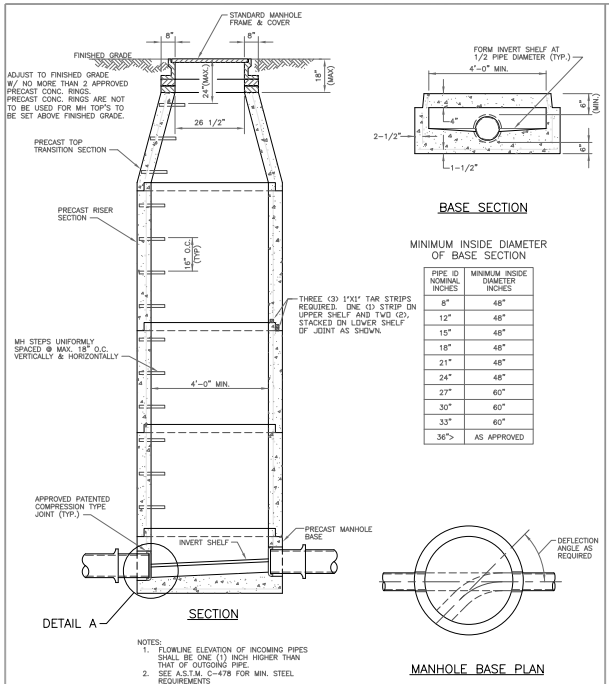
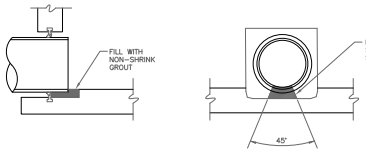


MINIMUM INSIDE DIAMETER OF BASE SECTION

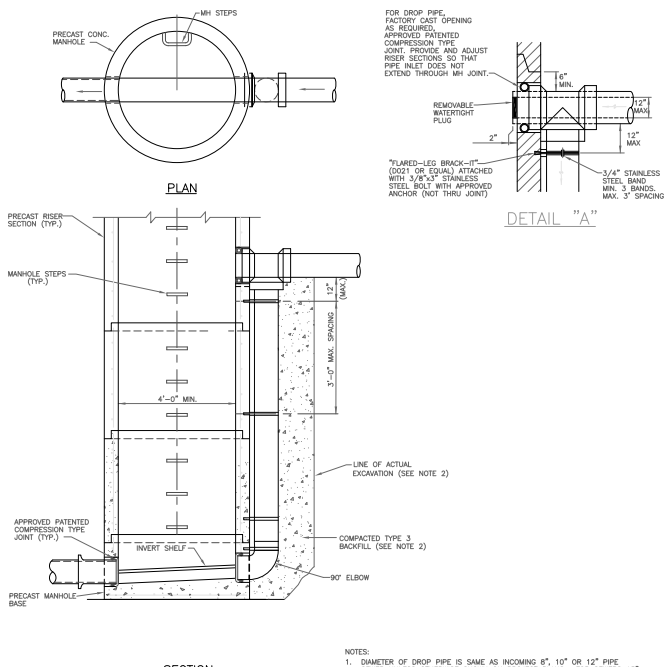
PIPE ID NOMINAL INCHES	MINIMUM INSIDE DIAMETER INCHES
8"	48"
12"	48"
15"	48"
18"	48"
21"	48"
24"	48"
27"	60"
30"	60"
33"	60"
36">	AS APPROVED

NOTES:
1. FLOWLINE ELEVATION OF INCOMING PIPES SHALL BE ONE (1) INCH HIGHER THAN THAT OF OUTGOING PIPE.
2. SEE A.S.T.M. C-478 FOR MIN. STEEL REQUIREMENTS

PRECAST MANHOLE FOR SANITARY SEWER
N.T.S.

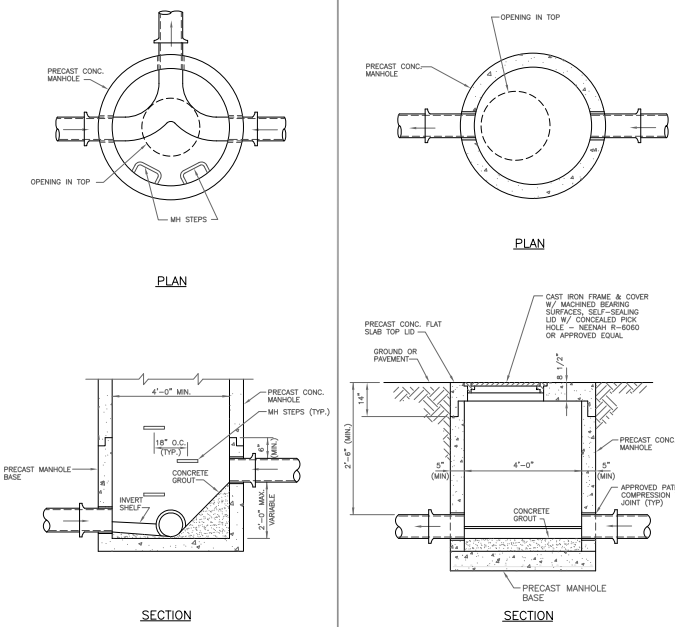


DETAIL A
N.T.S.



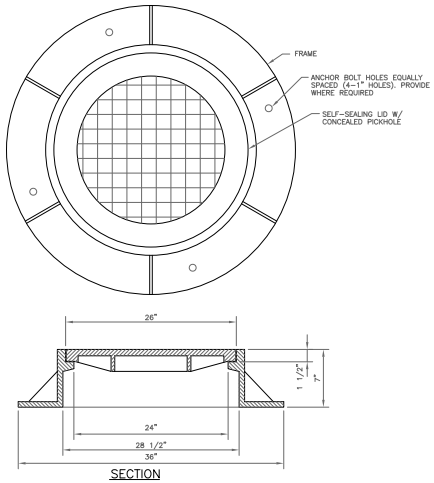
NOTES:
1. DIAMETER OF DROP PIPE IS SAME AS INCOMING 8", 10" OR 12" PIPE SEWER UNLESS OTHERWISE SHOWN ON PROJECT PLANS. FOR SEWERS 15" THROUGH 24", A DROP IS NOT TO BE USED. RATHER, CONNECT TO MANHOLE AT OR WITHIN 24" ABOVE ITS FLOWLINE.
2. IF EXCAVATED SPACE OUTSIDE OF DROP PIPE EXCEEDS ONE(1) FT. PROVIDE 6" CLASS "A" CONCRETE ENCASEMENT ON INCOMING LINE FROM WALL OF MANHOLE TO A MIN. OF TWO FT. INTO UNDISTURBED EARTH WITH A MIN. OF 4-#4 REBARS FOR LENGTH OF ENCASEMENT OR INSTALL ONE (1) LENGTH OF D.I.P. FROM "TEE" FITTING INTO UNDISTURBED EARTH.

OUTSIDE DROP MANHOLE
N.T.S.



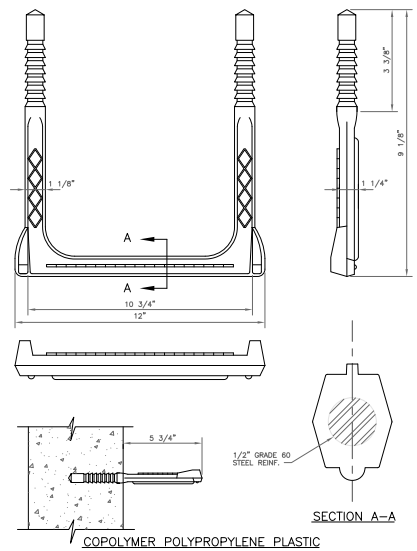
INSIDE DROP MANHOLE
N.T.S.

SHALLOW MANHOLE
N.T.S.



NOTES:
1. MACHINE-FINISH CONTACTING SURFACES FOR SEAT OF STANDARD MANHOLE FRAME AND COVER.
2. NEENAH R-1642, M.H. FRAME AND SOLID LID OR APPROVED EQUAL. TOTAL WEIGHT 360 LBS.
3. PROVIDE NON-SHRINK GROUT OR 2 COMPLETE ROWS OF 1-INCH THICK FLEXIBLE RUBBER MASTIC SEALANT BETWEEN CAST IRON FRAME AND CONCRETE CONE OR GRADE RING.

STANDARD CAST IRON MANHOLE FRAME & COVER
N.T.S.



MANHOLE STEP FOR PRECAST MANHOLE
N.T.S.

NOTES:
1. ALL SEWER PIPES SHALL BE JOINED NOT LESS THAN 6" NOR MORE THAN 12" FROM THE OTHER SURFACE OF THE MANHOLE OR ANY CONCRETE SURFACE WHICH MAY BE A PART OF THE MANHOLE FOUNDATION OR SUPPORT FOR A DROP.
2. A-LOK RUBBER GASKET MEETING A.S.T.M. C-923 OR AN APPROVED EQUAL SHALL BE USED FOR P.V.C. CONNECTIONS TO CONCRETE MANHOLES.
3. USE NON-SHRINK GROUT SIKA CHEMICAL "KEMCO" OR APPROVED EQUAL.
4. ALL PRECAST REINFORCED CONCRETE MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C-478.

REV.	DATE	DESCRIPTION	BY

CITY OF JACKSON, MISSOURI
STANDARD DETAILS OF
SANITARY SEWER CONSTRUCTION

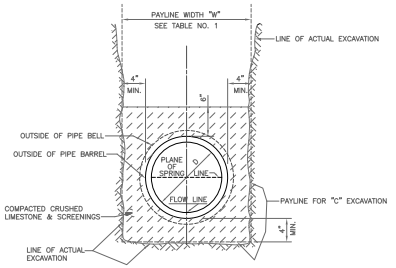
REVISED: MARCH, 2013

DIRECTOR OF WASTEWATER UTILITIES:
KENT A. PEETZ, P.E.

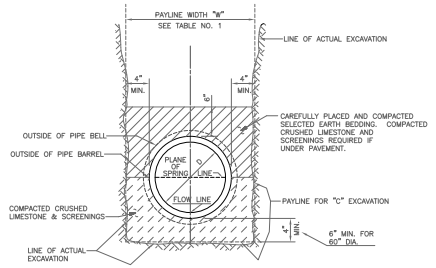
DRAWN BY: HS
SCALE: NONE
SHEET NO. 1 OF 3

ROUND PIPE			
"D" INSIDE DIAMETER OF PIPE	"W" PAYLINE WIDTH OF TRENCH	"W" PAYLINE WIDTH OF TRENCH	PAY VOLUMES CU. FT. PER FT.
(INCHES)	(INCHES)	(FEET)	CONCRETE ENCASEMENT
4	30	2.50	3.28
6	30	2.50	3.59
8	30	2.50	3.87
10	30	2.50	4.09
12	30	2.50	4.25
15	36	3.00	5.55
18	36	3.00	5.77
21	39	3.25	6.61
24	42	3.50	7.39
27	45	3.75	8.18
30	49	4.08	9.30
33	53	4.42	10.53
36	56	4.67	11.43
39	DISCONTINUED		
42	63	5.25	13.38
48	70	5.83	15.67
54	77	6.42	18.15
60	84	7.00	20.73

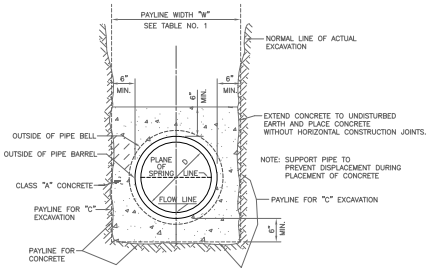
TABLE 1
PAYLINE WIDTHS OF TRENCH
AND PAY-QUANTITIES OF CONCRETE



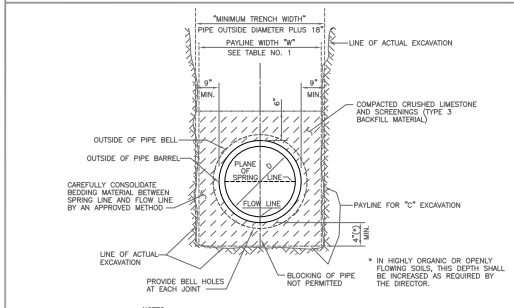
PIPE BEDDING CLASS "C"
N.T.S.
(FOR ALL PIPE EXCEPT
REINFORCED CONCRETE PIPE)



PIPE BEDDING CLASS "C"
N.T.S.
(MODIFIED FOR REINFORCED
CONCRETE PIPE)

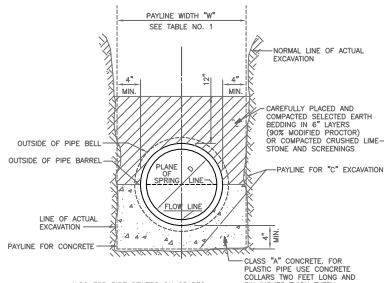


CONCRETE ENCASEMENT
N.T.S.



NOTES:
1. CHECK GRADE OF PIPE AFTER COMPACTION TO INSURE THE DESIRED FLOWLINE HAS NOT CHANGED.
2. DURING JETTING PROCESS, NOZZLE SHALL NOT BE INSERTED CLOSER THAN TWO FEET FROM TOP OF PIPE.
3. ANY TRENCH BRACING USED BELOW THE TOP OF PIPE SHALL BE LEFT IN PLACE.
4. FOR INSTALLATIONS IN HIGHLY ORGANIC OR OPENLY FLOWING SOILS, THE ENTIRE PERIMETER OF THE PIPE BEDDING SHALL BE WRAPPED WITH AN APPROVED FILTER FABRIC OR THE "MINIMUM TRENCH WIDTH" SHALL BE EXPANDED BY INCREASING THE DISTANCE BETWEEN THE SIDE OF THE PIPE AND THE LINE OF ACTUAL EXCAVATION OR TRENCH BRACING TO A MINIMUM OF ONE PIPE DIAMETER.

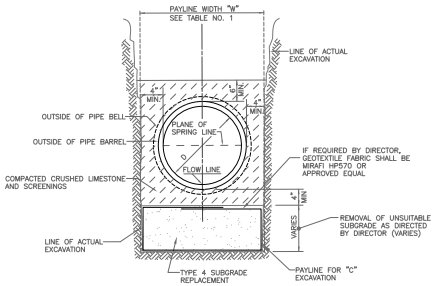
PIPE BEDDING FOR FLEXIBLE PIPE
N.T.S.
(18" TO 48" DIAMETER)



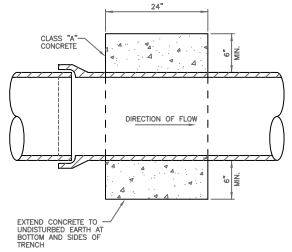
ALSO FOR PIPE SEWERS ON GRADES 25% TO 50% INCLUSIVE.

FOR GRADES EXCEEDING 50% SEE PROJECT SPECIFICATIONS.

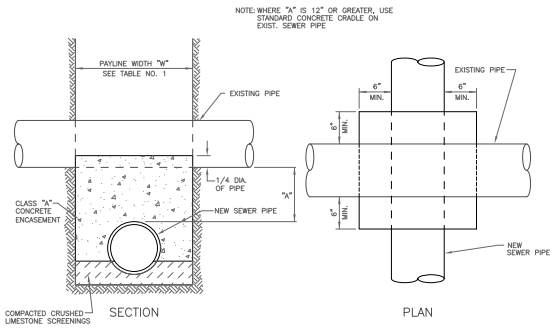
CONCRETE CRADLE
(CLASS "A" BEDDING)
N.T.S.



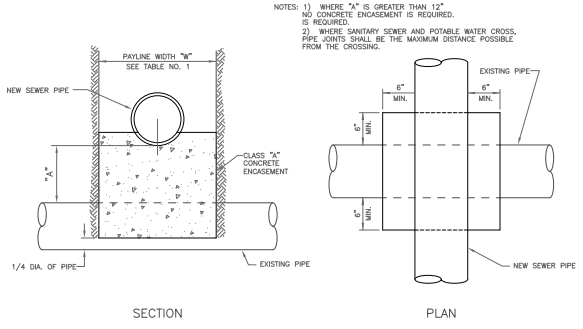
BEDDING OF PIPE LAID ON
UNSUITABLE SUBGRADE
N.T.S.



DETAIL OF CONCRETE COLLAR
N.T.S.



PIPE ENCASEMENT FOR NEW SANITARY
PIPE UNDER EXISTING PIPE
N.T.S.



PIPE ENCASEMENT FOR NEW SANITARY
PIPE OVER EXISTING PIPE
N.T.S.

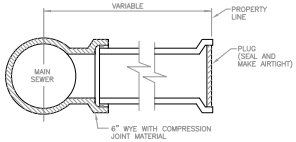
REV.	DATE	DESCRIPTION	BY

CITY OF JACKSON, MISSOURI
STANDARD DETAILS OF
SANITARY SEWER CONSTRUCTION

REVISED: MARCH, 2013

DIRECTOR OF WASTEWATER UTILITIES:
KENT A. PEETZ, P.E.

DRAWN BY: HS
SCALE: NONE
SHEET NO. 2 OF 3

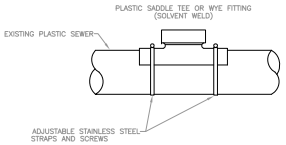


1. 6" V.C.P. WITH COMPRESSION JOINT.
2. 6" V.C.P. WITHOUT COMPRESSION JOINT. USE SEWER TITE AND OAKUM.
3. IF 4" HOUSE CONNECTION IS APPROVED, A 4" TO 6" INCREASER IS REQUIRED.
4. IF 6" P.V.C. IS USED A FERNCO ADAPTER OR SEWER TITE AND OAKUM MAY BE USED TO MAKE THE JOINT.
5. A CLEAN, DRY BEDDING MATERIAL IS REQUIRED AROUND THE COMPLETED CONNECTION BEFORE BACK FILLING. THE BEDDING MATERIAL SHALL BE ONE OF THE FOLLOWING:
   A. TYPE 1 BEDDING
   B. 1 TO 3 CEMENT AND SAND
   C. PRE-MIX CONCRETE

(SIZES AND MATERIAL AS SPECIFIED)

SERVICE CONNECTION TO WYE

N.T.S.



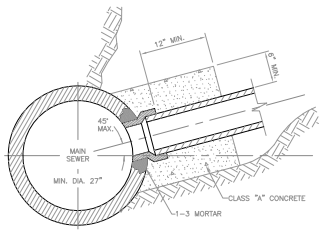
WHEN A CONNECTION TO A PLASTIC PIPE IS ALLOWED AND A CONNECTION IS LARGER THAN 6" IN DIAMETER, A SOLVENT WELD WYE OR TEE FITTING OF A SIMILAR MATERIAL MUST BE USED. (EXAMPLE: 10"X 8".)

THIS IS ACCOMPLISHED BY CAREFULLY CUTTING A HOLE WITH A SAW IN THE MAIN AT THE REQUIRED LOCATION. AFTER CUTTING AND SHAPING THE HOLE TO THE SIZE OF THE FITTING, THE FOLLOWING STEPS SHOULD BE TAKEN:

1. CLEAN AND DRY BOTH INSIDE SADDLE WYE SURFACE AND PIPE SURFACE TO BE SOLVENT CEMENTED.
2. IMPORTANT: APPLY A LIBERAL, HEAVY COAT OF A ONE-STEP SOLVENT CEMENT TO THE INSIDE SURFACE OF THE SADDLE WYE AND TO THE EXTERIOR WELDING SURFACE TO THE PIPE.
3. WITHOUT DELAY, MATE THE SURFACES AND STRAP DOWN TIGHTLY. A BEAD OF SOLVENT SHOULD APPEAR AFTER SADDLE HAS BEEN STRAPPED DOWN TIGHTLY.
4. USING A RAG OR PAPER TOWEL, WIPE BEAD AND ANY EXCESS SOLVENT CEMENT OFF PIPE AND SADDLE.
5. ALLOW 30-60 MINUTES FOR SET-UP TIME BEFORE BACKFILLING. CURE TIME DEPENDS ON SIZE AND FIT OF MATERIALS BEING INSTALLED AND VARIOUS COLD DAMP CONDITIONS.
6. DISCARD OLD SOLVENT IF IT BECOMES JELLED OR LUMPY.
7. A CLEAN, DRY BEDDING MATERIAL IS REQUIRED AROUND THE COMPLETED CONNECTION BEFORE BACKFILLING. THE BEDDING MATERIAL SHOULD BE ONE OF THE FOLLOWING:
   A. TYPE 1 BEDDING
   B. 1 TO 3 CEMENT TO SAND MIX
   C. "PRE-MIX" CONCRETE

8" (& LARGER) CONNECTION TO PLASTIC MAIN

N.T.S.



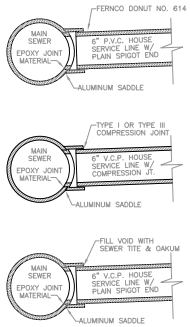
NOTE:

THE OPENING SHALL BE CUT BY THE CONTRACTOR TO A SUFFICIENT SIZE TO PERMIT INSERTING A TEE SADDLE OR SHORT LENGTH OF PIPE AT THE REQUIRED ELEVATION AND ANGLE TO ALLOW AT LEAST TWO (2) INCHES SPACE AROUND THE PIPE. THIS SPACE WILL BE SOLIDLY FILLED WITH 1-3 CEMENT-SAND MORTAR AND THE NEW PIPE NEATLY TRIMMED AND POINTED UP FLUSH WITH THE INSIDE OF THE MAIN SEWER.

IF THERE ARE REINFORCING BARS IN THE SEWER WALL, ONLY THOSE PREVENTING INSERTION OF THE PIPE MAY BE CUT. ALL OTHERS SHALL BE BENT INTO A CLASS "A" CONCRETE COLLAR AT THE JUNCTION OF THE CONNECTION PIPE AND THE MAIN SEWER.

HOUSE CONNECTIONS ALLOWED BY TEE SADDLE

N.T.S.

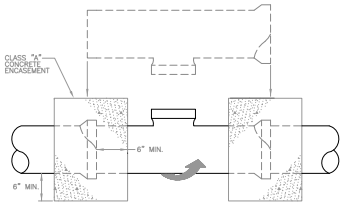


NOTES:

1. 6" V.C.P. OR 6" P.V.C. HOUSE CONNECTION INTO PUBLIC V.C.P. OR PUBLIC P.V.C. MAIN 8" TO 24" DIAMETER AND NO WYE OR TEE AVAILABLE, A MACHINE TAP IS REQUIRED.
2. THE CONTRACTOR SHALL CUT THE HOLE IN THE MAIN, PROVIDE AND EPOXY THE SADDLE TO THE MAIN, AND PROVIDE ALL OTHER MATERIAL AND LABOR REQUIRED.
3. A CLEAN DRY BEDDING MATERIAL IS REQUIRED AROUND THE COMPLETED CONNECTION BEFORE BACK FILLING. THE BEDDING MATERIAL SHALL BE ONE OF THE FOLLOWING:
   A. TYPE 1 BEDDING
   B. 1 TO 3 CEMENT TO SAND
   C. PRE-MIX CONCRETE
4. IF 4" HOUSE CONNECTION IS APPROVED, A 4" TO 6" INCREASER IS REQUIRED AT MACHINE TAP.
5. ALL EXCAVATION MUST BE ADEQUATELY BRACED BEFORE CITY INSPECTOR WILL MAKE AN INSPECTION.
6. ALL MATERIAL REQUIRED TO MAKE AN APPROVED CONNECTION MUST BE ON THE CONNECTION SITE AT THE TIME OF ARRIVAL OF THE CITY INSPECTOR. IF THE MATERIAL IS NOT AVAILABLE, THE TAP MUST BE RESCHEDULED.

MACHINE TAP

N.T.S.



WHEN A CONNECTION IS ALLOWED LARGER THAN 6" DIAMETER A SADDLE MAY BE USED IF THE I.D. OF THE CONNECTION PIPE IS NOT GREATER THAN ONE-HALF (1/2) THE I.D. OF THE MAIN SEWER. (EXAMPLE: 24"X 10")

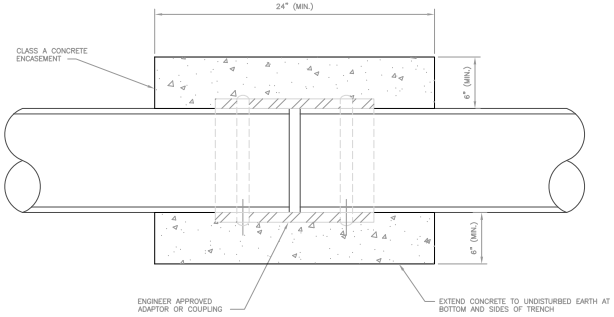
IF THE I.D. OF THE CONNECTION PIPE IS GREATER THAN ONE-HALF (1/2) THE I.D. OF THE MAIN SEWER THE WYE OR TEE MUST BE "ROLLED-IN". (EXAMPLE: 15"X8")

THIS IS ACCOMPLISHED BY BREAKING AWAY AND REMOVING ONE SECTION OF PIPE. THE TOP HALF OF THE BELL ON THE PIPE LYING ADJACENT TO THE GAP IS CAREFULLY BROKEN OFF. THE TOP HALF OF THE BELL ON THE MAIN REPLACEMENT SECTION (WITH A "TEE" OR "WYE" FITTING) IS ALSO BROKEN OFF. THE REPLACEMENT PIPE IS THEN PLACED ON THE LINE GAP WITH THE STUB POINTED IN THE WRONG DIRECTION. THE BROKEN BELLS ON THE REPLACEMENT AND THE ADJOINING PIPE MAKE IT POSSIBLE FOR THE REPLACEMENT SECTION TO FIT INTO THE SEWER LINE WITHOUT DISTURBING THE ADJOINING PIPE SECTIONS. THE PLACEMENT SECTION IS THEN ROTATED TO THE DESIRED POSITION AND THE BROKEN BELLS ARE ENCASED WITH A 6" CLASS "A" CONCRETE ENCASEMENT.

(FOR EXISTING CLAY OR CONCRETE PIPE)

"ROLL-IN"

N.T.S.

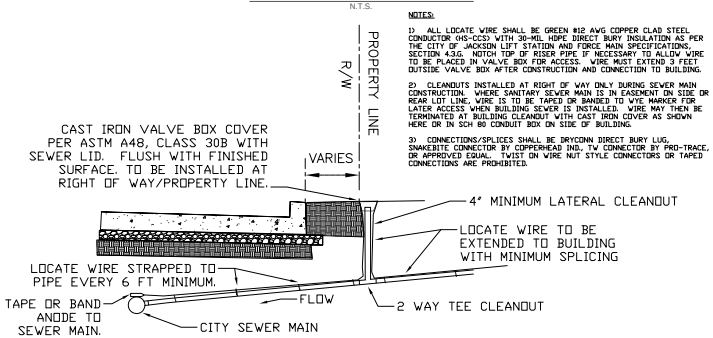


PIPE CONNECTION OF DISSIMILAR MATERIAL OR DIFFERENT SIZES OF SIMILAR MATERIAL

N.T.S.

LOCATE WIRE DETAIL TO BE USED ON ALL LATERALS

N.T.S.

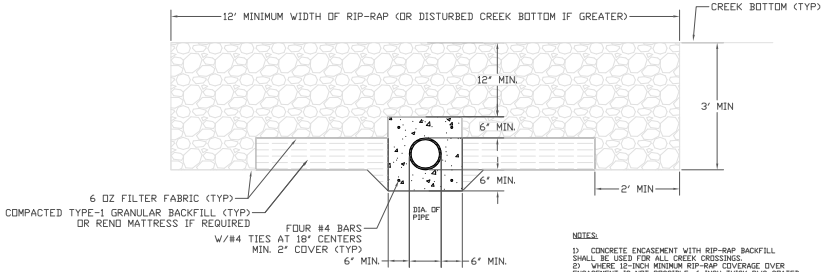


NOTES:

1) ALL LOCATE WIRE SHALL BE GREEN #12 AWG COPPER CLAD STEEL CONDUCTOR (HS-CCS) WITH 30-MIL HDPE DIRECT BURY INSULATION AS PER THE CITY OF JACKSON LIFT STATION AND FORCE MAIN SPECIFICATIONS, SECTION 4.3.G. NOTCH TOP OF RISER PIPE IF NECESSARY TO ALLOW WIRE TO BE PLACED IN VALVE BOX FOR ACCESS. WIRE MUST EXTEND 3 FEET OUTSIDE VALVE BOX AFTER CONSTRUCTION AND CONNECTION TO BUILDING.

2) CLEANOUTS INSTALLED AT RIGHT OF WAY ONLY DURING SEWER MAIN CONSTRUCTION. WHERE SANITARY SEWER MAIN IS IN EASEMENT ON SIDE OR REAR LOT LINE, WIRE IS TO BE TAPED OR BANDED TO WYE MARKER FOR LATER ACCESS WHEN BUILDING SEWER IS INSTALLED. WIRE MAY THEN BE TERMINATED AT BUILDING CLEANOUT WITH CAST IRON COVER AS SHOWN HERE OR IN SCH 80 CONDUIT BOX ON SIDE OF BUILDING.

3) CONNECTIONS/SPLICES SHALL BE DRYCONN DIRECT BURY LUG, SNAKEBITE CONNECTOR BY COPPERHEAD IND., TW CONNECTOR BY PRO-TRACE, OR APPROVED EQUAL. TWIST ON WIRE NUT STYLE CONNECTORS OR TAPED CONNECTIONS ARE PROHIBITED.



NOTES:

1) CONCRETE ENCASEMENT WITH RIP-RAP BACKFILL SHALL BE USED FOR ALL CREEK CROSSINGS.
2) WHERE 12-INCH MINIMUM RIP-RAP COVERAGE OVER ENCASEMENT IS NOT POSSIBLE, 6-INCH THICK PVC COATED RENO MATTRESS SHALL BE INSTALLED OVER, AND 9-INCH THICK RENO MATTRESSES ON SIDES OF ENCASEMENT.
3) PIPE AND REBAR MUST BE SUPPORTED TO PREVENT DISPLACEMENT DURING PLACEMENT OF CONCRETE.
4) ALL REBAR SHALL BE 40 KSI AND CONCRETE SHALL BE 4000 PSI.
5) IF ENCASEMENT IS CUT INTO BEDROCK, TOP OF ENCASEMENT MUST BE FLUSH WITH TOP OF BEDROCK.

CREEK CROSSING

NOT TO SCALE

REV.	DATE	DESCRIPTION	BY
1	2/3/16	ADD LATERAL WIRE DETAIL	KAP

CITY OF JACKSON, MISSOURI
STANDARD DETAILS OF
SANITARY SEWER CONSTRUCTION

REVISED: FEBRUARY, 2016

DIRECTOR OF WASTEWATER UTILITIES:

KENT A. PEETZ, P.E.

DRAWN BY: HS
SCALE: NONE
SHEET NO. 3 OF 3