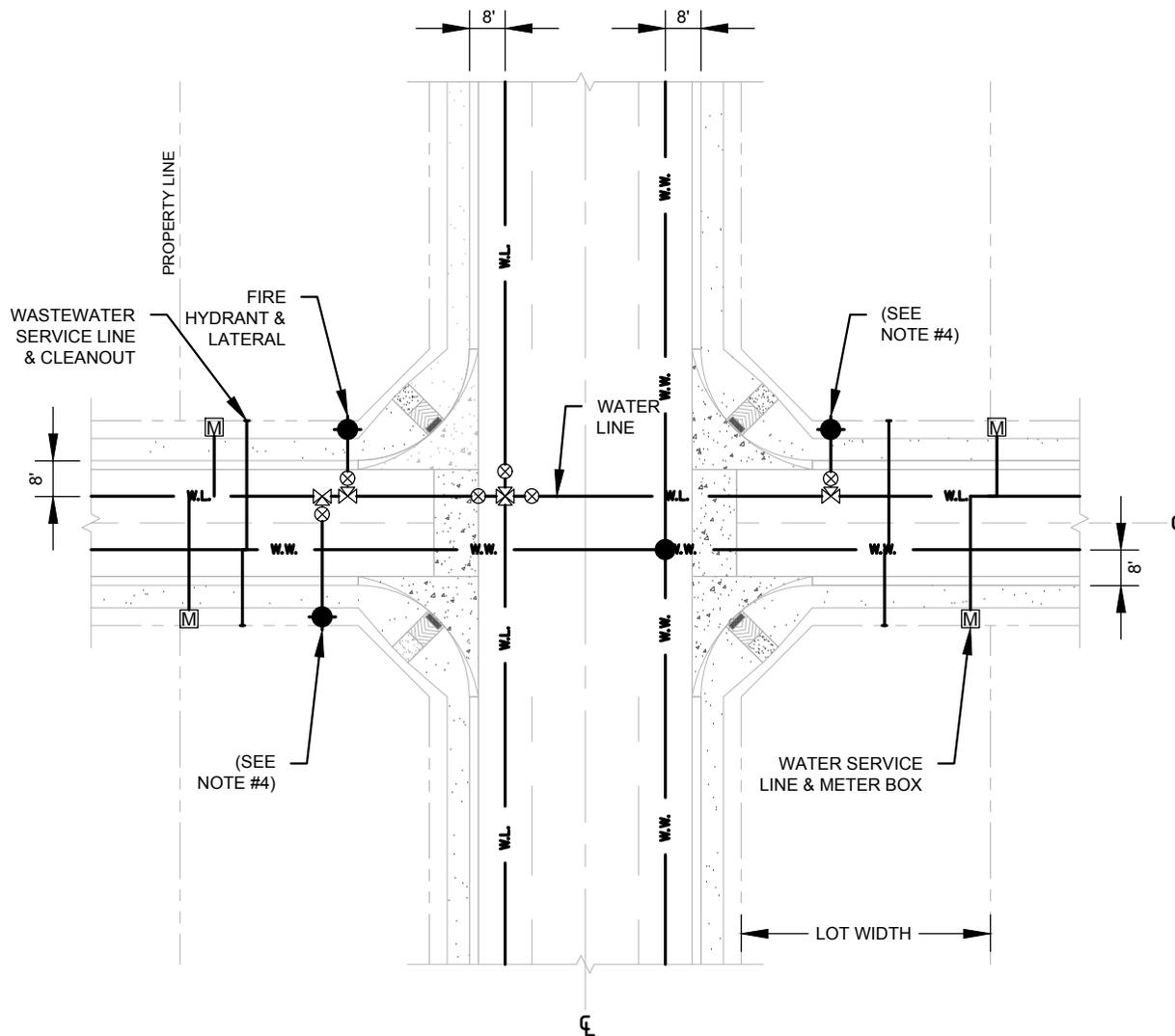


LEGEND

	W.L.		WATER MAIN
	W.W.		WASTE WATER MAIN
			GATE VALVE
			CROSS FITTING
			TEE FITTING
			FIRE HYDRANT
			WATER METER
			MANHOLE

NOTES:

1. ALL CURB DIMENSIONS SHOWN ARE FROM BACK OF CURB. WHEN BIKE LANES ARE PRESENT CENTER UTILITIES IN THE OUTER VEHICLE TRAVEL LANE.
2. FIRE HYDRANTS PLACED AT INTERSECTIONS TO BE PLACED IN LINE WITH A FILLET BEGINNING-OF-RADIUS OR A FILLET END-OF-RADIUS.
3. FIRE HYDRANTS PLACED AT MID-BLOCK TO BE PLACED IN LINE WITH A LOT LINE.
4. FIRE HYDRANT COVERAGE DOES NOT EXTEND ACROSS ARTERIALS OR MAJOR COLLECTORS. FIRE HYDRANTS MAY BE REQUIRED ON BOTH SIDES OF A STREET OR INTERSECTION AT THESE LOCATIONS.
5. CLEANOUTS ARE TO BE INSTALLED BY THE HOME BUILDER.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

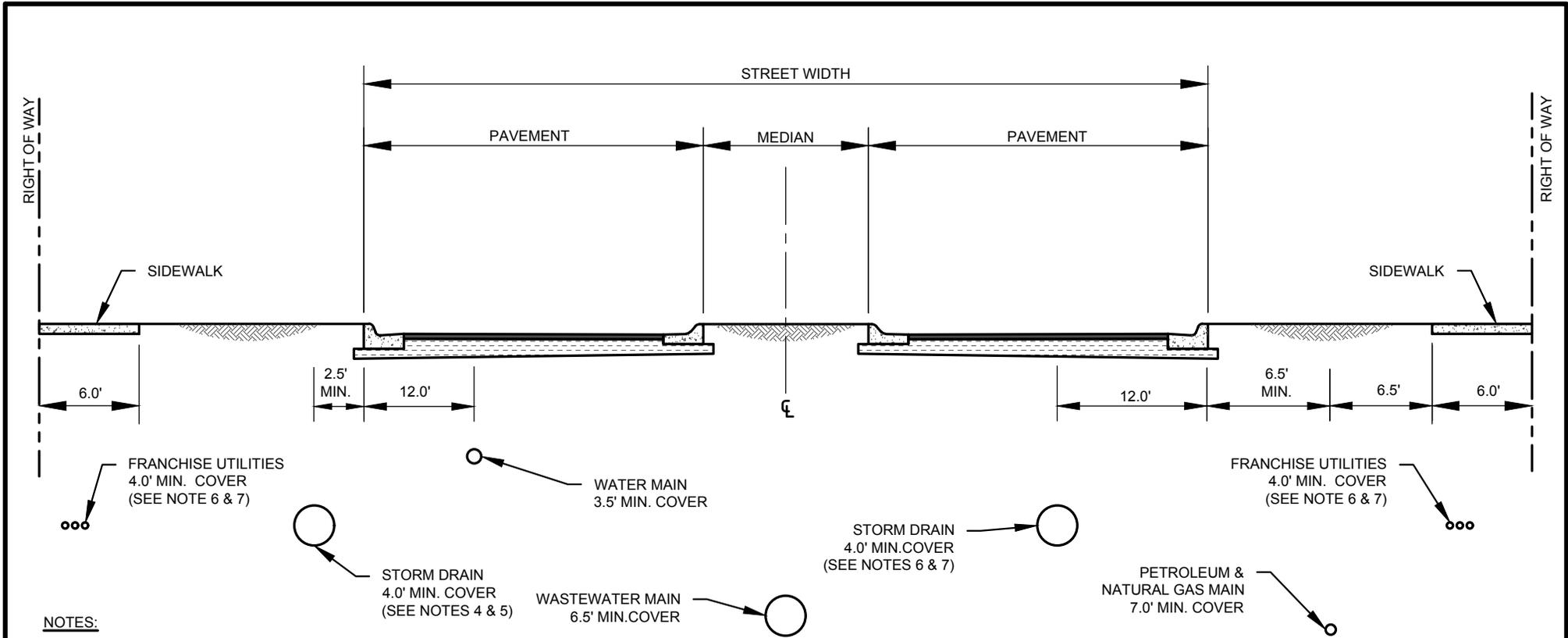
EFFECTIVE DATE:

SCALE: NTS

DETAIL:

TYPICAL UTILITY LAYOUT

501/401



NOTES:

1. IF A SITE INCLUDES ALLEYS, OR IS ADJACENT TO EXISTING ALLEYS, THEN THE WASTEWATER MAIN IS TO BE LOCATED IN THE ALLEY AND NOT THE STREET RIGHT OF WAY.
2. ALL COVERS ARE FROM THE GUTTER FLOWLINE TO THE TOP OF PIPE.
3. ADDITIONAL UTILITY DEPTH MAY BE REQUIRED TO ACCOMMODATE LATERALS.
4. STORM DRAINS MAY BE LOCATED ON EITHER SIDE OR BOTH SIDES OF STREET AS NEEDED.
5. LOCATE STORM DRAIN BENEATH PAVEMENT IF ON SAME SIDE OF STREET AS PETROLEUM & NATURAL GAS MAIN, OTHERWISE LOCATE STORM DRAIN BEHIND BACK-OF-CURB.
6. FRANCHISE UTILITY MAIN LINES MUST MAINTAIN 7.0' MINIMUM COVER WHEN CROSSING RIGHT OF WAY. FRANCHISE UTILITY SERVICE LINES MUST MAINTAIN 2.0' MINIMUM COVER IN THE RIGHT OF WAY.
7. ALL FRANCHISE UTILITY MAIN LINES AND SERVICE LINES MUST BORE TO CROSS EXISTING ARTERIAL PAVEMENT. NO OPEN TRENCHING.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE..



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

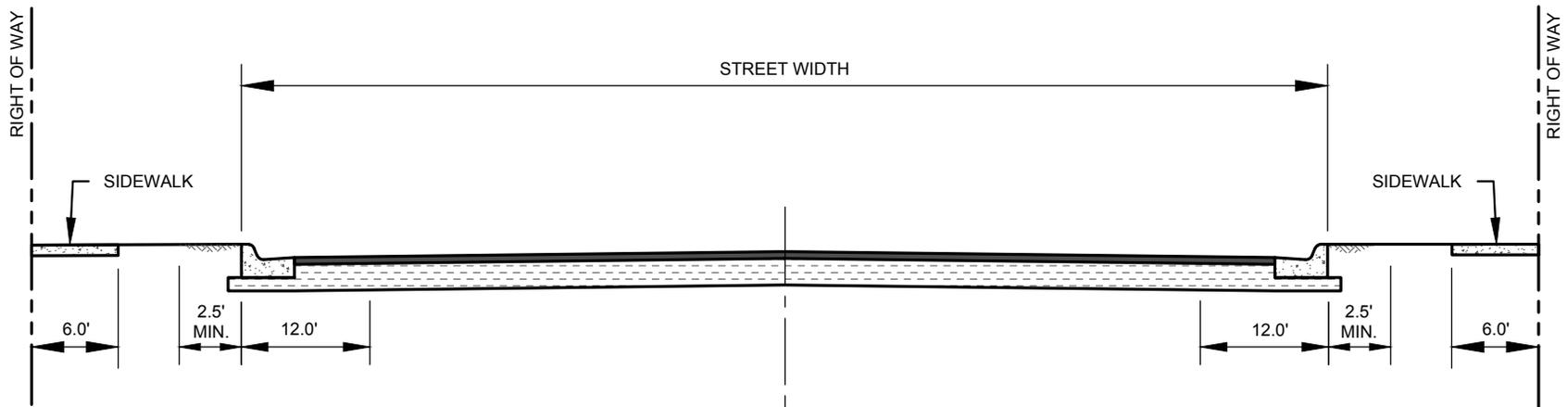
EFFECTIVE DATE:

SCALE: NTS

DETAIL:

**ARTERIAL STREET
 UTILITY MAIN SPACING**

502/402



FRANCHISE UTILITIES
4.0' MIN. COVER
(SEE NOTE 5 & 6)

WATER MAIN
3.5' MIN. COVER

FRANCHISE UTILITIES
4.0' MIN. COVER
(SEE NOTE 5 & 6)

STORM DRAIN
4.0' MIN. COVER
(SEE NOTE 4)

WASTEWATER MAIN
6.5' MIN. COVER

PETROLEUM &
NATURAL GAS MAIN
7.0' MIN. COVER

STORM DRAIN
4.0' MIN. COVER
(SEE NOTE 4)

NOTES:

1. IF A SITE INCLUDES ALLEYS, OR IS ADJACENT TO EXISTING ALLEYS, THEN THE WASTEWATER MAIN IS TO BE LOCATED IN THE ALLEY AND NOT THE STREET RIGHT OF WAY.
2. ALL COVERS ARE FROM THE GUTTER FLOWLINE TO THE TOP OF PIPE.
3. ADDITIONAL UTILITY DEPTH MAY BE REQUIRED TO ACCOMMODATE LATERALS.
4. STORM DRAINS MAY BE LOCATED ON EITHER SIDE OR BOTH SIDES OF STREET AS NEEDED.
5. FRANCHISE UTILITY MAIN LINES MUST MAINTAIN 7.0' MINIMUM COVER WHEN CROSSING RIGHT OF WAY. FRANCHISE UTILITY SERVICE LINES MUST MAINTAIN 2.0' MINIMUM COVER IN THE RIGHT OF WAY.
6. ALL FRANCHISE UTILITY MAIN LINES AND SERVICE LINES MUST BORE TO CROSS EXISTING MAJOR COLLECTOR PAVEMENT. NO OPEN TRENCHING.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

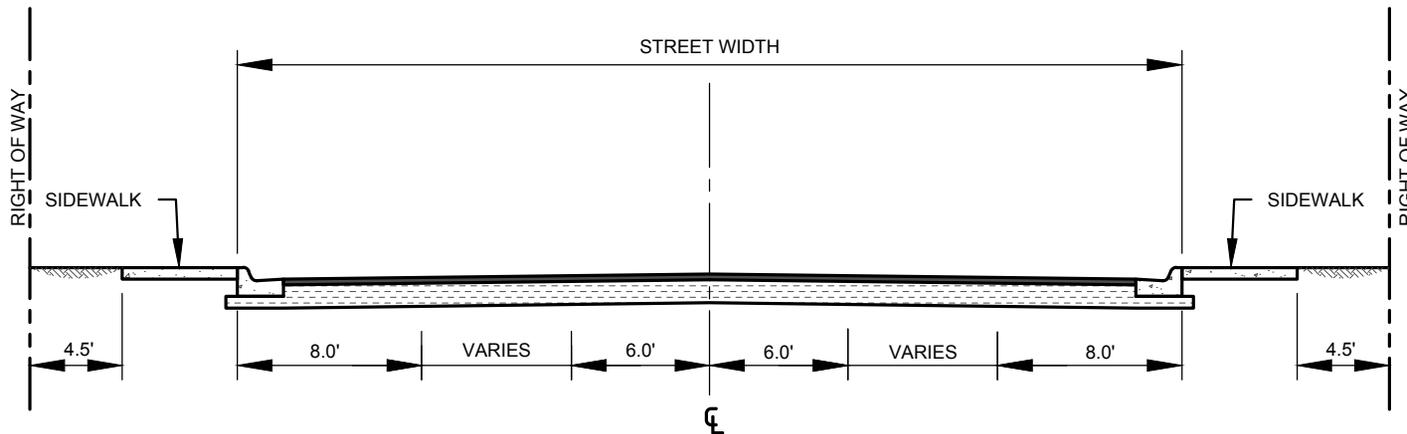
EFFECTIVE DATE:

SCALE: NTS

DETAIL:

**COLLECTOR STREET UTILITY
MAIN SPACING**

503/403



FRANCHISE UTILITIES
4.0' MIN. COVER
(SEE NOTE 4)

WATER MAIN
3.5' MIN. COVER

STORM DRAIN
3.5' MIN. COVER

PETROLEUM &
NATURAL GAS MAIN
7.0' MIN. COVER

WASTEWATER MAIN
6.5' MIN. COVER

FRANCHISE UTILITIES
4.0' MIN. COVER
(SEE NOTE 4)

NOTES:

- IF A SITE INCLUDES ALLEYS, OR IS ADJACENT TO EXISTING ALLEYS, THEN THE WASTEWATER MAIN IS TO BE LOCATED IN THE ALLEY AND NOT THE STREET RIGHT OF WAY.
- ALL COVERS ARE FROM THE GUTTER FLOWLINE TO THE TOP OF PIPE.
- ADDITIONAL UTILITY DEPTH MAY BE REQUIRED TO ACCOMMODATE LATERALS.
- FRANCHISE UTILITY MAIN LINES MUST MAINTAIN 7.0' MINIMUM COVER WHEN CROSSING RIGHT OF WAY. FRANCHISE UTILITY SERVICE LINES MUST MAINTAIN 2.0' MINIMUM COVER IN THE RIGHT OF WAY.
- MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
- CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.



DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

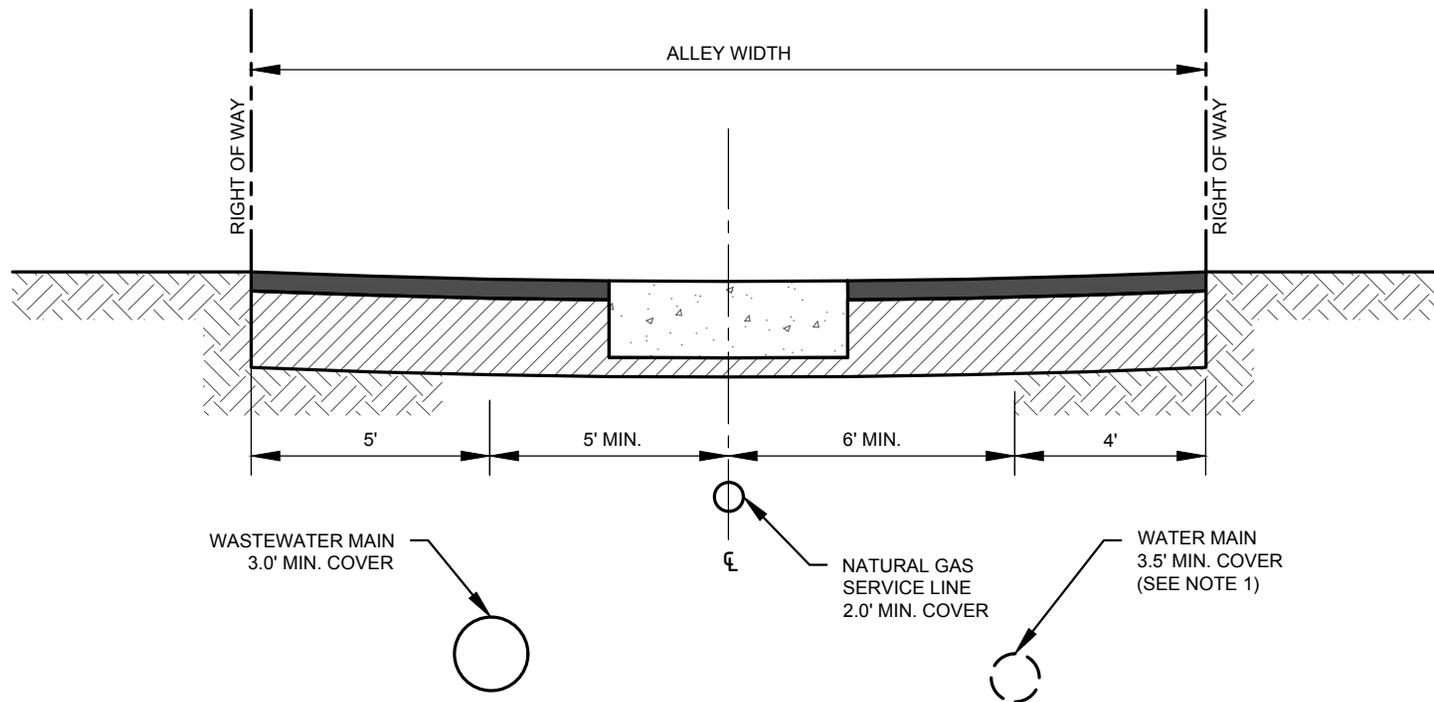
EFFECTIVE DATE:

SCALE: NTS

DETAIL:

**LOCAL STREET UTILITY
MAIN SPACING**

504/404



NOTES:

1. WATER MAIN LOCATION APPLIES FOR EXCEPTIONS ONLY. THE CITY STANDARD REMAINS LOCATING WATER MAINS IN STREETS.
2. ALL COVERS ARE FROM THE ALLEY INVERT TO THE TOP OF PIPE.
3. ADDITIONAL UTILITY DEPTH MAY BE REQUIRED TO ACCOMMODATE LATERALS.
4. FRANCHISE UTILITY MAIN LINES MUST MAINTAIN 2.0' MINIMUM COVER WHEN CROSSING RIGHT OF WAY, AND MUST MAINTAIN 2.5' MINIMUM HORIZONTAL SEPARATION DISTANCE FROM ALL PUBLIC UTILITY MAINS.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY ENGINEERING SERVICES REPRESENTATIVE.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

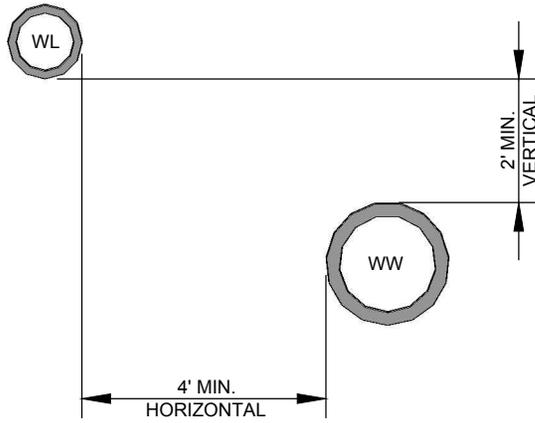
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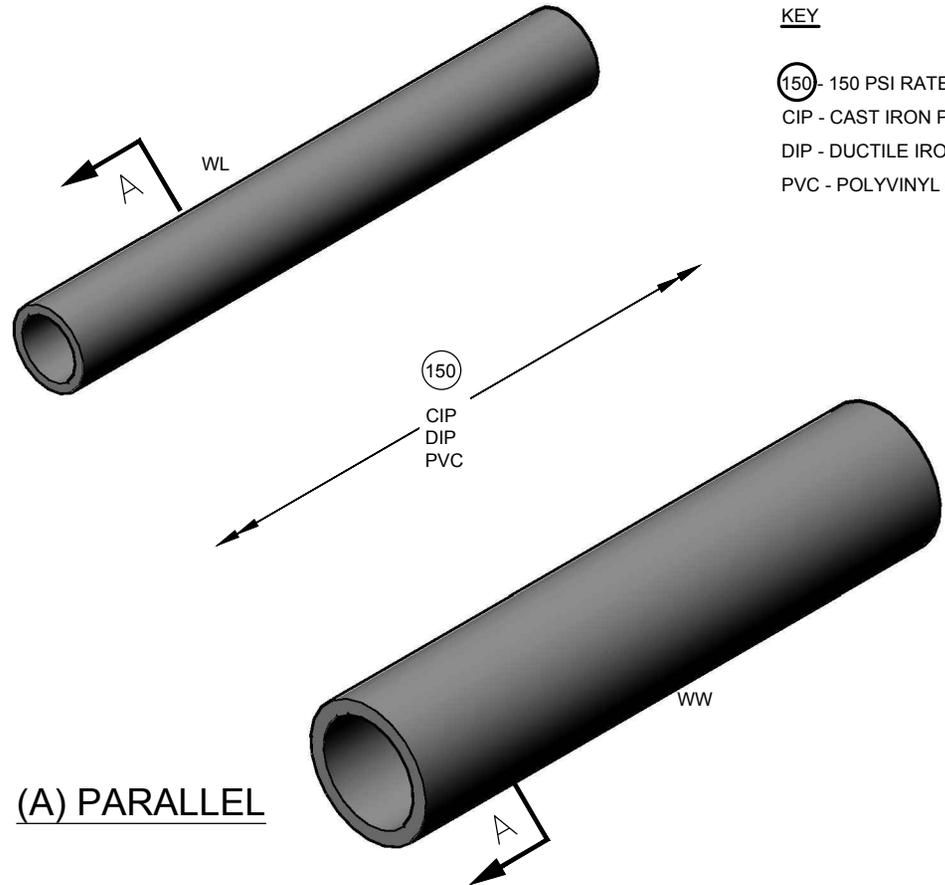
DETAIL:

**STANDARD ALLEY UTILITY
 MAIN SPACING**

505/405



SECTION 'A-A'



(A) PARALLEL

KEY

- (150) - 150 PSI RATED PIPE
- CIP - CAST IRON PIPE
- DIP - DUCTILE IRON PIPE
- PVC - POLYVINYL CHLORIDE PIPE

NOTES:

1. TAC 217.53(d)(3) - WHEREVER POSSIBLE, COLLECTION SYSTEM PIPES AND MANHOLES MUST BE LOCATED AT LEAST NINE FEET FROM ALL WATER SUPPLY PIPES. IF A COLLECTION SYSTEM PIPE OR MANHOLE CANNOT BE LOCATED AT LEAST NINE FEET AWAY FROM A WATER SUPPLY PIPE, THE OWNER MUST JUSTIFY IN THE ENGINEERING REPORT WHY IT IS NOT POSSIBLE TO PROVIDE AT LEAST NINE FEET OF SEPARATION.
2. TAC 217.53(d)(6)(A) - A COLLECTION SYSTEM PIPE THAT RUNS PARALLEL TO AND BELOW A WATER SUPPLY PIPE MUST BE CONSTRUCTED OF AT LEAST 150 PSI PRESSURE CLASS, CORROSION-RESISTANT, NON-BRITTLE PIPE THAT:
 - IS LOCATED AT LEAST TWO VERTICAL FEET BELOW THE WATER SUPPLY PIPE
 - IS LOCATED AT LEAST FOUR HORIZONTAL FEET AWAY FROM THE WATER SUPPLY PIPE
 - INCLUDES JOINTS THAT ARE DESIGNED TO SEAL AT ATMOSPHERIC PRESSURE
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEERING SERVICES REPRESENTATIVE.



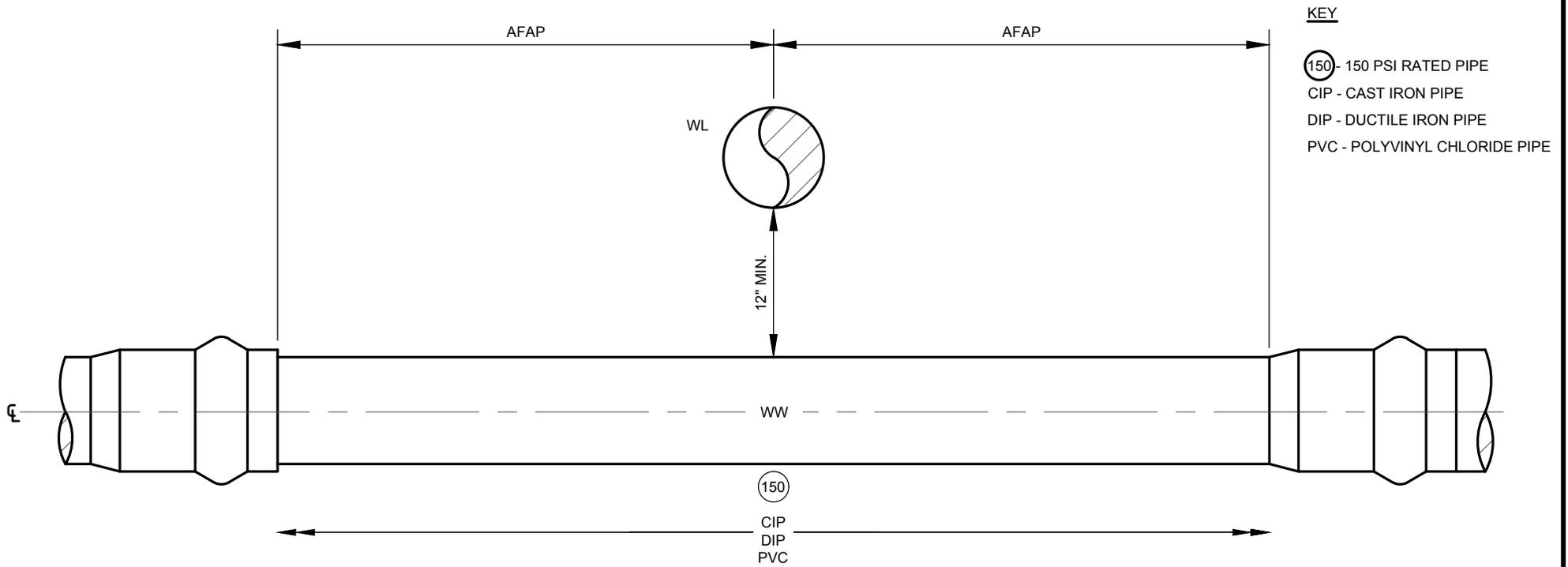
DRAWN:	DPM
CHECKED:	JCF
APPROVED:	MCC

EFFECTIVE DATE: _____

DETAIL:

WATER AND WASTEWATER SPACING

506



KEY

(150) - 150 PSI RATED PIPE
 CIP - CAST IRON PIPE
 DIP - DUCTILE IRON PIPE
 PVC - POLYVINYL CHLORIDE PIPE

(B)(i) CROSSING

NOTES:

1. TAC 217.53(d)(3) - WHEREVER POSSIBLE, COLLECTION SYSTEM PIPES AND MANHOLES MUST BE LOCATED AT LEAST NINE FEET FROM ALL WATER SUPPLY PIPES. IF A COLLECTION SYSTEM PIPE OR MANHOLE CANNOT BE LOCATED AT LEAST NINE FEET AWAY FROM A WATER SUPPLY PIPE, THE OWNER MUST JUSTIFY IN THE ENGINEERING REPORT WHY IT IS NOT POSSIBLE TO PROVIDE AT LEAST NINE FEET OF SEPARATION.
2. TAC 217.53(d)(7)(A) - A COLLECTION SYSTEM THAT CROSSES BELOW A WATER SUPPLY PIPE AND IS CONSTRUCTED OF AT LEAST 150 PSI PRESSURE CLASS, CORROSION-RESISTANT, NON-BRITTLE PIPE MUST:
 - HAVE AT LEAST TWELVE INCHES OF SEPARATION BETWEEN THE OUTSIDES OF THE PIPES;
 - BE CENTERED ON THE CROSSING;
 - BE AT LEAST 18 FEET LONG; AND
 - TERMINATE AT JOINTS THAT ARE DESIGNED TO SEAL AT ATMOSPHERIC PRESSURE.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEERING SERVICES REPRESENTATIVE.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

EFFECTIVE DATE:

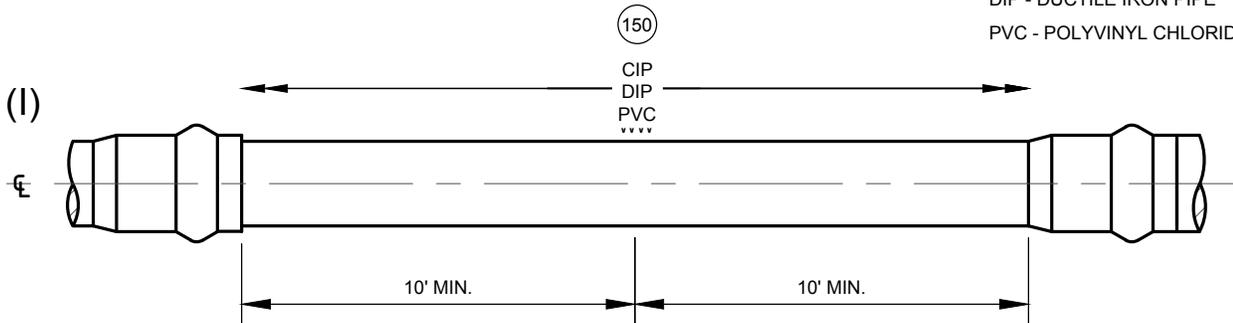
**WATER AND
 WASTEWATER SPACING**

DETAIL:

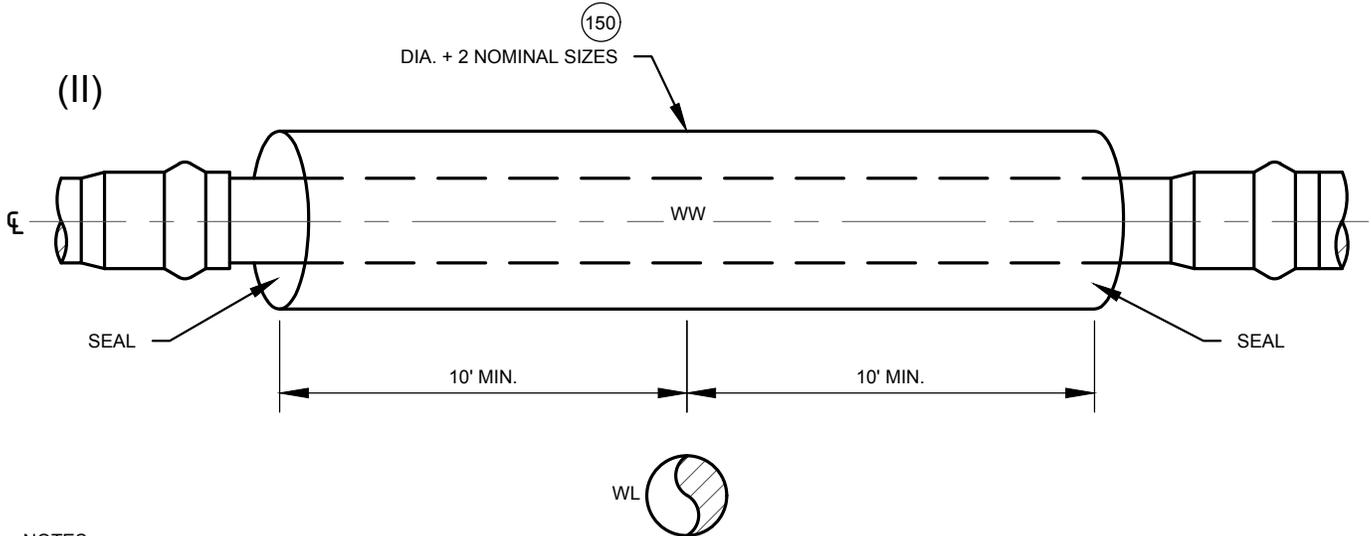
507

KEY

- (150) - 150 PSI RATED PIPE
- CIP - CAST IRON PIPE
- DIP - DUCTILE IRON PIPE
- PVC - POLYVINYL CHLORIDE PIPE



OR



NOTES:

1. TAC 217.53(d)(3) - WHEREVER POSSIBLE, COLLECTION SYSTEM PIPES AND MANHOLES MUST BE LOCATED AT LEAST NINE FEET FROM ALL WATER SUPPLY PIPES. IF A COLLECTION SYSTEM PIPE OR MANHOLE CANNOT BE LOCATED AT LEAST NINE FEET AWAY FROM A WATER SUPPLY PIPE, THE OWNER MUST JUSTIFY IN THE ENGINEERING REPORT WHY IT IS NOT POSSIBLE TO PROVIDE AT LEAST NINE FEET OF SEPARATION.
- 2a. TAC 217.53(d)(5)(B) - A COLLECTION SYSTEM PIPE THAT CROSSES ABOVE A WATER SUPPLY PIPE MUST BE CONSTRUCTED OF AT LEAST 150 PSI PRESSURE CLASS, CORROSION-RESISTANT, NON-BRITTLE PIPE AND MUST USE MANUFACTURER-APPROVED ADAPTERS. GASKETED JOINTS, COMPRESSION JOINTS, AND OTHER NON-BONDED JOINTS MUST BE DESIGNED TO SEAL AT ATMOSPHERIC PRESSURE.
- 2b. TAC 217.53(d)(5)(A) - A CASING PIPE FOR A COLLECTION SYSTEM PIPE THAT CROSSES ABOVE A WATER SUPPLY PIPE MUST BE CONSTRUCTED OF AT LEAST 150 PSI PRESSURE CLASS PIPE THAT IS:
 - SEALED AT BOTH ENDS WITH CEMENT GROUT OR A MANUFACTURED SEAL;
 - AT LEAST TWO NOMINAL SIZES LARGER THAN THE WASTEWATER COLLECTION PIPE;
 - AND SUPPORTED BY SPACES BETWEEN THE COLLECTION SYSTEM PIPE AND THE ENCASING PIPE AT A MAXIMUM OF FIVE-FOOT INTERVALS.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEERING SERVICES REPRESENTATIVE.

DRAWN: DPM

CHECKED: JCF

APPROVED: MCC

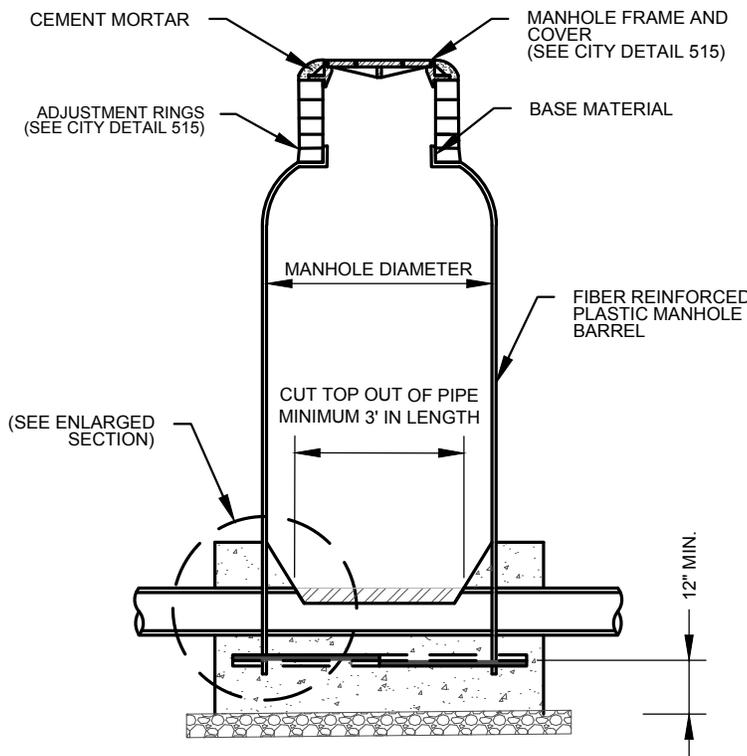
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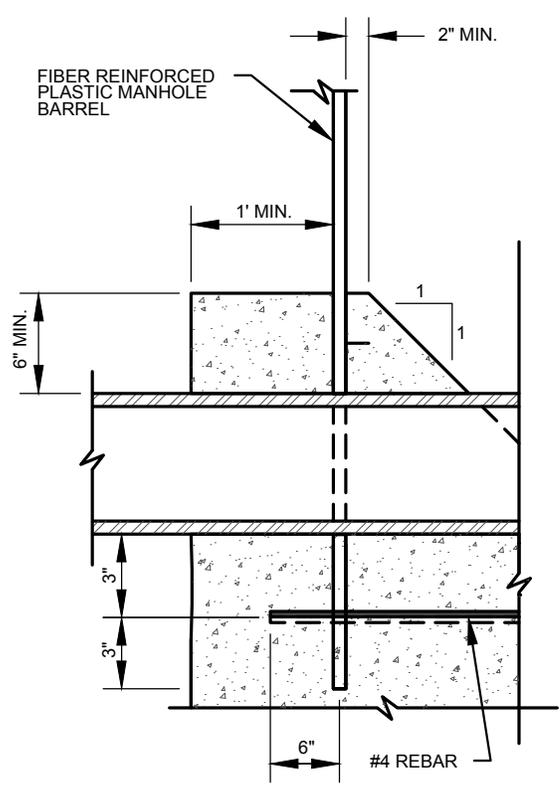


WATER AND WASTEWATER SPACING

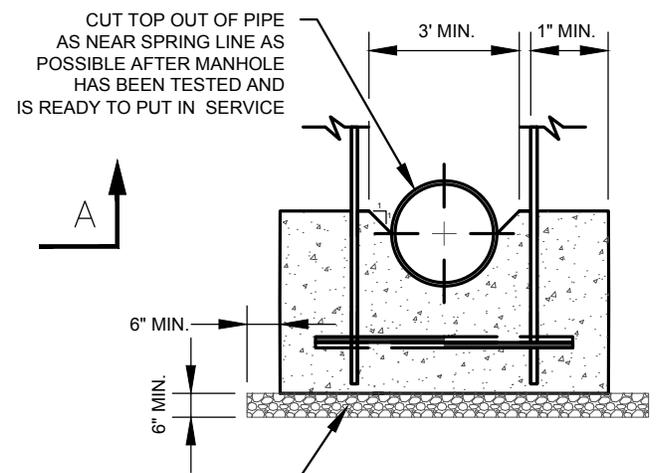
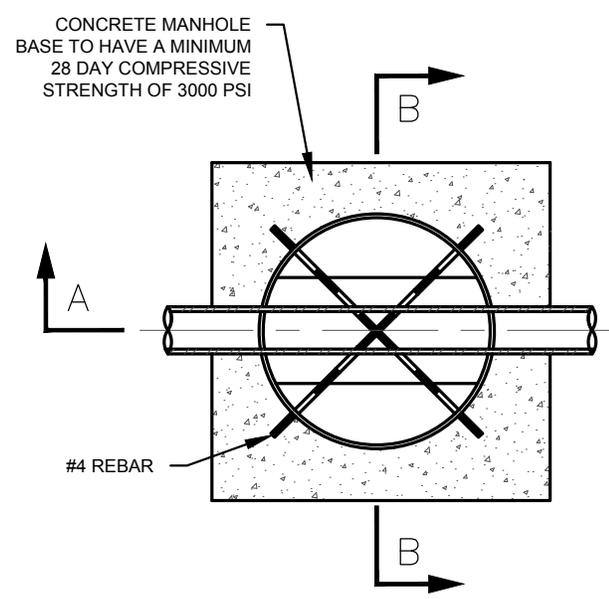
508



SECTION 'A-A'



ENLARGED SECTION



SECTION 'B-B'

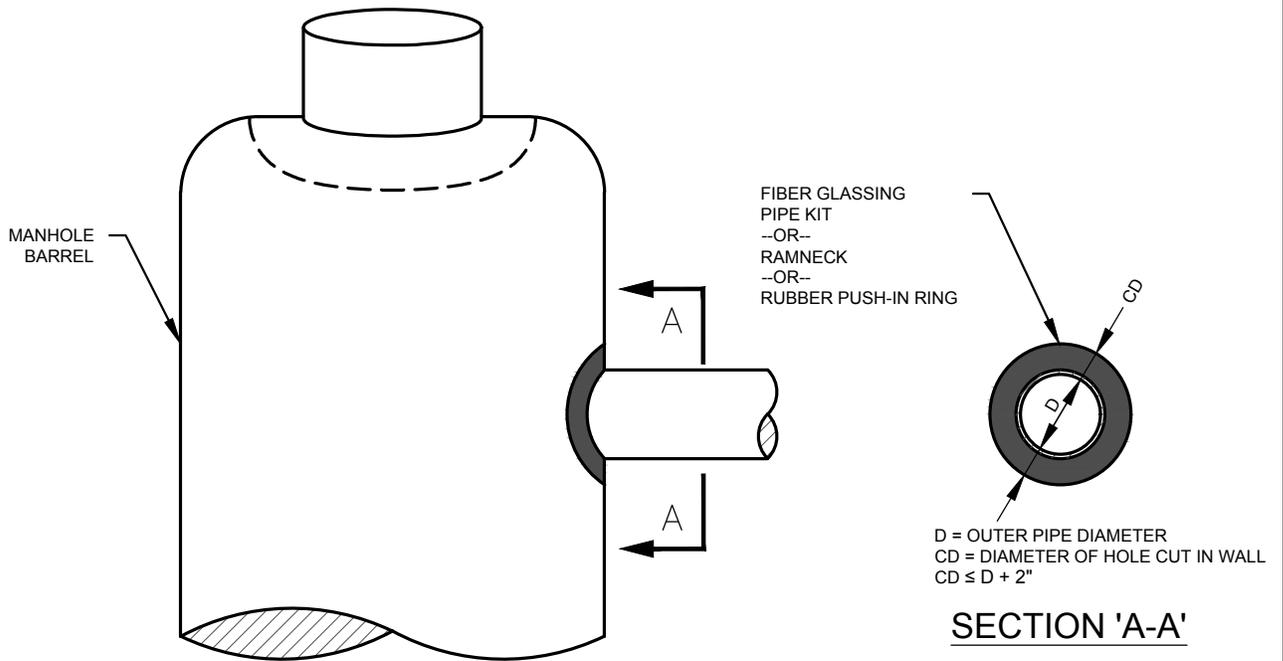
CRUSHED STONE
ASTM C33 GRADE
NO 7 OR 8
--OR--
TXDOT 2004
ITEM 302 TYPE "D"
GRADE NO. 4 OR 5

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE:		SCALE: NTS
		DETAIL:
WASTEWATER MANHOLE		509(A)

NOTES:

1. INSTALL DROPS AND INTERSECTING PIPES ONLY WHEN CALLED FOR IN CONSTRUCTION DRAWINGS.
2. SET MANHOLE FRAME IN SEALANT PER CITY OF MIDLAND STANDARD SPECIFICATIONS.
3. NEW MANHOLE TO HAVE SEAMLESS AND CONTINUOUS NECK, SHOULDER, AND BARREL.
4. ALL CONCRETE TO BE CLASS "A" CONCRETE.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.

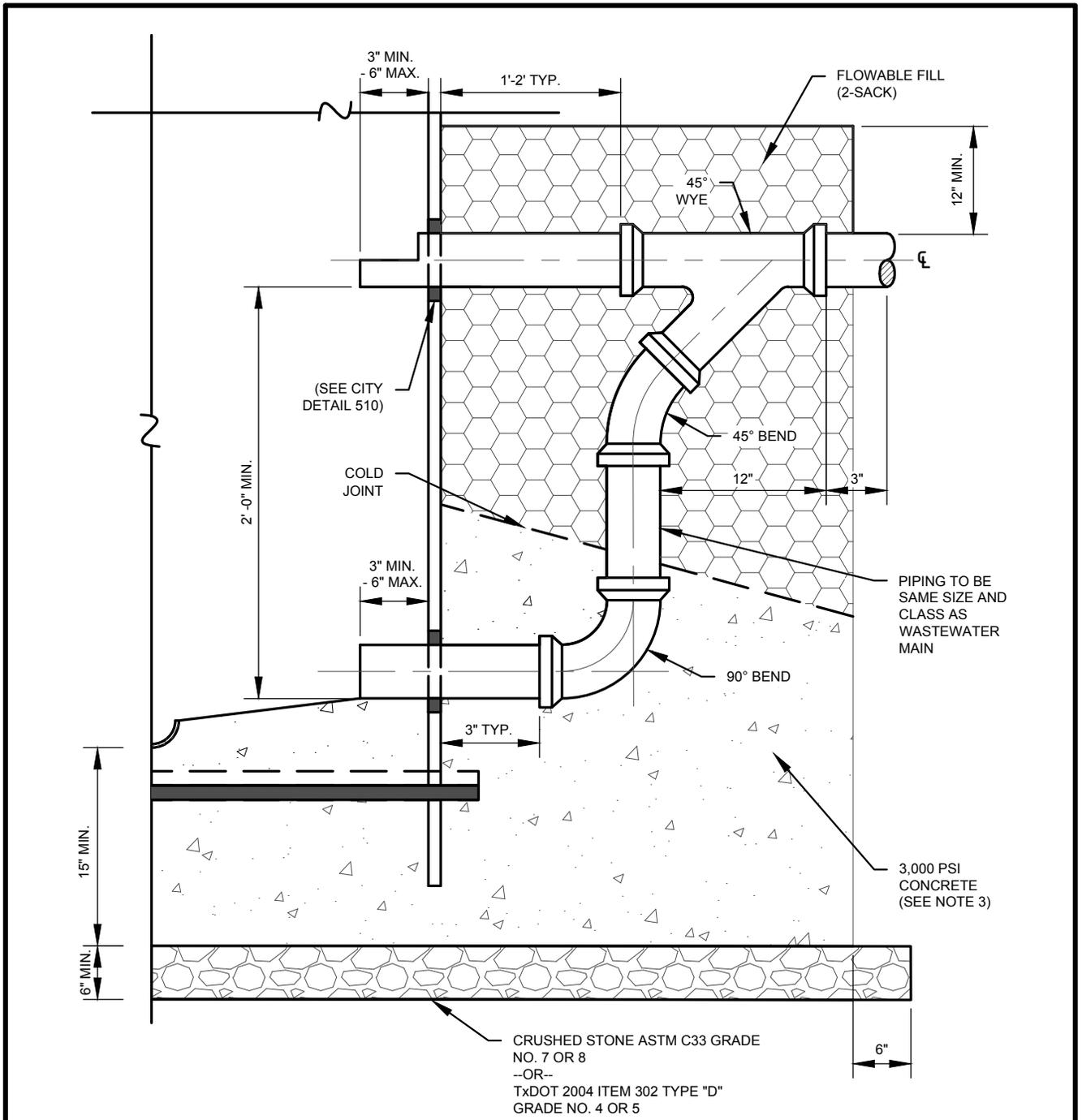
DRAWN: DPM		CHECKED: JCF		APPROVED: MCC	
EFFECTIVE DATE:		SCALE: NTS		DETAIL:	
		WASTEWATER MANHOLE			509(B)



NOTES:

1. THE DIAMETER OF THE CUTOUT IN THE MANHOLE BARREL IS TO BE NO MORE THAN 2.0" WIDER THAN THE OUTER WALL DIAMETER OF THE PENETRATING PIPE.
2. THE PENETRATING PIPE IS TO BE CENTERED IN THE MANHOLE BARREL CUTOUT.
3. PIPES PENETRATING MANHOLE MUST BE MINIMUM 6" DIAMETER, AND SERVICE LINES MUST BE CONSTRUCTED TO CITY WASTEWATER MAIN STANDARDS WITHIN PUBLIC RIGHT OF WAY OR EASEMENT.
4. FORM FLOW SURFACE AND MOUND CONCRETE AROUND PIPE PENETRATIONS, TO FORM A SEAL, IN ONE CONTINUOUS PLACEMENT OPERATION.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.

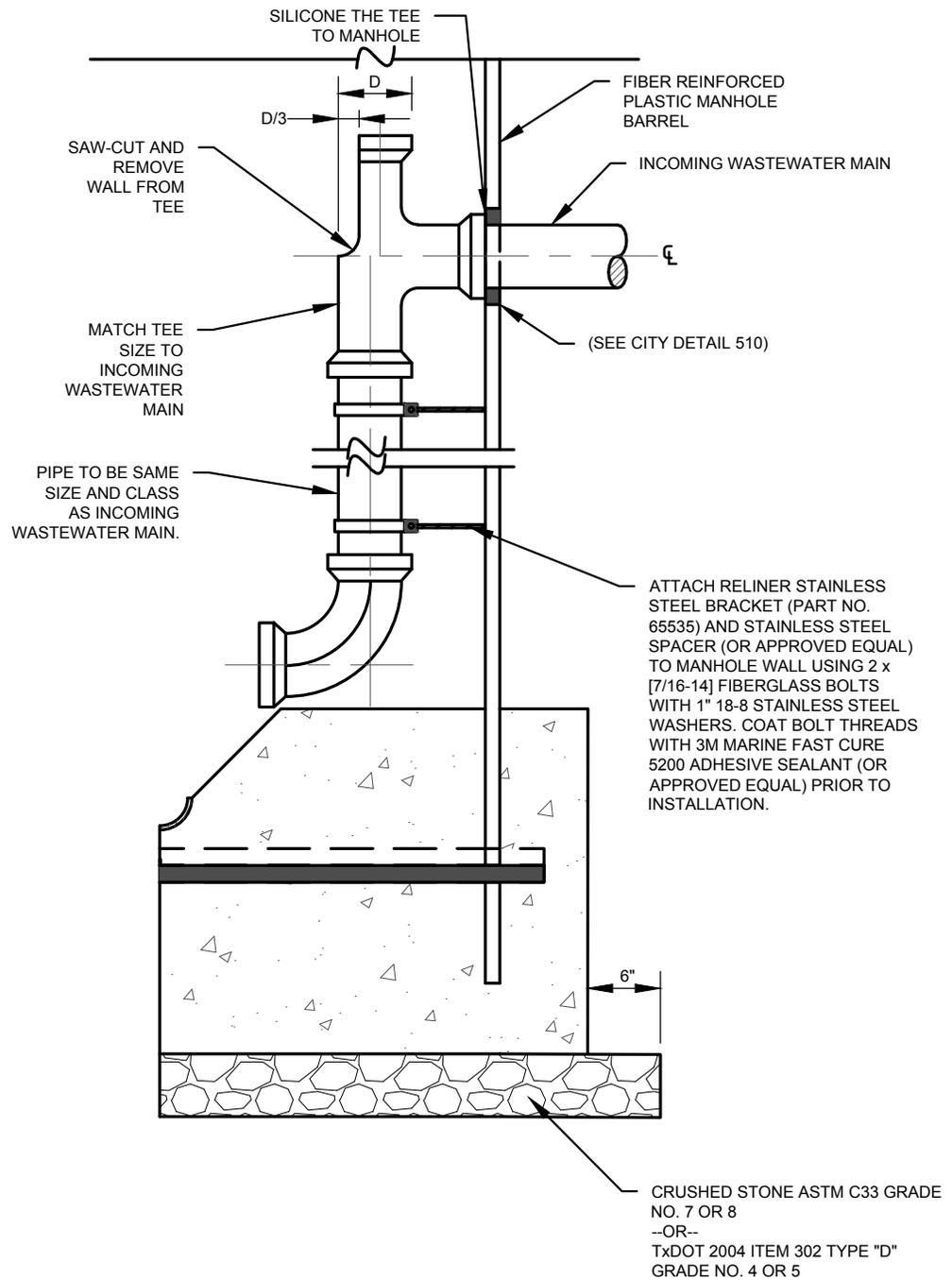
DRAWN: DPM		CHECKED: JCF		APPROVED: MCC	
EFFECTIVE DATE:			SCALE: NTS		DETAIL:
			MANHOLE PIPE PENETRATION		510



NOTES:

1. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT). REQUIRED FOR ALL OVER EXCAVATION.
2. INSTALL BEND AND WYE AS NEAR TO MANHOLE WALL AS PRACTICAL, USUALLY 3"-4" FROM THE BEND AT THE BOTTOM.
3. ALL CONCRETE TO BE CLASS "A" CONCRETE.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.

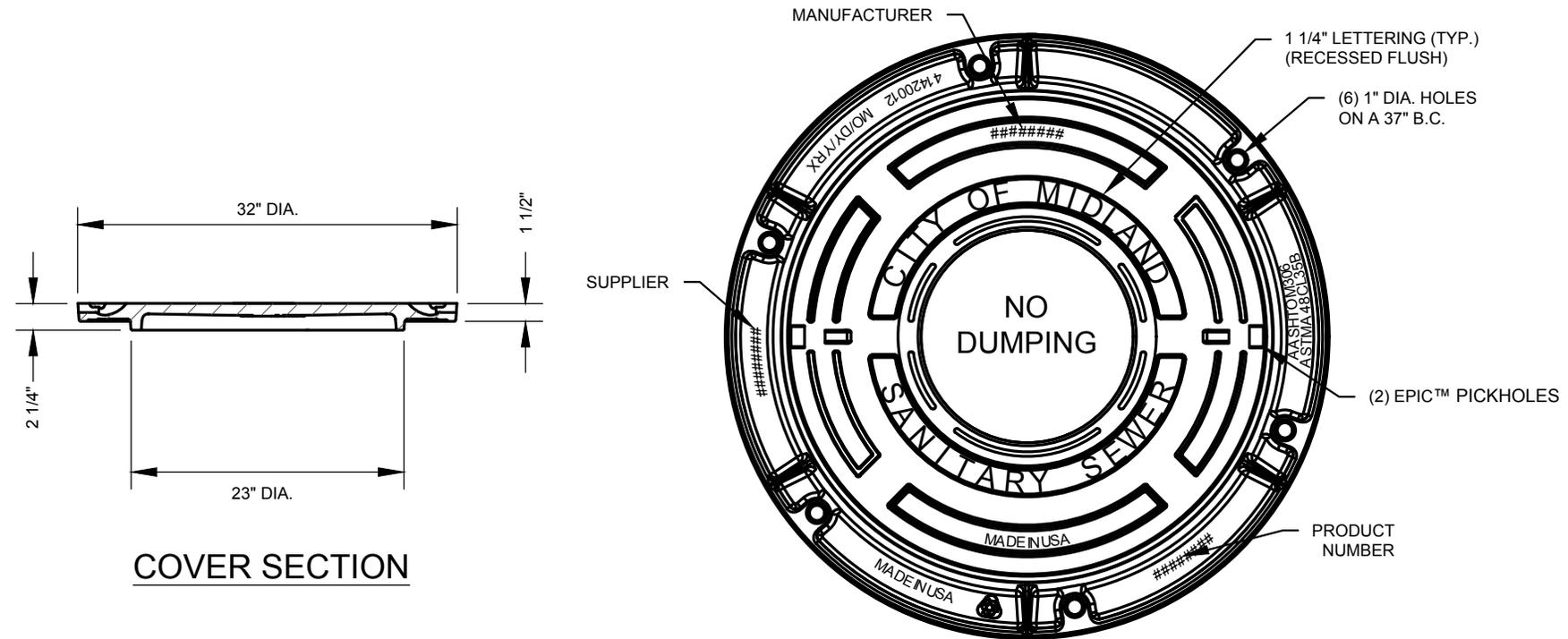
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE:		SCALE: NTS
		DETAIL:
EXTERNAL DROP STRUCTURE		511



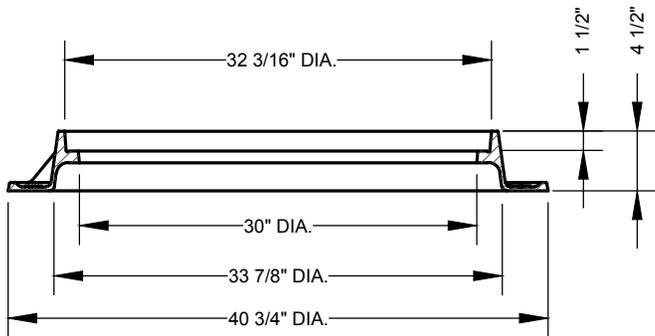
NOTES:

1. THIS DETAIL MAY ONLY BE USED WHEN CONNECTING TO AN EXISTING MANHOLE AND WITH THE PERMISSION OF BOTH THE CITY ENGINEERING SERVICES REPRESENTATIVE AND UTILITY DEPARTMENT REPRESENTATIVE.
2. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT). REQUIRED FOR ALL OVER EXCAVATION.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.

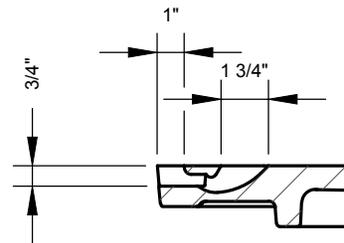
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE:		SCALE: NTS
		DETAIL: 512
<h1>INTERNAL DROP STRUCTURE</h1>		



COVER SECTION



FRAME SECTION



PICKHOLE DETAIL

NOTES:

- MANHOLE COVERS TO BE CAST WITH THE FOLLOWING:
 "CITY OF MIDLAND"
 "NO DUMPING"
 "SANITARY SEWER"

EAST JORDAN V1420Z1/V1430A ASSEMBLY OR APPROVED EQUAL

- MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
- CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

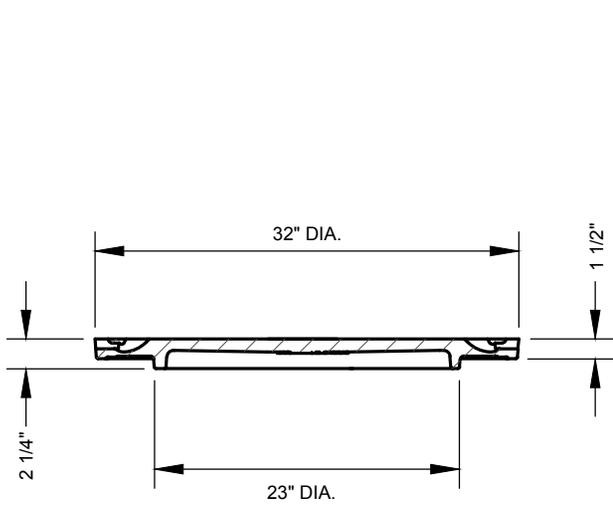
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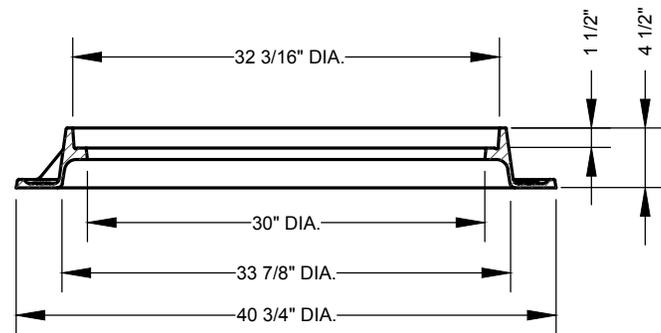
DETAIL:

TYPICAL MANHOLE COVER

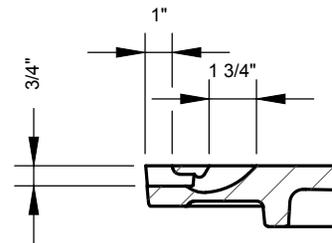
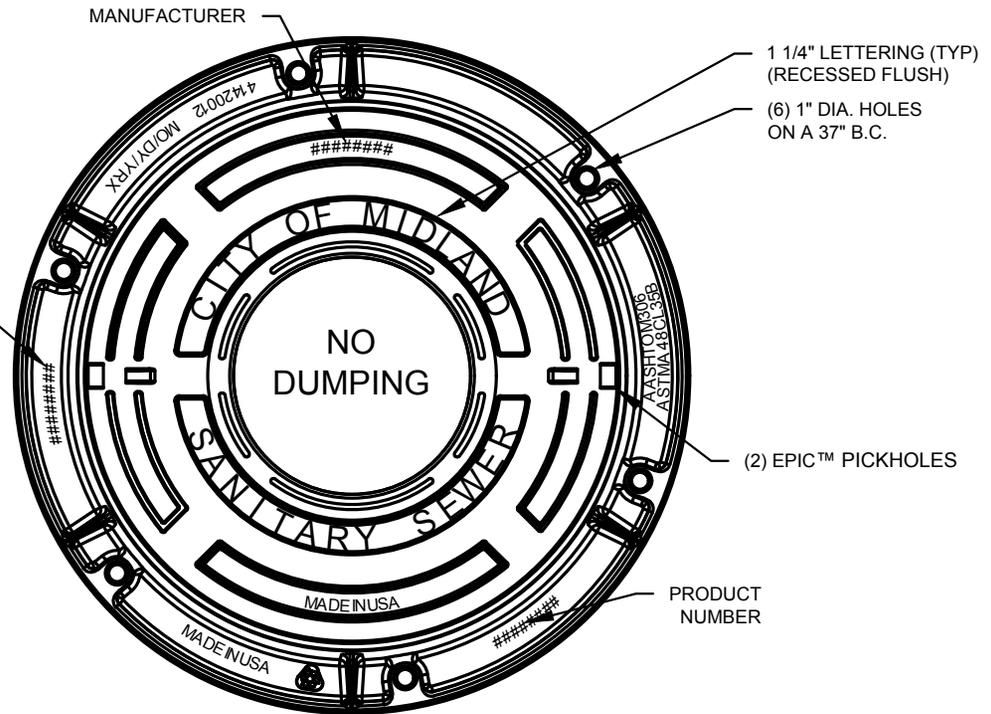
513



COVER SECTION



FRAME SECTION



PICKHOLE DETAIL

NOTES:

- MANHOLE COVERS TO BE CAST WITH THE FOLLOWING:
 "CITY OF MIDLAND"
 "NO DUMPING"
 "SANITARY SEWER"

EAST JORDAN V1420ZPT/V1430APT ASSEMBLY OR APPROVED EQUAL

- MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
- CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

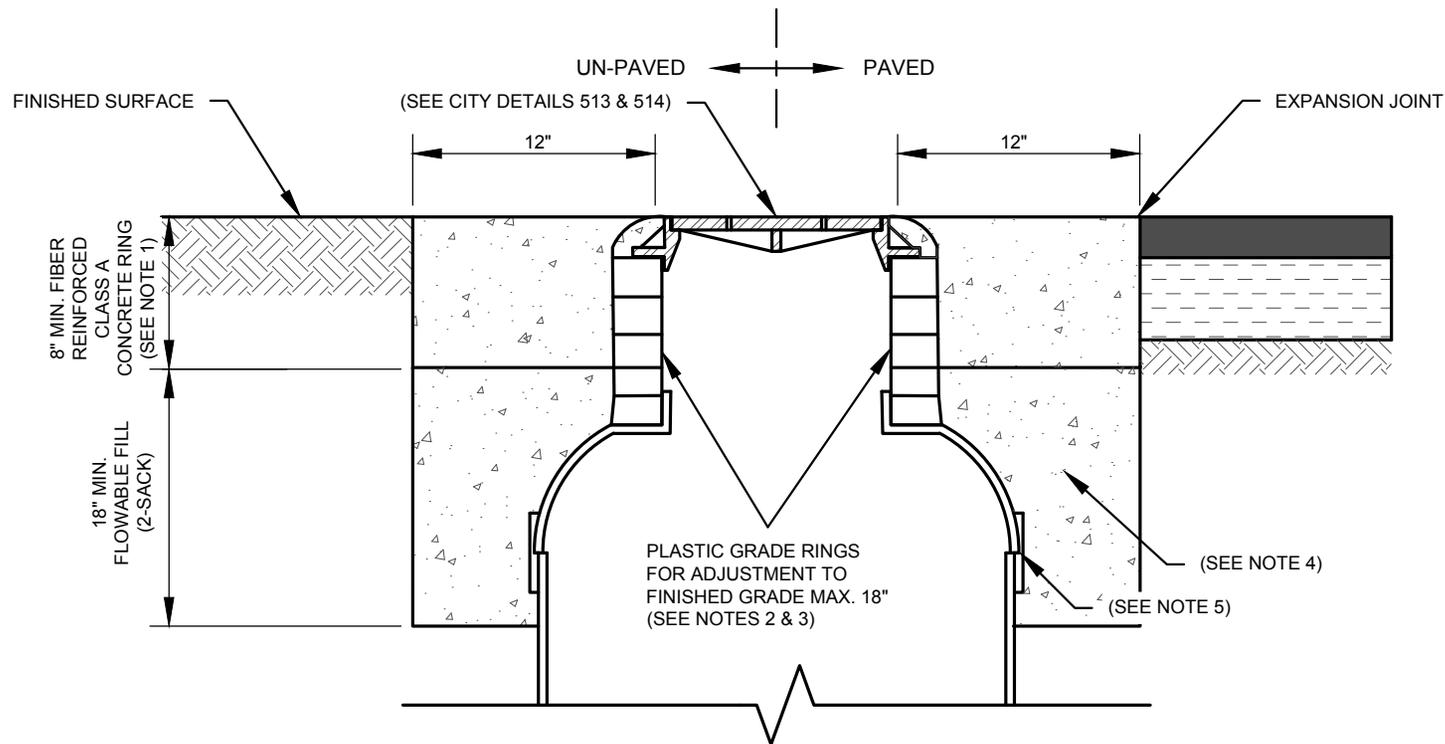
EFFECTIVE DATE:

SCALE: NTS

DETAIL:

WATER TIGHT MANHOLE COVER

514



MANHOLE ADJUSTMENT

NOTES:

1. INSTALL 12" MIN. FIBER REINFORCED CLASS "A" CONCRETE RING WHEN MANHOLE IS LOCATED IN AN ARTERIAL R.O.W.
2. GRADE RINGS TO MEET ASTM STANDARD A48 AND TO BE 2", 4", 6" THICKNESS AS REQUIRED. INSTALL RAMNEK 1/4" THICK ACROSS FULL WIDTH OF ADJUSTMENT RINGS.
3. ENGINEERING SERVICES REPRESENTATIVE AND UTILITY SERVICES REPRESENTATIVE MAY ALLOW GREATER DEPTH TO ACCOMMODATE PAVING STRUCTURES.
4. REMOVE ALL MATERIAL EXCAVATED FROM SITE AND EXCAVATION, AND FILL TO FINISHED BASE ELEVATION WITH FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT).
5. MANUFACTURED WATERTIGHT CONNECTOR, CORE DRILL AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS. THIS IS ONLY TO BE USED FOR ADJUSTMENTS OR REPAIRS TO EXISTING MANHOLES.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE..



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

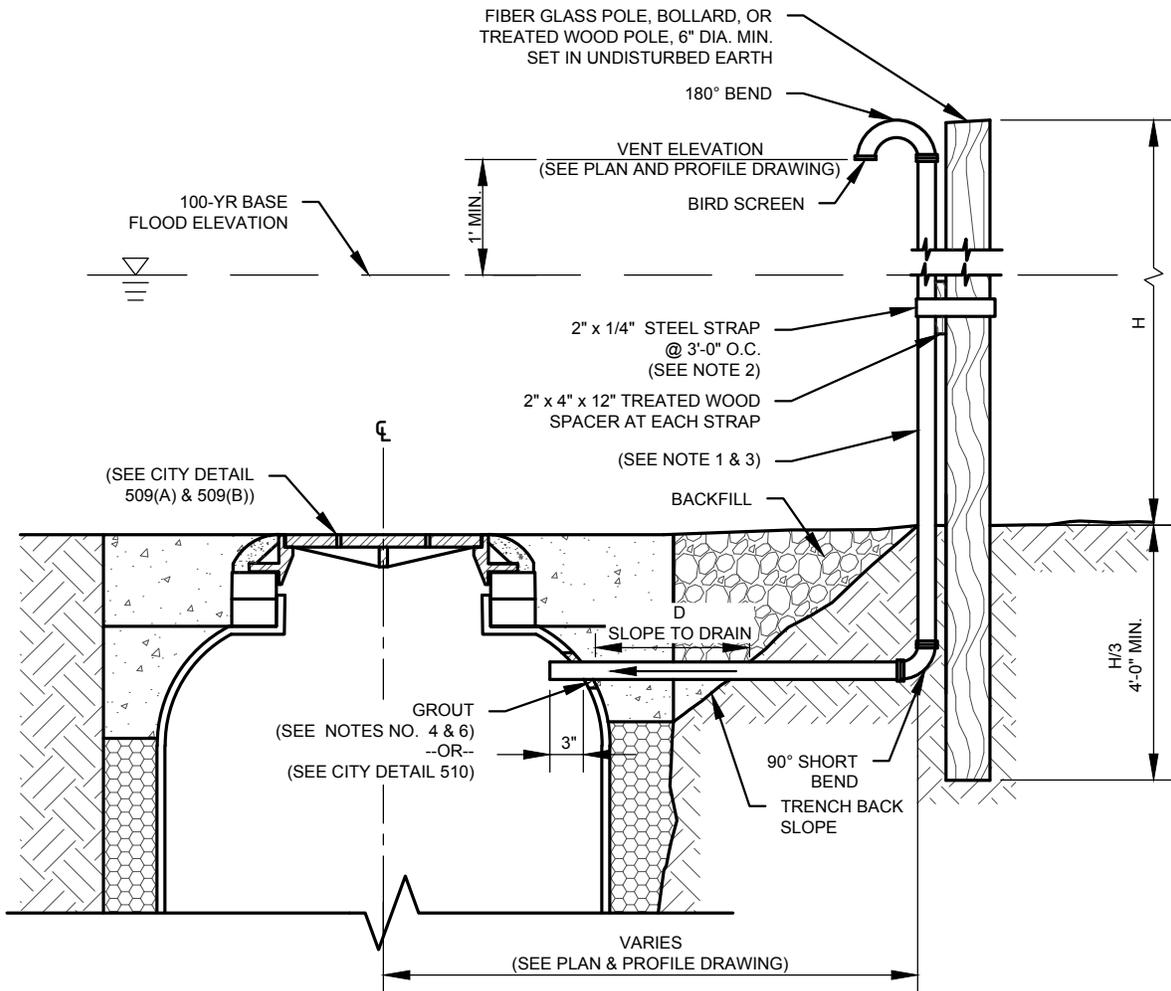
EFFECTIVE DATE:

SCALE: NTS

DETAIL:

MANHOLE ADJUSTMENT

515

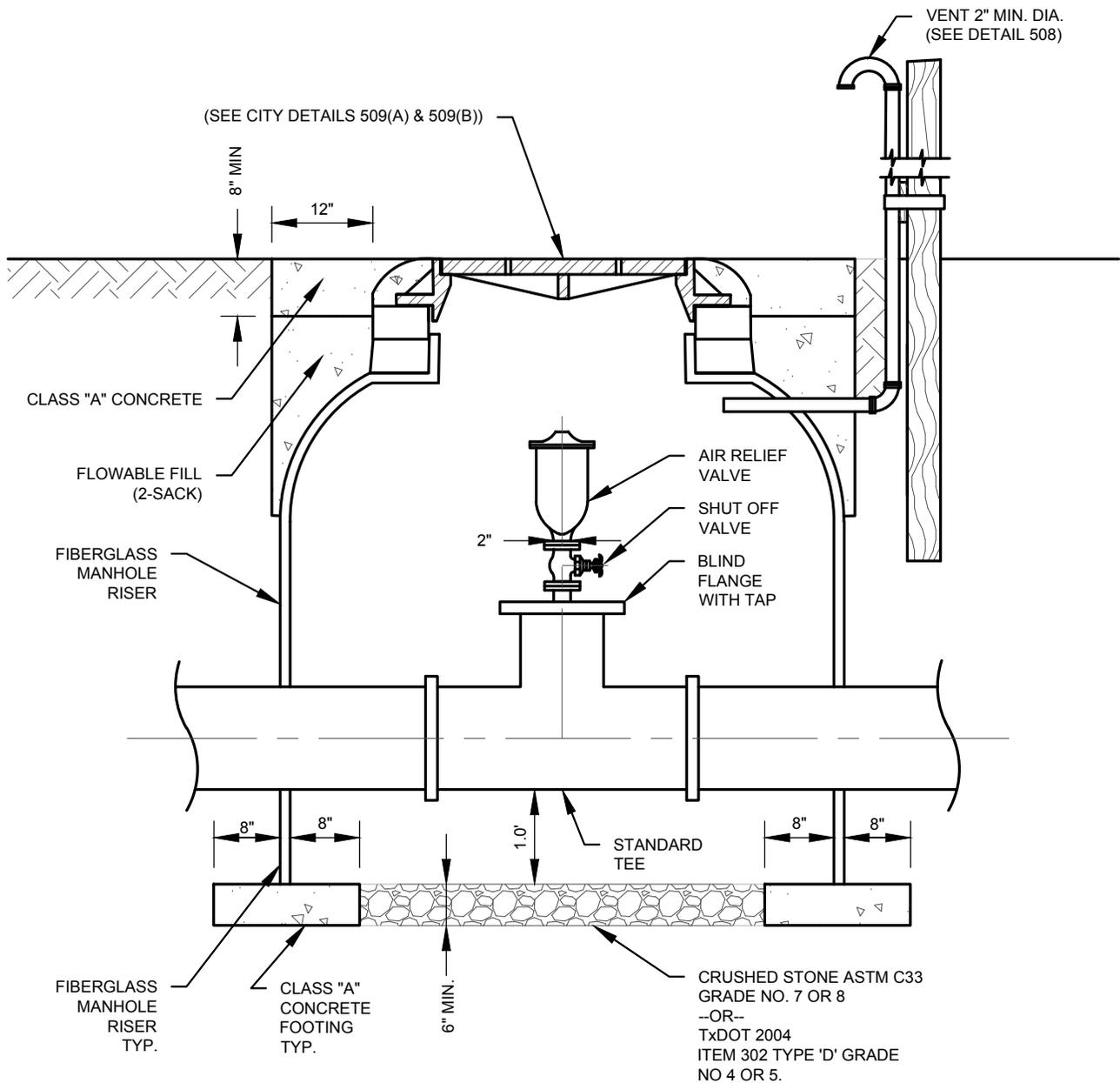


REMOTE VENT

NOTES:

1. ALL PIPING TO BE 3" DIA. DUCTILE IRON WITH FLANGED JOINTS COATED INSIDE AND OUTSIDE.
2. PAINT ALL STRAPPING WITH 2 COATS OF ALL WEATHER EPOXY.
3. PAINT ALL EXPOSED PIPING WITH 2 COATS OF ALL WEATHER EPOXY.
4. APPROVED WATER TIGHT MANHOLE CONNECTOR INSTALLED PER SPECIFICATION AND/OR MANUFACTURER'S INSTRUCTIONS.
5. GROUT TO BE APPROVED NON-SHRINK TYPE.
6. MANHOLE VENT TO BE USED IN CONJUNCTION WITH WATER TIGHT MANHOLE RINGS AND COVERS SPACED EVERY THIRD MANHOLE OR AS SHOWN ON THE PLANS.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
EFFECTIVE DATE:		SCALE: NTS	DETAIL:
MIDLAND <i>Engineering Services</i>			REMOTE VENT PIPE
			516

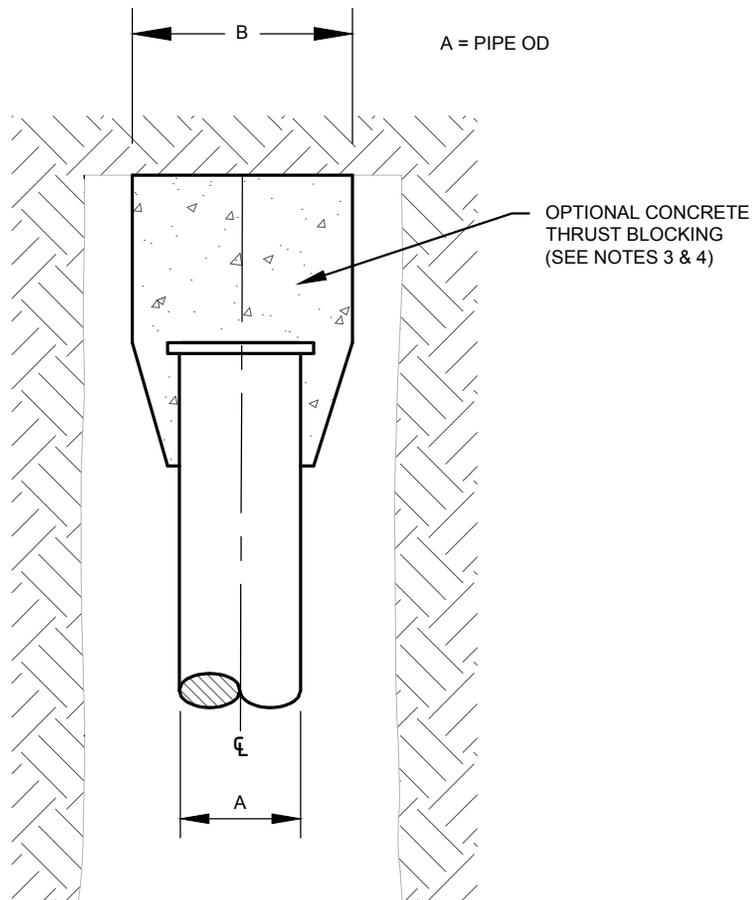


NOTES:

1. IF AIR RELIEF VALVE IS LOCATED IN PAVEMENT THE COVER IS TO BE A GRATE COVER AND NO VENT PIPES ARE TO BE UTILIZED.
2. ALL CONCRETE TO BE CLASS "A" CONCRETE.
3. MATERIAL AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE:		SCALE: NTS
MIDLAND <i>Engineering Services</i>		DETAIL:
		517

FORCE MAIN AIR RELIEF VALVE



PIPE OD A	BLOCKING DIMENSIONS	
	B	*C
4"	1'-0"	1'-0"
6"	1'-7"	1'-0"
8"	2'-2"	2'-2"
10"	2'-8"	2'-8"
12"	3'-2"	3'-2"
14"	3'-8"	3'-8"
16"	4'-3"	4'-3"

*C - VERTICAL DEPTH OF CONCRETE BEARING ON UNDISTURBED EARTH

NOTES:

1. PLUG ALL WASTEWATER MAIN STUB OUTS. SECURE PLASTIC PLUG TO END OF WASTEWATER MAIN.
2. FITTINGS TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
3. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE AND TO BE PLACED AGAINST UNDISTURBED EARTH.
4. THRUST BLOCKING DESIGN TO BE PROVIDED IN CONSTRUCTION DRAWINGS FOR PIPES LARGER THAN 16" DIAMETER.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.



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 APPROVED: MCC

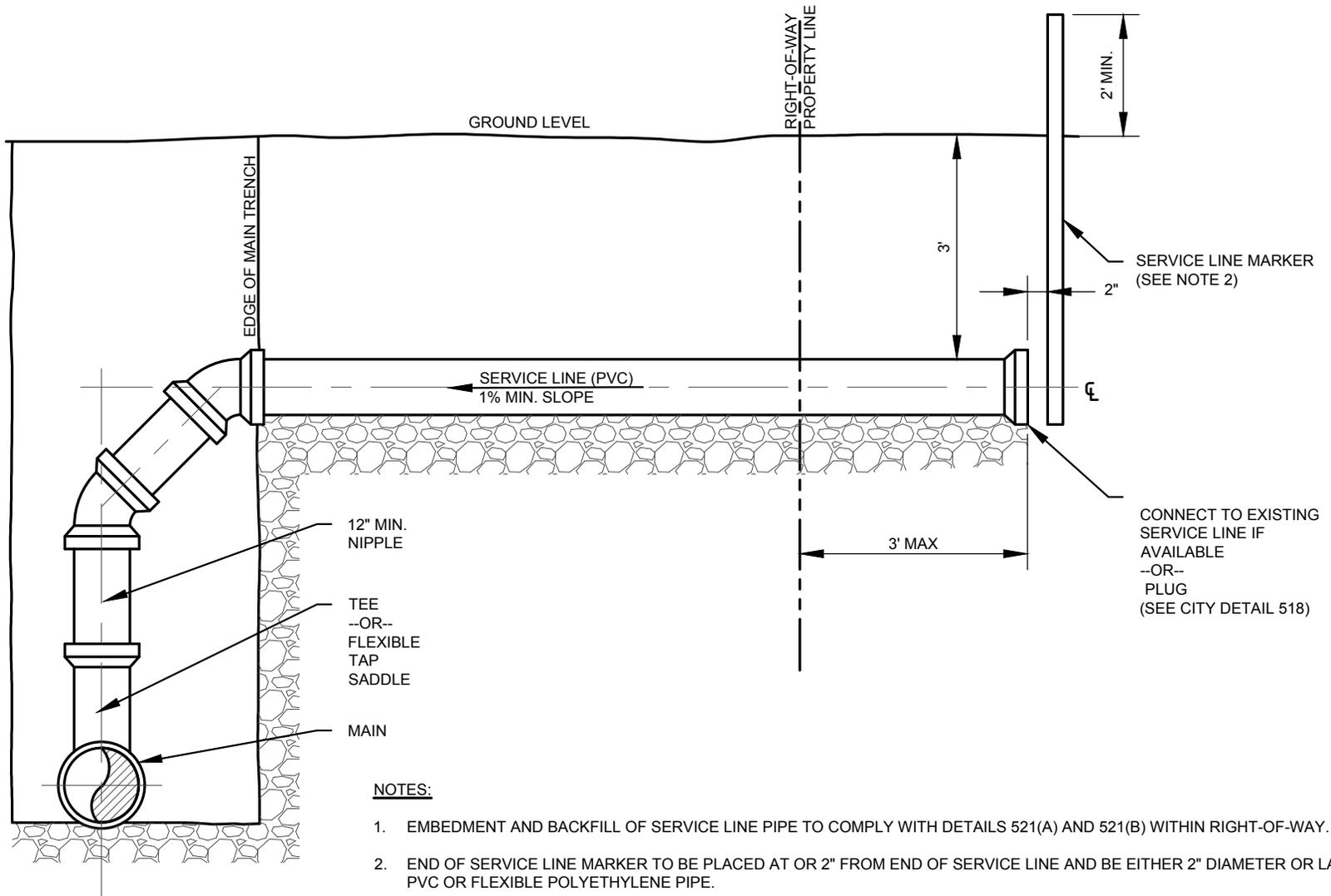
EFFECTIVE DATE:

SCALE: NTS

DETAIL:

BLOCKING FOR WASTEWATER PLUG

518



NOTES:

1. EMBEDMENT AND BACKFILL OF SERVICE LINE PIPE TO COMPLY WITH DETAILS 521(A) AND 521(B) WITHIN RIGHT-OF-WAY.
2. END OF SERVICE LINE MARKER TO BE PLACED AT OR 2" FROM END OF SERVICE LINE AND BE EITHER 2" DIAMETER OR LARGER PVC OR FLEXIBLE POLYETHYLENE PIPE.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHER WISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.



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 APPROVED: MCC

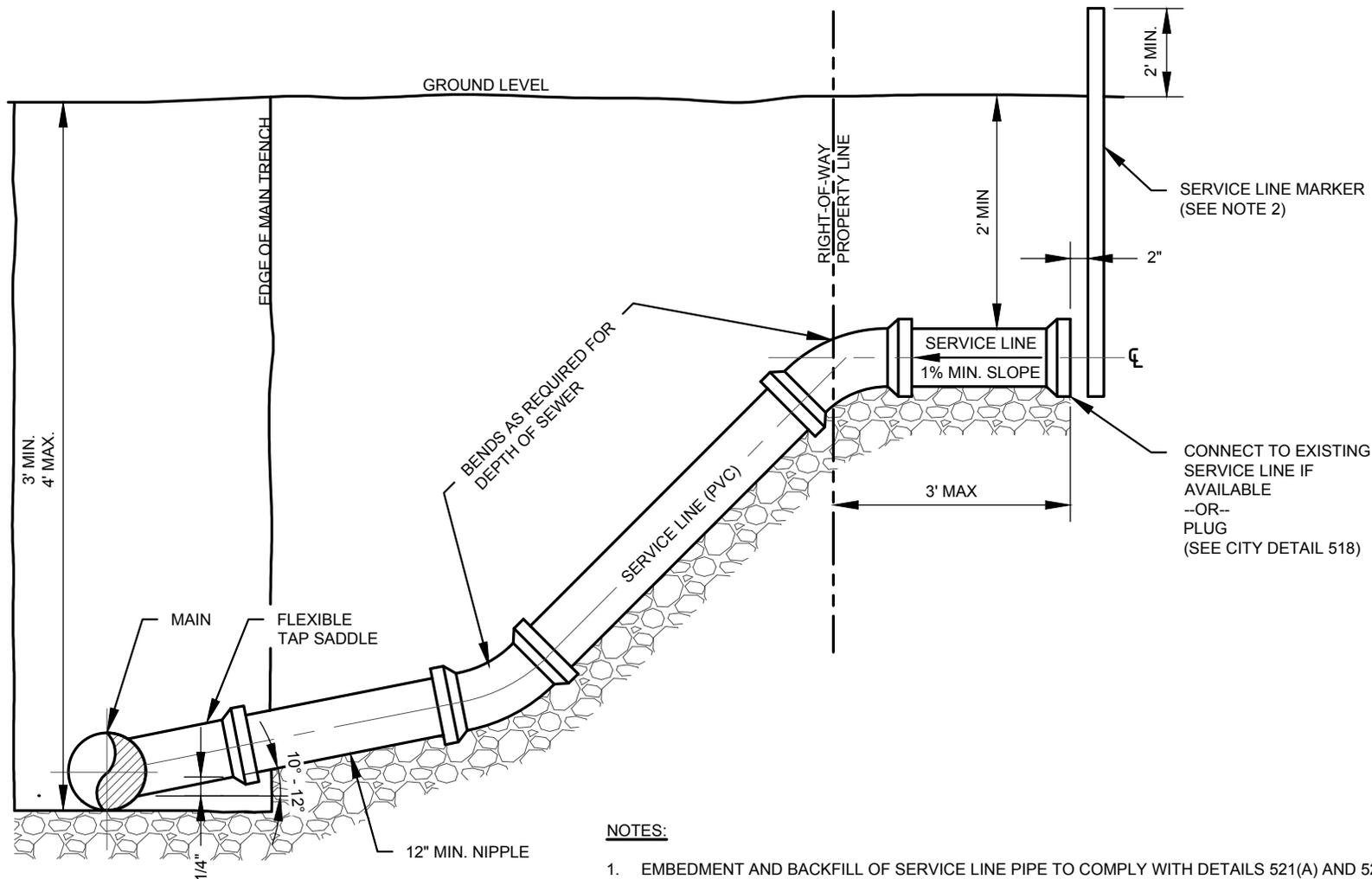
EFFECTIVE DATE:

SCALE: NTS

DETAIL:

**4" AND 6" SANITARY SEWER
 SERVICE LINE TAP**

519



NOTES:

1. EMBEDMENT AND BACKFILL OF SERVICE LINE PIPE TO COMPLY WITH DETAILS 521(A) AND 521(B) WITHIN RIGHT-OF-WAY.
2. END OF SERVICE LINE MARKER TO BE PLACED 2" FROM END OF SERVICE LINE AND BE EITHER 2" DIAMETER OR LARGER PVC OR FLEXIBLE POLYETHYLENE PIPE.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.



DRAWN: DPM
 CHECKED: JCF
 APPROVED: MCC

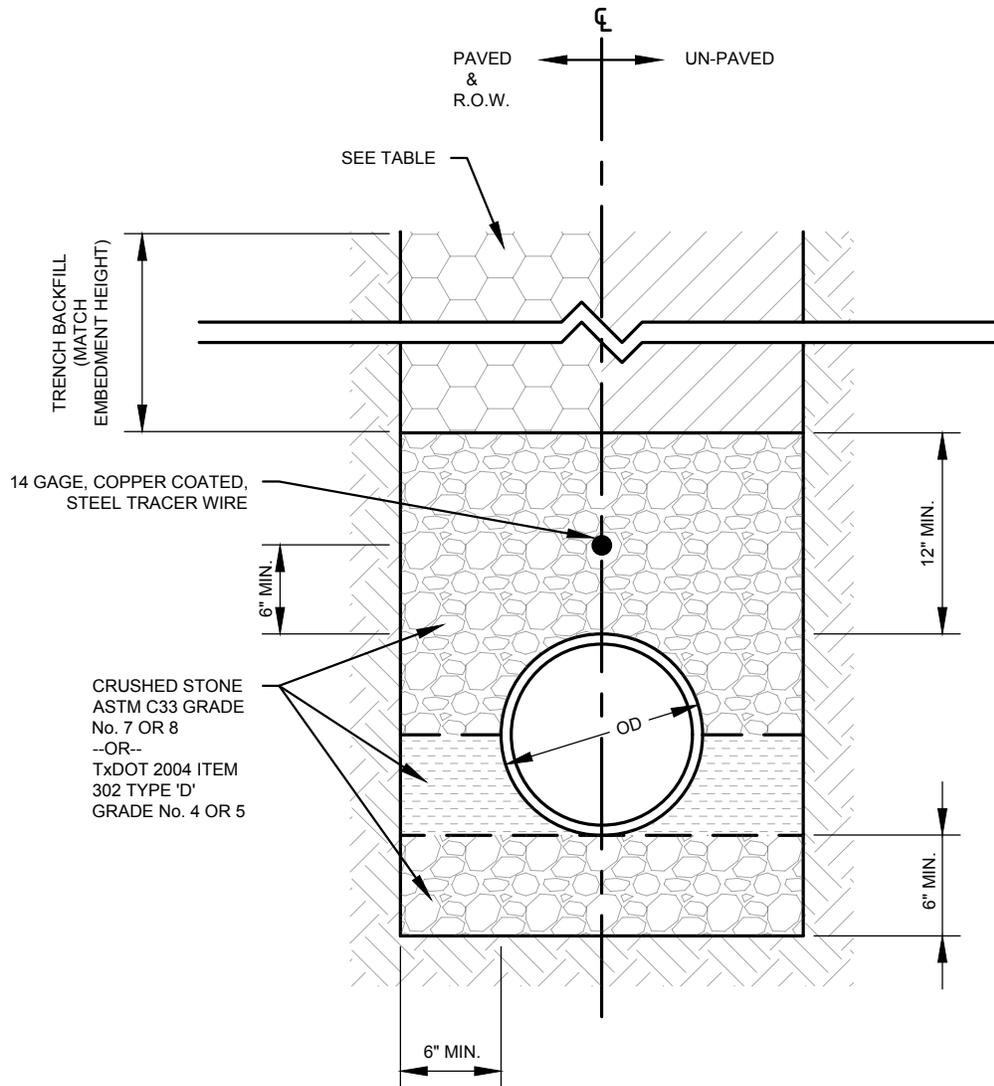
EFFECTIVE DATE:

SCALE: NTS

DETAIL:

**4" AND 6" SANITARY SEWER
 SERVICE LINE OPTION 2**

520



TRENCH BACKFILL NOTES:

1. APPLIES TO ALL PIPE TYPES. (DUCTILE IRON, PVC, ETC.)
2. NATIVE MATERIAL TO BE EXISTING EXCAVATED SOIL FROM TRENCH WITH ALL MATERIAL BROKEN DOWN $\leq 2"$.
3. MOISTURE CONDITION ALL BACKFILL MATERIAL PRIOR TO PLACING IN TRENCH.
4. PLACE BACKFILL MATERIAL IN MAXIMUM 12" LOOSE LIFTS AND COMPACT TO MAXIMUM 8" COMPACTED LIFTS.
5. REFER TO CITY DETAILS 522 AND 523 FOR TRENCH PAVEMENT REPLACEMENT REQUIREMENTS
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.

TRENCH BACKFILL REQUIREMENTS		
CONDITION	PAVED	UNPAVED
≤ 30 LL ≤ 15 PI	SELECT FILL	NATIVE SOIL
≤ 30 LL ≤ 15 PI	SELECT FILL	SELECT FILL

DRAWN: DPM

CHECKED: JCF

APPROVED: MCC

EFFECTIVE DATE:

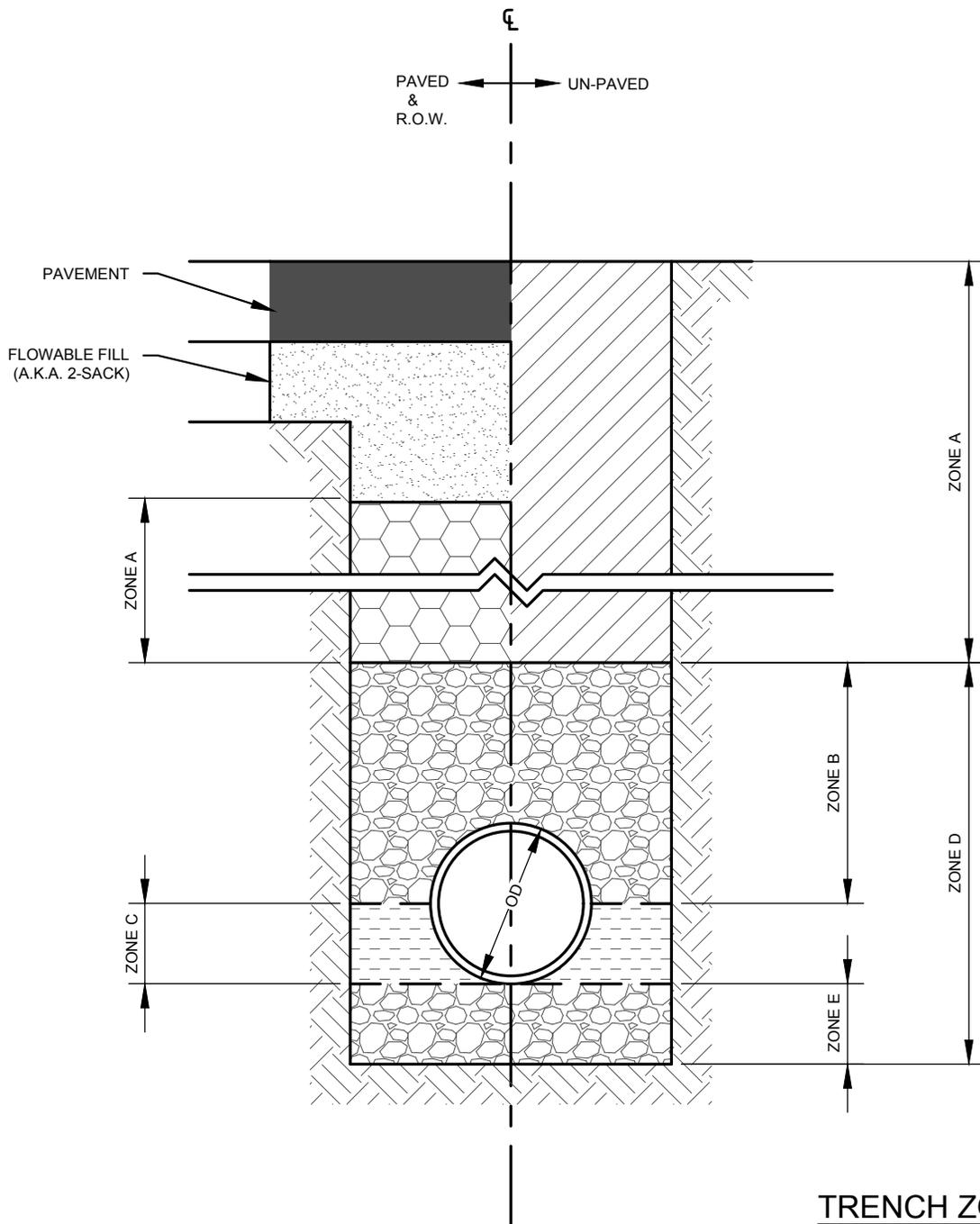
SCALE: NTS

DETAIL:



TRENCHING AND BEDDING

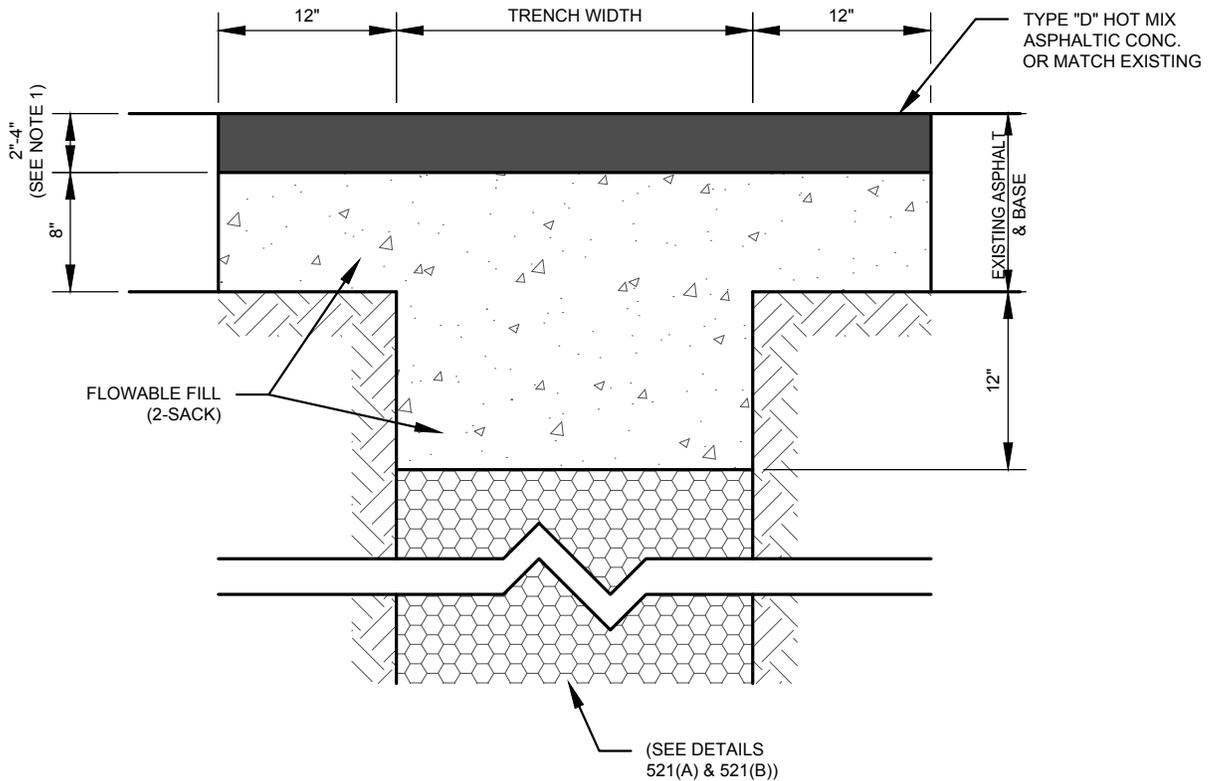
521(A)
/426(A)



TRENCH ZONES:

- ZONE A: TRENCH BACKFILL
- ZONE B: PIPE BACKFILL
- ZONE C: HAUNCHING
- ZONE D: PIPE EMBEDMENT
- ZONE E: BEDDING

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE:		SCALE: NTS
		DETAIL:
TRENCHING AND BEDDING		521(B) /426(B)

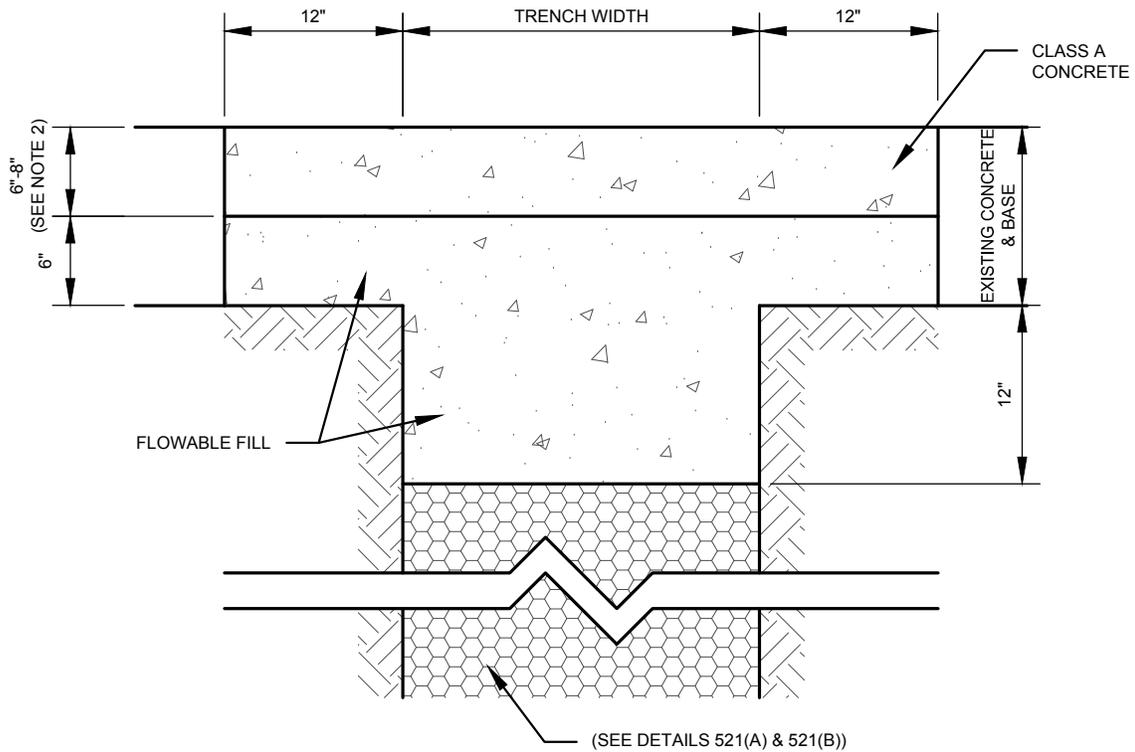


NOTES:

1. ASPHALT PAVEMENT THICKNESS TO BE A MINIMUM OF 2" OR MATCH THE EXISTING ASPHALT THICKNESS IF IT IS GREATER THAN 2" THICK.
2. PLACE ALL FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT) AS A SINGLE CONTINUOUS POUR.
3. EXTEND BOTH ASPHALT AND FLOWABLE FILL 12" BEYOND THE EDGE OF THE TRENCH ON BOTH SIDES.
4. SEE DETAILS 521(A) AND 521(B) REGARDING TRENCH BACKFILL REQUIREMENTS BENEATH THE FLOWABLE FILL.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE:	SCALE: NTS	DETAIL:
ASPHALT TRENCH PAVEMENT REPLACEMENT		522/427





NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" CONCRETE. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. CONCRETE PAVEMENT THICKNESS TO BE A MINIMUM OF 6" OR MATCH THE EXISTING CONCRETE THICKNESS IF IT IS GREATER THAN 6" THICK. CONCRETE PAVEMENT THICKNESS TO BE MINIMUM 8" FOR ARTERIAL PAVEMENT.
- 3.
4. PLACE ALL FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT) AS A SINGLE CONTINUOUS POUR.
5. EXTEND BOTH CONCRETE AND FLOWABLE FILL 12" BEYOND THE EDGE OF THE TRENCH ON BOTH SIDES.
6. SEE DETAILS 521(A) AND 521(B) REGARDING TRENCH BACKFILL REQUIREMENTS BENEATH THE FLOWABLE FILL.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEERING SERVICES REPRESENTATIVE.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE:	SCALE: NTS	DETAIL:
CONCRETE TRENCH PAVEMENT REPLACEMENT		523/428

