

# STORM WATER SEWER PHASE 1 PLANS FOR PRAIRIE WOODS SECOND ADDITION

SWS # 500  
PROJECT NO. 468-82823  
CITY OF WICHITA, KANSAS  
MICHAEL E. LINDEBAK, CITY ENGINEER  
INDEX CODE 751164  
JUNE, 1998

## GENERAL NOTES

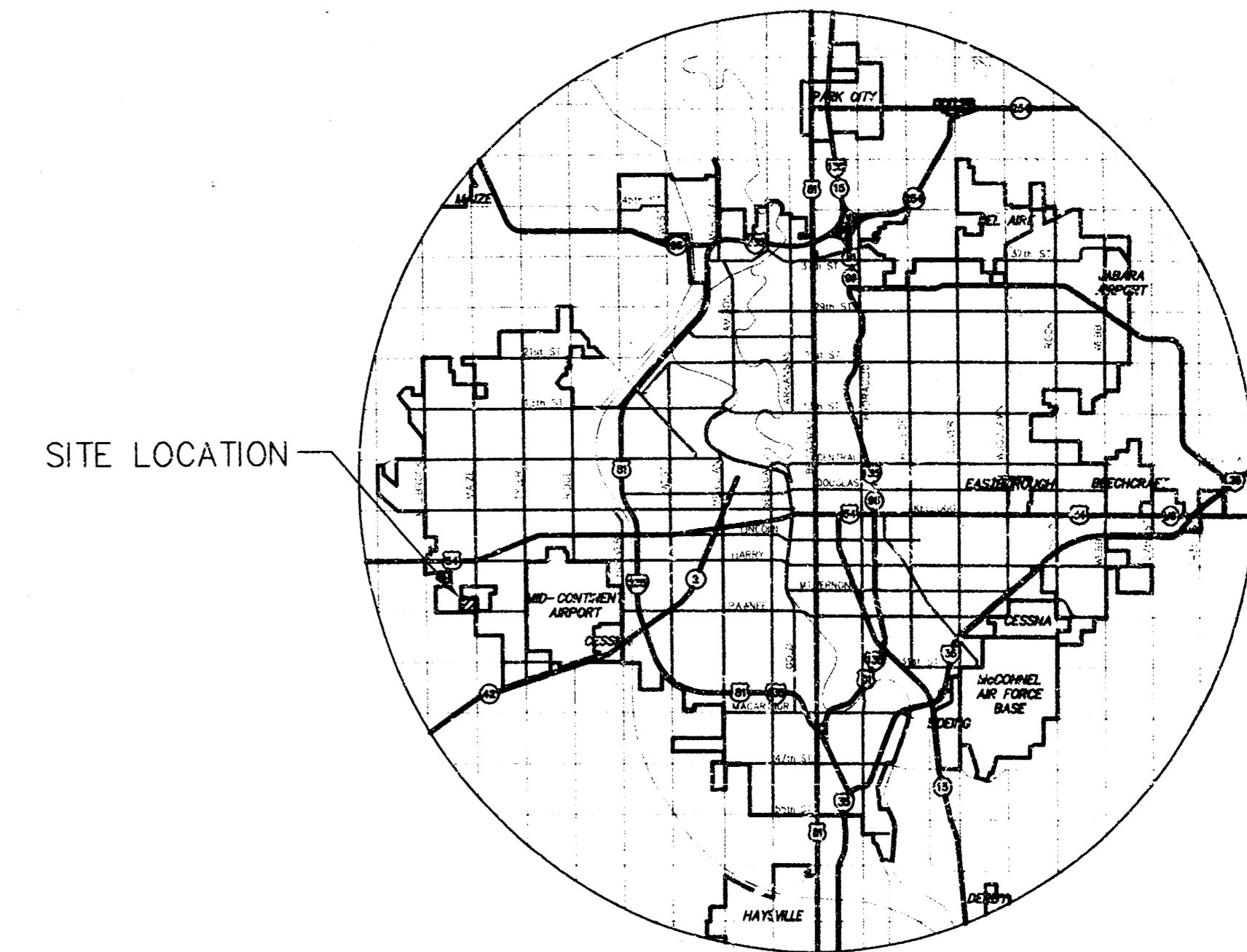
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.
2. EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE PLAN LOCATIONS SHOWN ARE NOT GUARANTEED. ADDITIONAL EXISTING UTILITIES MAY ALSO BE ENCOUNTERED.
3. CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF FORTY-EIGHT (48) HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:

KANSAS ONE-CALL 1-800-344-7233  
or 687-2470 (LOCAL WICHITA)

THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

SOUTHWESTERN BELL TELEPHONE COMPANY 1-800-734-7590  
CABLEVISION 262-0561  
KANSAS GAS & ELECTRIC (ELECTRIC) 264-1141  
KANSAS GAS & ELECTRIC (GAS) 832-3180 OR 832-3169  
CITY OF WICHITA SEWER MAINTENANCE 268-4908  
CITY OF WICHITA WATER DEPARTMENT 268-4908

4. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES, OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.
5. COST OF EXCAVATION, HAULING, AND DUMPING OF EXCESS EXCAVATION SHALL BE SUBSIDIARY TO THE PROJECT.
6. TREES AND SHRUBS IN PUBLIC RIGHT-OF-WAY WHICH ARE IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR WITH THE ENGINEER'S APPROVAL. TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.
7. ALL DISTURBED AREAS TO BE SEEDDED WITH RYE GRASS AT A RATE OF 200 LBS./ ACRE WITHIN 10 DAYS OF CONSTRUCTION. COST SHALL BE SUBSIDIARY TO PROJECT.
8. REVERSE CURB INLET TOPS, PAVEMENT IN THIS AREA WILL BE BUILT AT FUTURE DATE. COST OF REVERSING INLET TOPS SHALL BE SUBSIDIARY TO THE INLET CONSTRUCTION.
9. CONTRACTOR SHALL LEAVE EXCESS MATERIAL ON SITE IN A LOCATION DESIGNATED BY THE OWNER. LOCATION WILL BE WITHIN THE BENEFIT DISTRICT BOUNDARY. MATERIAL SHALL BE PLACED ADJACENT TO ROAD RIGHT-OF-WAYS WITHIN LOTS. MATERIAL SHALL BE PLACED IN LIFTS NO GREATER THEN 9" AND SHALL BE SMOOTH SO GRASS MAY BE PLANTED.



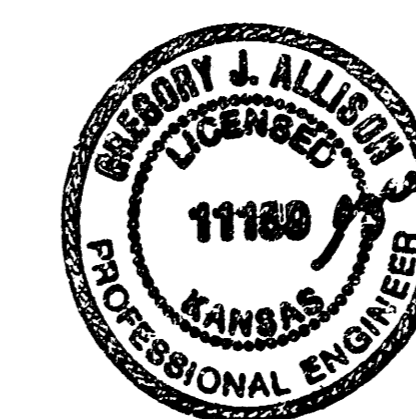
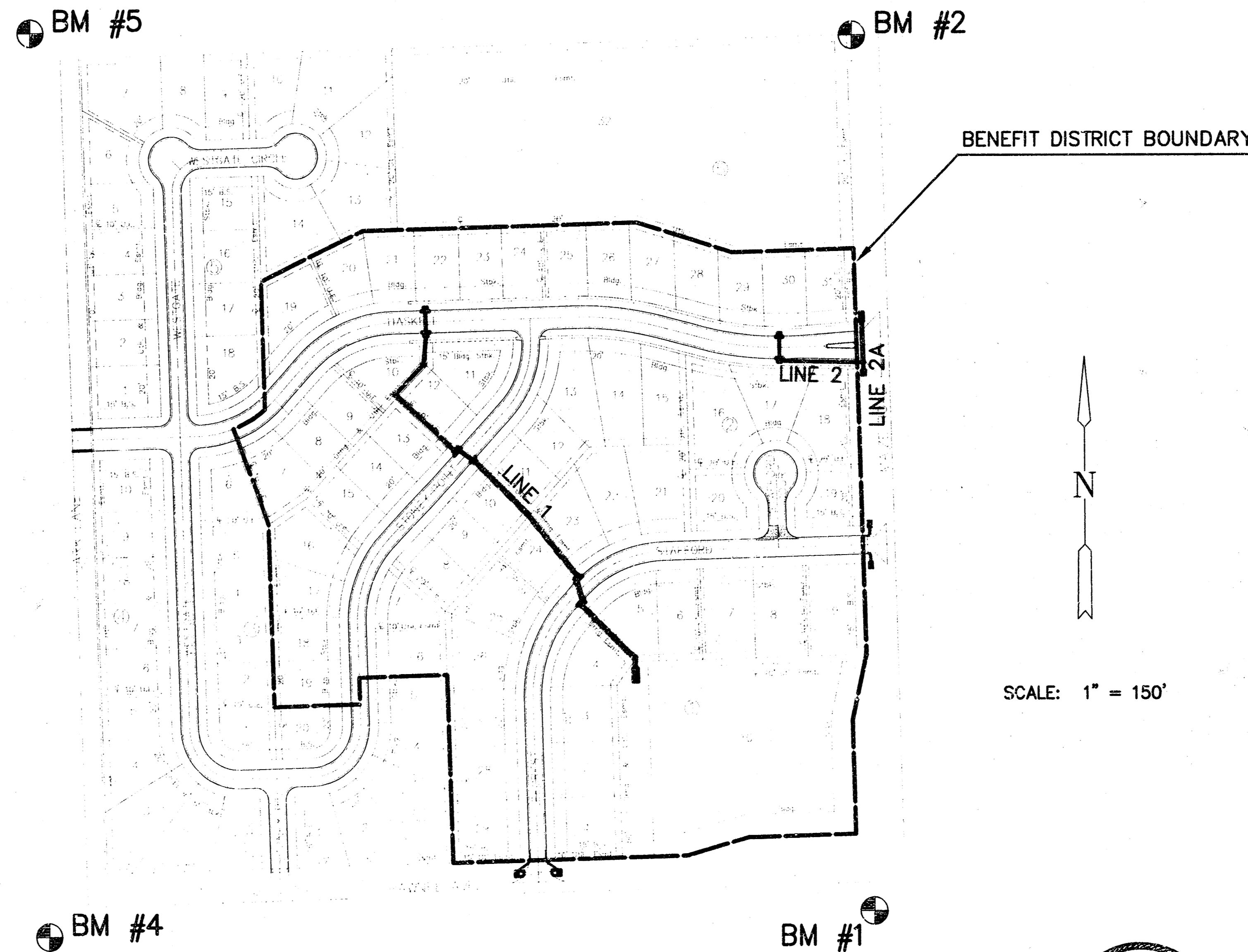
LOCATION MAP

## INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-3	LINE 1
4	LINES 1, 2 & 2A
5	DITCH CROSS SECTIONS
6-8	INLET DETAILS
9	MANHOLE DETAILS
10	FINAL PLAT

## BENCHMARKS

BM #1	COW BENCHMARK 44' SOUTH & 49.8' WEST OF CL PAWNEE & MAIZE ROAD. ELEV. = 135.12
BM #2	"□" CUT ON TOP OF WEST END OF SOUTH RCP, 1300' ± NORTH OF CL PAWNEE. ELEV. = 138.945
BM #3	COW BENCHMARK 31.5' SOUTH & 38' EAST OF CL MAIZE ROAD & MAY ELEV. = 137.69
BM #4	STEPPED SPIKE IN P.P., SW COR. LARK LANE & PAWNEE. ELEV. = 143.48
BM #5	"□" CUT ON SW COR. CURB INLET ON WEST SIDE LARK LANE, 1340' N. OF CL PAWNEE. ELEV. = 141.755



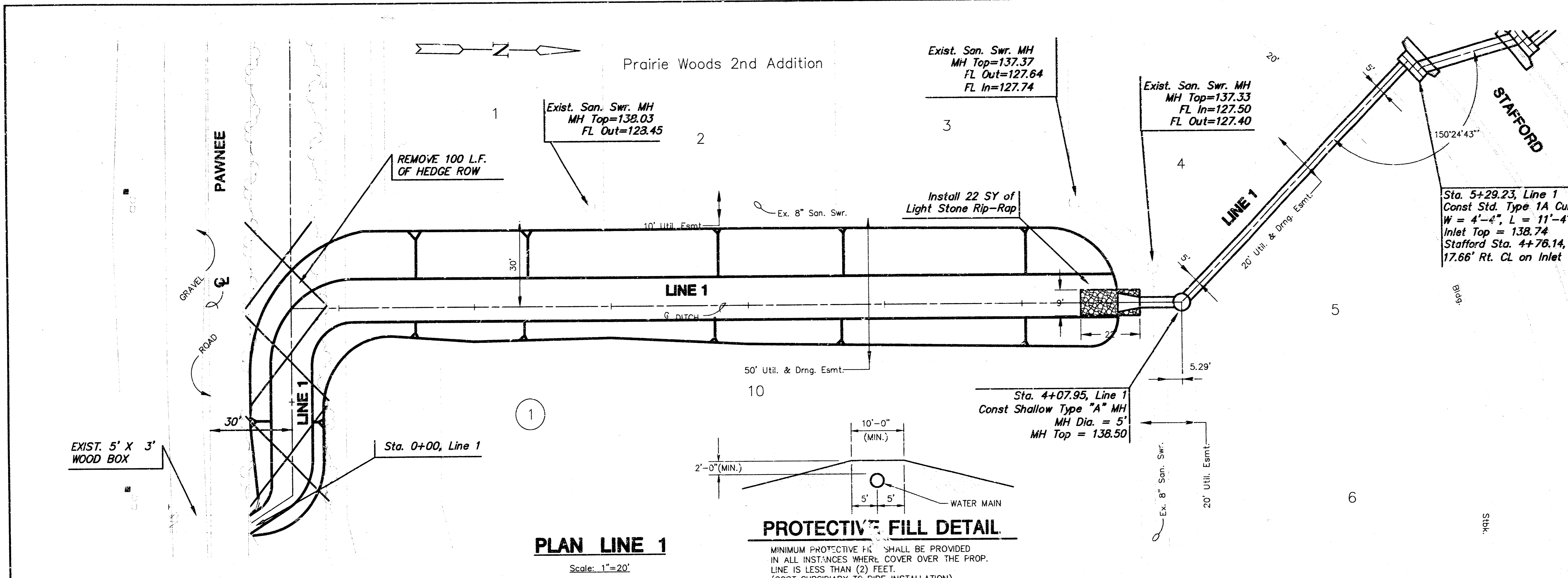
**PRAIRIE WOODS SECOND ADDITION**  
PROJECT NAME

**STORM WATER SEWER PLANS - PHASE 1**  
SHEET TITLE

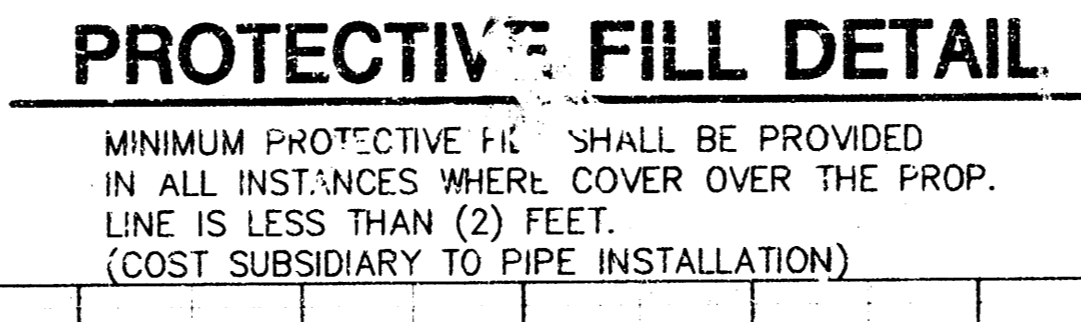
MID-KANSAS ENGINEERING CONSULTANTS, INC.  
411 N WEBB ROAD  
WICHITA, KS. 67206  
316-684-9600

DESIGN BY: JTC  
DRAWN BY: ASE  
CHECKED BY: GJA  
DATE: JUNE 1998  
JOB NO.: 97084-DT  
SHEET OF: 1 / 10

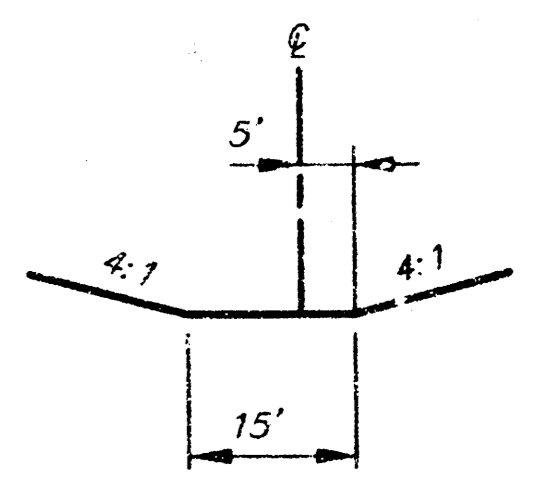
**PRAIRIE WOODS SECOND ADD.  
STORM WATER SEWER PLANS  
LINE 1**



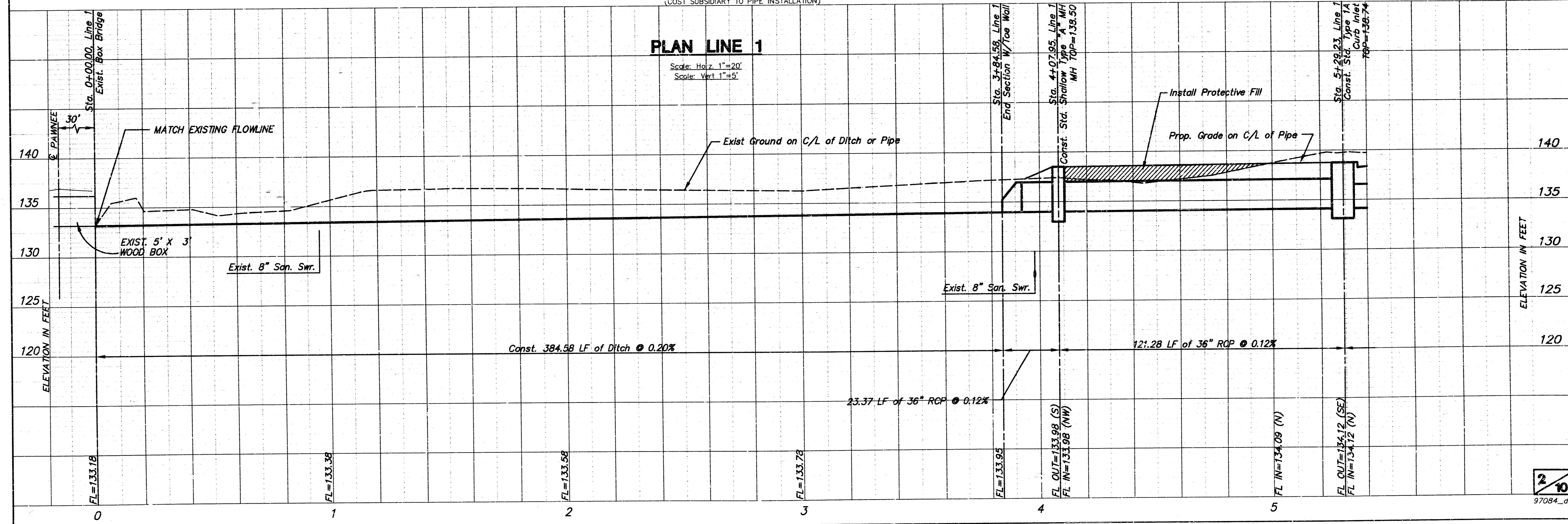
**PLAN LINE 1**  
Scale: 1"=20'



**PROTECTIVE FILL DETAIL**  
MINIMUM PROTECTIVE FILL SHALL BE PROVIDED IN ALL INSTANCES WHERE COVER OVER THE PROP. LINE IS LESS THAN (2) FEET. (COST SUBSIDIARY TO PIPE INSTALLATION)



**TYPICAL DITCH CROSS SECTION**  
STA. 2+00 TO 3+50  
EXCAVATION = 907 C.Y.

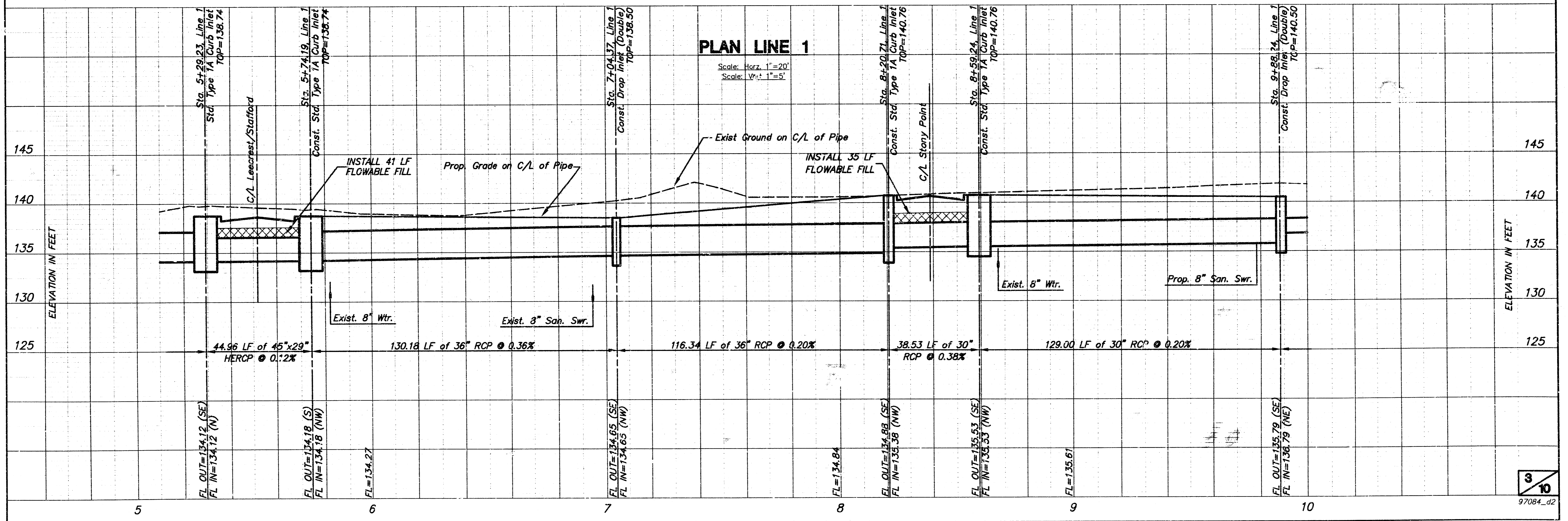
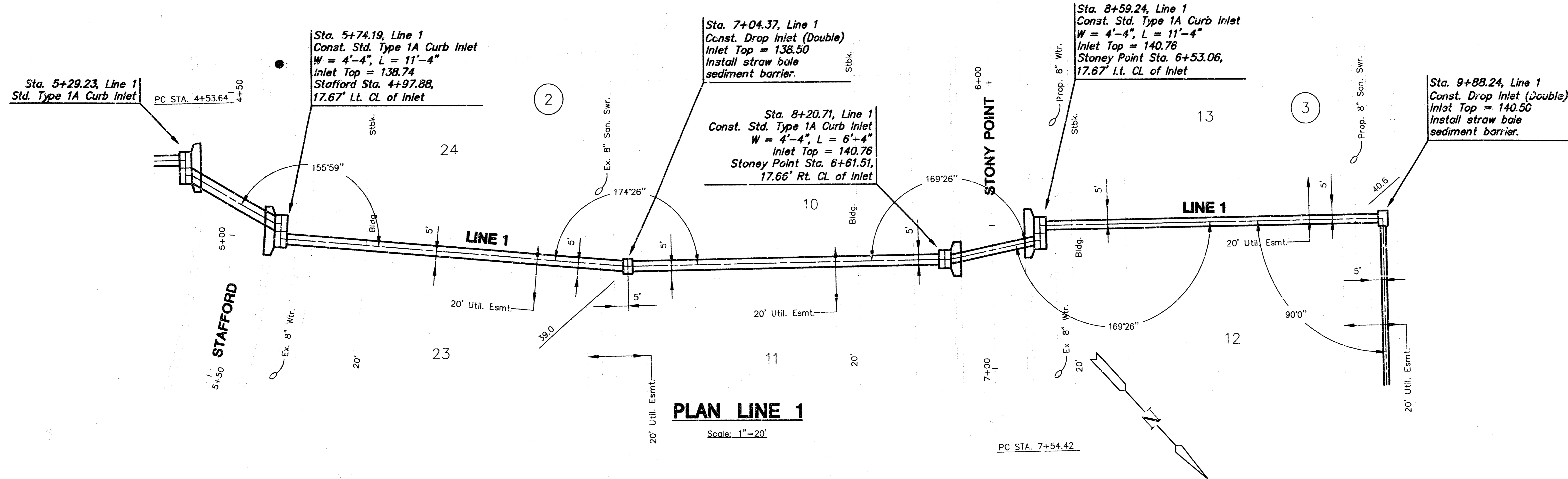


**PLAN LINE 1**  
Scale: Horiz. 1"=20'  
Scale: Vert. 1"=5'

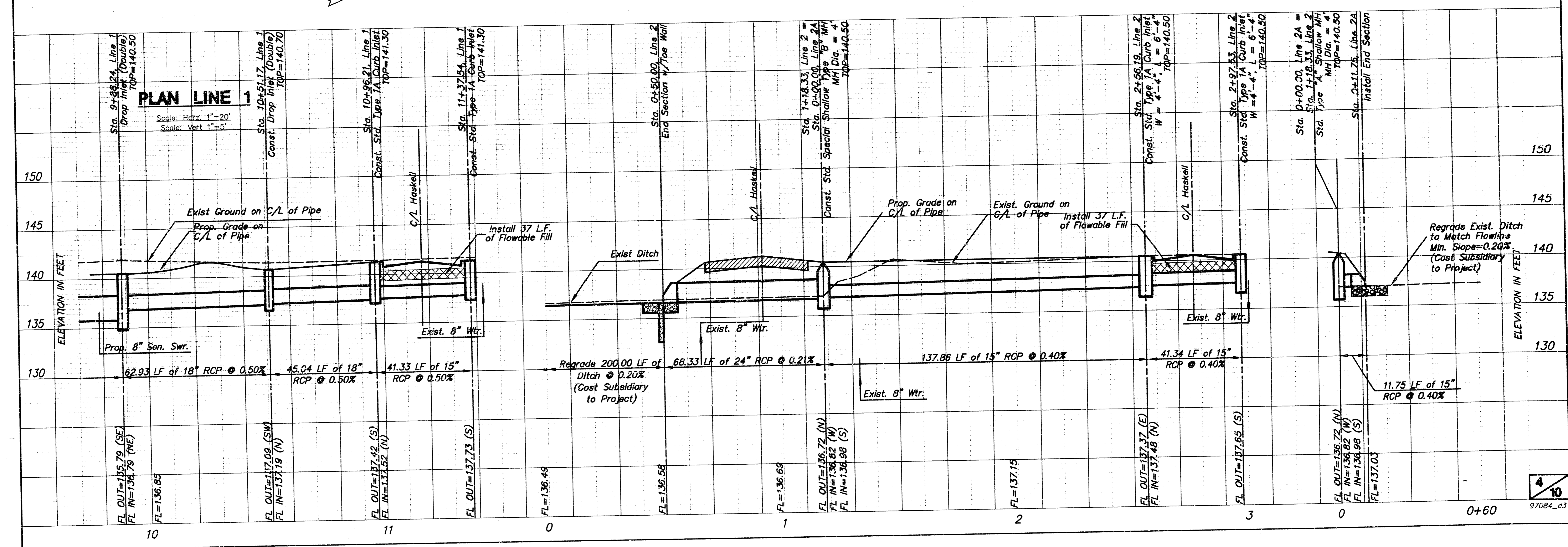
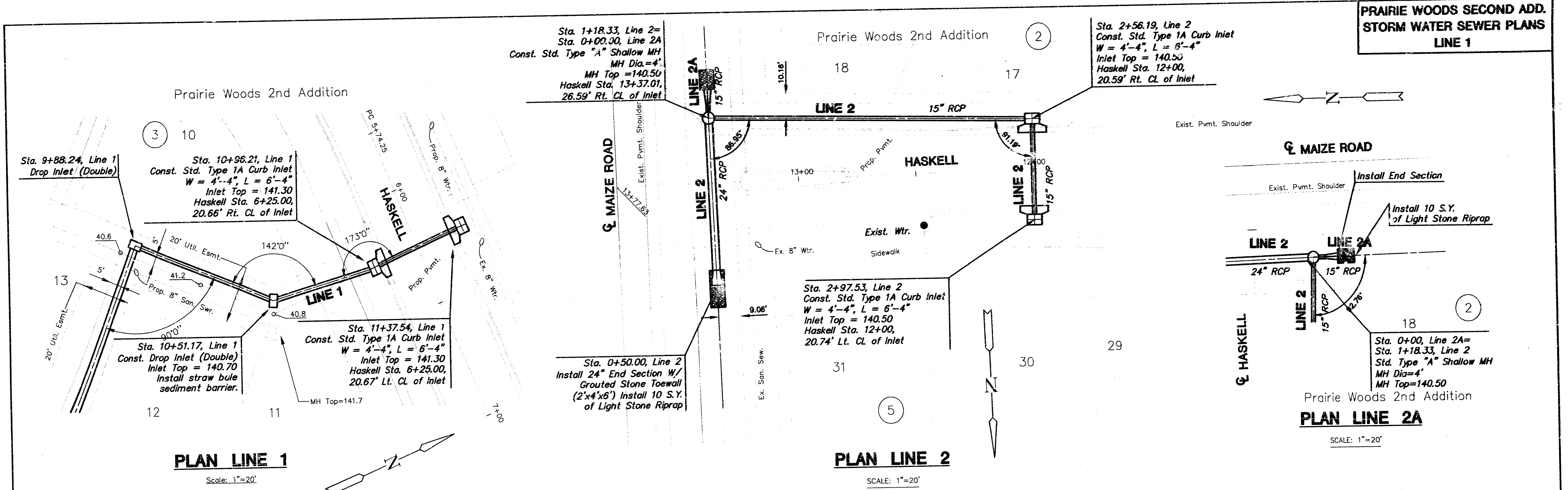
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**PRAIRIE WOODS SECOND ADD.  
STORM WATER SEWER PLANS  
LINE 1**

Prairie Woods 2nd Addition

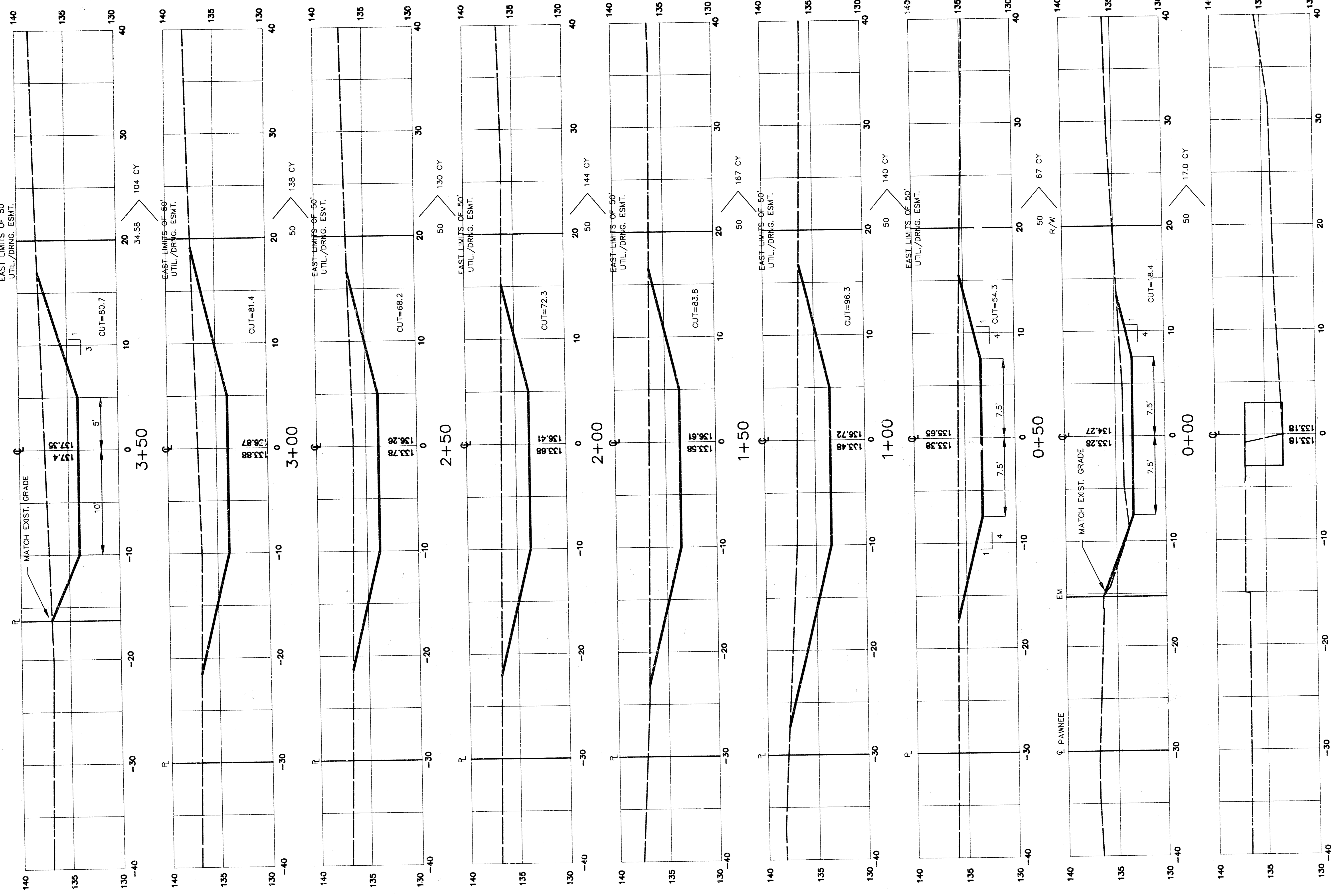


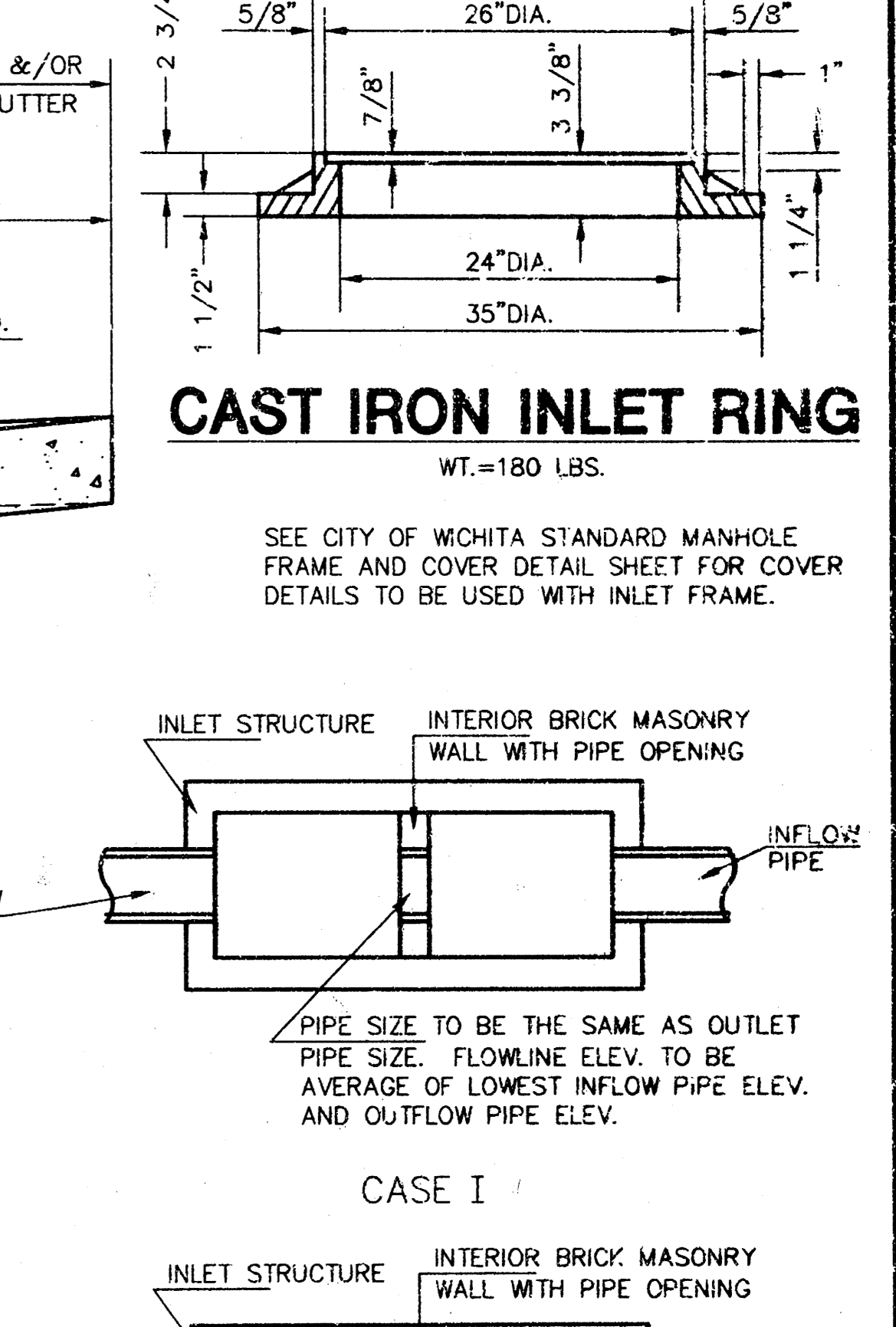
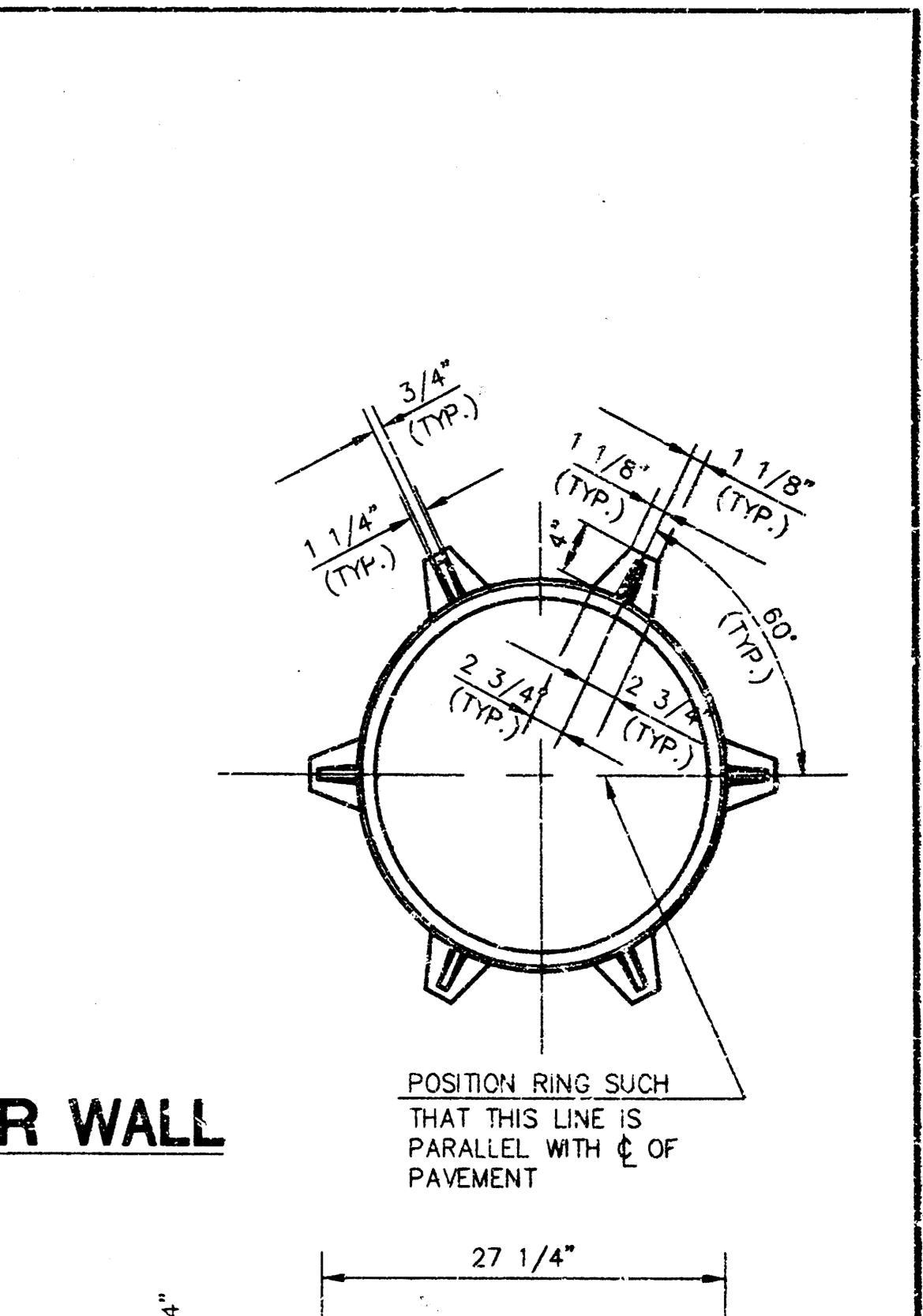
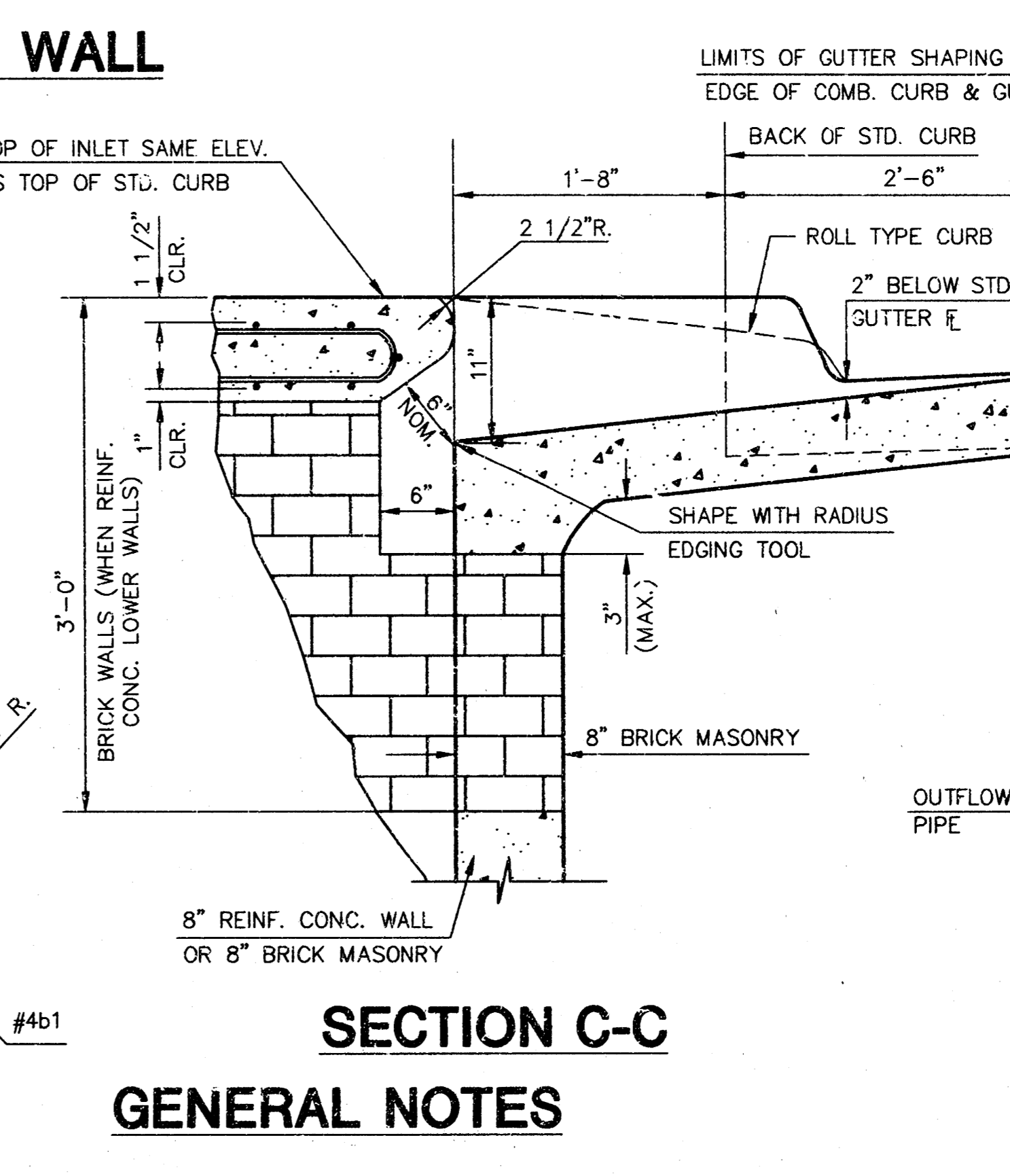
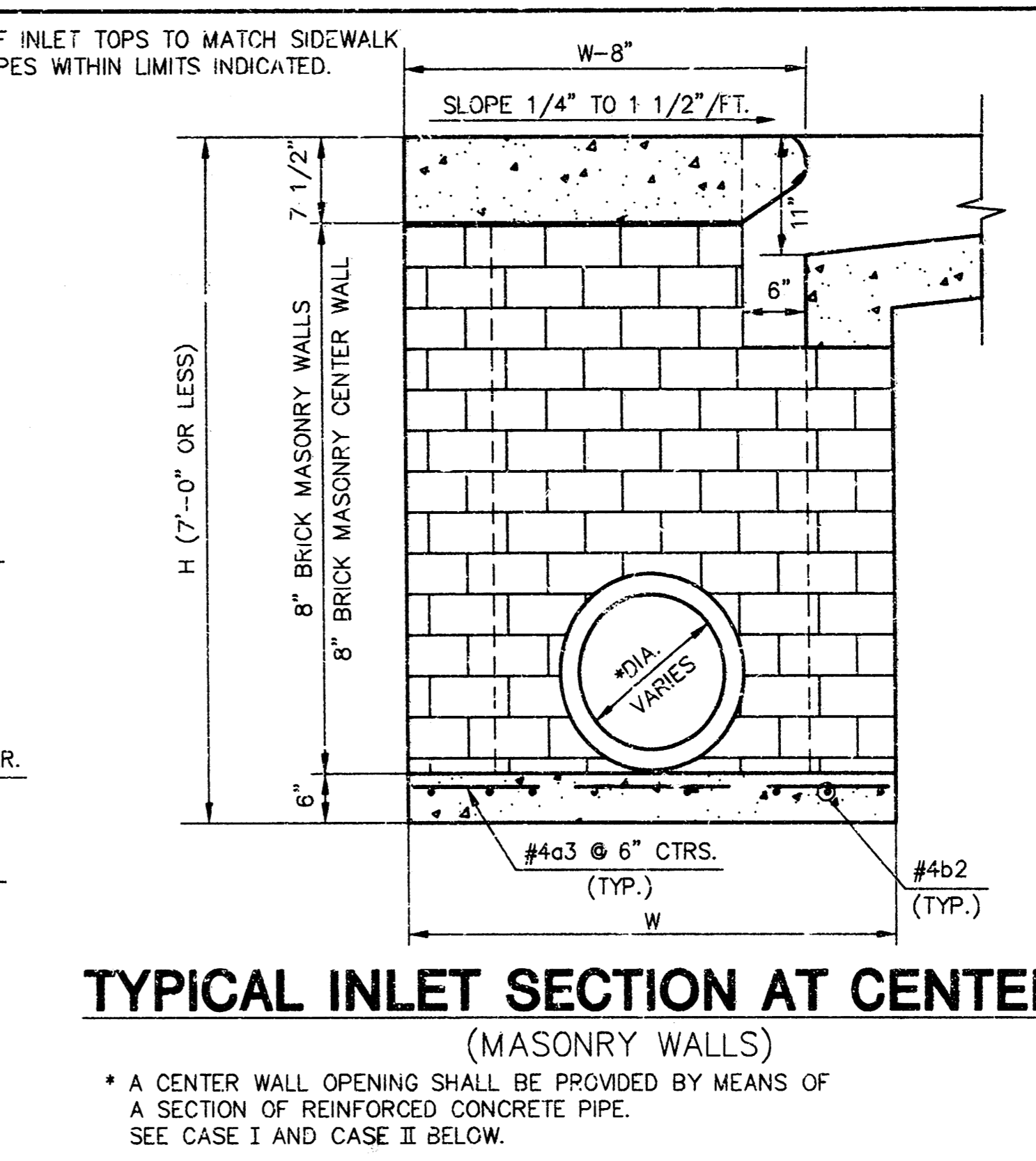
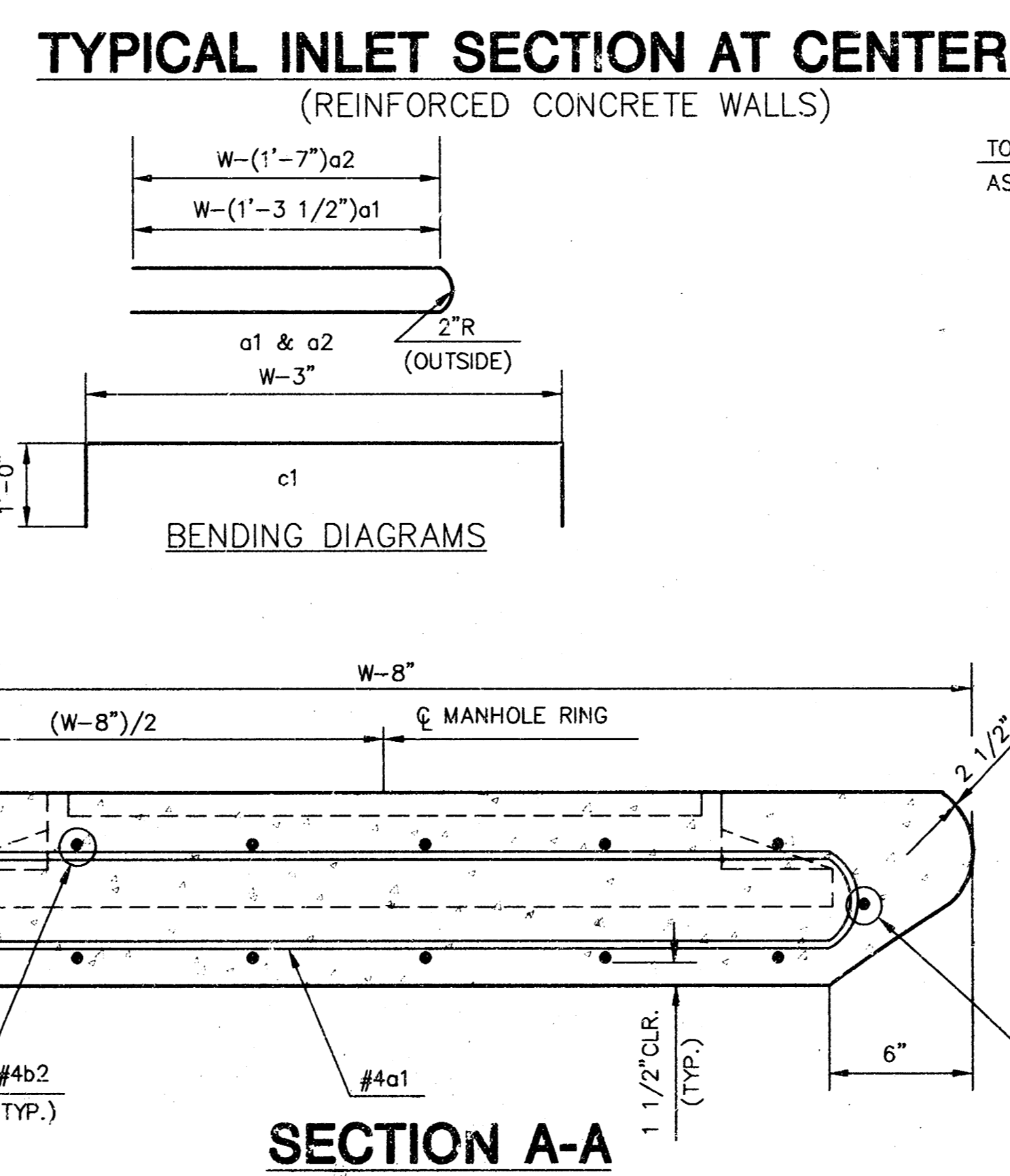
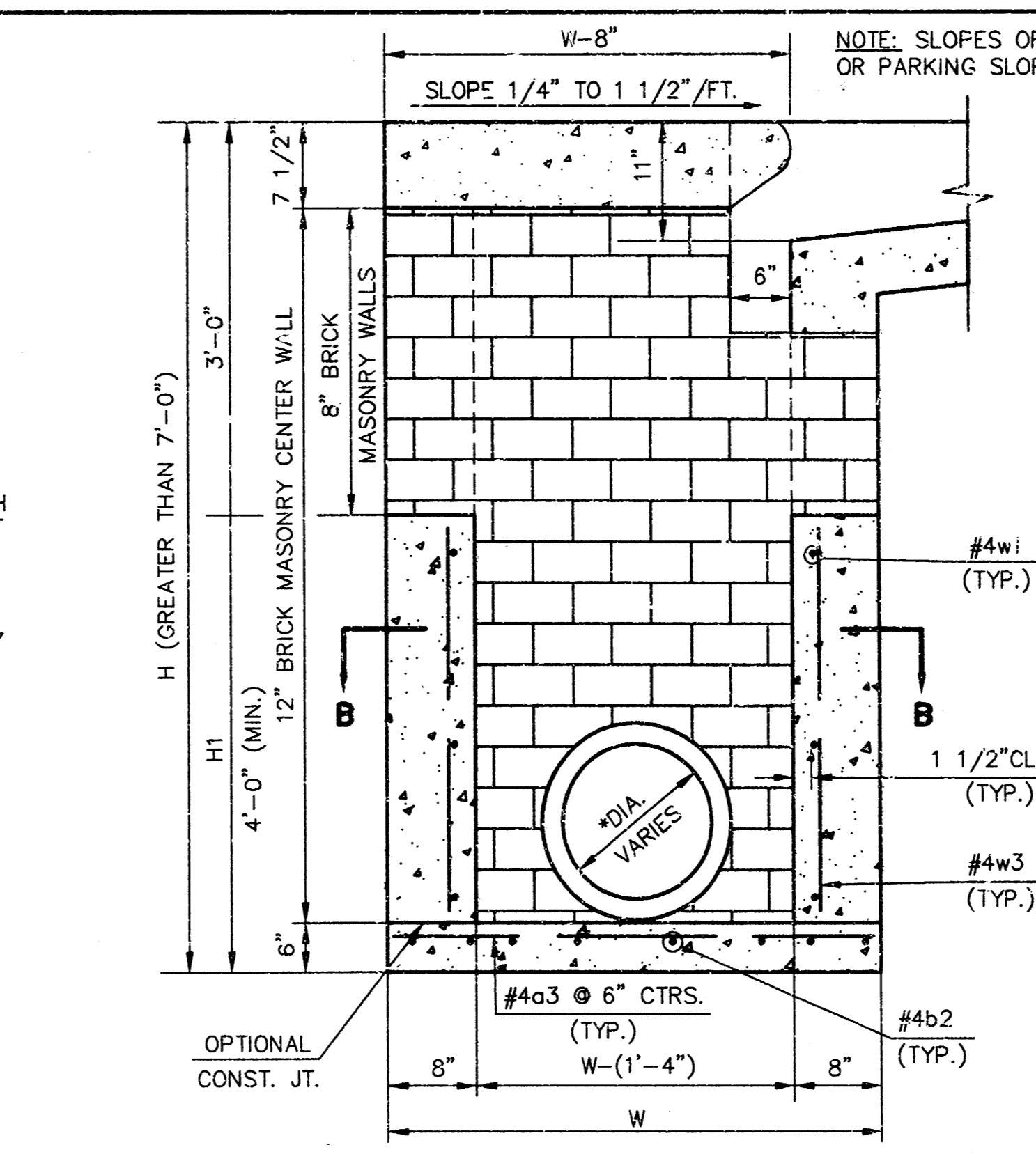
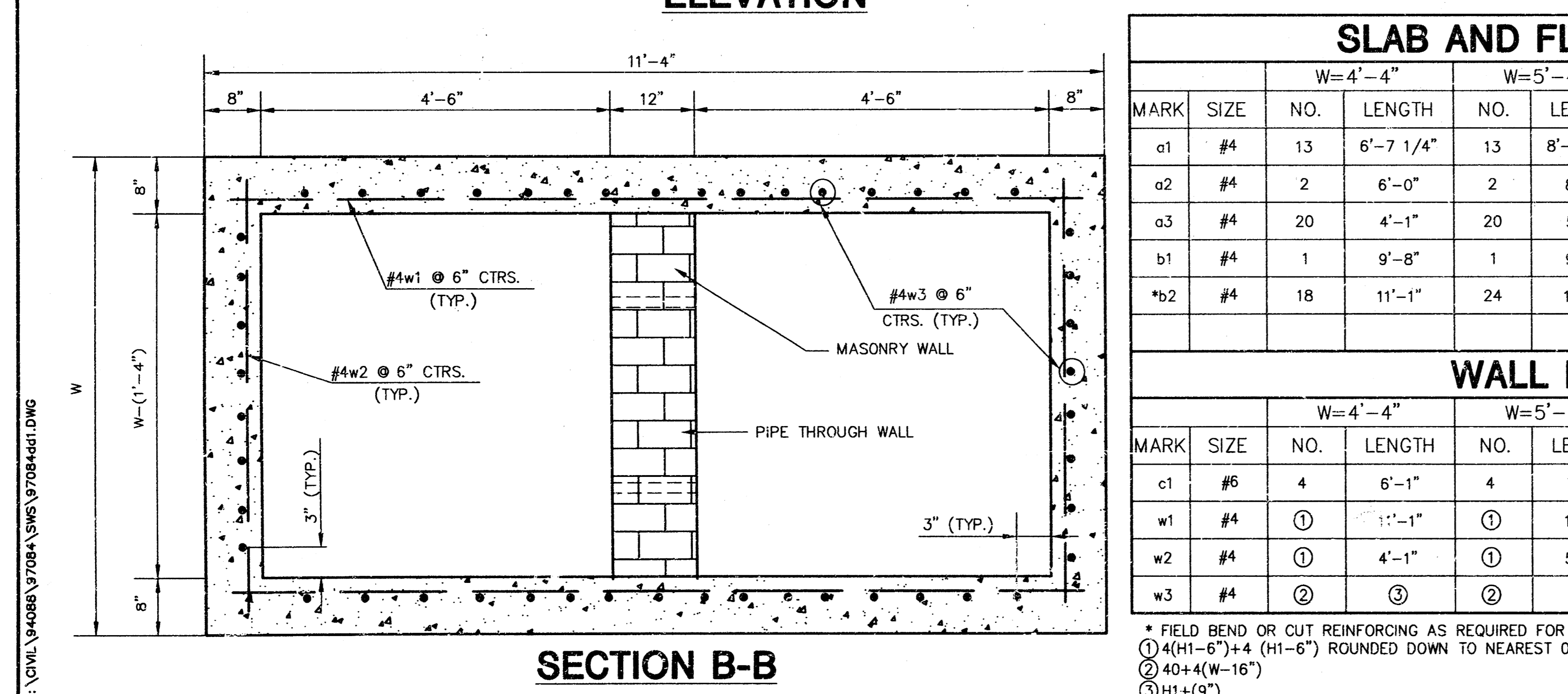
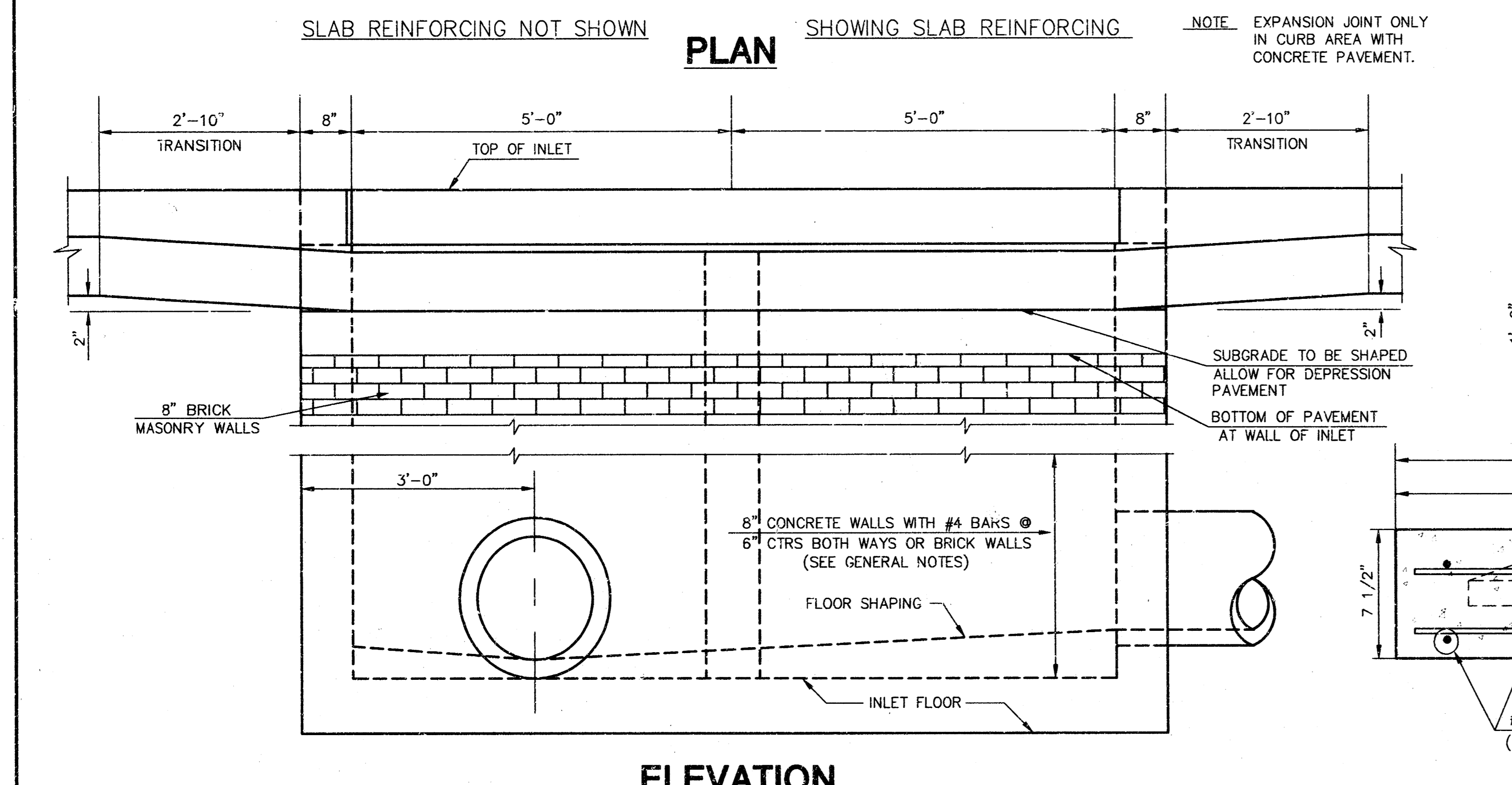
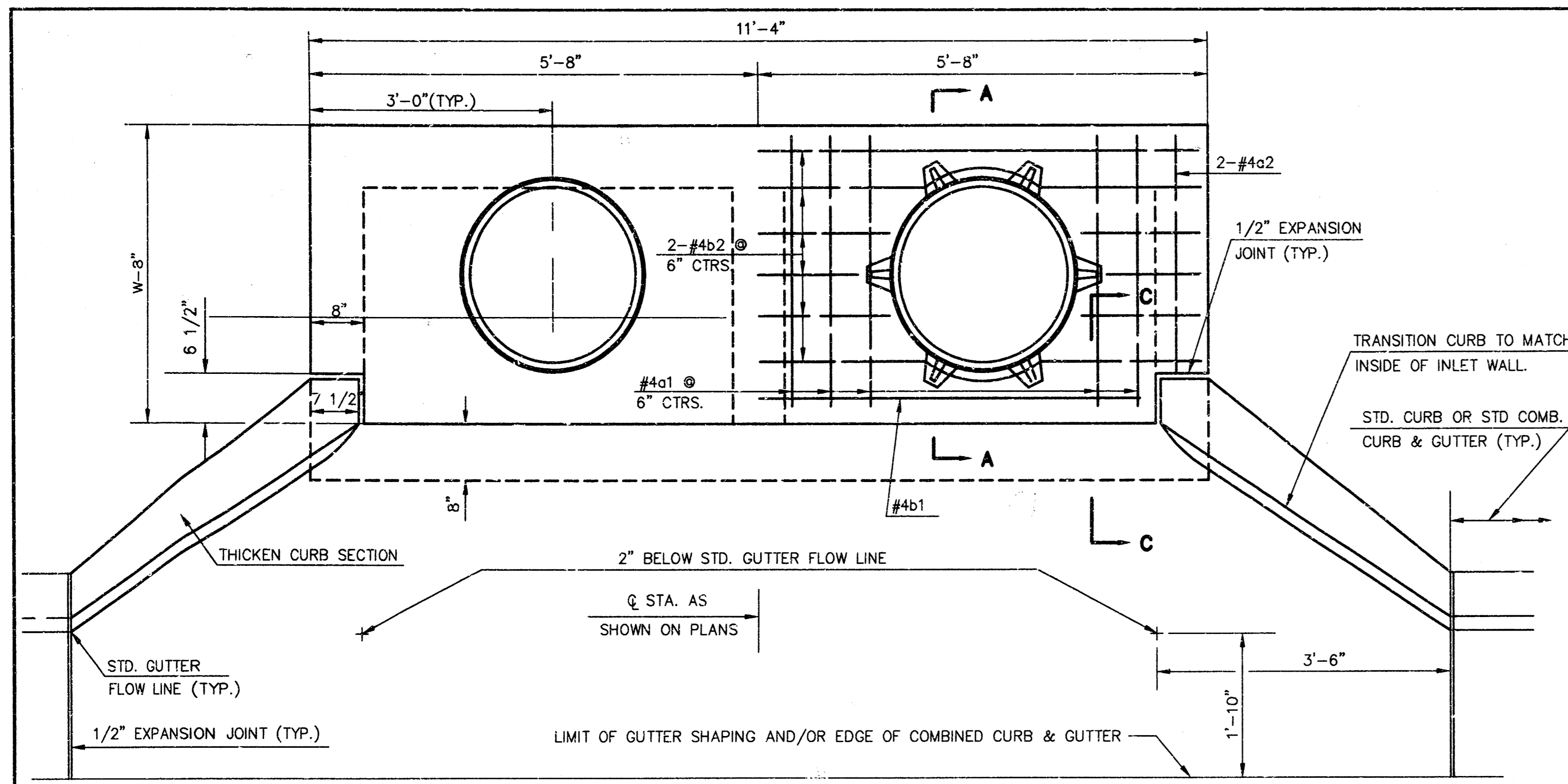
**PRAIRIE WOODS SECOND ADD.  
STORM WATER SEWER PLANS  
LINE 1**



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3+84.58



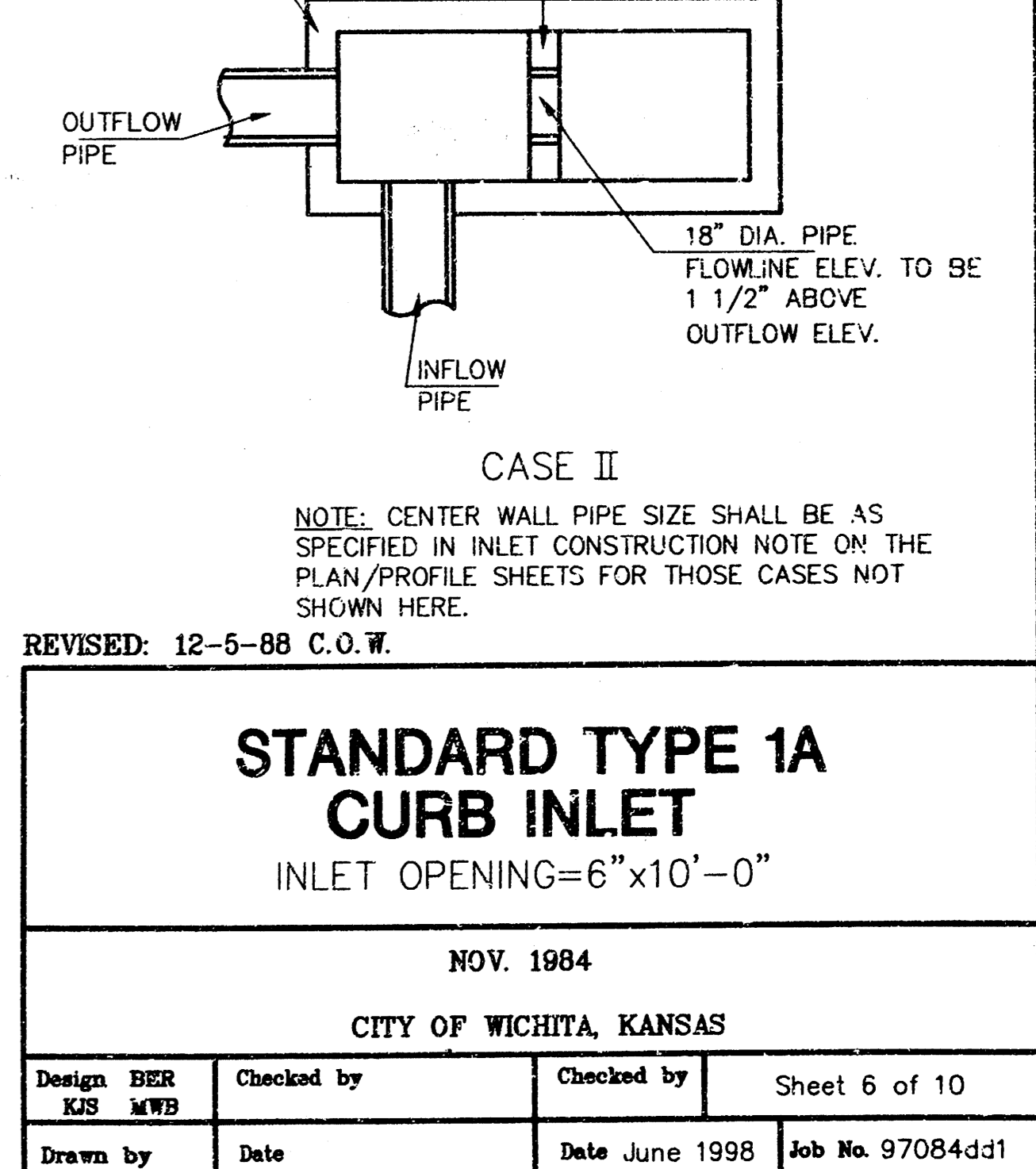


SLAB AND FLOOR REINFORCING											
		W=4'-4"		W=5'-4"		W=6'-4"		W=7'-4"		W=8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
a1	#4	13	6'-7 1/4"	13	8'-7 1/4"	13	10'-7 1/4"	13	12'-7 1/4"	13	14'-7 1/4"
a2	#4	2	6'-0"	2	8'-0"	2	10'-0"	2	12'-0"	2	14'-0"
a3	#4	20	4'-1"	20	5'-1"	20	6'-1"	20	7'-1"	20	8'-1"
b1	#4	1	9'-8"	1	9'-8"	1	9'-8"	1	9'-8"	1	9'-8"
b2	#4	18	11'-1"	24	11'-1"	30	11'-1"	36	11'-1"	42	11'-1"

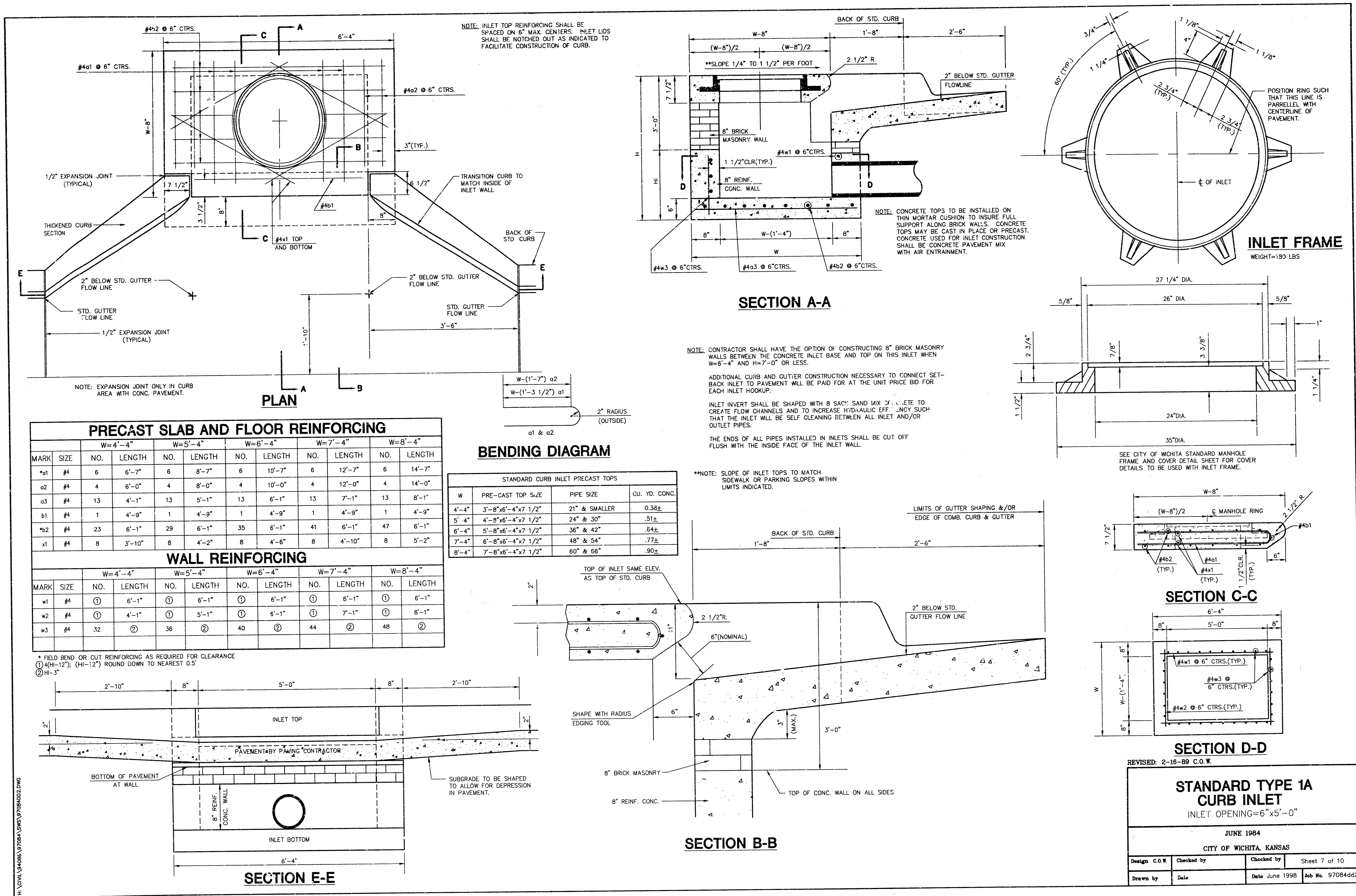
  

WALL REINFORCING											
		W=4'-4"		W=5'-4"		W=6'-4"		W=7'-4"		W=8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
c1	#4	4	6'-1"	4	7'-1"	4	8'-1"	4	9'-1"	4	10'-1"
w1	#4	①	11'-1"	①	11'-1"	①	11'-1"	①	11'-1"	①	11'-1"
w2	#4	①	4'-1"	①	5'-1"	①	6'-1"	①	7'-1"	①	8'-1"
w3	#4	②	③	②	③	②	③	②	③	②	③

\* FIELD BEND OR CUT REINFORCING AS REQUIRED FOR CLEARANCE  
 ① 4(HI-6)+4 (HI-6) ROUNDED DOWN TO NEAREST 0.5"  
 ② 40+4(W-16)  
 ③ H1+(9")



REVISID: 12-5-88 C.O.W.  
**STANDARD TYPE 1A CURB INLET**  
 INLET OPENING=6"x10'-0"  
 NOV. 1984  
 CITY OF WICHITA, KANSAS  
 Design BER / Checked by / Checked by / Sheet 6 of 10  
 Drawn by / Date / Date June 1998 / Job No. 97084d1



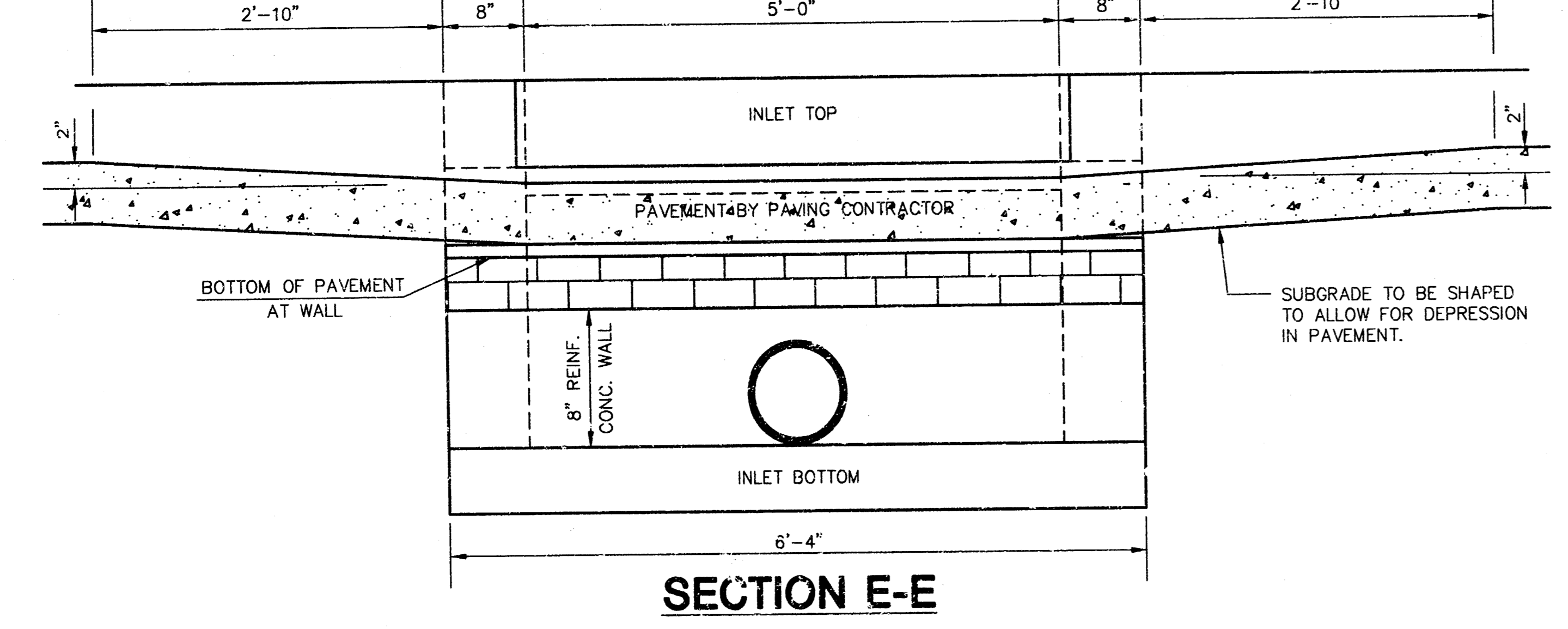
**PRECAST SLAB AND FLOOR REINFORCING**

		W=4'-4"		W=5'-4"		W=6'-4"		W=7'-4"		W=8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
a1	#4	6	6'-7"	6	8'-7"	6	10'-7"	6	12'-7"	6	14'-7"
a2	#4	4	6'-0"	4	8'-0"	4	10'-0"	4	12'-0"	4	14'-0"
a3	#4	13	4'-1"	13	5'-1"	13	6'-1"	13	7'-1"	13	8'-1"
b1	#4	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"
b2	#4	23	6'-1"	29	6'-1"	35	6'-1"	41	6'-1"	47	6'-1"
x1	#4	8	3'-10"	8	4'-2"	8	4'-6"	8	4'-10"	8	5'-2"

**WALL REINFORCING**

		W=4'-4"		W=5'-4"		W=6'-4"		W=7'-4"		W=8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
w1	#4	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"
w2	#4	①	4'-1"	①	5'-1"	①	6'-1"	①	7'-1"	①	8'-1"
w3	#4	32	②	36	②	40	②	44	②	48	②

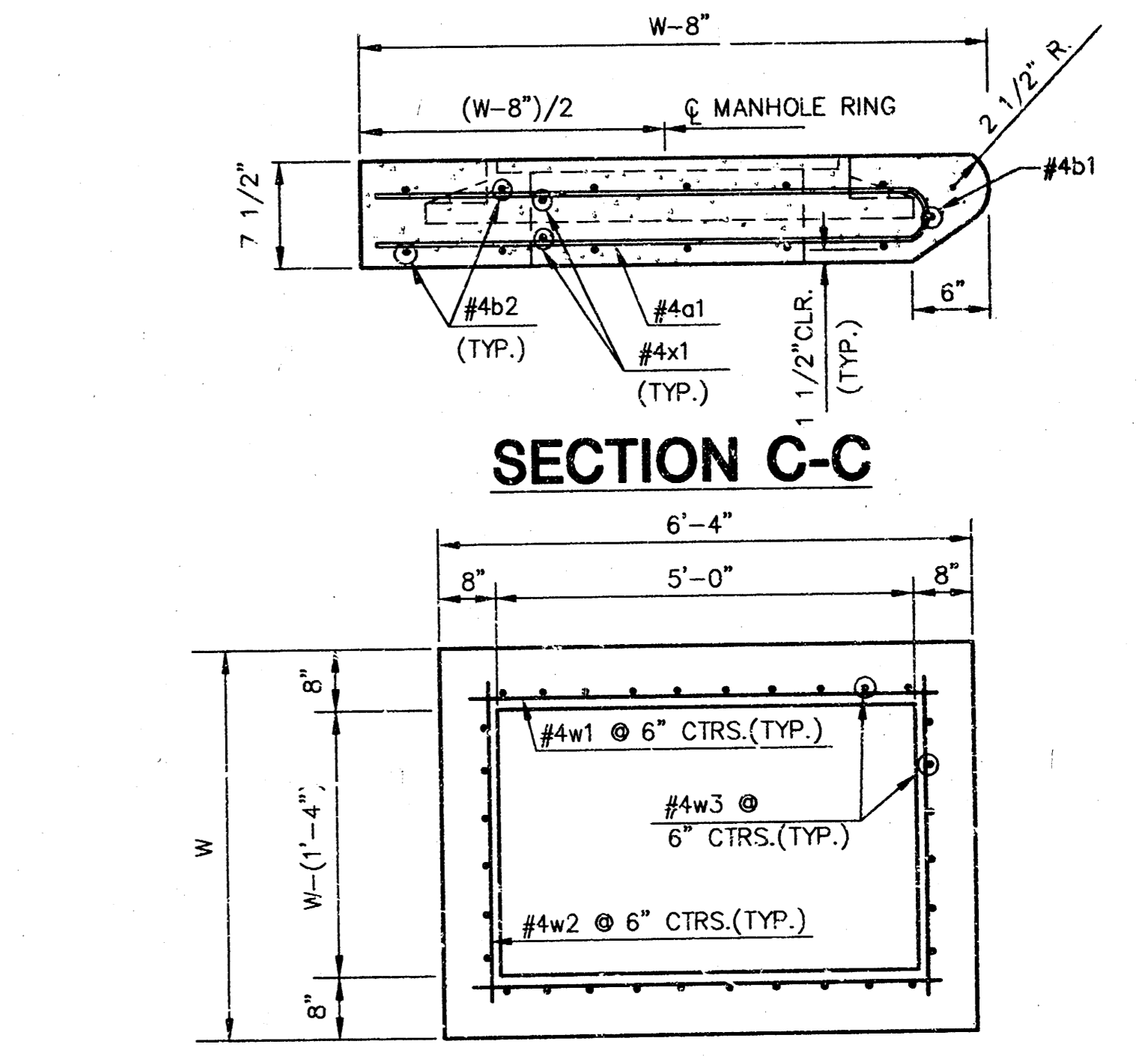
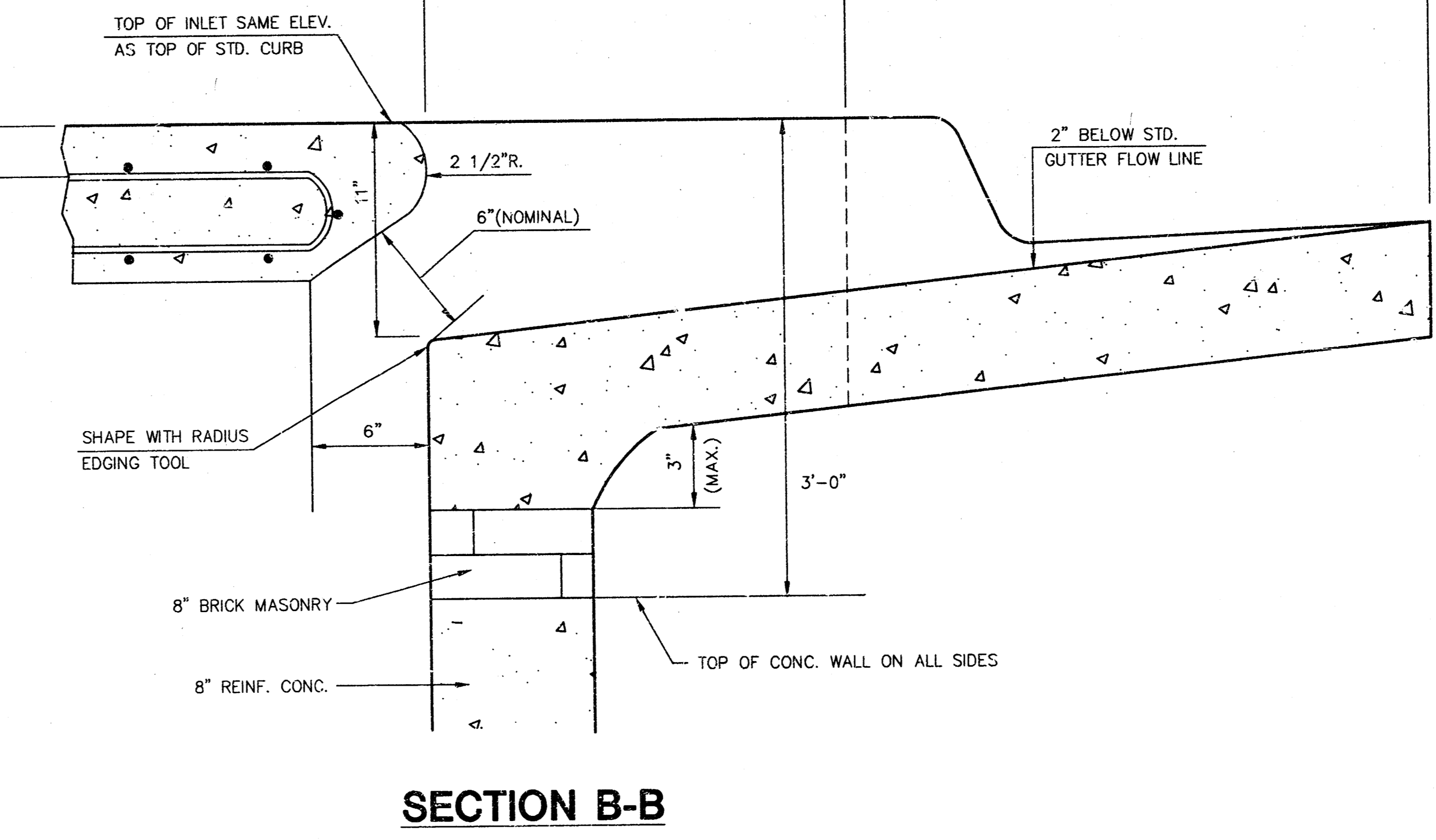
\* FIELD BEND OR CUT REINFORCING AS REQUIRED FOR CLEARANCE  
 ① (H=12"): (H=12") ROUND DOWN TO NEAREST 0.5"  
 ② H=3"



**BENDING DIAGRAM**

STANDARD CURB INLET PRECAST TOPS

W	PRE-CAST TOP SIZE	PIPE SIZE	CU. YD. CONC.
4'-4"	3'-8"x6'-4"x7 1/2"	21" & SMALLER	0.38±
5'-4"	4'-8"x6'-4"x7 1/2"	24" & 30"	.51±
6'-4"	5'-8"x6'-4"x7 1/2"	36" & 42"	.64±
7'-4"	6'-8"x6'-4"x7 1/2"	48" & 54"	.77±
8'-4"	7'-8"x6'-4"x7 1/2"	60" & 66"	.90±



**SECTION D-D**

REVISED: 2-16-89 C.O.W.

**STANDARD TYPE 1A CURB INLET**

INLET OPENING=6"x5'-0"

JUNE 1984

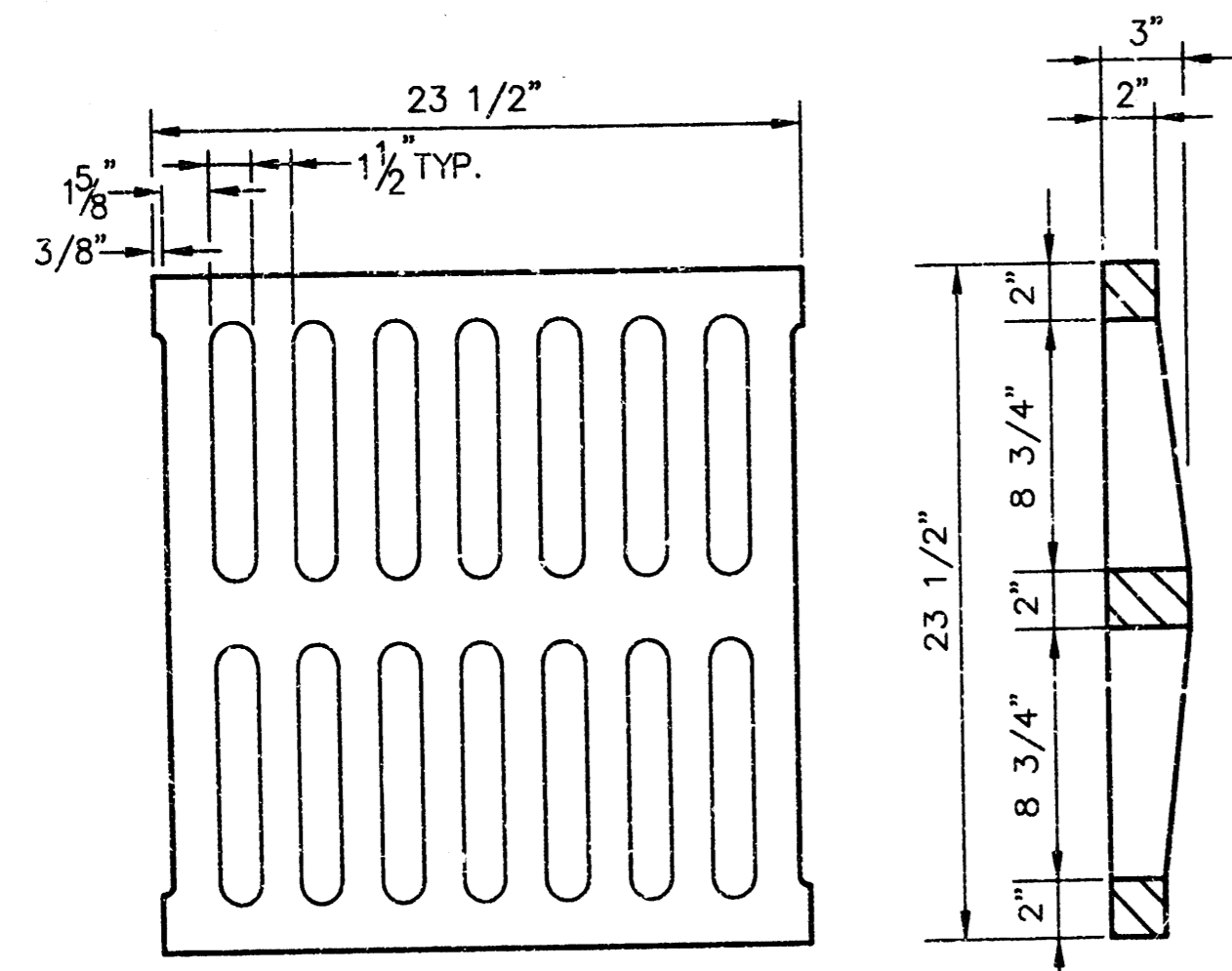
CITY OF WICHITA, KANSAS

Design: C.O.W.	Checked by:	Checked by:	Sheet 7 of 10
Drawn by:	Date:	Date June 1998	Job No. 97084dd2

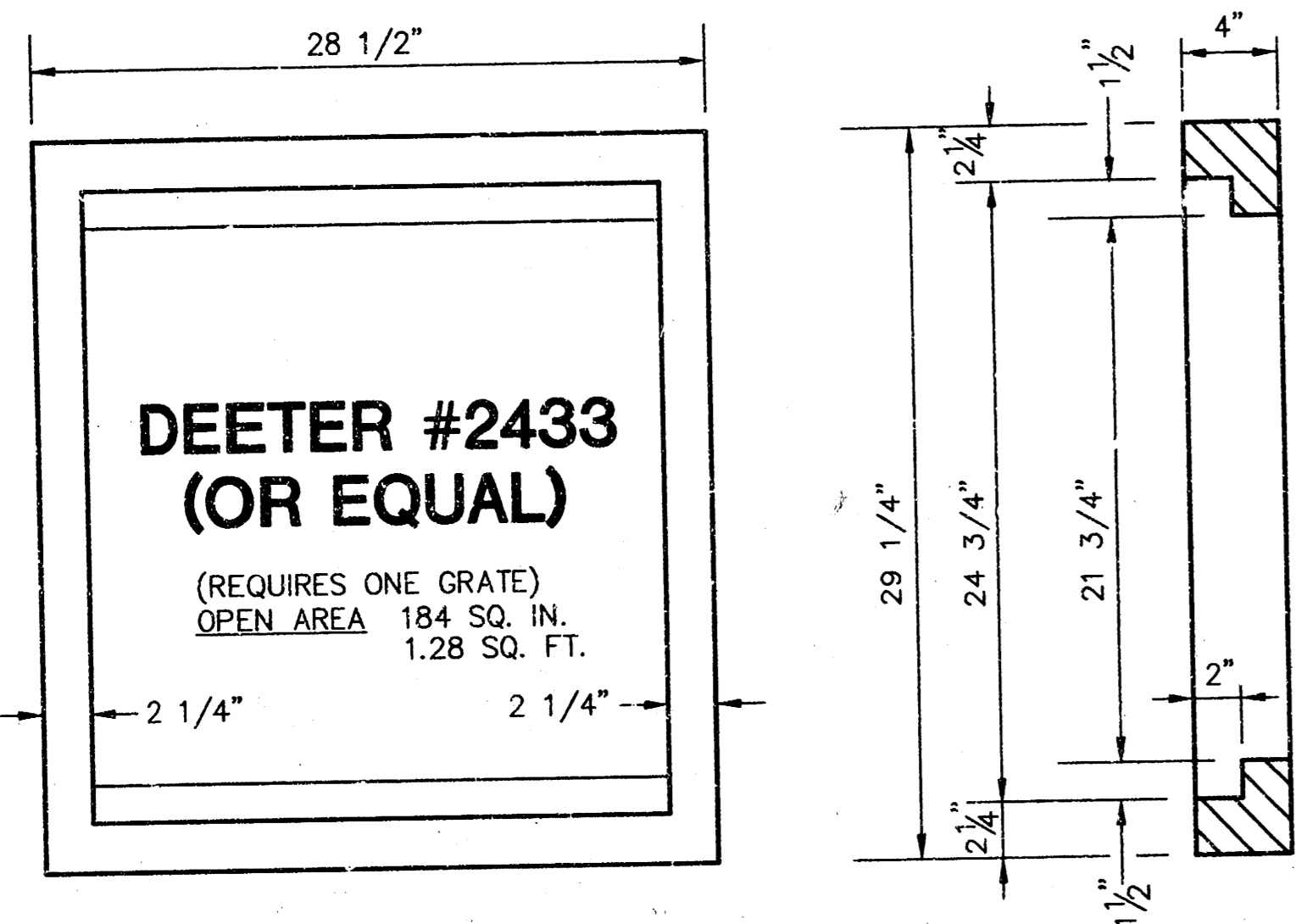
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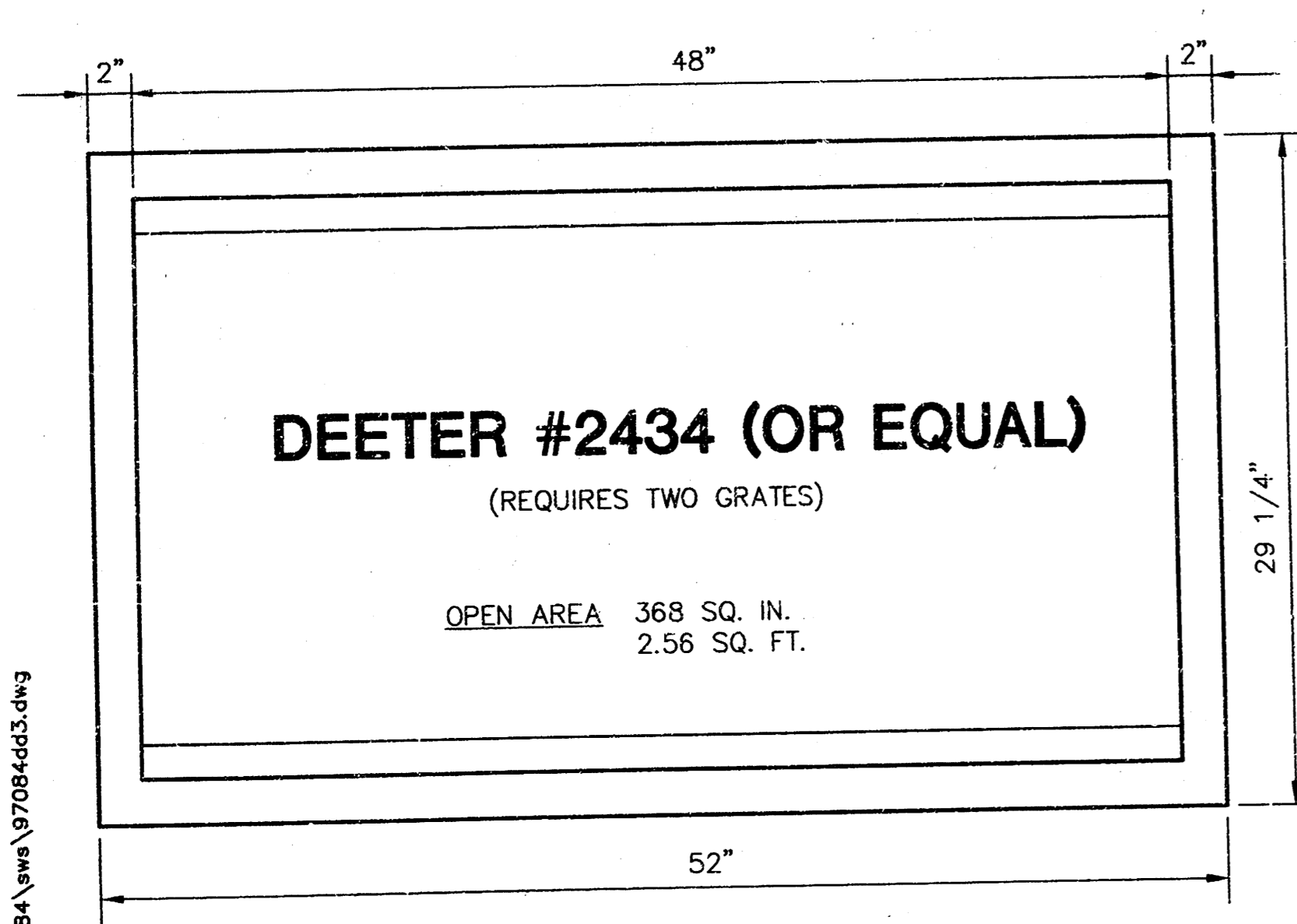
NOTE: GRATES SHALL BE IMPRINTED ON THE TOP SURFACE WITH "CITY OF WICHITA" USING LETTERS AT LEAST 1" IN HEIGHT. OTHER MARKING METHODS MAY BE USED ONLY IF APPROVED BY THE ENGINEER.



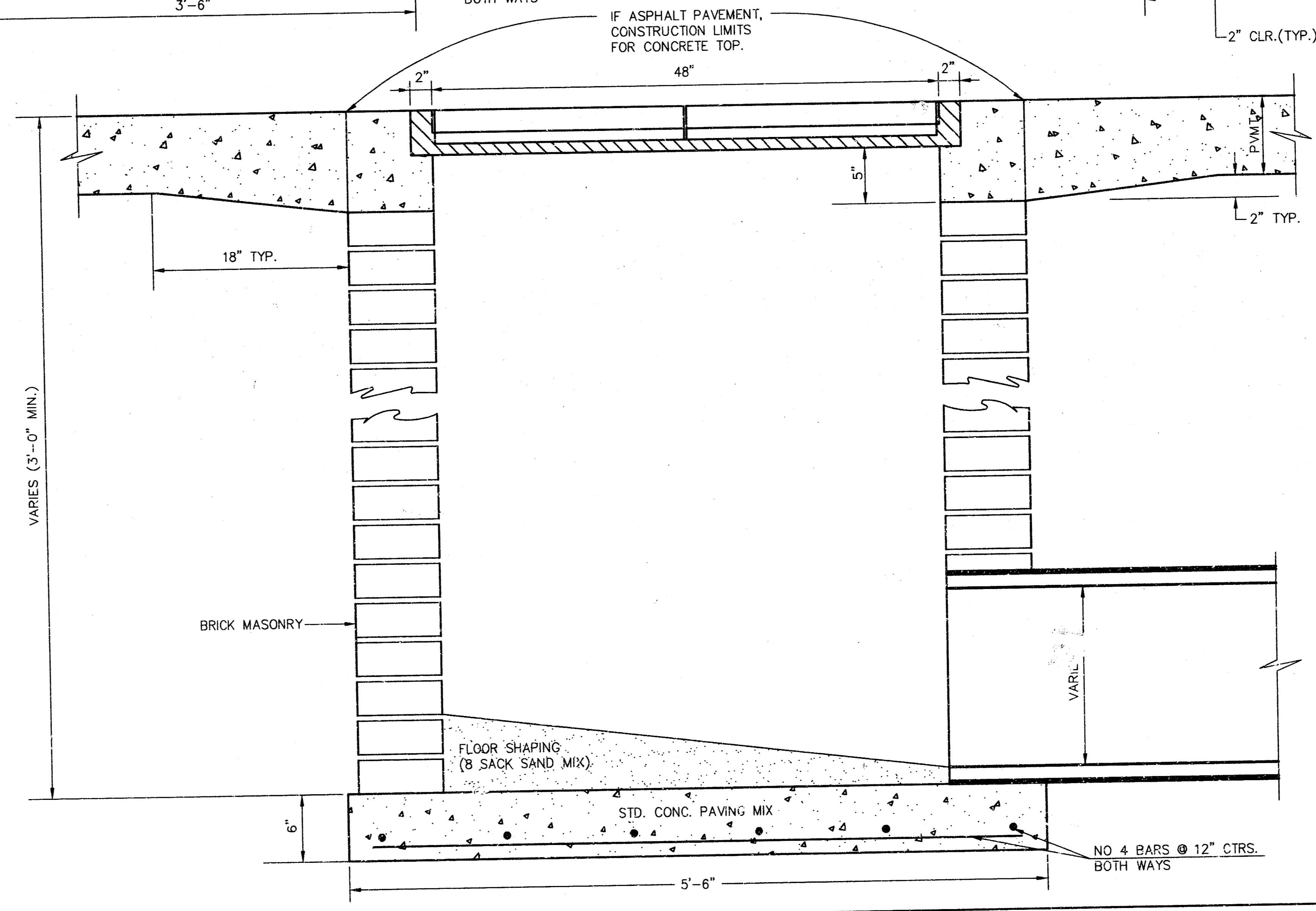
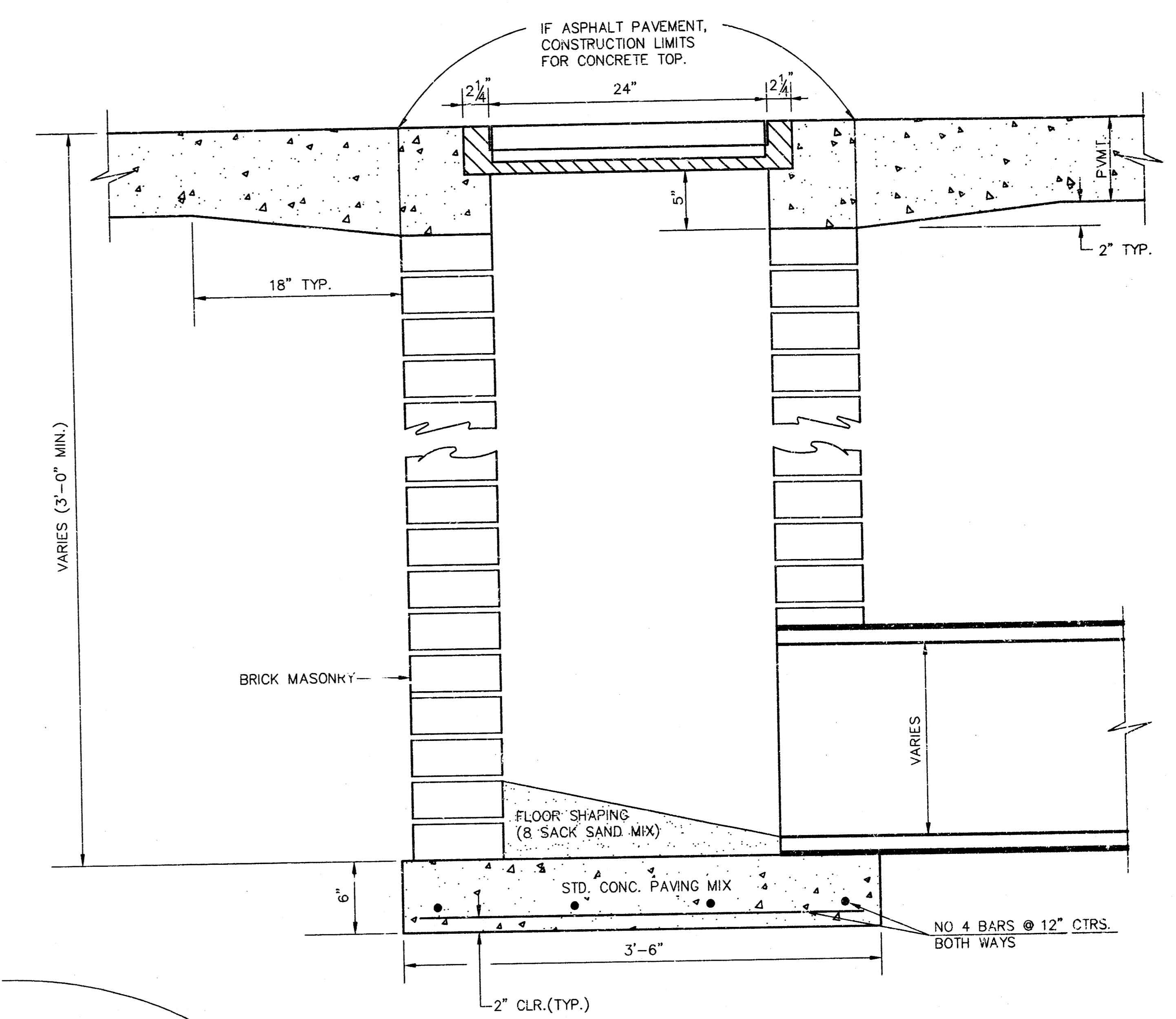
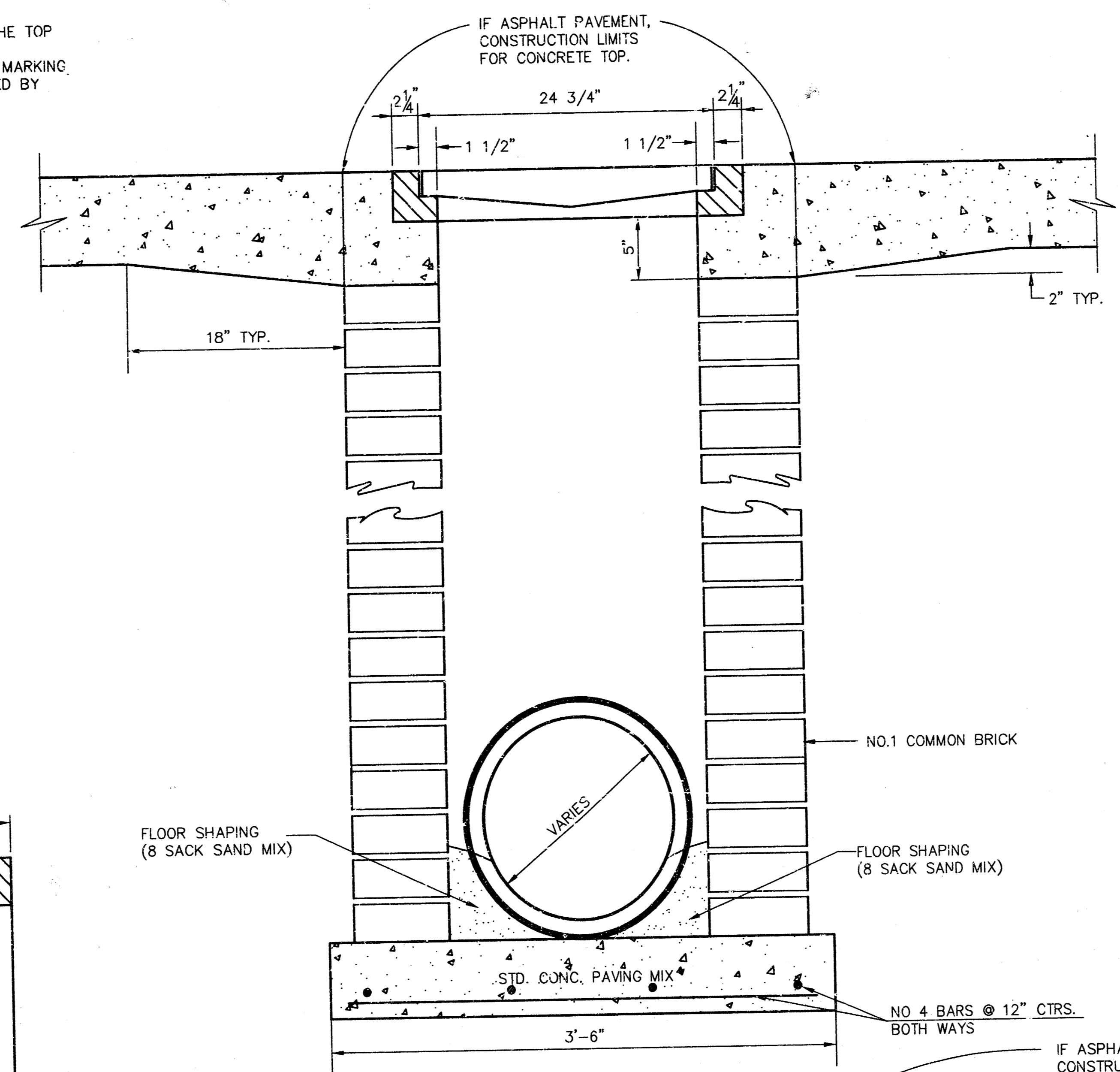
24"x24" GRATE DETAIL



SINGLE 24"x24" FRAME DETAIL



DOUBLE 24"x24" FRAME DETAIL



ORIFICE EQUATION		
$Q = C \cdot A \cdot \sqrt{2gh}$ $C = 0.60$		
h (DEPTH)	#2433 (SINGLE)	#2434 (DOUBLE)
0.1	1.95 cfs	3.89 cfs
0.2	2.75 cfs	5.50 cfs
0.3	3.37 cfs	6.74 cfs
0.4	3.89 cfs	7.78 cfs
0.5	4.35 cfs	8.70 cfs
0.6	4.77 cfs	9.53 cfs
0.7	5.15 cfs	10.30 cfs
0.8	5.50 cfs	11.01 cfs
0.9	5.84 cfs	11.67 cfs
1.0	6.15 cfs	12.30 cfs

REVISED: 5-8-90 JNJ

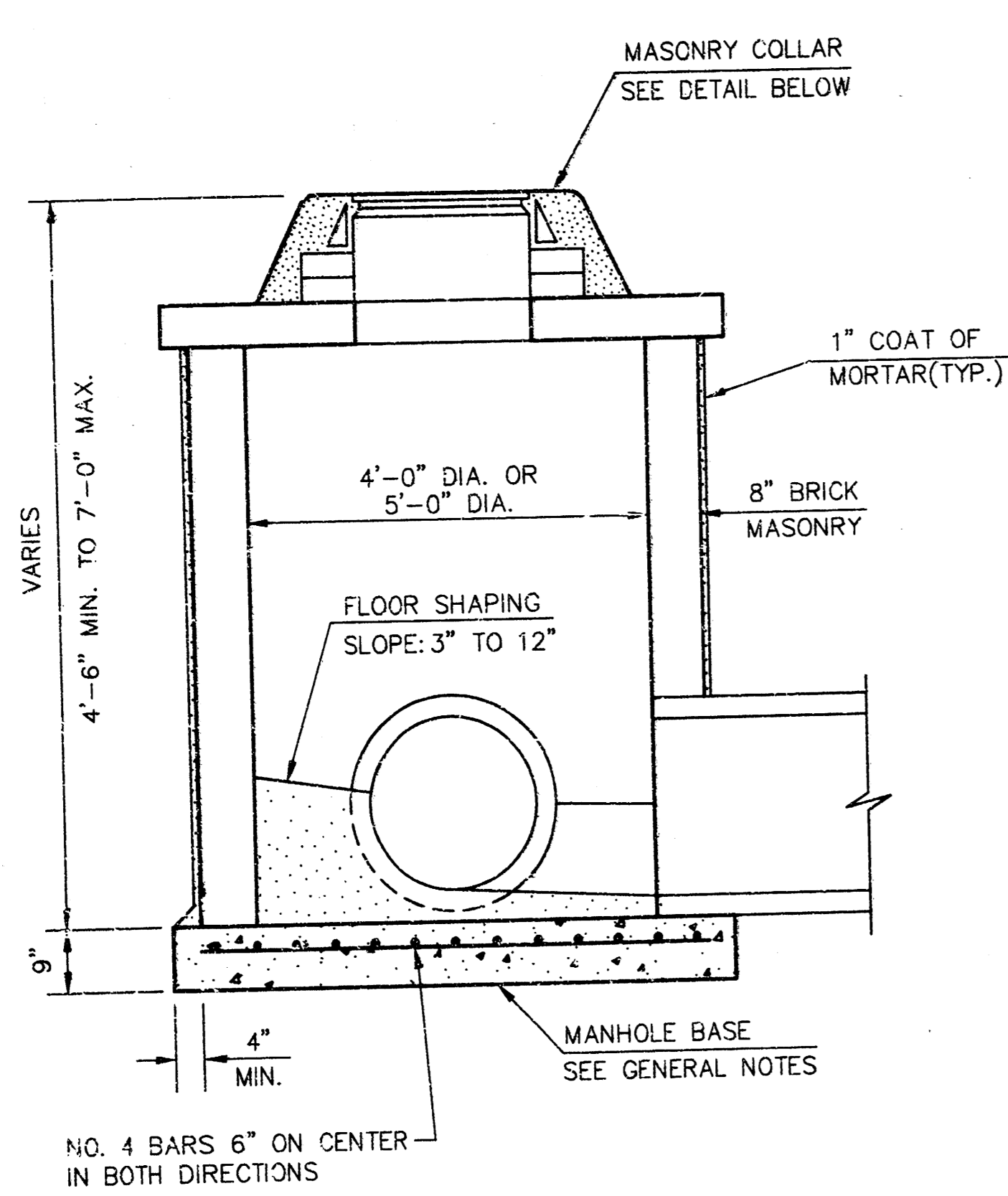
**DROP INLET DETAILS**

CITY OF WICHITA, KANSAS

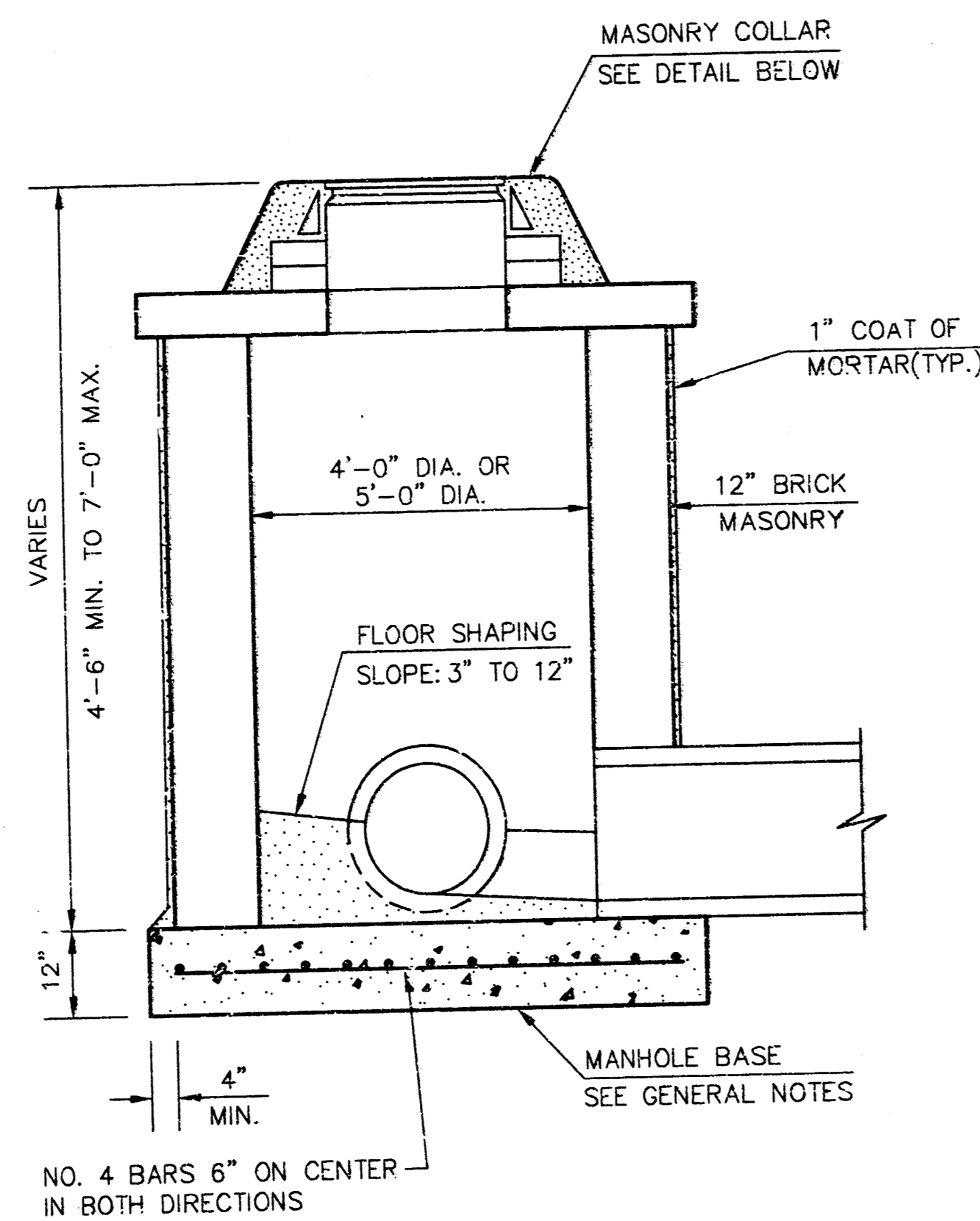
Design	C.O.W.	Checked by	Checked by	Sheet 8 of 10
Drawn by	Date	Date June 1998	Job No. 97084dd3	

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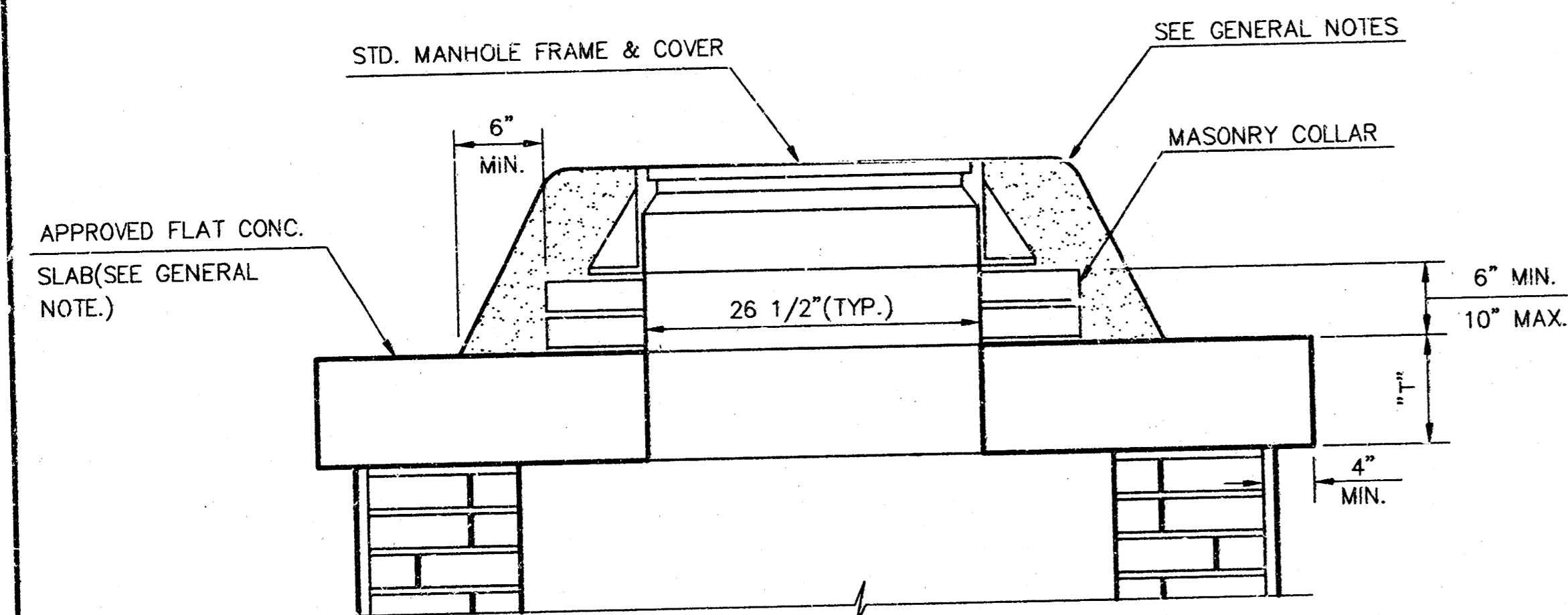
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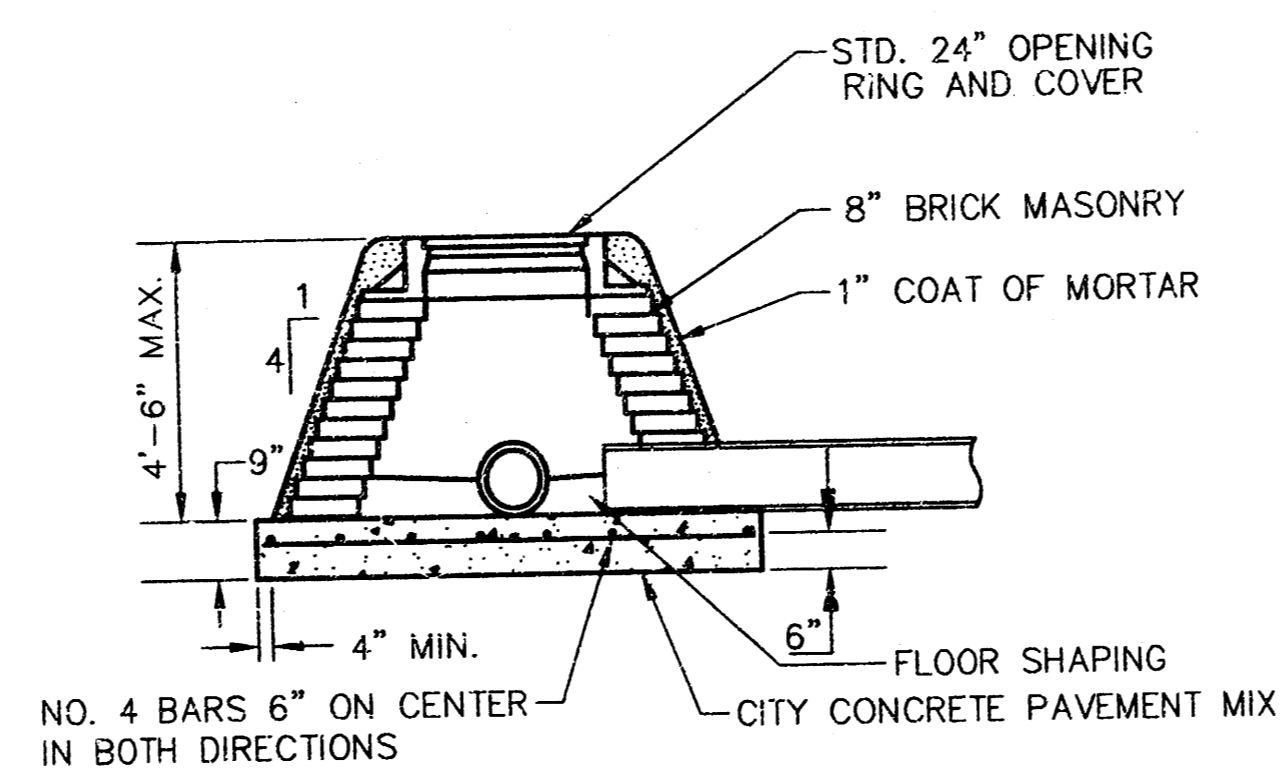
SHALLOW TYPE "A" MANHOLE



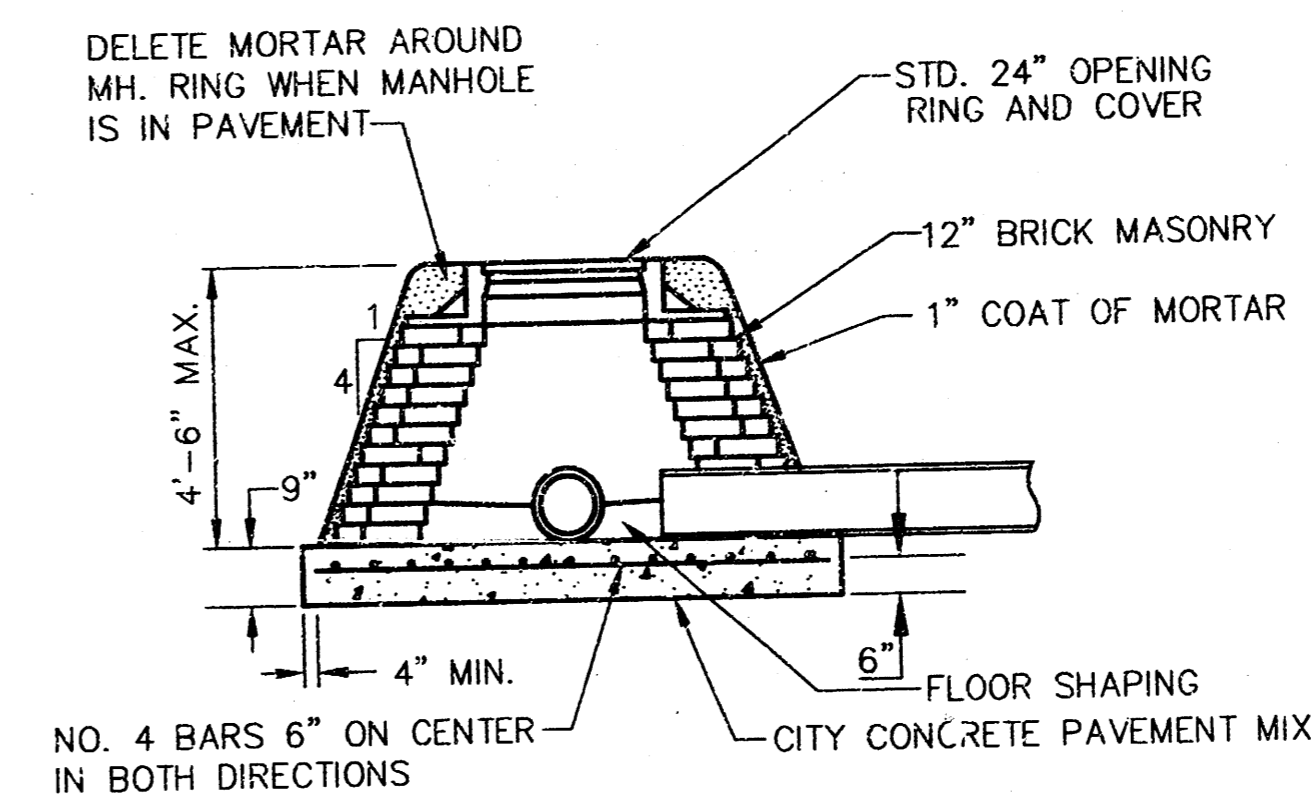
SHALLOW TYPE "B" MANHOLE



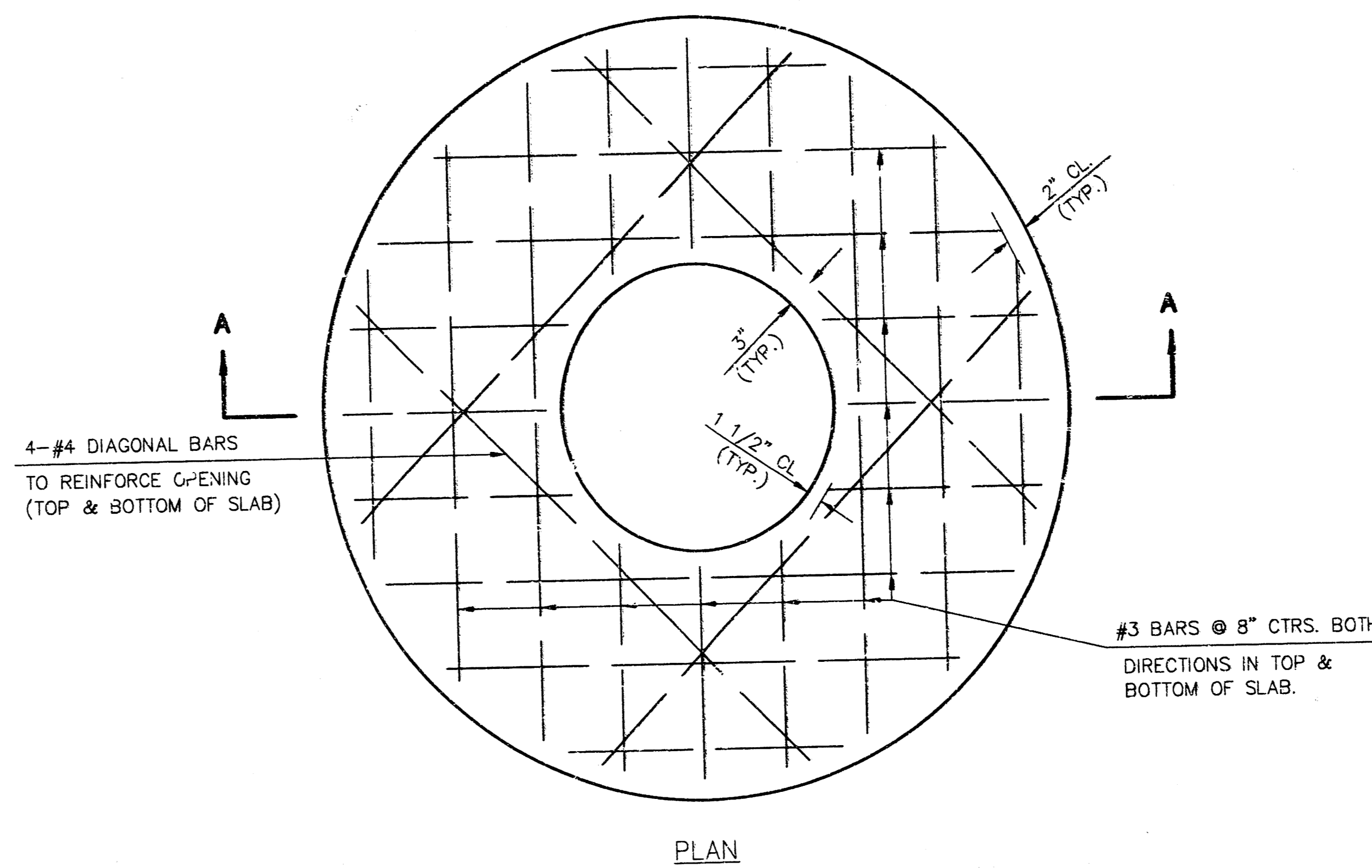
MASONRY COLLAR DETAIL



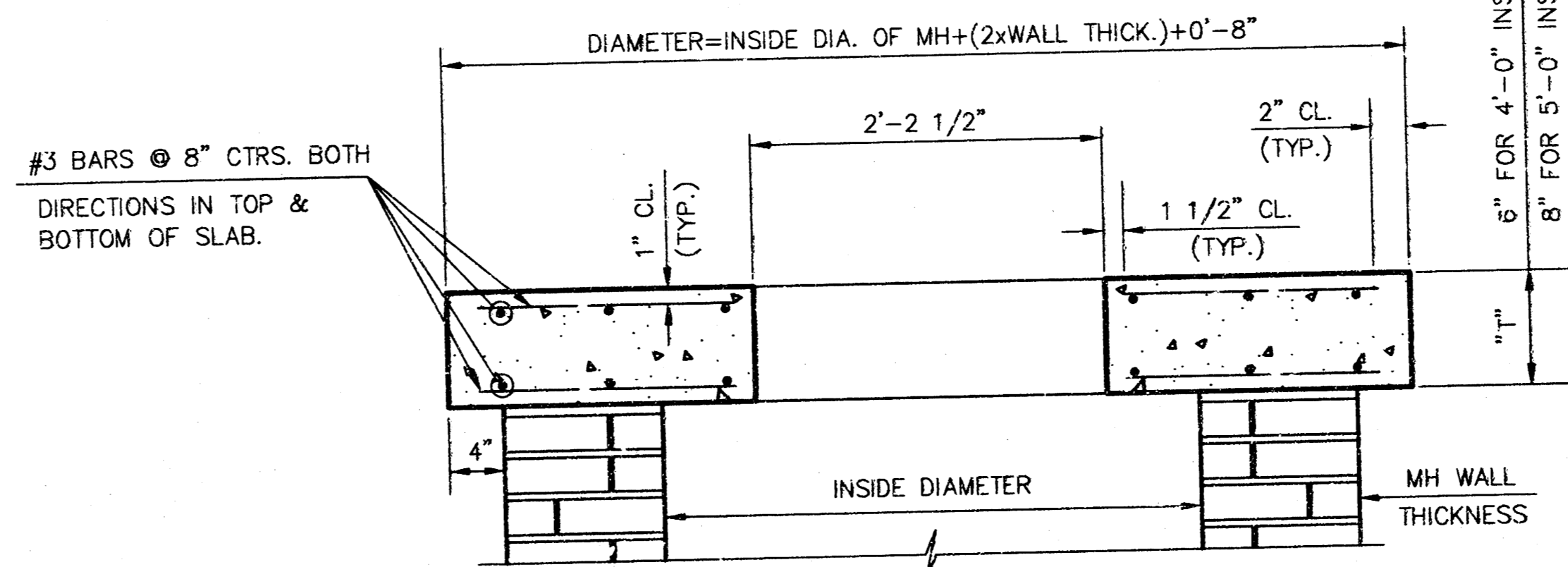
SPECIAL SHALLOW TYPE "A" MANHOLE



SPECIAL SHALLOW TYPE "B" MANHOLE



PLAN



SECTION A-A  
FLAT CONCRETE SLAB DETAILS

GENERAL NOTES

- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE CEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE PIPE AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. TYPE "A" SHALLOW MANHOLES CAN BE USED ON SEWERS WHEN THE MANHOLE IS NOT LOCATED WITHIN PUBLIC STREET PAVEMENT. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4". MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 5". COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
- REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED 6" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
- THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF-CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
- PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
- MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWINGS.
- THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- STANDARD SHALLOW MANHOLES TYPE "A" AND "B" SHALL BE PAID FOR AT THE UNIT PRICE BID PER EACH FOR THE TYPE AND DIAMETER INDICATED. STANDARD SPECIAL SHALLOW MANHOLES TYPE "A" AND "B" SHALL BE PAID FOR AT THE UNIT PRICE BID PER EACH FOR THE TYPE INDICATED. ALL STANDARD SHALLOW MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

STANDARD SHALLOW  
MANHOLES  
TYPE "A" AND TYPE "B"

CITY OF WICHITA, KANSAS

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