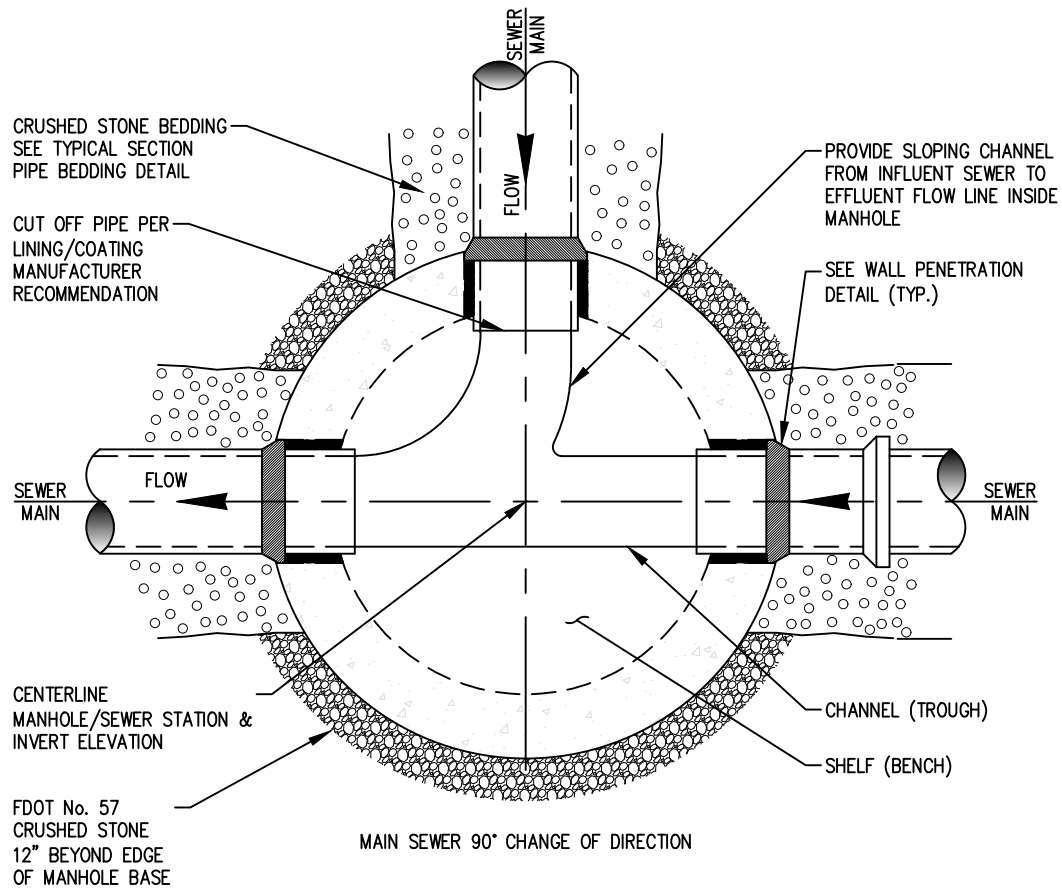
CITY OF CAPE CORAL
 UTILITIES DEPARTMENT
 P.O. BOX 150027
 CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME

**TYPICAL SHALLOW MANHOLE
 (TERMINAL)**

DETAIL NO.

S-276



NOTE: SEE SCHEDULE OF INVERT CHANNEL DIMENSIONS

S-278

SECTIONAL INVERT PLAN - 90° CHANGE

NOT TO SCALE

REVISION DATE

07-14-2022

ADOPTION DATE

08-17-2022



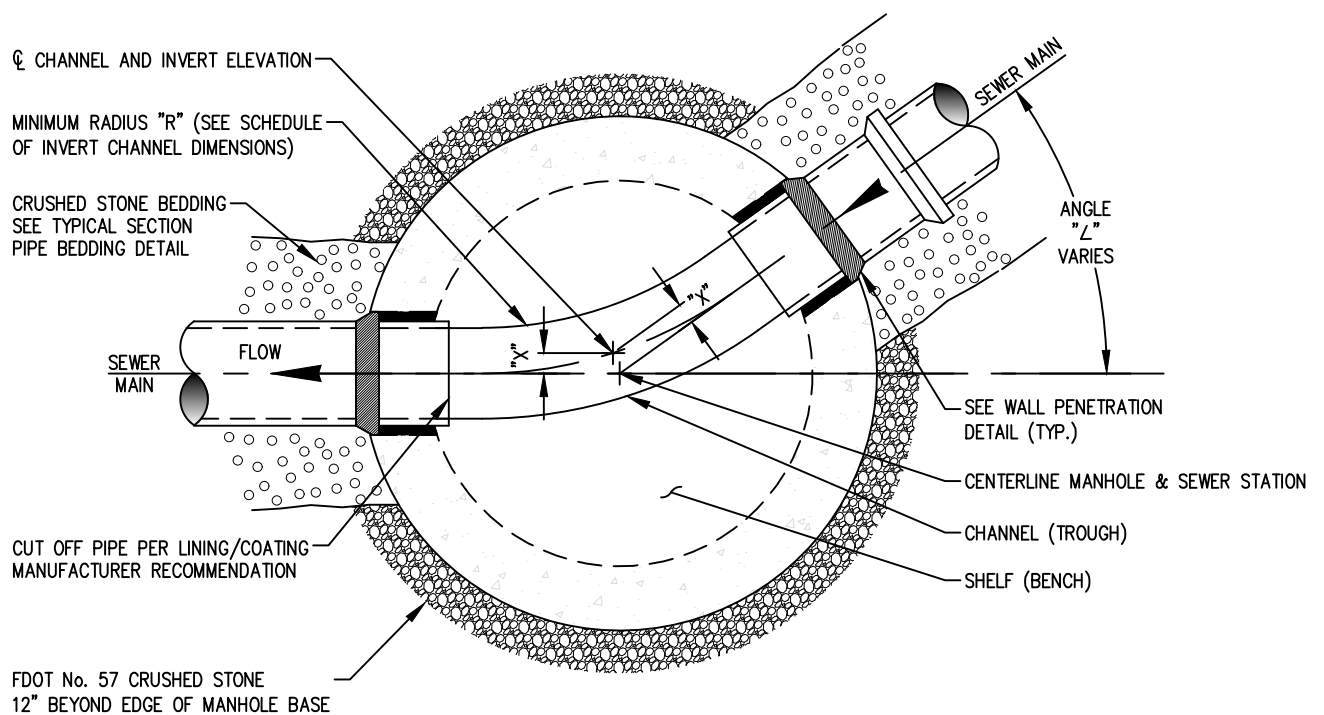
CITY OF CAPE CORAL
UTILITIES DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME

SECTIONAL INVERT PLAN

DETAIL NO.

S-278



NOTE: SEE SCHEDULE OF INVERT CHANNEL DIMENSIONS

S-279

SECTIONAL INVERT PLAN - VARIED ANGLE CHANNEL

NOT TO SCALE

REVISION DATE

07-14-2022

ADOPTION DATE

08-17-2022



CITY OF CAPE CORAL
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DETAIL NAME

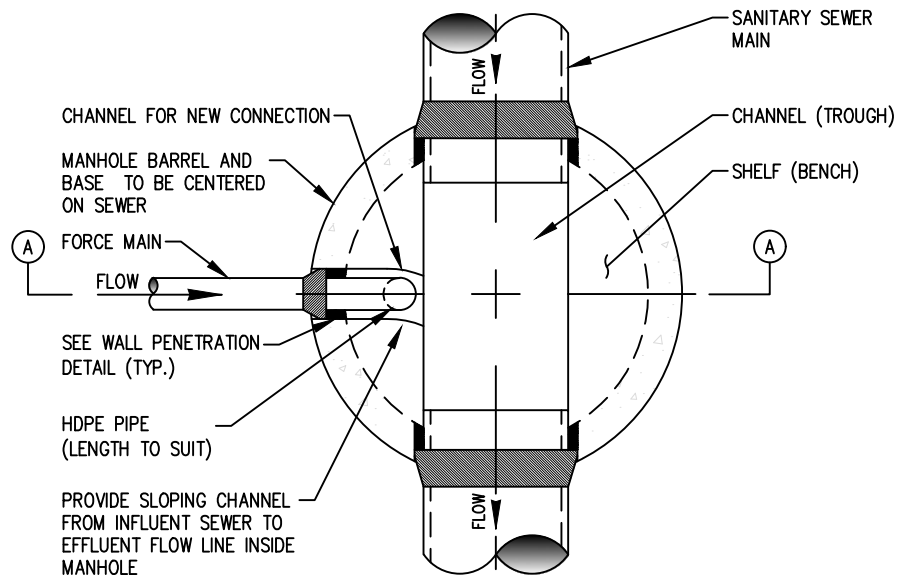
SECTIONAL INVERT PLAN

DETAIL NO.

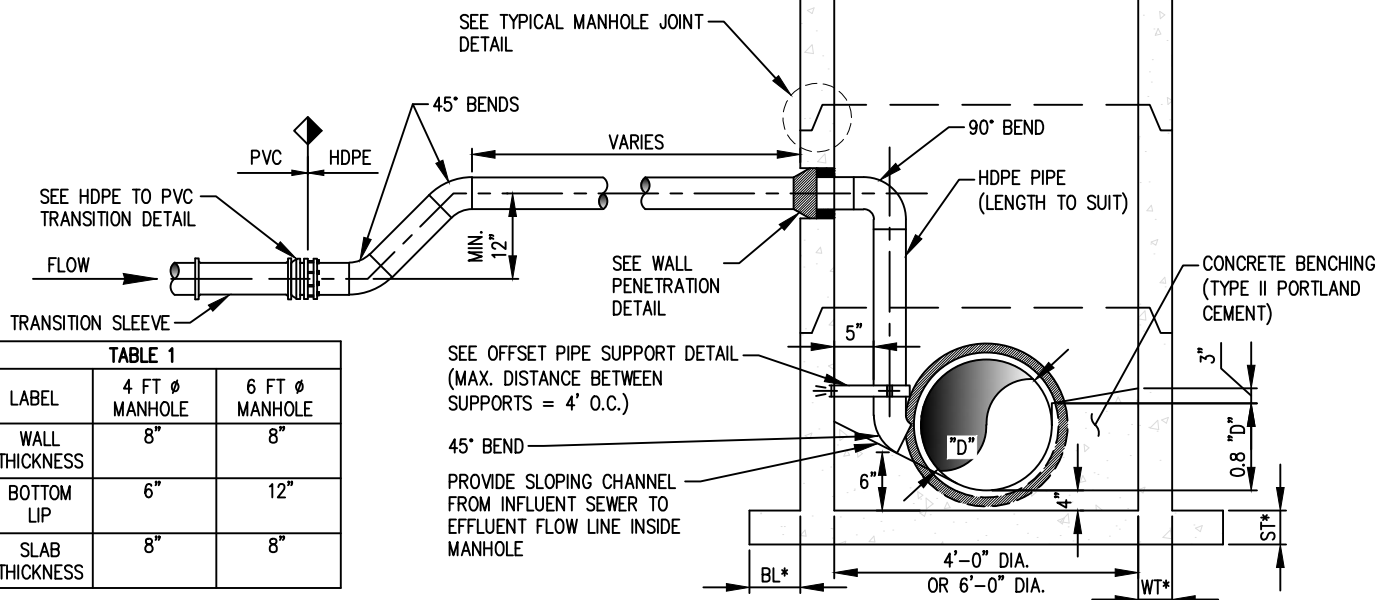
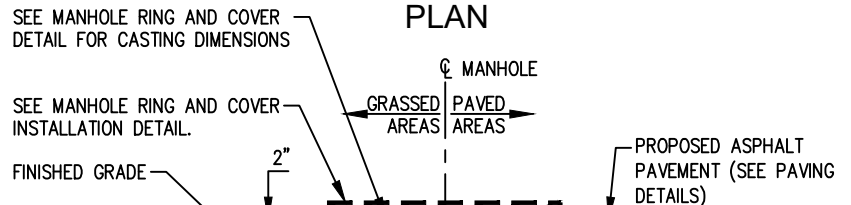
S-279

NOTES:

1. SEE SECTIONAL INVERT PLANS FOR MANHOLE INVERT BENCHING DETAILS.
2. SEE CONSTRUCTION PLANS FOR INVERT ELEVATION DETAILS.
3. USE ONLY AS NOTED ON PLAN AND PROFILE SHEETS.
4. USE ONLY 316 SS FASTENERS EPOXY ANCHORED INTO MANHOLE WALL.
5. MANHOLE INTERIOR AND EXTERIOR COATINGS SHALL COMPLY WITH SPECIFICATIONS SECTION 09800, SYSTEMS 2 AND 3.
6. FOR PRODUCTS AND MATERIALS SEE THE PROJECT SPECIFICATIONS AND THE CITY OF CAPE CORAL QUALIFIED PRODUCTS LIST (QPL).
7. CONE ENTRY DIAMETER = 24" (STANDARD)
CONE ENTRY DIAMETER = 36" (FM RECEIVING)
CONE ENTRY DIAMETER = 36" (MASTER)
8. SEE CONSTRUCTION PLANS FOR SANITARY SEWER MAIN INSIDE DIAMETER, "D". (MIN 8 INCH - MAX 24 INCH)
9. ALL FORCEMAIN PIPING AND FITTINGS INSIDE MANHOLE TO BE HDPE DR 11 WITH THERMAL BUTT FUSION OR ELECTROFUSION TYPE JOINTS.
10. SEE TABLE 1 FOR DIMENSIONS NOTED "*"
11. SEE DETAIL FOR STANDARD MANHOLE DETAILS, ECCENTRIC CONE ALIGNMENT AND LOCATION OF RING AND COVER WITHIN ROADWAY.
12. SANITARY SEWER SERVICE LATERALS ARE NOT TO BE CONNECTED DIRECTLY TO MANHOLES.



PLAN



SECTION A-A

TABLE 1

* LABEL	4 FT Ø MANHOLE	6 FT Ø MANHOLE
WT WALL THICKNESS	8"	8"
BL BOTTOM LIP	6"	12"
ST SLAB THICKNESS	8"	8"

S-282

FORCE MAIN CONNECTION TO MANHOLE WITH INSIDE DROP
NOT TO SCALE

REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022



CITY OF CAPE CORAL
UTILITIES DEPARTMENT
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DETAIL NAME

FORCE MAIN CONNECTION TO
MANHOLE GREATER THAN 6'
WITH INSIDE DROP

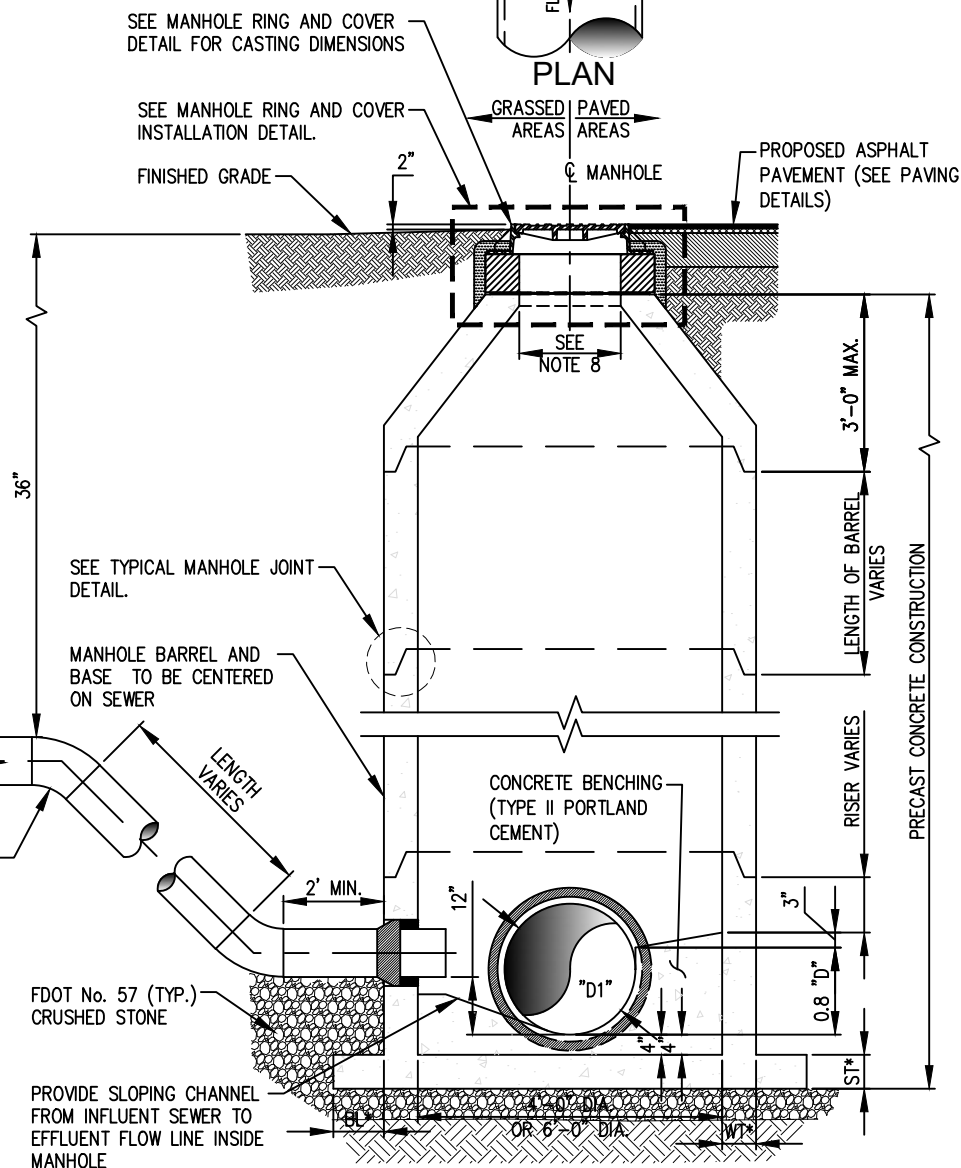
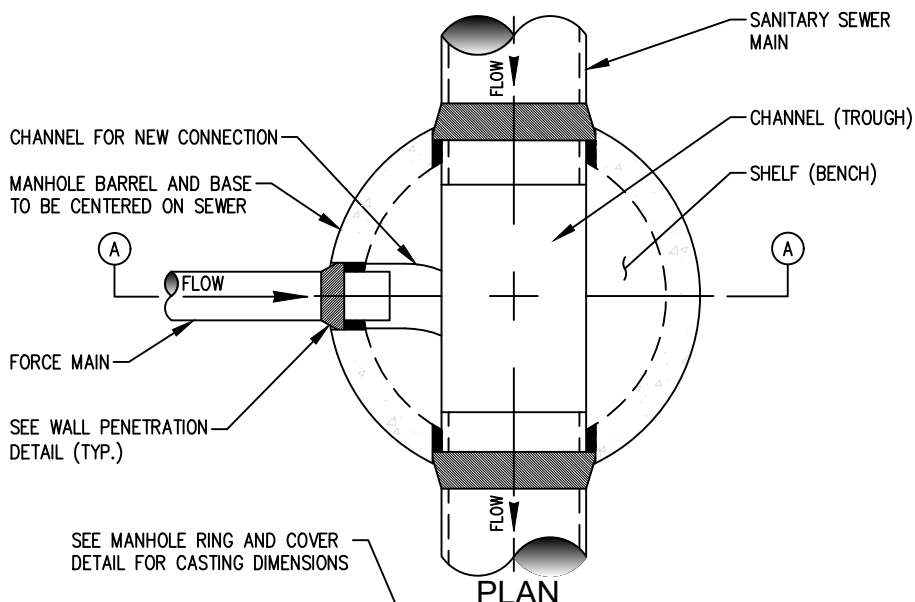
DETAIL NO.

S-282

TABLE 1			
*	LABEL	4 FT Ø MANHOLE	6 FT Ø MANHOLE
WT	WALL THICKNESS	8"	8"
BL	BOTTOM LIP	6"	12"
ST	SLAB THICKNESS	8"	8"

NOTES:

1. SEE SECTIONAL INVERT PLANS FOR MANHOLE INVERT BENCHING DETAILS.
2. SEE CONSTRUCTION PLANS FOR INVERT ELEVATION DETAILS.
3. USE ONLY AS NOTED ON PLAN AND PROFILE SHEETS.
4. MANHOLE INTERIOR AND EXTERIOR COATINGS SHALL COMPLY WITH SPECIFICATIONS SECTION 09800, SYSTEM 2 AND 3.
5. FOR PRODUCTS AND MATERIALS SEE THE PROJECT SPECIFICATIONS AND THE CITY OF CAPE CORAL QUALIFIED PRODUCTS LIST (QPL).
6. CONE ENTRY DIAMETER = 24" (STANDARD)
CONE ENTRY DIAMETER = 36" (FM RECEIVING)
CONE ENTRY DIAMETER = 36" (MASTER)
7. SEE CONSTRUCTION PLANS FOR SANITARY SEWER MAIN INSIDE DIAMETER, "D". (MIN 8 INCH - MAX 24 INCH)
8. ALL FORCEMAIN PIPING AND FITTINGS INSIDE MANHOLE TO BE HDPE DR 11 WITH THERMAL BUTT FUSION OR ELECTROFUSION TYPE JOINTS.
9. SEE TABLE 1 FOR DIMENSIONS NOTED "*"
10. SEE DETAIL FOR STANDARD MANHOLE DETAILS, ECCENTRIC CONE ALIGNMENT AND LOCATION OF RING AND COVER WITHIN ROADWAY.



SECTION A-A

S-283 **FORCE MAIN CONNECTION TO MANHOLE UNDER 6' WITH EXTERIOR DROP**
NOT TO SCALE

REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022



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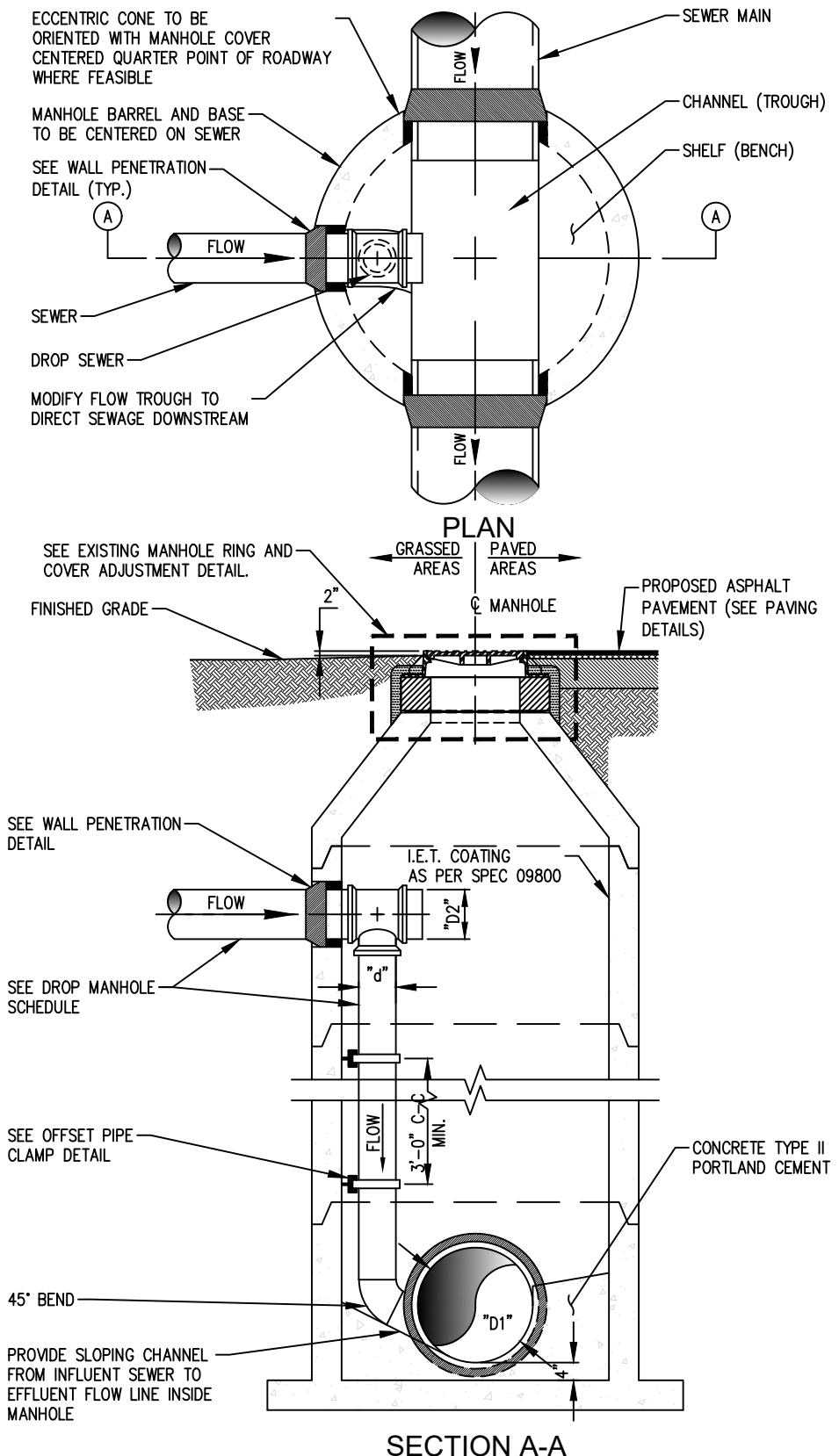
DETAIL NAME
**FORCE MAIN CONNECTION TO
MANHOLE UNDER 6'
WITH EXTERIOR DROP**

DETAIL NO.
S-283

TABLE 1		
*	LABEL	6 FT Ø MANHOLE
WT	WALL THICKNESS	8"
BL	BOTTOM LIP	12"
ST	SLAB THICKNESS	8"

NOTES:

1. SEE SCHEDULE FOR DROP MANHOLE, STANDARD MANHOLE SCHEDULE OF INVERT CHANNEL DIMENSIONS AND MANHOLE GENERAL NOTES.
 2. SEE SECTIONAL INVERT PLAN DETAILS.
 3. SEE WALL PENETRATION DETAIL.
 4. USE ONLY AS NOTED ON PLAN AND PROFILE SHEETS.
 5. SEE EXISTING MANHOLE RING AND COVER ADJUSTMENT DETAIL.
 6. SEE PAVING DETAILS.
 7. BRICK ADJUSTING RINGS NOT ALLOWED.
 8. USE ECCENTRIC CONE WHERE POSSIBLE.
 9. USE ONLY 316 SS FASTENERS EPOXY COATED INTO MANHOLE WALL.
 10. MANHOLE SHALL BE COATED PER SPECIFICATIONS SECTION 09800, SYSTEM 2.
 11. FOR PRODUCTS AND MATERIALS SEE THE PROJECT SPECIFICATIONS AND THE CITY OF CAPE CORAL QUALIFIED PRODUCTS LIST.
 12. "D1" IS THE INSIDE DIAMETER OF THE SEWER MAIN. 8" DIAMETER UP TO 24" DIAMETER.
 13. ALL NEW DROP MANHOLES SHALL BE 6'-0" IN DIAMETER
- * SEE TABLE 1



S-284

NEW GRAVITY SEWER CONNECTION TO NEW MANHOLE W/INTERNAL DROP

NOT TO SCALE

REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022



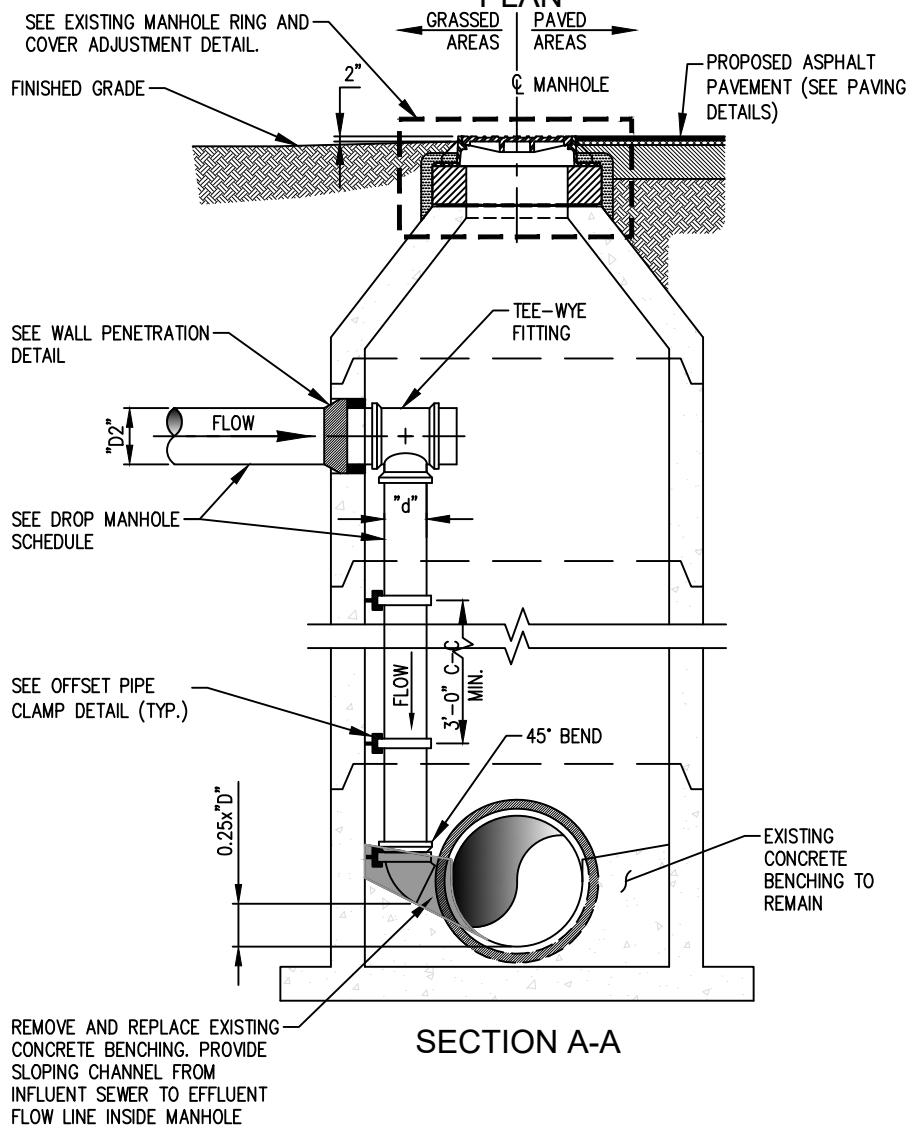
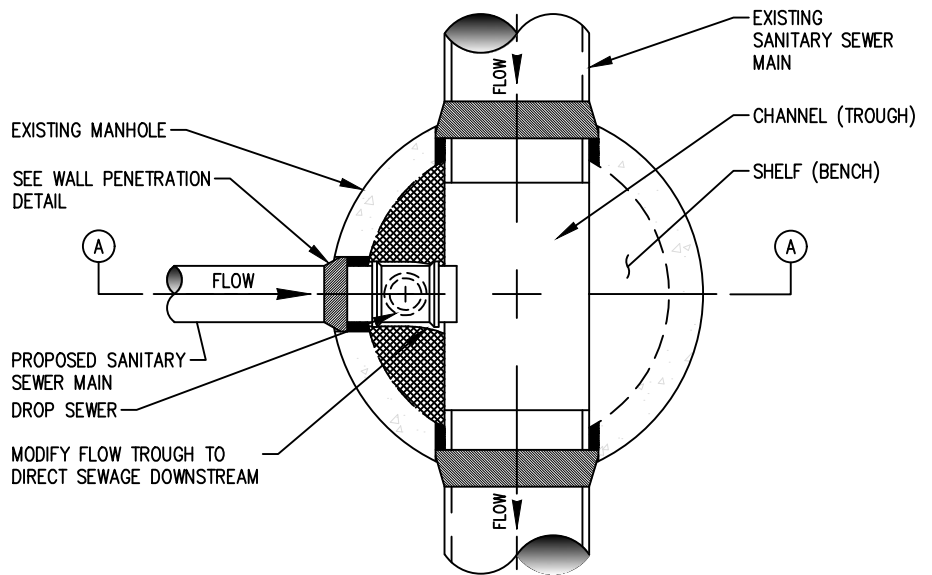
CITY OF CAPE CORAL
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P.O. BOX 150027
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DETAIL NAME
**NEW GRAVITY SEWER
CONNECTION TO NEW MANHOLE
W/ INTERNAL DROP**

DETAIL NO.
S-284

NOTES:

1. SEE SECTIONAL INVERT PLANS FOR MANHOLE INVERT BENCHING DETAILS.
2. SEE CONSTRUCTION PLANS FOR INVERT ELEVATION DETAILS.
3. USE ONLY AS NOTED ON PLAN AND PROFILE SHEETS.
4. USE ONLY 316 SS FASTENERS EPOXY ANCHORED INTO MANHOLE WALL.
5. AFTER INSTALLATION OF INSIDE DROP, MANHOLE INTERIOR SHALL BE COATED PER SPECIFICATIONS SECTION 09800, SYSTEM 2.
6. FOR PRODUCTS AND MATERIALS SEE THE PROJECT SPECIFICATIONS AND THE CITY OF CAPE CORAL QUALIFIED PRODUCTS LIST (QPL).
7. ALL GRAVITY SEWER PIPING AND FITTINGS INSIDE MANHOLE TO BE PVC SDR-26.
8. FOR EXISTING 4' DIAMETER MANHOLES THE MAXIMUM PIPE SIZE DIAMETER "D2" IS 10".
9. FOR EXISTING 5' AND LARGER DIAMETER MANHOLES THE MAXIMUM PIPE SIZE DIAMETER "D2" IS 24".



S-284A

NEW GRAVITY SEWER CONNECTION TO EXISTING MANHOLE W/INTERNAL DROP

NOT TO SCALE

REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022

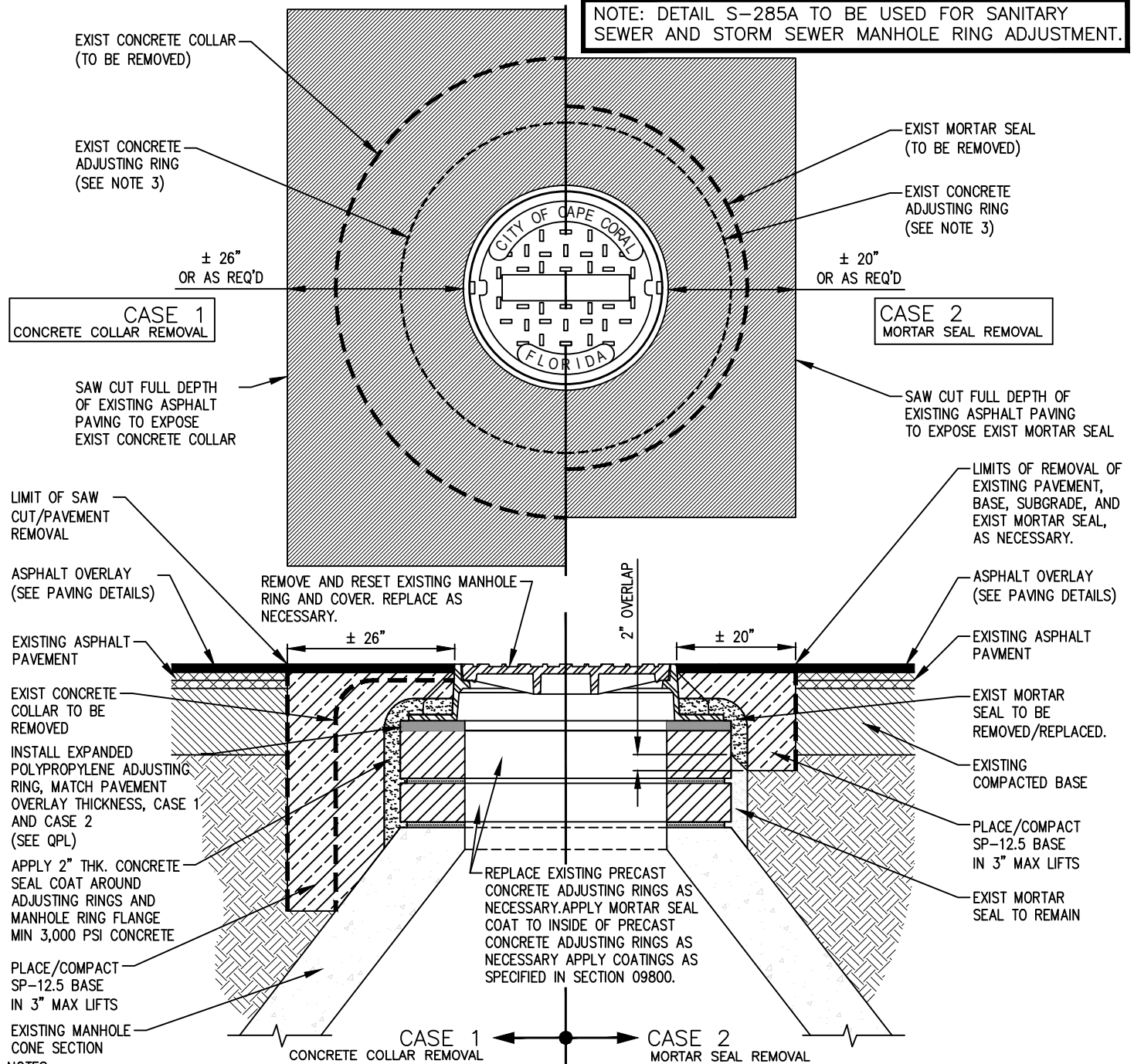


CITY OF CAPE CORAL
UTILITIES DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME
NEW GRAVITY SEWER CONNECTION TO EXISTING MANHOLE W/ INTERNAL DROP

DETAIL NO.
S-284A

NOTE: DETAIL S-285A TO BE USED FOR SANITARY SEWER AND STORM SEWER MANHOLE RING ADJUSTMENT.



NOTES:

- THIS DETAIL IS PREPARED FOR USE BY THE CITY PUBLIC WORKS DEPT. PRIOR TO CONSTRUCTION, COORDINATE WITH UTILITIES DEPT (UCD) CONCERNING EXISTING MANHOLE CONDITION (INCLUDING RING AND COVER AND ADJUSTING RINGS) AND UCD PROGRAM FOR REHABILITATION FOR MANHOLES WITHIN THE VICINITY.
- SAW CUT AND REMOVE FULL PAVEMENT SECTION TO LIMITS NOTED, AND EXPOSE/REMOVE CONCRETE COLLAR OR CONCRETE SEAL, DEPENDING ON CASE.
- REMOVE EXISTING RING AND COVER. REPLACE AS NECESSARY. CASE 1 - EXISTING CONCRETE COLLAR TO BE REMOVED COMPLETELY. CASE 2 - EXISTING CONCRETE SEAL TO BE REMOVED DOWN TO MID DEPTH OF UPPER CONCRETE ADJUSTING RING.
- DAMAGED ADJUSTING RINGS SHALL BE REPLACED WITH PRECAST CONCRETE ADJUSTING RINGS AND 2" CONCRETE SEAL TO BE REPLACED DOWN TO CONE SECTION. MAXIMUM ALLOWABLE ADJUSTMENT USING PRECAST CONCRETE ADJUSTING RINGS IS 11". RINGS TO BE SET IN MORTAR OR BITUMASTIC.
- PLACE EXPANDED POLYPROPYLENE ADJUSTING RING (THICKNESS TO MATCH PAVEMENT OVERLAY THICKNESS) SET IN STRUCTURAL ADHESIVE/SEALANT ASTM C-920.
- CASE 1 - APPLY 2" CONCRETE SEAL OVER REPLACED MANHOLE RING FLANGE, AND ADJUSTING RINGS DOWN TO EXISTING MANHOLE CONE SECTION. CASE 2 - APPLY NEW CONCRETE SEAL COAT OVER RING AND ADJUSTING RING AND TIE INTO EXISTING CONCRETE SEAL WITH 2" OVERLAP.
- PLACE AND COMPACT SP-12.5 BASE IN ANNULAR SPACE BETWEEN MORTAR SEAL AND EXISTING PAVEMENT SECTION. 3" MAXIMUM LIFT DEPTH.
- FOR LOCAL ROADS INSTALL TEMPORARY RUBBER SAFETY RAMP AROUND MANHOLE RING PRIOR TO INSTALLING OVERLAY PAVEMENT. FOR COLLECTOR/DIVIDED ROADS PLACE TEMPORARY ASPHALT RAMP AROUND MANHOLE RING (20' LONG X LANE WIDTH) PRIOR TO INSTALLING OVERLAY PAVEMENT.
- PLACE SP-9.5 PAVEMENT OVERLAY IN ACCORDANCE WITH PAVING DETAILS AND SPECIFICATIONS.
- CAUTION SHOULD BE TAKEN NOT TO ALLOW ANY FOREIGN MATERIAL TO FALL INTO THE MANHOLE. CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING ANY AND ALL DEBRIS RESULTING FROM MANHOLE ADJUSTMENT.

S-285A EXISTING MANHOLE RING AND COVER ADJUSTMENT
NOT TO SCALE

REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022

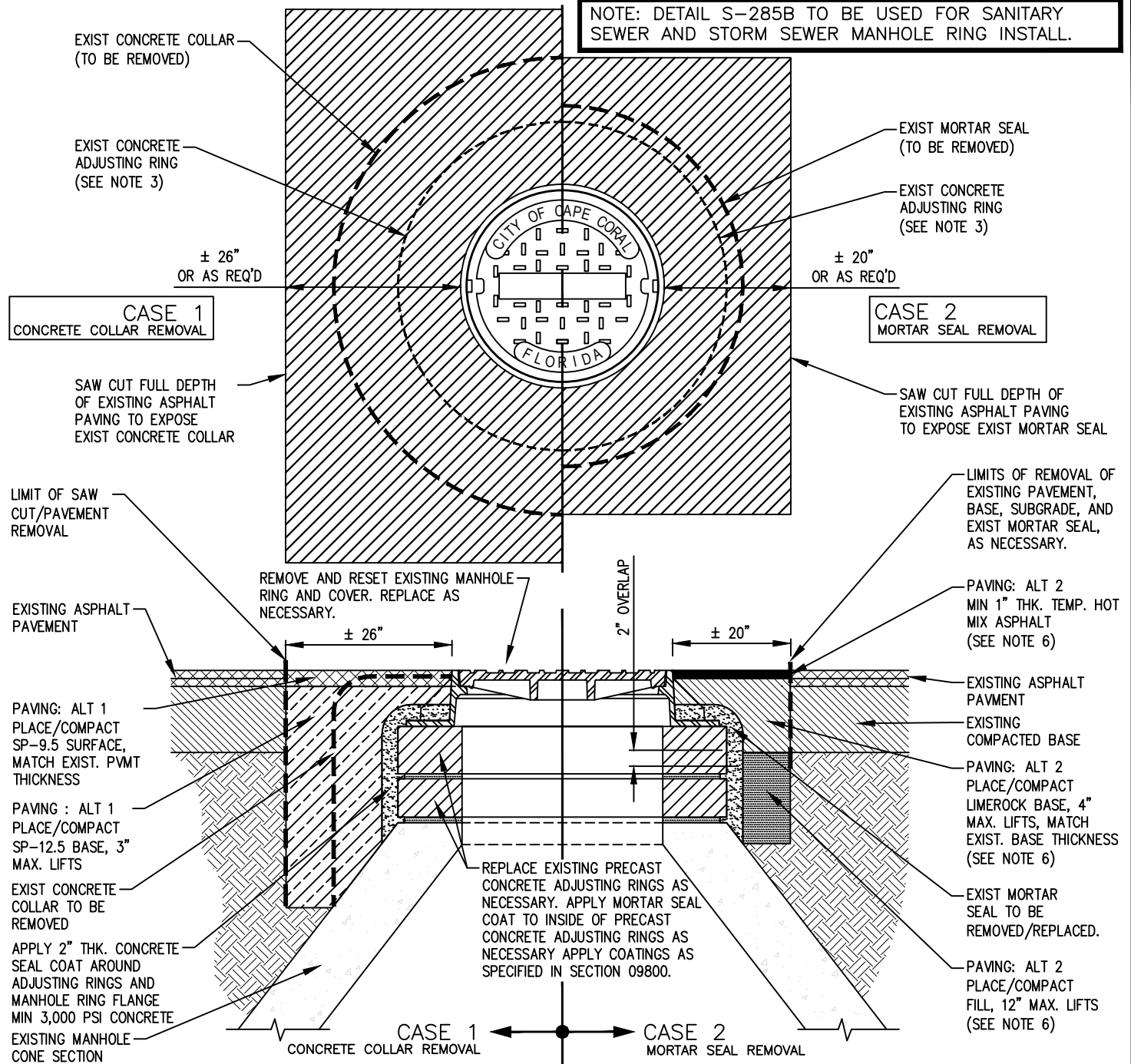


CITY OF CAPE CORAL
UTILITIES DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME
**EXISTING MANHOLE RING & COVER
ADJUSTMENT - PAVEMENT OVERLAY**

DETAIL NO.
S-285A

NOTE: DETAIL S-285B TO BE USED FOR SANITARY SEWER AND STORM SEWER MANHOLE RING INSTALL.



NOTES:

1. THIS DETAIL IS PROVIDED FOR THE USE BY THE CITY UTILITIES DEPARTMENT (UCD). PRIOR TO CONSTRUCTION, UCD TO COORDINATE WITH CITY PUBLIC WORKS DEPT CONCERNING ROADWAY MAINTENANCE/OVERLAY PROGRAM FOR THE VICINITY.
2. SAW CUT AND REMOVE FULL PAVEMENT SECTION TO LIMITS NOTED, AND EXPOSE/REMOVE CONCRETE COLLAR OR MORTAR SEAL, DEPENDING ON CASE.
3. REMOVE EXISTING RING AND COVER. REPLACE AS NECESSARY. CASE 1 - EXISTING CONCRETE COLLAR TO BE REMOVED COMPLETELY. CASE 2 - EXISTING MORTAR SEAL TO BE REMOVED COMPLETELY.
4. DAMAGED ADJUSTING RINGS SHALL BE REPLACED WITH PRECAST CONCRETE ADJUSTING RINGS AND 2" CONCRETE SEAL TO BE REPLACED DOWN TO CONE SECTION. MAXIMUM ALLOWABLE ADJUSTMENT USING PRECAST CONCRETE ADJUSTING RINGS IS 11". RINGS TO BE SET IN MORTAR OR BITUMASTIC.
5. CASE 1 - APPLY 2" CONCRETE SEAL OVER REPLACED MANHOLE RING FLANGE, AND ADJUSTING RINGS DOWN TO EXISTING MANHOLE CONE SECTION. CASE 2 - APPLY NEW CONCRETE SEAL COAT OVER RING AND ADJUSTING RING AND TIE INTO EXISTING CONCRETE SEAL WITH 2" OVERLAP.
6. PAVING ALT 1: COORDINATE WITH CITY PUBLIC WORKS DEPARTMENT FOR PLACEMENT/COMPACTION OF SP 12.5 ASPHALTIC CONCRETE BASE AND SP-9.5 ASPHALTIC CONCRETE SURFACE COURSE. PAVING ALT 2: PLACE/COMPACT FILL, LIMEROCK BASE (LBR 100) AND HOT MIX THICK AS TEMPORARY PAVEMENT UNTIL SUCH TIME AS CITY PUBLIC WORKS DEPARTMENT PLACES ASPHALT OVERLAY WITHIN THE VICINITY. ALT 2 IS TO BE USED ONLY IN THE EVENT THE CITY PUBLIC WORKS DEPARTMENT IS UNAVAILABLE TO PLACE THE ALT 1 PAVING AND ONLY AS A TEMPORARY MEASURE.
7. CAUTION SHOULD BE TAKEN NOT TO ALLOW ANY FOREIGN MATERIAL TO FALL INTO THE MANHOLE. CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING ANY AND ALL DEBRIS RESULTING FROM MANHOLE ADJUSTMENT.

S-285B

EXISTING MANHOLE RING AND COVER ADJUSTMENT

NOT TO SCALE

REVISION DATE

07-14-2022

ADOPTION DATE

08-17-2022



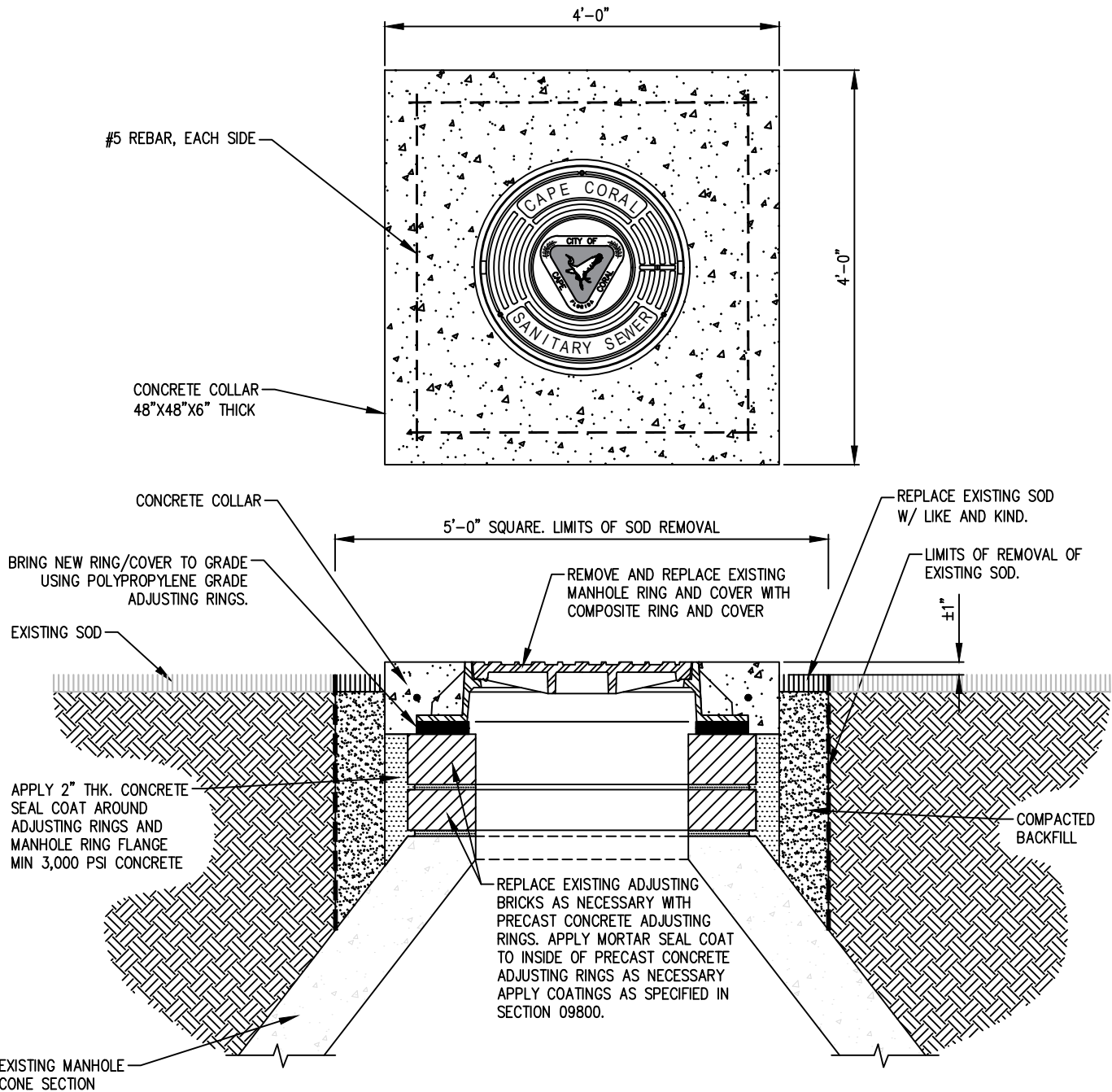
CITY OF CAPE CORAL
UTILITIES DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME

**EXISTING MANHOLE RING & COVER
INSTALLATION- MANHOLE REHAB**

DETAIL NO.

S-285B



NOTES:

1. EXPOSE/REMOVE RING AND COVER AND MORTAR SET.
2. DAMAGED ADJUSTING BRICKS SHALL BE REPLACED WITH PRECAST CONCRETE ADJUSTING RINGS. RINGS TO BE SET IN MORTAR OR BITUMASTIC.
3. INSTALL EXPANDED POLYPROPYLENE GRADE ADJUSTMENT RINGS AS NECESSARY TO BRING NEW RING TO GRADE. ADJUSTMENT RINGS TO BE PRO-RING BY CRETEX OR CITY APPROVED EQUAL. USE M-1 STRUCTURAL ADHESIVE/SEALANT BETWEEN GRADE ADJUSTING RINGS AND MAN HOLE RING AND PRECAST RINGS/BRICKS.
4. INSTALL NEW COMPOSITE MANHOLE RING AND COVER, PRODUCT CODE A-1BK24PS-C11C05SS-H1 BY COMPOSITE ACCESS PRODUCTS, L.P., OR CITY APPROVED EQUAL.
5. APPLY 2" CONCRETE SEAL OVER REPLACED MANHOLE RING FLANGE, AND ADJUSTING RINGS (EXTERIOR) DOWN TO EXISTING MANHOLE CONE SECTION.
6. INSTALL 48"X48"X6" SQUARE CONCRETE APRON AROUND NEW RING.
APPLY REPAIR MORTAR SEAL COAT TO INTERIOR OF ADJUSTING RINGS. MORTAR TO BE ONE COMPONENT, QUICK SET, HIGH STRENGTH, NON-SHRINK POLYMER MODIFIED CEMENTIOUS PATCHING MORTAR (ASTM C-109, C-348, C-78 AND C-882).
7. CAUTION SHOULD BE TAKEN NOT TO ALLOW ANY FOREIGN MATERIAL TO FALL INTO THE MANHOLE. CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING ANY AND ALL DEBRIS RESULTING FROM MANHOLE ADJUSTMENT.



S-285C EXISTING MANHOLE RING AND COVER REPLACEMENT - SWALE LOCATION

NOT TO SCALE

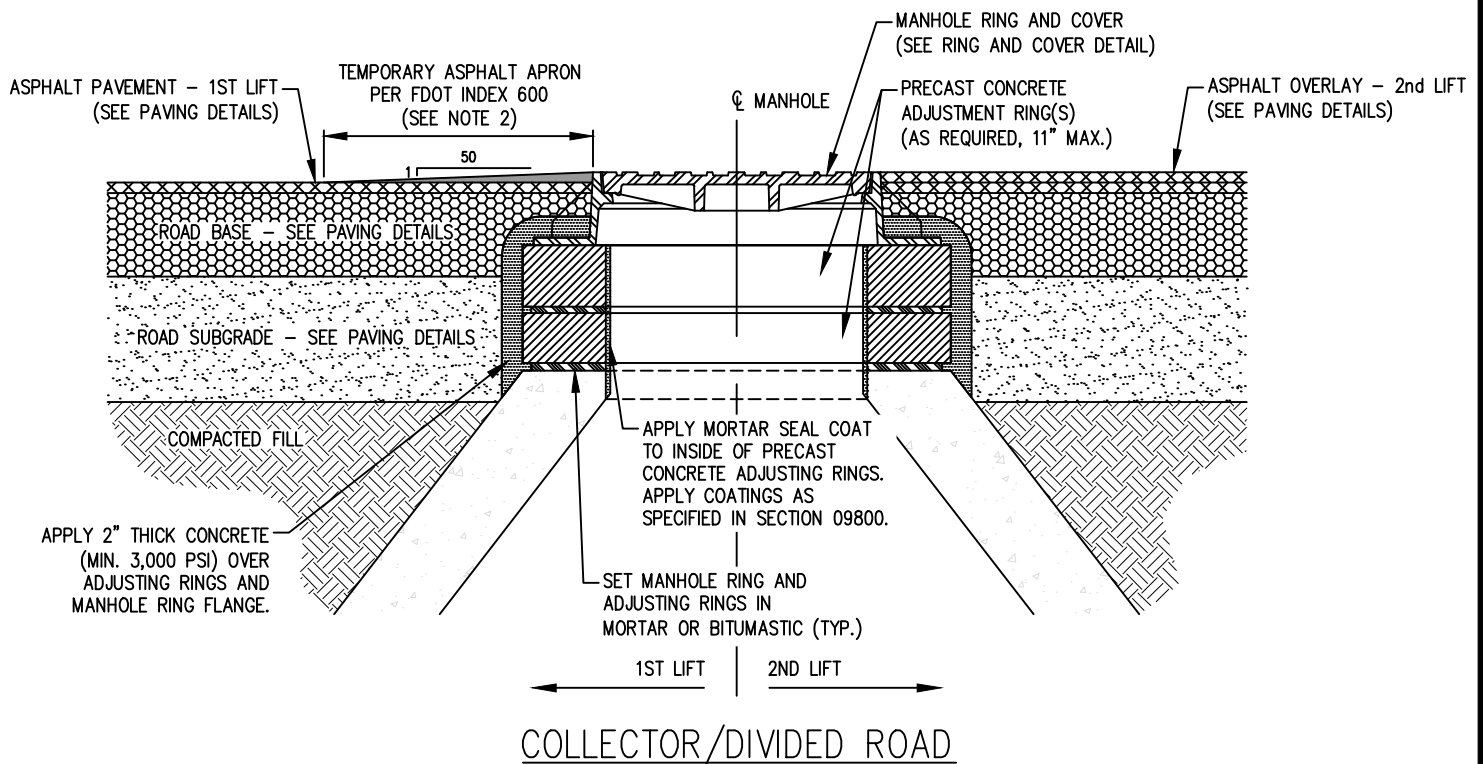
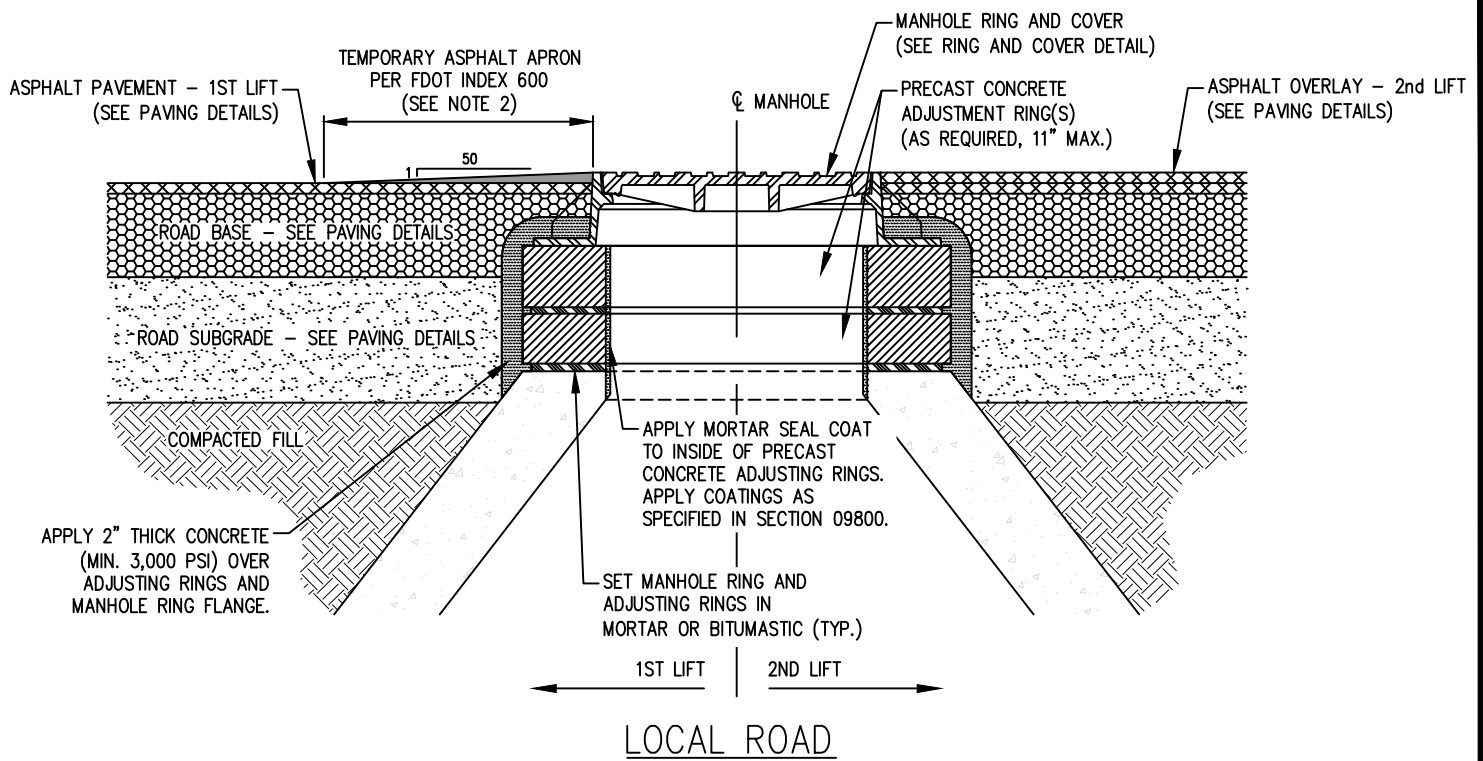
REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022



CITY OF CAPE CORAL
UTILITIES DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME
EXISTING MANHOLE RING & COVER
REPLACEMENT- MANHOLE REHAB
SWALE LOCATION

DETAIL NO.
S-285C



NOTES:

1. THIS DETAIL IS TO BE USED FOR SANITARY SEWER AND STORMWATER MANHOLES LOCATED WITHIN PAVEMENT.
2. TEMPORARY ASPHALT APRONS CONSTRUCTED PER FDOT INDEX 600 ARE TO BE REMOVED PRIOR TO CONSTRUCTING THE NEXT LIFT OF ASPHALT.

S-286

MANHOLE RING AND COVER INSTALLATION

NOT TO SCALE

REVISION DATE

07-14-2022

ADOPTION DATE

08-17-2022



CITY OF CAPE CORAL
PUBLIC WORKS DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME

MANHOLE
RING AND COVER
INSTALLATION

DETAIL NO.

S-286

FORMED IN PLACE CHIMNEY
(AS REQUIRED, MAX 12")

PAVEMENT PATCH
SEE EXISTING MANHOLE RING &
COVER INSTALLATION-MANHOLE
REHAB DETAIL

MANHOLE RING AND COVER
(SEE RING AND COVER DETAIL)

SET MANHOLE RING AND
COVER IN MORTAR OR
BITUMASTIC (TYP.)

EXIST. PWT

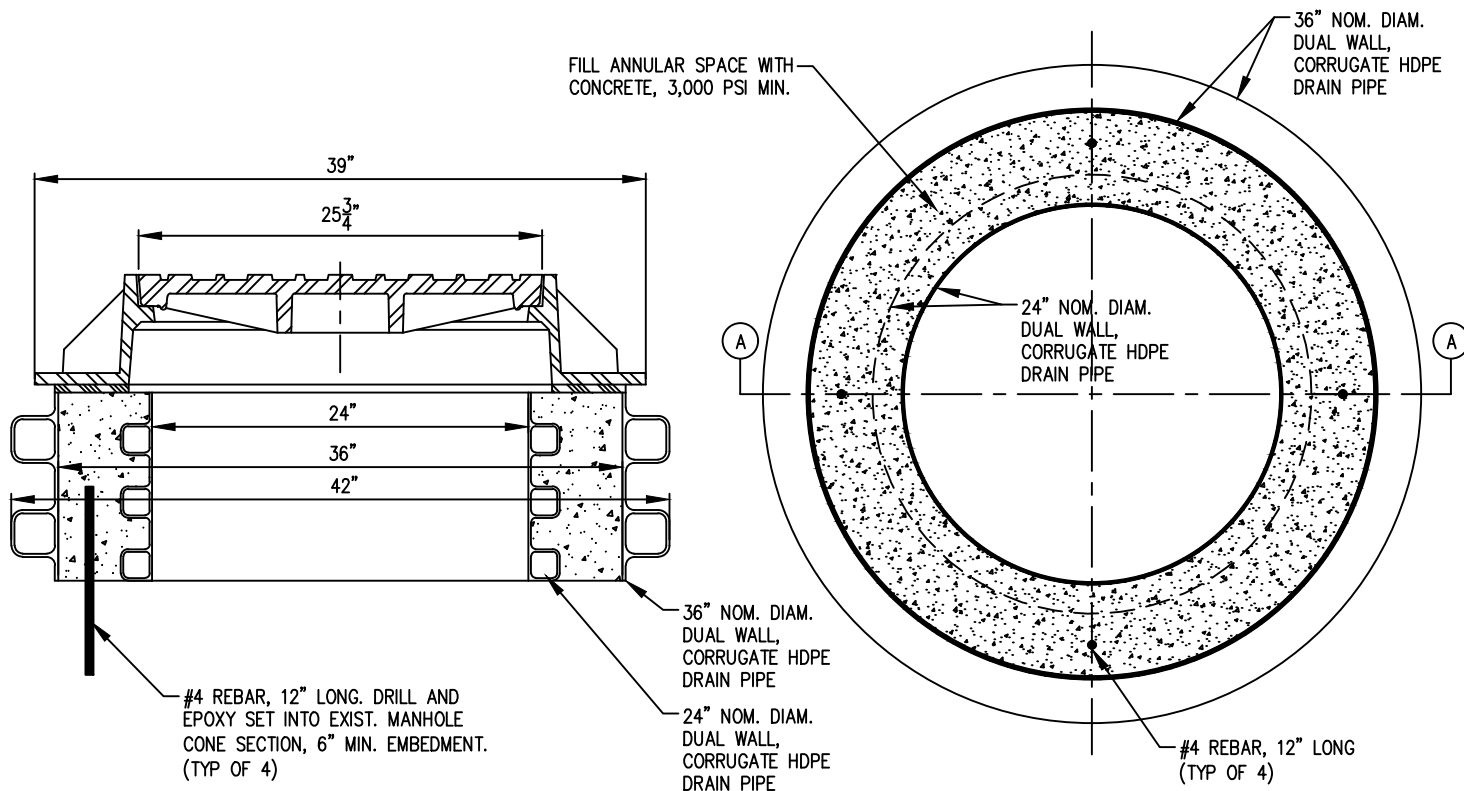
EXIST. ROAD BASE

EXIST. SUBGRADE

APPLY 2" THK. MORTAR
SEAL COAT AROUND
ADJUSTING RINGS AND
MANHOLE RING FLANGE

PLACE BITUMASTIC
BETWEEN CHIMNEY AND
CONE SECTION (TYP.)

EXISTING MANHOLE
CONE SECTION



CHIMNEY DETAIL, SECTION A-A

CHIMNEY DETAIL, PLAN

S-287

MANHOLE CHIMNEY REPLACEMENT - MANHOLE REHAB

NOT TO SCALE

REVISION DATE

7/14/2022

ADOPTION DATE

08-17-2022



CITY OF CAPE CORAL
UTILITIES DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

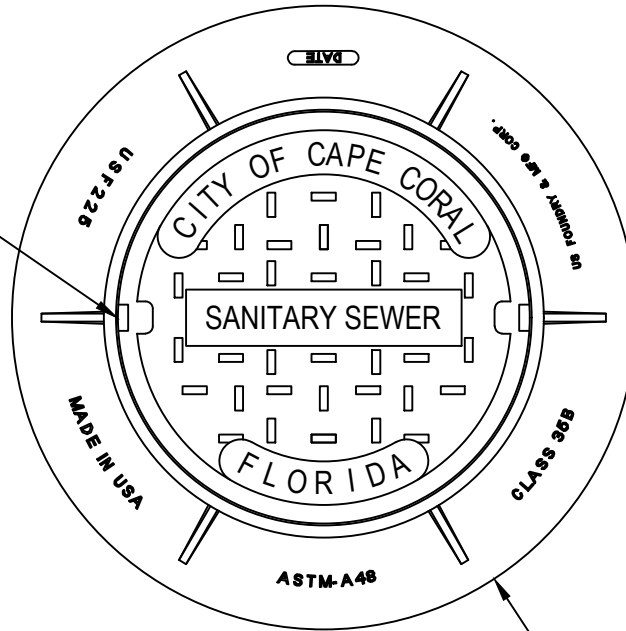
DETAIL NAME

MANHOLE CHIMNEY
REPLACEMENT - MANHOLE REHAB

DETAIL NO.

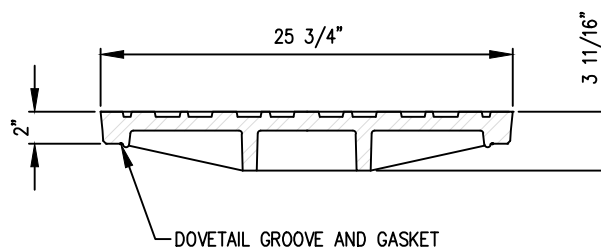
S-287

(2) - NON-PENETRATING PICK HOLES

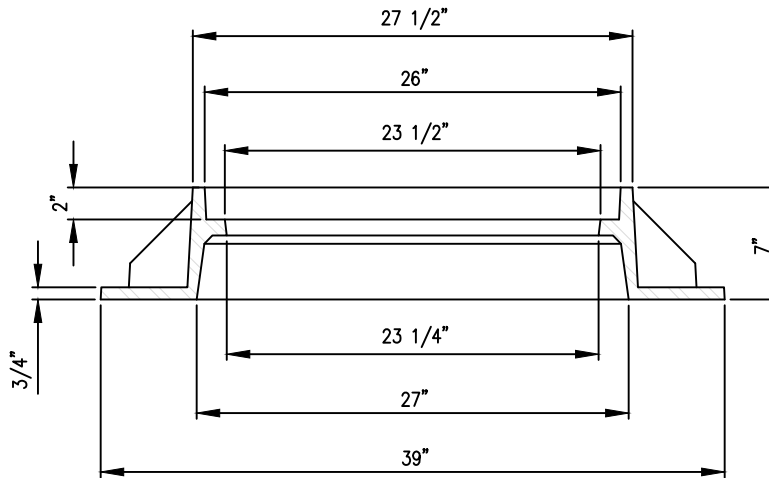


PLAN

STANDARD CAST IRON RING AND COVER LID
TYPE (O-RING). (TRAFFIC GRADE H-20)
IN ACCORDANCE WITH SPECIFICATIONS SECTION 03400,
AS APPROVED BY THE CITY OF CAPE CORAL AND QPL.



DOVETAIL GROOVE AND GASKET



SECTION

S-301

MANHOLE RING AND COVER - STANDARD SANITARY SEWER

NOT TO SCALE

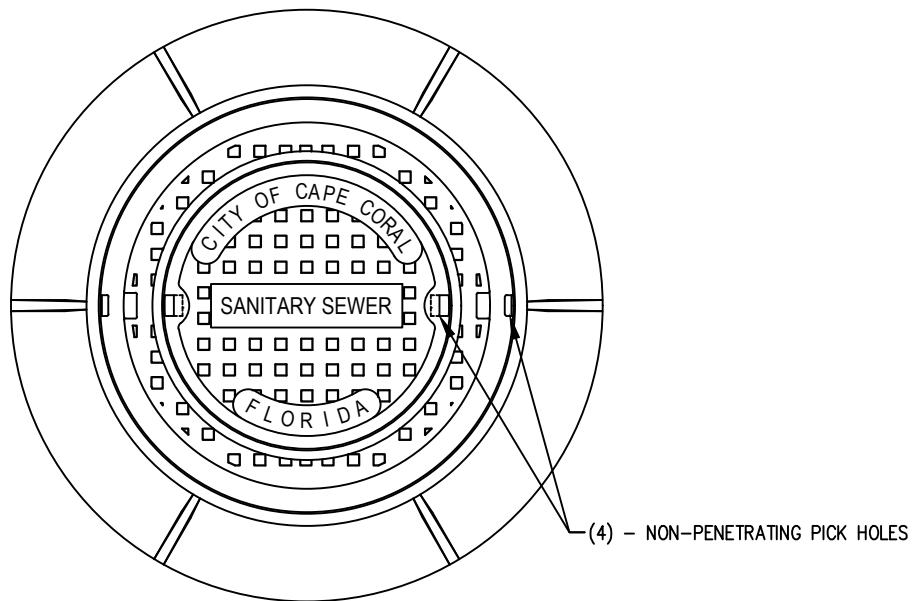
REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022



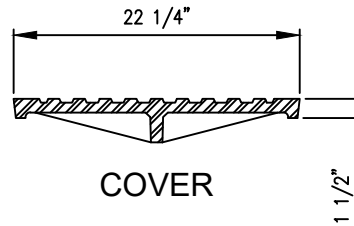
CITY OF CAPE CORAL
UTILITIES DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME
MANHOLE RING AND COVER STANDARD SANITARY SEWER

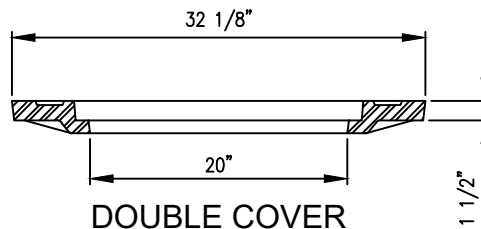
DETAIL NO.
S-301



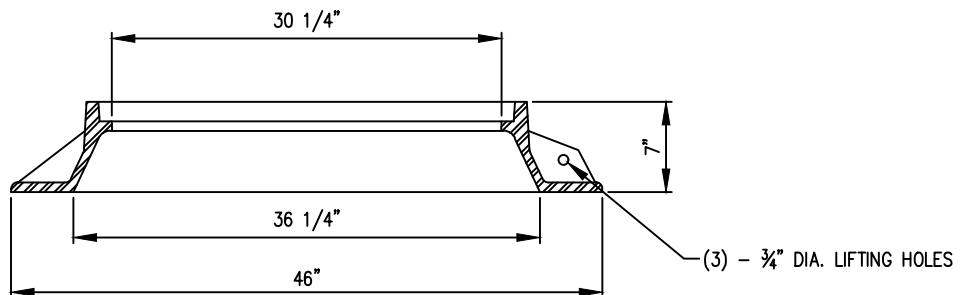
PLAN



COVER



DOUBLE COVER



RING

S-302

MANHOLE RING AND DOUBLE COVER - MASTER SANITARY SEWER

NOT TO SCALE

REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022

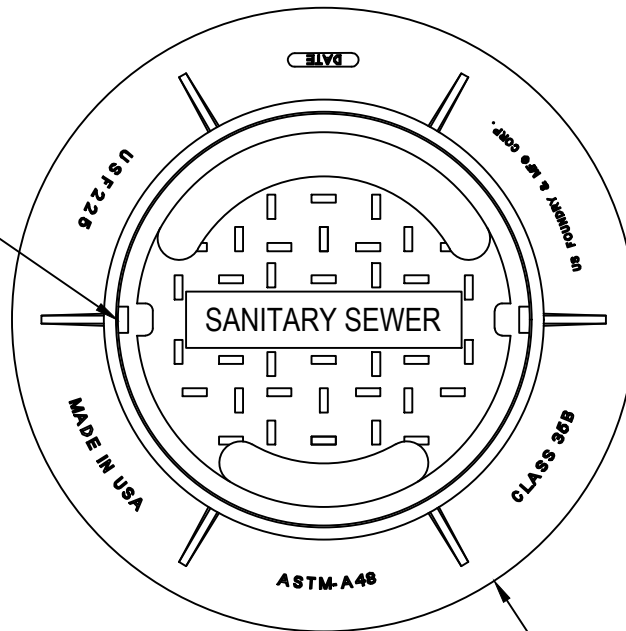


CITY OF CAPE CORAL
UTILITIES DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME
MANHOLE RING AND DOUBLE COVER
MASTER SANITARY SEWER

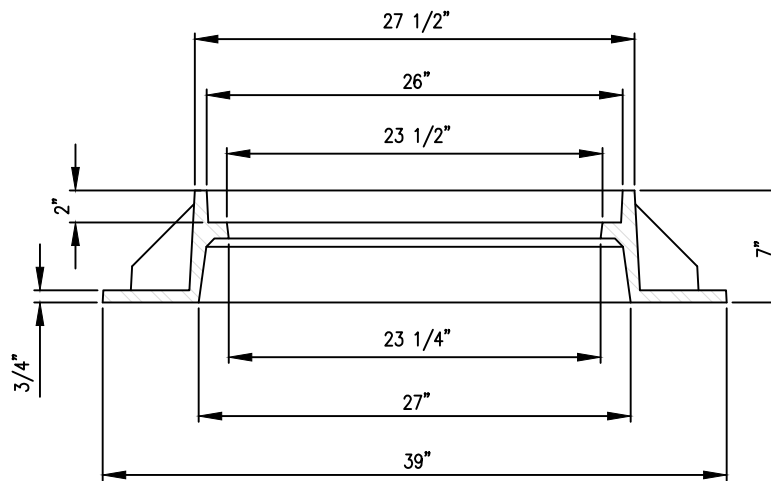
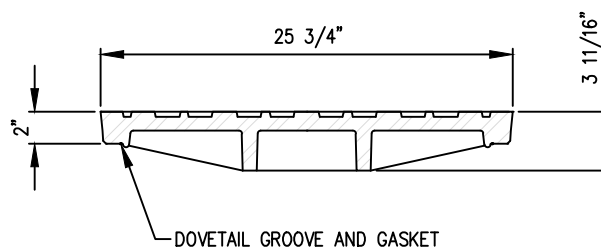
DETAIL NO.
S-302

(2) - NON-PENETRATING PICK HOLES



PLAN

STANDARD CAST IRON RING AND COVER LID
TYPE (O-RING). (TRAFFIC GRADE H-20)
IN ACCORDANCE WITH SPECIFICATIONS SECTION 03400,
AS APPROVED BY THE CITY OF CAPE CORAL AND QPL.



SECTION

S-303

MANHOLE RING AND COVER - PRIVATE SANITARY SEWER

NOT TO SCALE

REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022

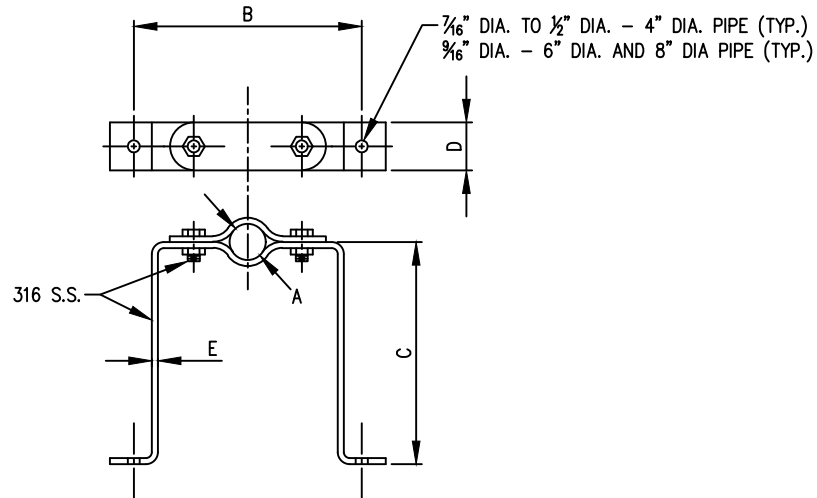


CITY OF CAPE CORAL
UTILITIES DEPARTMENT
P.O. BOX 150027
CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME
**MANHOLE RING AND COVER
PRIVATE SANITARY SEWER**

DETAIL NO.
S-303

S-309



DIM.	PIPE SIZE			
A	3/4" - 1 1/2"	2" - 3 1/2"	4" - 6"	8"
B	7"	10"	15"	19"
C*	3"	4"	5 1/4"	6 1/4"
D	1 1/4"	1 1/2"	1 1/2"	2"
E	3/16"	1/4"	1/4"	3/8"
C/C+ SPACING	4'-0"	6'-0"	8'-0"	8'-0"

* OR AS REQUIRED TO ACCOMMODATE FITTINGS
 +- UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS

NOTES:

1. "A" IS PIPE DIAMETER
2. ALL MATERIAL AND HARDWARE FOR OFFSET PIPE CLAMP TO BE 316 STAINLESS STEEL, AMERICAN MADE. (CERTIFICATION REQUIRED)
3. FOR PRODUCTS AND MATERIALS SEE THE PROJECT SPECIFICATIONS AND THE CITY OF CAPE CORAL QUALIFIED PRODUCTS LIST.
4. FOR GRAVITY SEWER USE ONLY.



REVISION DATE
07-14-2022
ADOPTION DATE
08-17-2022



CITY OF CAPE CORAL
 UTILITIES DEPARTMENT
 P.O. BOX 150027
 CAPE CORAL, FLORIDA 33915-0027

DETAIL NAME	DETAIL NO.
OFFSET PIPE CLAMP	S-310