

STORM WATER SEWER IMPROVEMENTS

FOR

WEST WICHITA MEDICAL PARK

LOCATED IN

TYLER ACRES SIXTH ADDITION

SEDGWICK COUNTY, KANSAS

CITY OF WICHITA PRIV. PROJ. NO. 839 PPS(607861)

MIKE LINDEBAK, P.E., CITY ENGINEER

AUGUST 1998

GENERAL NOTES

1. ALL ELEVATIONS SHOWN ARE BASED ON CITY OF WICHITA DATUM (MEAN SEA LEVEL ELEV. - 1187.4 = CITY DATUM).

2. 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 687-2470

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

CABLEVISION 262-4270 OR 263-2061
 KG&E-GAS 263-7511
 KG&E-ELECTRIC 264-1141
 PEOPLES NATURAL GAS 462-3811
 SOUTHWESTERN BELL TELEPHONE 1-571-2611
 CITY OF WICHITA WATER DEPARTMENT 268-4908

3. THE CONTRACTOR SHALL NOTIFY PIPELINE COMPANIES AT LEAST 24 HOURS IN ADVANCE OF ANY WORK BEING PERFORMED ACROSS AND/OR ADJACENT TO PIPELINES.

4. THE CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR IS ASSIGNED TO THE PROJECT AND IS PRESENT ON THE SITE. ANY WORK DONE WITHOUT INSPECTION WILL BE REQUIRED TO BE UNCOVERED FOR INSPECTION.

5. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY DIRECTLY ADJUTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.

6. 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.

7. THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, ENTRANCES AND BANK LINES TO THEIR ORIGINAL SLOPES AND GRADES EXCEPT AS SHOWN OTHERWISE.

8. A SAW CUT OF AT LEAST ONE-HALF THE DEPTH OF EXISTING SURFACE COURSES OR ONE-FOURTH THE DEPTH OF THE EXISTING TOTAL PAVEMENT THICKNESS SHALL BE PROVIDED AT LOCATIONS WHERE PROPOSED CONSTRUCTION ABUTS AN EXISTING SURFACE COURSE OR PAVEMENT FOR WHICH PARTIAL REMOVAL OF THAT SURFACE OR PAVEMENT IS REQUIRED. EXCEPT WHEN SUCH SAW CUTS ARE WITHIN THREE (3) FEET OF AN EXISTING JOINT, THE LIMITS OF REMOVAL SHALL BE EXTENDED TO THE EXISTING JOINT. SUCH SAW CUTS WILL NOT BE PAID FOR DIRECTLY AND THIS COST SHALL BE CONSIDERED AS SUBSIDIARY TO THE REMOVAL OF THE SURFACE OR PAVEMENT.

9. PAVEMENT REMOVAL AND/OR REPLACEMENT WILL BE MEASURED AND PAID FOR ON THE LINEAL FOOT BASIS AS MEASURED ALONG THE CENTERLINE OF THE WATER LINE REGARDLESS OF WIDTH, PAVEMENT TYPE AND/OR PAVEMENT THICKNESS. MINIMUM LIMITS OF SUCH PAVEMENT REMOVAL AND REPLACEMENT SHALL BE ONE FOOT BEYOND THE LIMITS OF THE EXCAVATION MADE FOR THE WATER LINE OR THE STRUCTURE, EXCEPT WHEN SUCH SAW CUTS ARE WITHIN THREE (3) FEET OF AN EXISTING JOINT THE LIMITS OF REMOVAL SHALL BE EXTENDED TO THE EXISTING JOINT. REMOVAL AND REPLACEMENT OF EXISTING PAVEMENT SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE CITY OF WICHITA STANDARD SPECIFICATIONS.

10. INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA SHALL NOT BE CARRIED THROUGH CONSTRUCTION. LOCAL RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA SHALL BE CARRIED THROUGH CONSTRUCTION AS FURTHER PROMULGATED BY PROJECT SPECIAL PROVISIONS.

11. UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR OR UNLESS THE PLANS SPECIFICALLY IDENTIFY A UTILITY TO BE ADJUSTED BY ITS OWNER DURING CONSTRUCTION. EXISTING UTILITIES AND THEIR LOCATION, 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 CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.

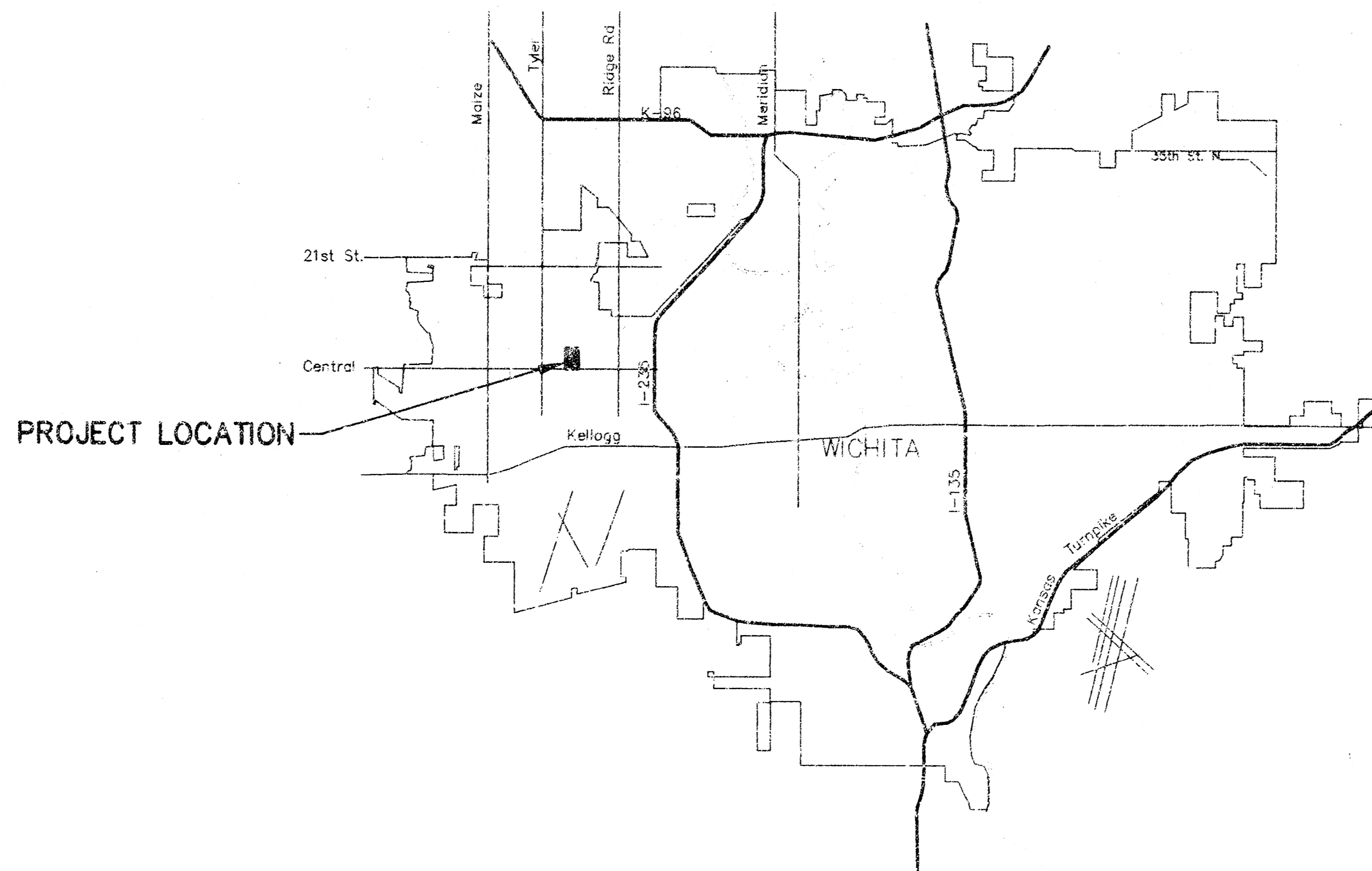
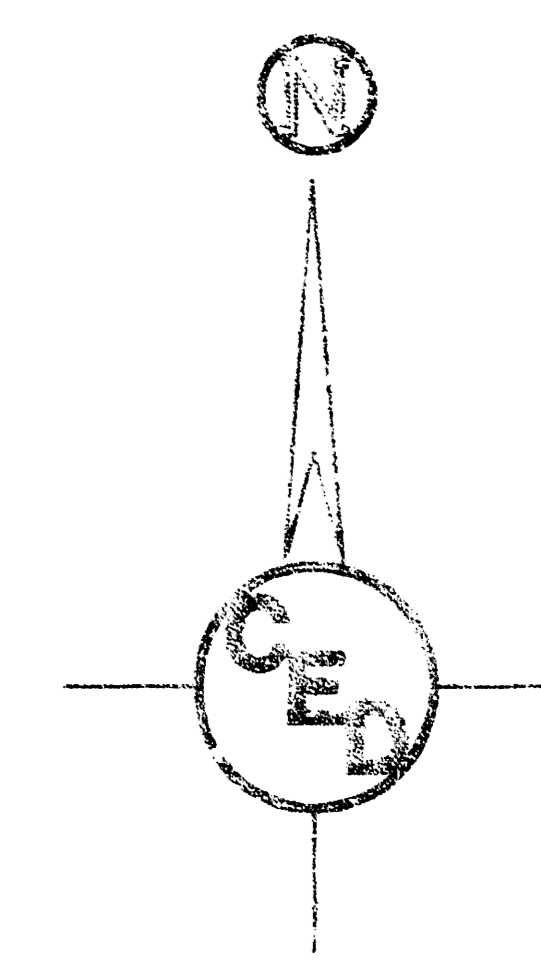
12. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS, THAT IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED.

13. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOODPLAIN 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.

14. PROPERTIES WITHIN THE PROJECT LIMITS MAY HAVE UNDERGROUND SPRINKLER SYSTEMS IN THE PUBLIC RIGHT-OF-WAY WHICH CONFLICT WITH NEW CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO REMOVE SUCH IMPROVEMENTS SHOULD THEY NOT BE REMOVED BY THEIR OWNER AT THE TIME OF CONSTRUCTION OF THE PROJECT. THE CONTRACTOR WILL BE REQUIRED TO SALVAGE ALL SPRINKLER HEADS AND/OR VALVES AND GIVE SUCH MATERIAL TO THEIR OWNER. PORTIONS OF UNDERGROUND SPRINKLER SYSTEMS NOT IN CONFLICT WITH NEW CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND SHALL REMAIN IN PLACE. ALL WORK IN CONNECTION WITH UNDERGROUND SPRINKLER SYSTEMS SHALL BE CONSIDERED AS SUBSIDIARY TO THE CONTRACT PAY ITEMS OF WORK.

15. THE CONTRACTOR MUST EXAMINE THE CONSTRUCTION SITE PRIOR TO BIDDING AND BE SATISFIED AS TO THE WORK SHOWN FOR COMPLETION. AFTER BIDS HAVE BEEN RECEIVED, THE CONTRACTOR SHALL NOT ASSERT THAT THERE WAS A MISUNDERSTANDING OF THE QUANTITIES OF WORK OR OF THE NATURE FOR THE WORK TO BE COMPLETED.

16. PRIOR TO LAYING THE NEW SEWER LINES THE CONTRACTOR SHALL EXPOSE AND VERIFY THE ELEVATION, GRADE AND ALIGNMENT OF THE EXISTING STORM WATER SEWER AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES FROM THE PLAN.



LOCATION MAP

PROJECT LOCATED IN THE
 S.W.1/4, SEC. 16, T.27S., R.1W.
 SEDGWICK COUNTY, KANSAS

INDEX OF SHEETS

1. Title Sheet
2. Site Plan
- 3.-4. Plan/Profile Sheet
5. Drop Inlet Details
6. Curb Inlet Detail (Type 1, 6"x5')
7. Standard Shallow MH Details

APPROVED AS NOTED
 By CITY ENGINEER OF WICHITA

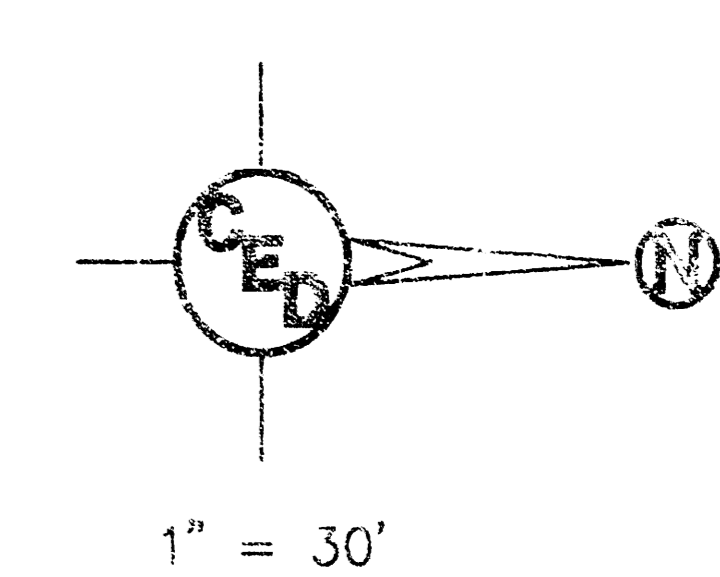
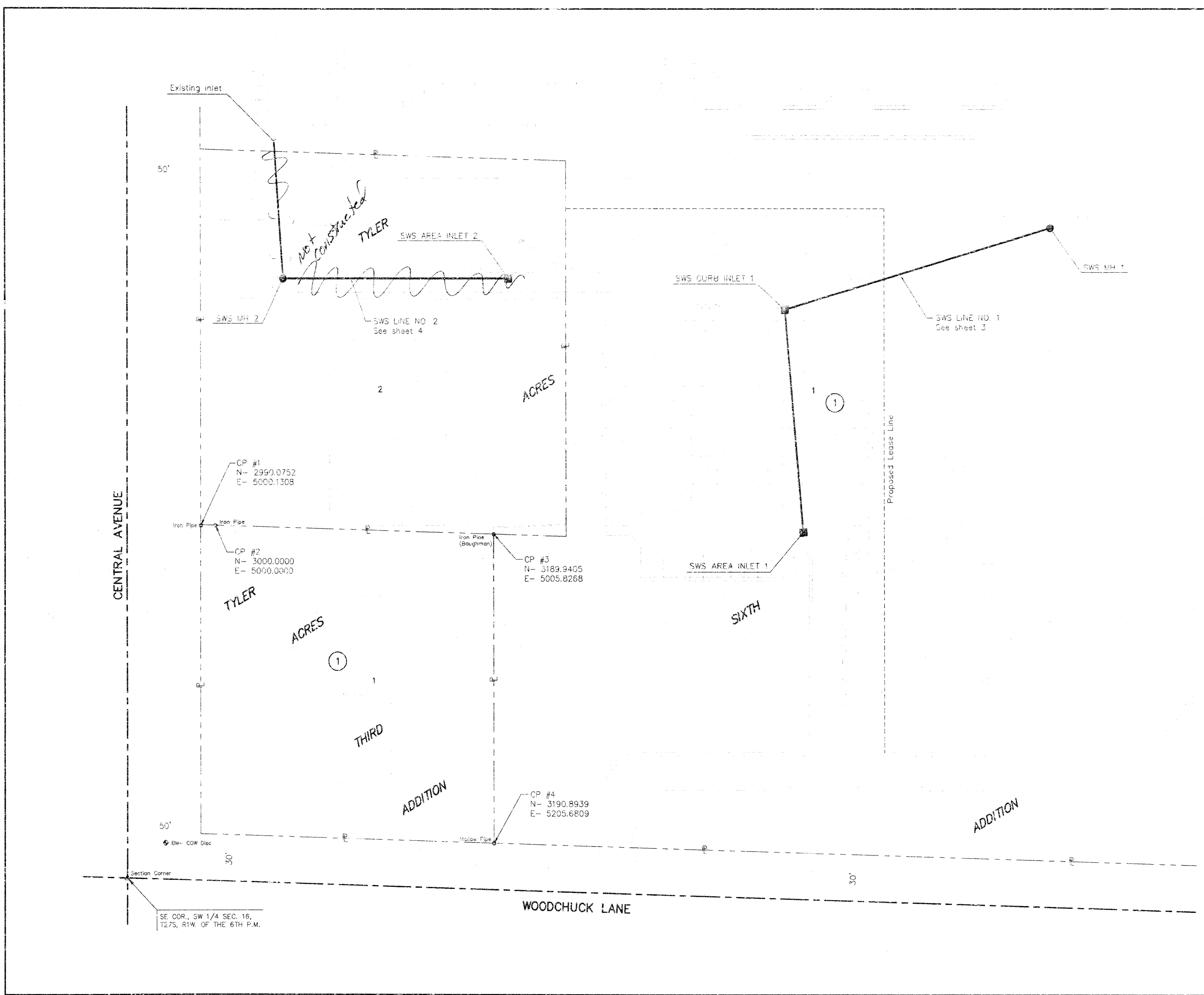
Sanitary Sewers _____
 Storm Sewers VRH 8/18/98
 Driveway Approaches _____
 Water Mains _____
 Paving _____

NOTE TO CONTRACTOR

INSPECTION AND TESTING FOR THIS PROJECT IS TO BE PROVIDED BY A LICENSED CONSULTING ENGINEERING FIRM UNDER CONTRACT WITH THE OWNER/DEVELOPER. SAID INSPECTION TO BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD CONSTRUCTION ENGINEERING PRACTICES AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. NO WORK SHALL BE PERFORMED IN DEDICATED EASEMENTS OR THE PUBLIC RIGHT-OF-WAY BY THE CONTRACTOR WITHOUT SUCH INSPECTION NOR SHALL ANY WORK BE COMMENCED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY WITHOUT WRITTEN AUTHORIZATION BY THE CITY ENGINEER.



COW PRIV. PROJ. NO.: 839 PPS(607861)	
CERTIFIED ENGINEERING DESIGN	
438 NORTH OHIO WICHITA, KANSAS 67214 (316) 262-8808	SHEET 1 TOTAL 7



BM- City of Wichita Standard Disc, Northwest corner of Central and Woodchuck. File # 19470

HORIZONTAL CONTROL TABLE

CP #1	N- 2990.0752 E- 5000.1308	IP, SW Corner of Lot 1, Tyler Acres Third Addition
CP #2	N- 3000.0000 E- 5000.0000	IP, Approx. 10' N. of CP #1
CP #3	N- 3189.9405 E- 5005.8268	IP (Baughman cap), NW Corner of Lot 1, Tyler Acres Third Addition
CP #4	N- 3190.8939 E- 5205.6809	Hollow Pipe, NE Corner of Lot 1, Tyler Acres Third Addition

STORM WATER SEWER SITE PLAN FOR
WEST WICHITA MED. PARK
 WICHITA, KANSAS
 COW PRIV. PROJ. NO.: 839 PPS(607861)
CERTIFIED ENGINEERING DESIGN

CED
 490 NORTH CHIO
 WICHITA, KANSAS 67214
 (316) 262-8608

DESIGNED: HDF	SCALE: 1"=30'	SHEET
DRAWN: JLM	DATE: 8-98	2
CHECKED: HDF	CED FILE: WWPSTL.dwg	TOTAL 7

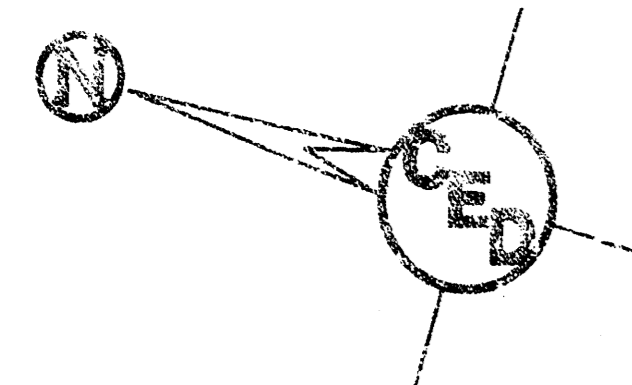
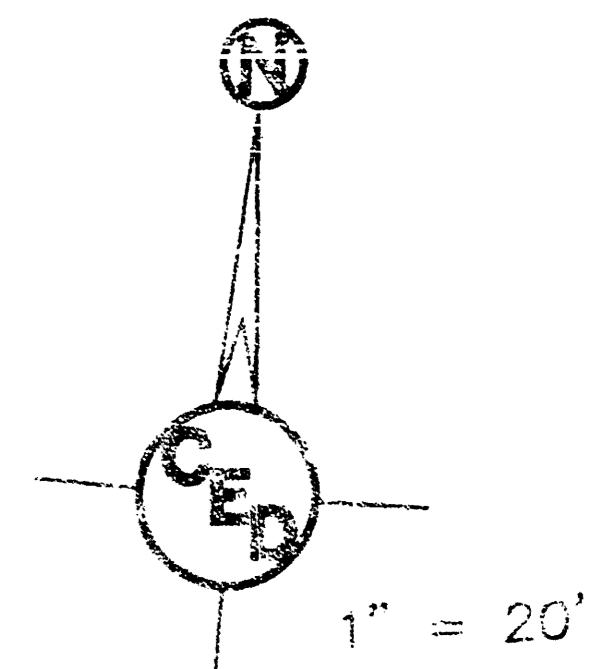
SE COR., SW 1/4 SEC. 16,
 T27S, R1W, OF THE 6TH P.M.

SWS NO. 1, Sta. 10+00.00=
SWS MH 1
N= 3568.2694
E= 4807.5394
Const. Std. Shallow MH Type 'B'
over Exist. 21" RCP SWS.
Dia. = 4'-0"
Top Elev.= 154.0

SWS NO. 1, Sta. 11+88.53=
SWS Curb Inlet 1
N= 3387.2861
E= 4860.3303
Const. Std. Type 1 Curb Inlet
W= 4'-4", L= 6'-4"
Inlet Top Elev.= 151.8

SWS NO. 1, Sta. 11+88.53=
SWS Curb Inlet 1
N= 3387.2861
E= 4860.3303

SWS NO. 1, Sta. 13+33.19=
SWS Area Inlet 1
N= 3399.7462
E= 5004.4533
Const. Std. 2x4' Drop Inlet
Inlet Top Elev.= 152.8



HORIZONTAL CONTROL TABLE

CP #1	N= 2990.0752 E= 5000.1308	IP, SW Corner of Lot 1, Tyler Acres Third Addition
CP #2	N= 3000.0000 E= 5000.0000	IP, Approx. 10' N. of CP #1
CP #3	N= 3189.9405 E= 5005.8268	IP (Baughman cap), NW Corner of Lot 1, Tyler Acres Third Addition
CP #4	N= 3190.8939 E= 5205.8809	Hollow Pipe, NE Corner of Lot 1, Tyler Acres Third Addition

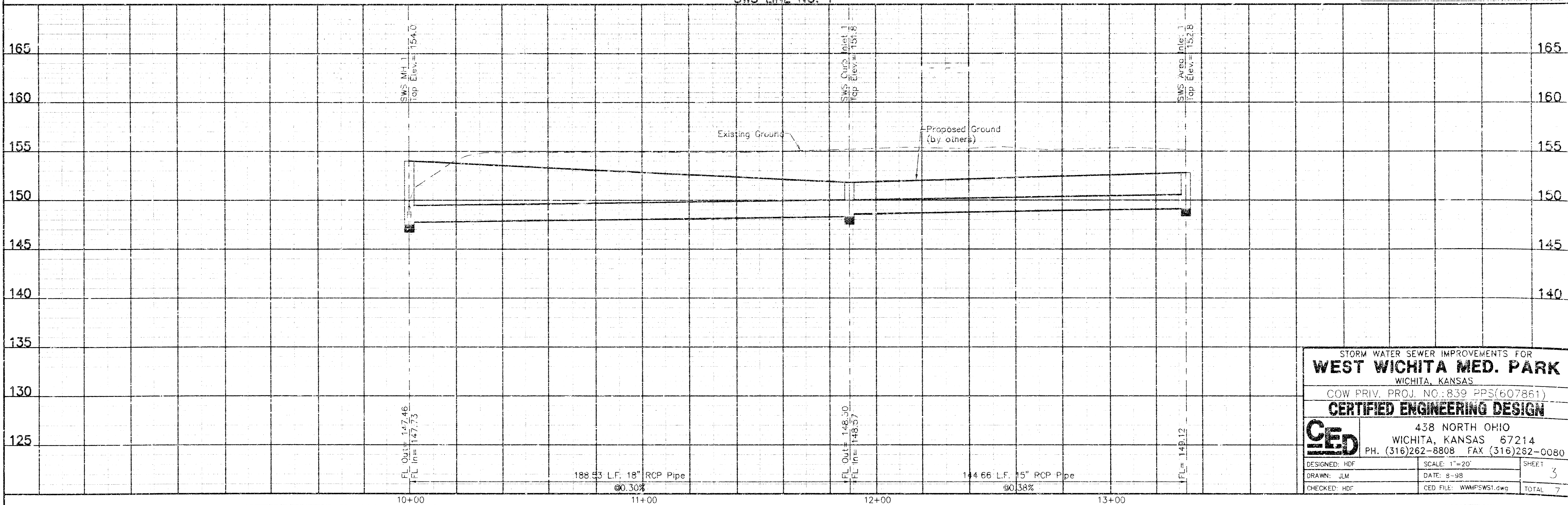
188.53 L.F. 18" Pipe

144.66 L.F. 15" Pipe

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

BM= City of Wichita Standard Disc. Northwest corner of Central and Wadchuck. Elev.= 154.04

SWS LINE NO. 1



STORM WATER SEWER IMPROVEMENTS FOR
WEST WICHITA MED. PARK
WICHITA, KANSAS
COW PRIV. PROJ. NO.: 839 PPS(607861)
CERTIFIED ENGINEERING DESIGN
438 NORTH OHIO
WICHITA, KANSAS 67214
PH. (316)262-8808 FAX (316)262-0080

DESIGNED: HDF
DRAWN: JLM
CHECKED: HDF

SCALE: 1"=20'
DATE: 8-98
CED FILE: WWPWS1.dwg

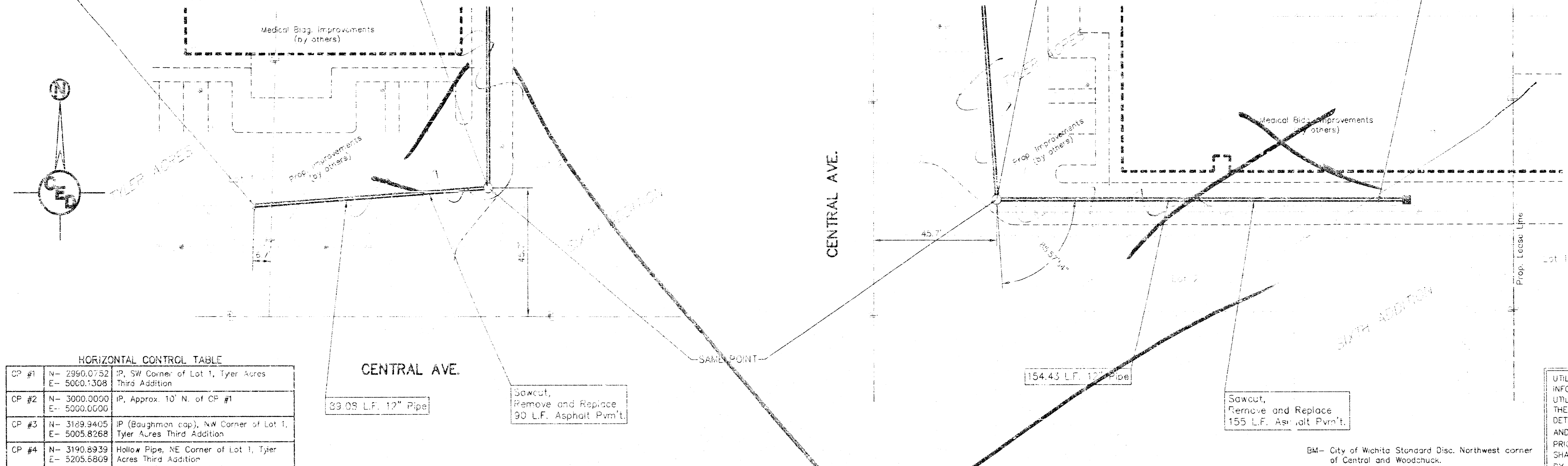
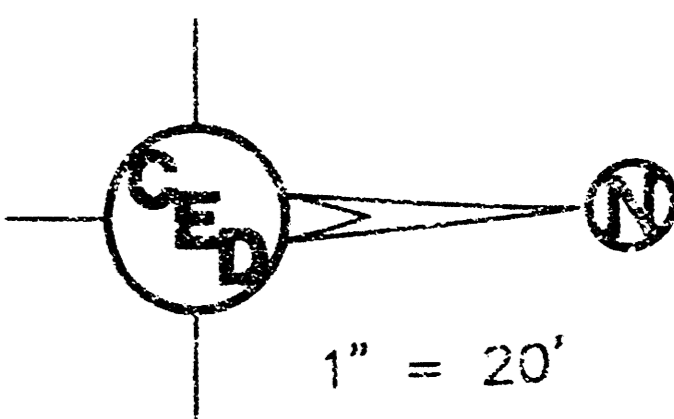
SHEET 3
TOTAL 7

SWS NO. 2, Sta. 20+00.00=
 N= 3039.4722
 E= 4751.3655
 Contractor to cut back Exist. 12" RCP
 SWS (NE) and abandon pipe in place.
 Break into Exist. Inlet and install
 12" Pipe. Seal new 12" Pipe to
 Inlet Wall with Quick Set Hydraulic
 Cement.

SWS NO. 2, Sta. 20+89.08=
 SWS MH 2
 N= 3045.7404
 E= 4840.2269
 Const. Std. Shallow MH Type 'B'
 with grate MH lid.
 Dia. = 4'-0"
 Top Elev. = 152.3

SWS NO. 2, Sta. 20+89.08=
 SWS MH 2
 N= 3045.7404
 E= 4840.2269

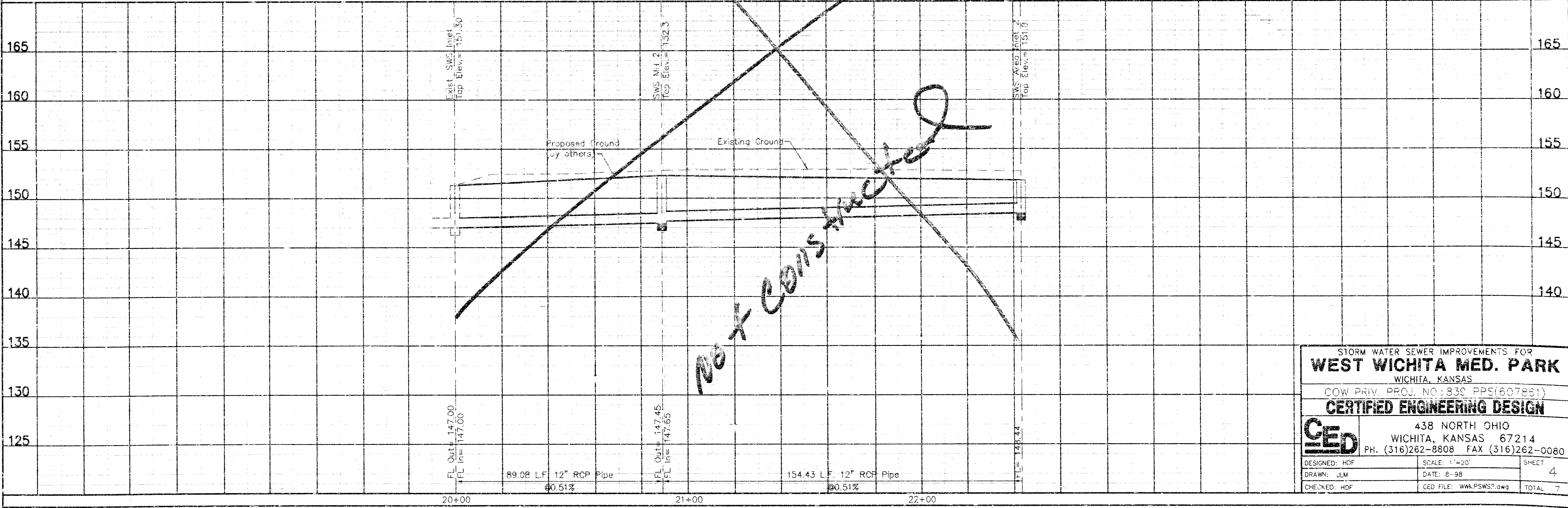
SWS NO. 2, Sta. 22+43.51=
 SWS Area Inlet 2
 N= 3200.1059
 E= 4840.2269
 Const. Std. 2'x4' Drop Inlet
 Inlet Top Elev. = 151.8



HORIZONTAL CONTROL TABLE

CP #1	N= 2990.0752 E= 5000.1308	IP, SW Corner of Lot 1, Tyler Acres Third Addition
CP #2	N= 3000.0000 E= 5000.0000	IP, Approx. 10' N. of CP #1
CP #3	N= 3109.9405 E= 5005.8268	IP (Baughman cap), NW Corner of Lot 1, Tyler Acres Third Addition
CP #4	N= 3190.8939 E= 5205.8809	Hollow Pipe, NE Corner of Lot 1, Tyler Acres Third Addition

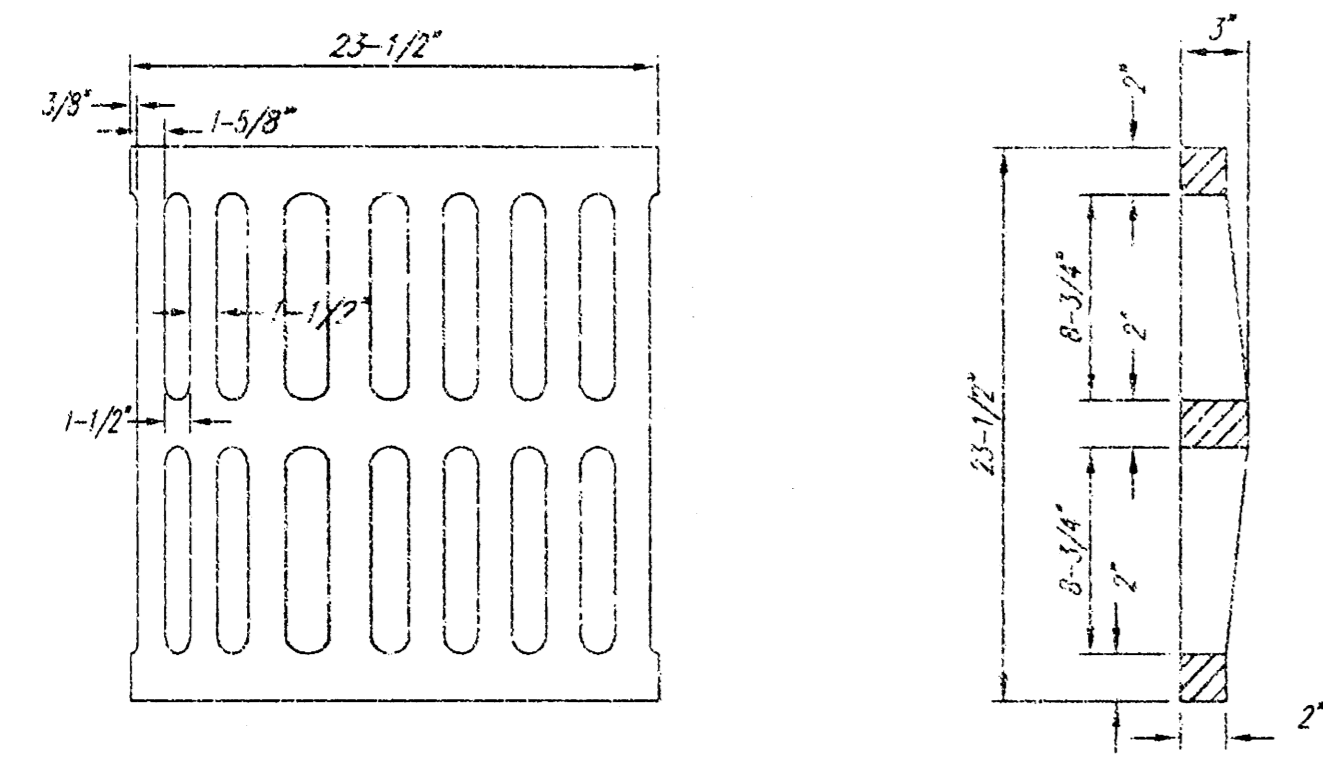
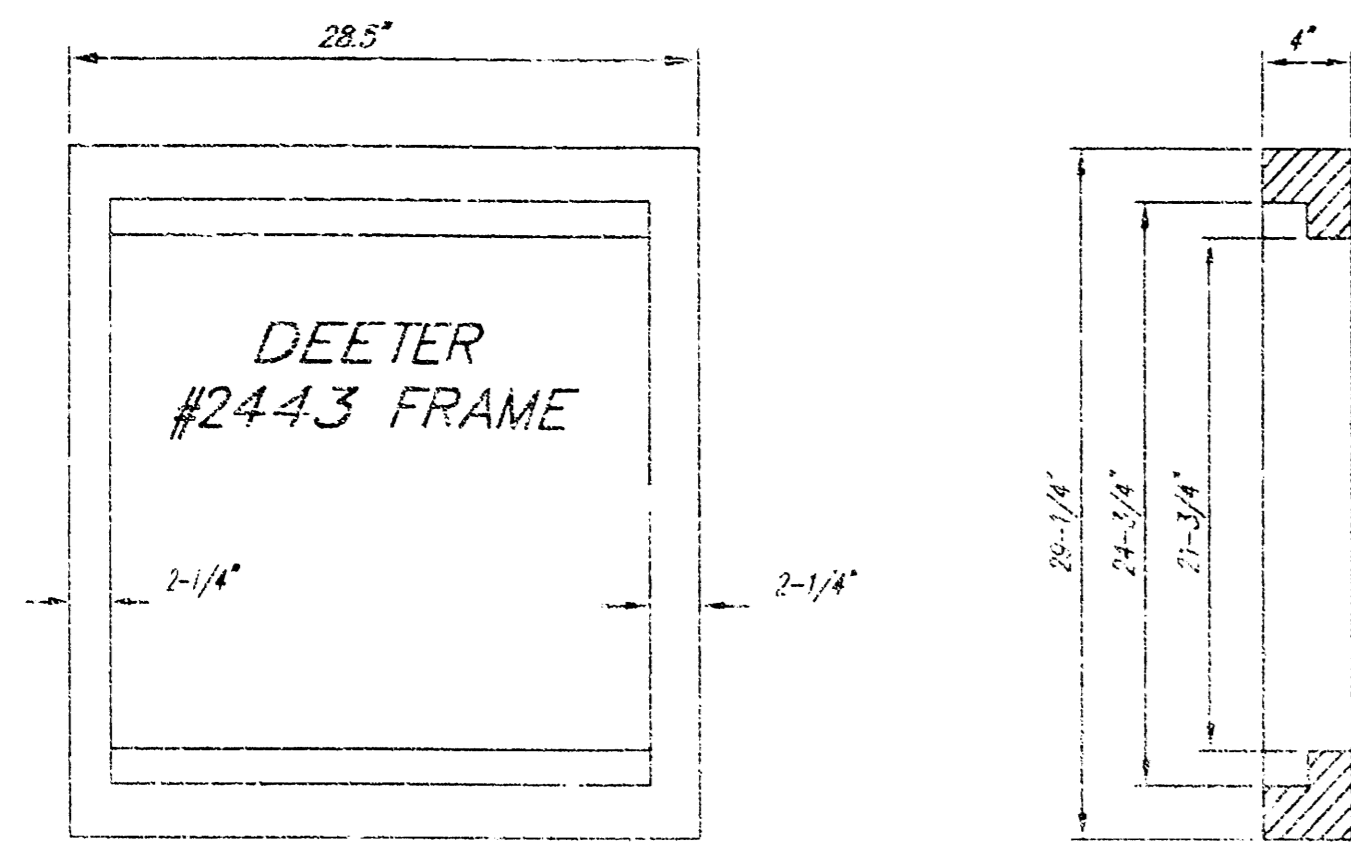
UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.



NOT CONSTRUCTED

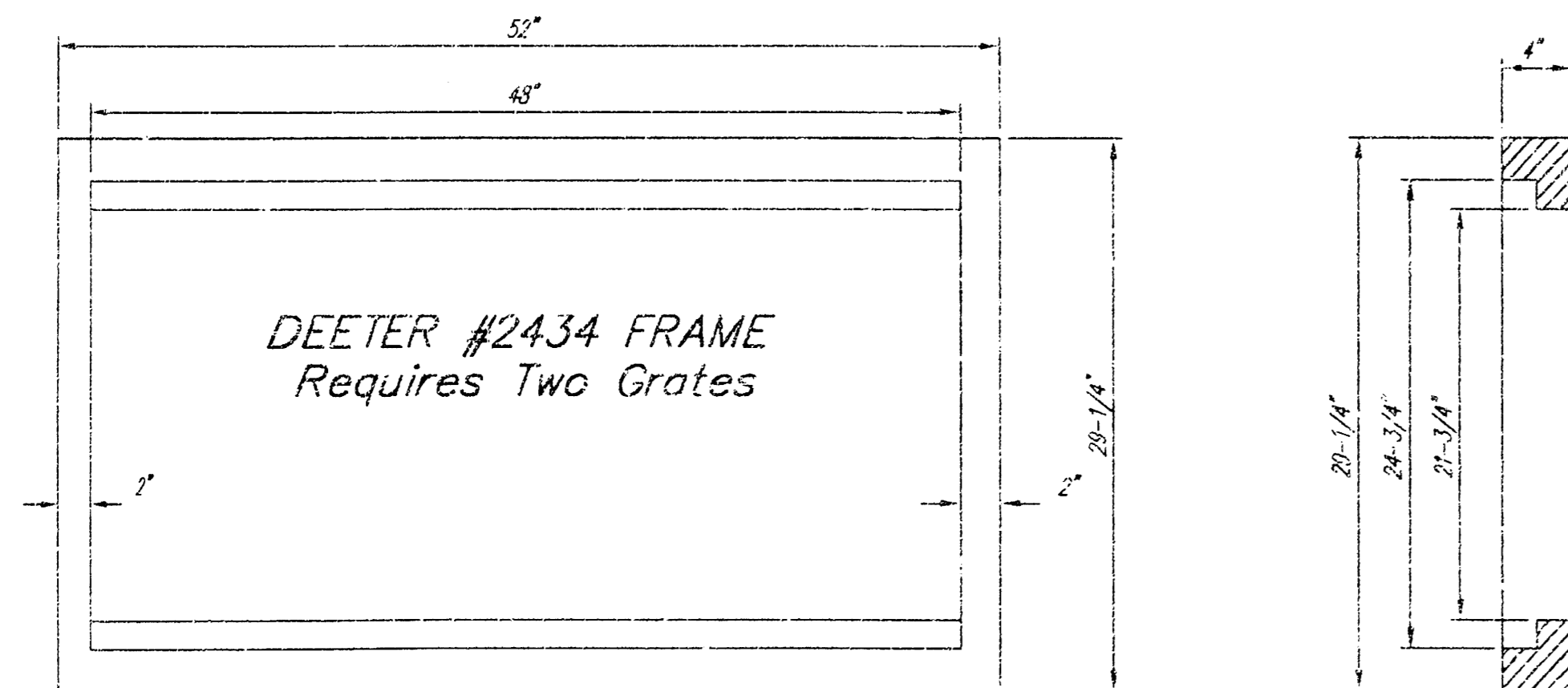
STORM WATER SEWER IMPROVEMENTS FOR
WEST WICHITA MED. PARK
 WICHITA, KANSAS
 COW PRIV. PROJ. NO: 830 PPS(607881)
CERTIFIED ENGINEERING DESIGN
 CED
 438 NORTH OHIO
 WICHITA, KANSAS 67214
 PH. (316)262-8808 FAX (316)262-0080

DESIGNED: HDF	SCALE: 1"=20'	SHEET
DRAWN: JLM	DATE: 8-98	4
CHECKED: HDF	GED FILE: WWSW2.dwg	TOTAL: 7



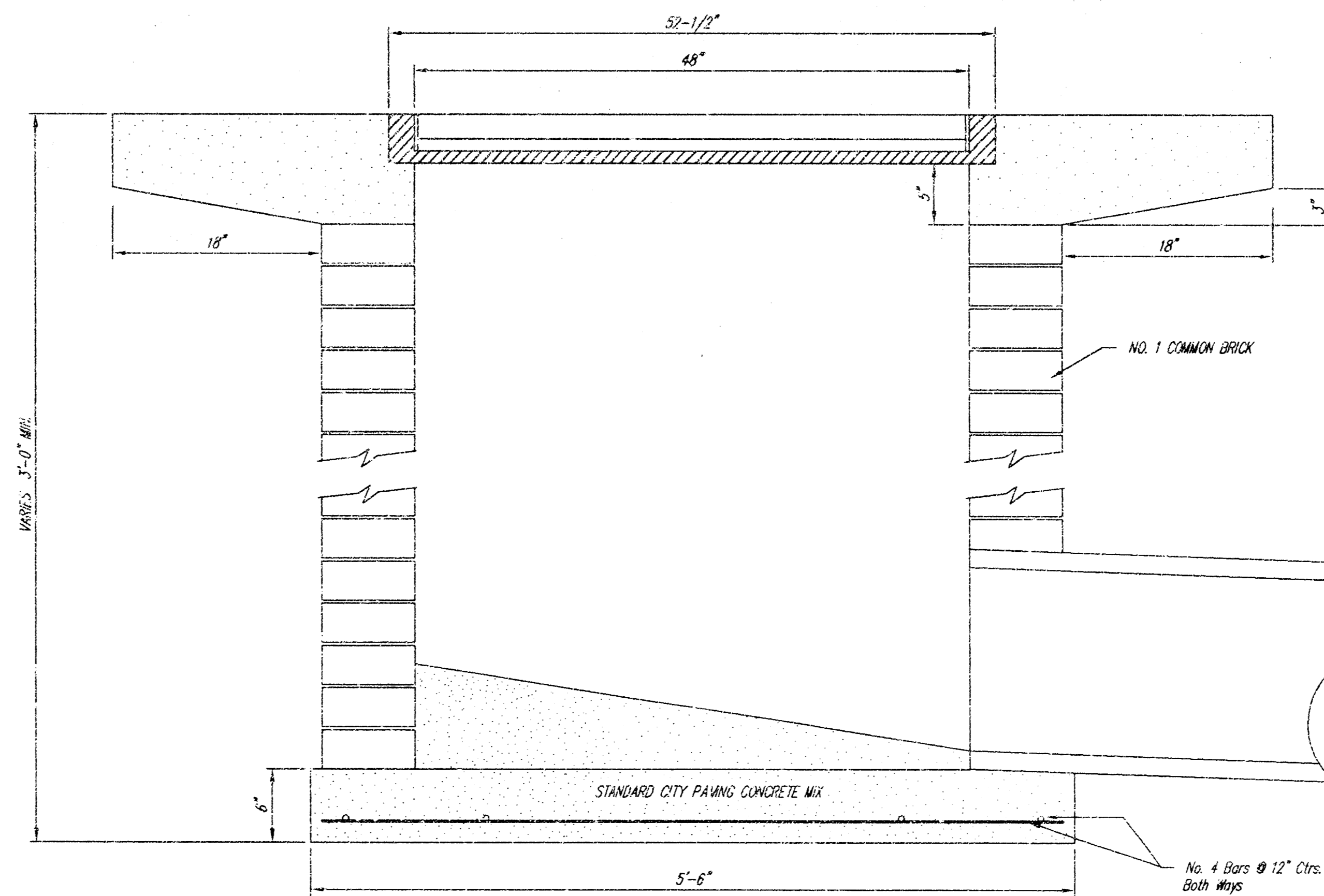
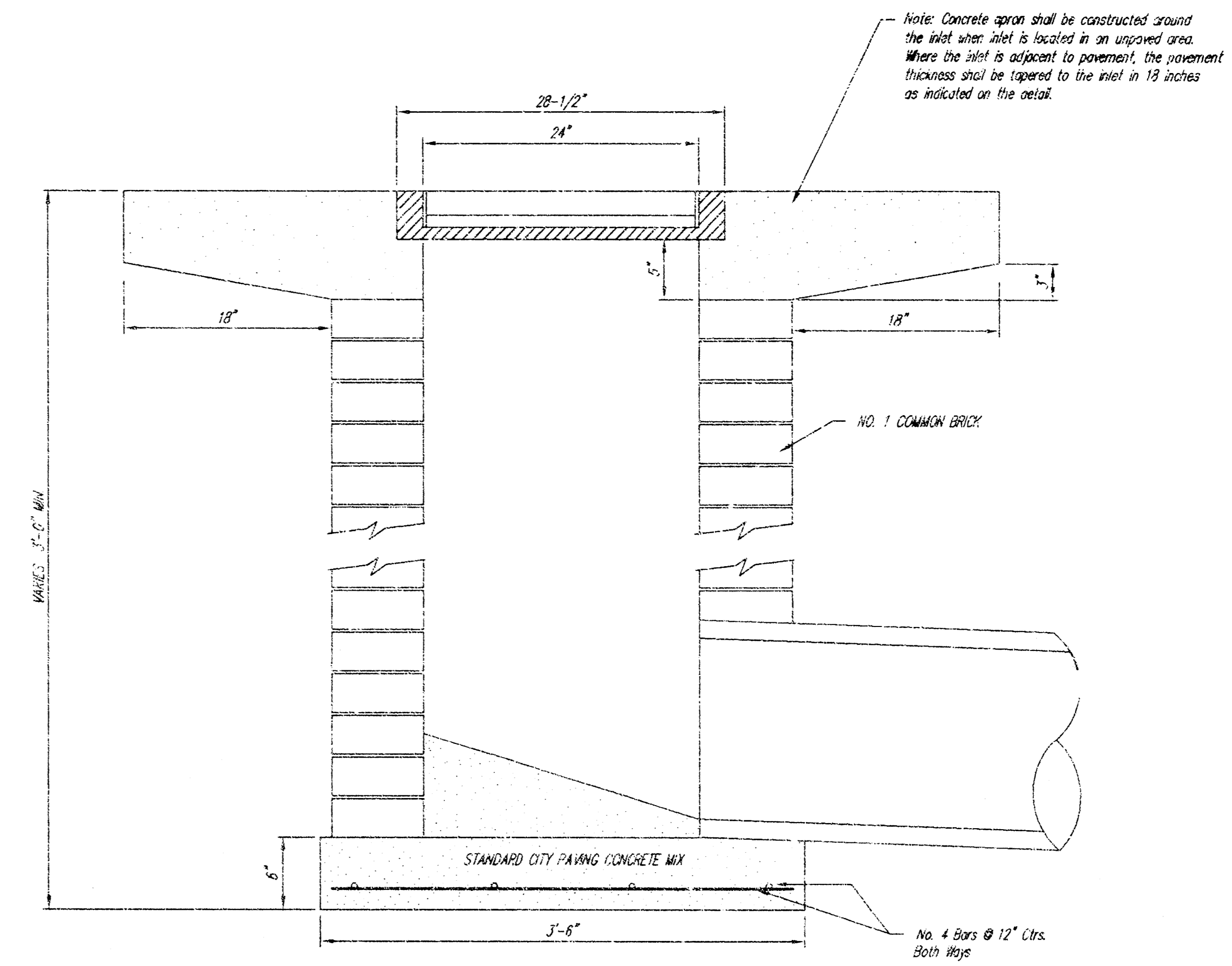
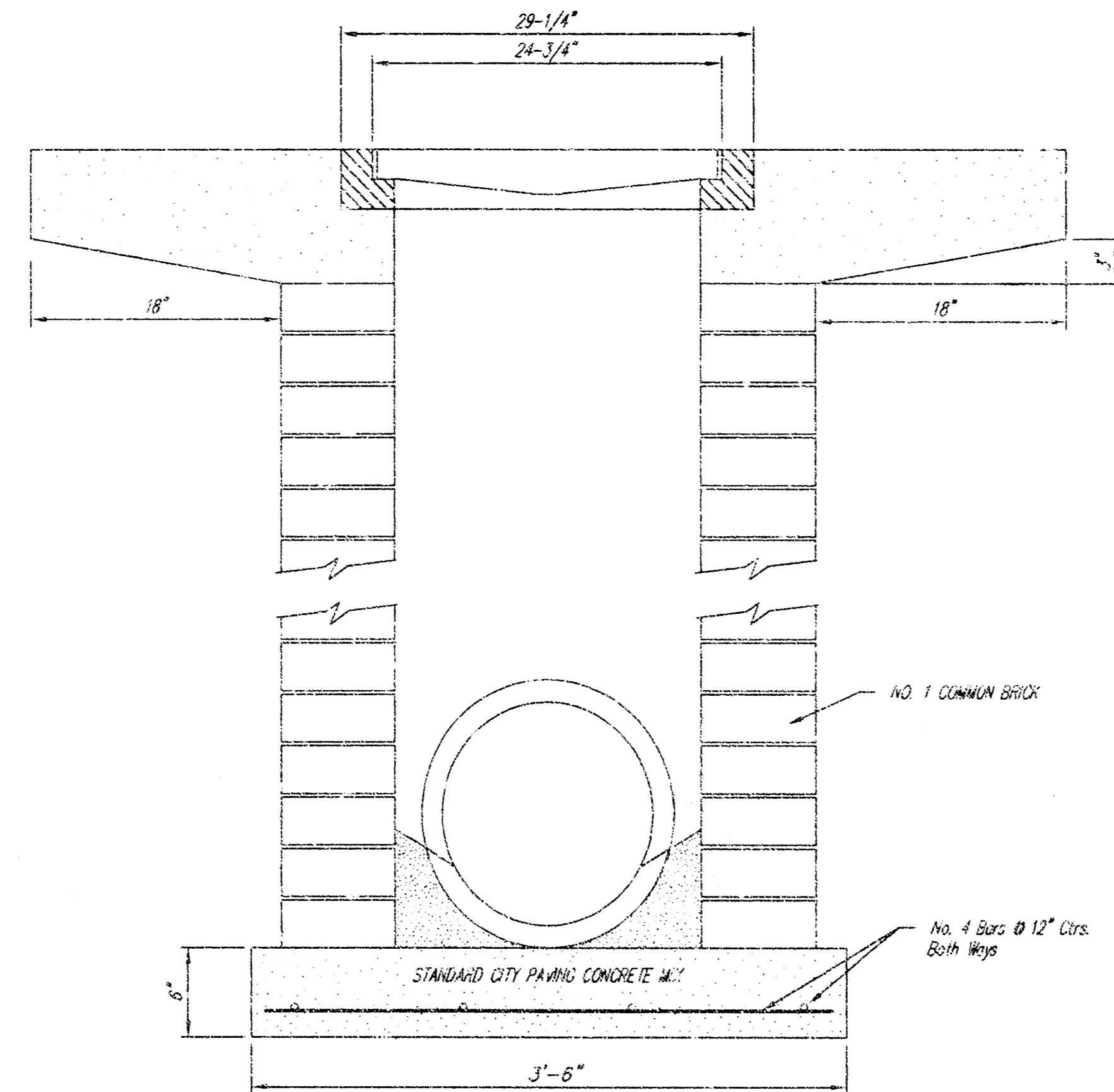
DEETER #2433 GRATE

24" x 24" Frame and Grate Detail

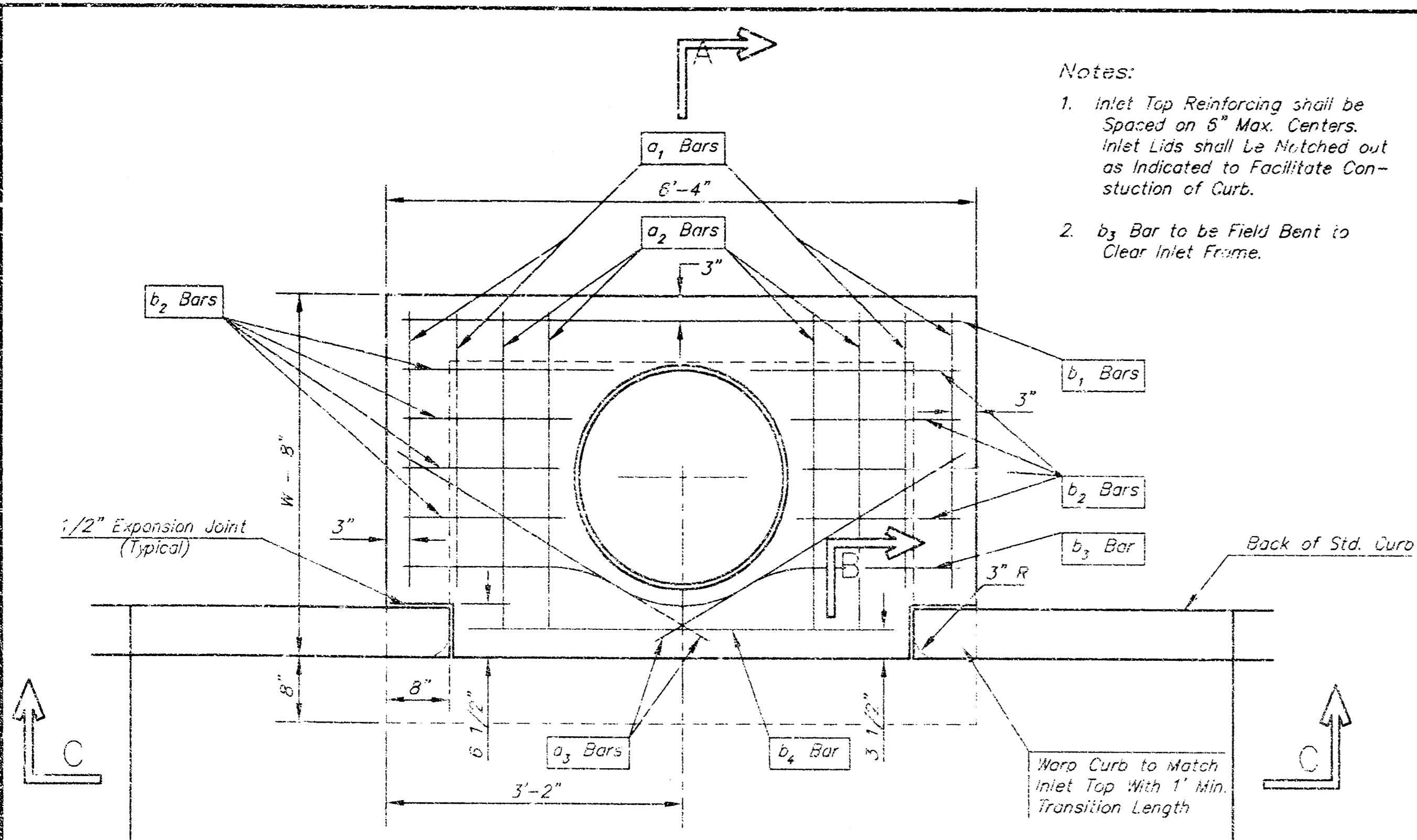


Double 24" x 24" Frame Detail

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 approved by the engineer.

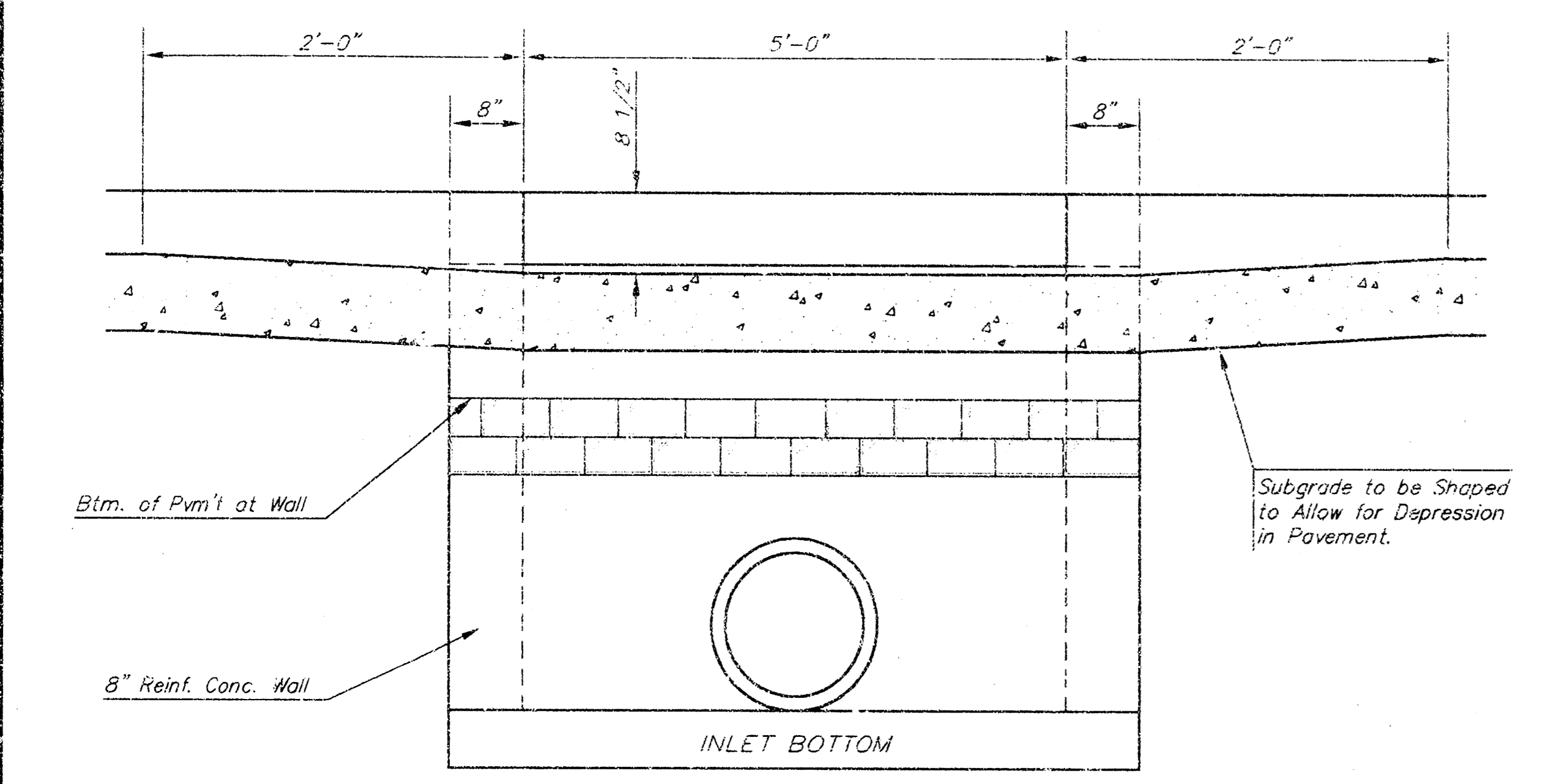


STORM WATER SEWER IMPROVEMENTS		
DROP INLET DETAIL		
WICHITA, KANSAS		
COW PRIV. PROJ. NO.: 839 PPS(607861)		
CERTIFIED ENGINEERING DESIGN		
400 NORTH OHIO		
WICHITA, KANSAS 67214		
(316) 262-8808		
DESIGNED: HDF	SCALE: NTS	SHEET
DRAWN: HDF	DATE: 4-98	5
CHECKED: HDF	SED FILE: DROPINLT.dwg	TOTAL 7



Notes:
 1. Inlet Top Reinforcing shall be Spaced on 8" Max. Centers. Inlet Lids shall be Notched out as Indicated to Facilitate Construction of Curb.
 2. b3 Bar to be Field Bent to Clear Inlet Frame.

PLAN



SECTION C-C

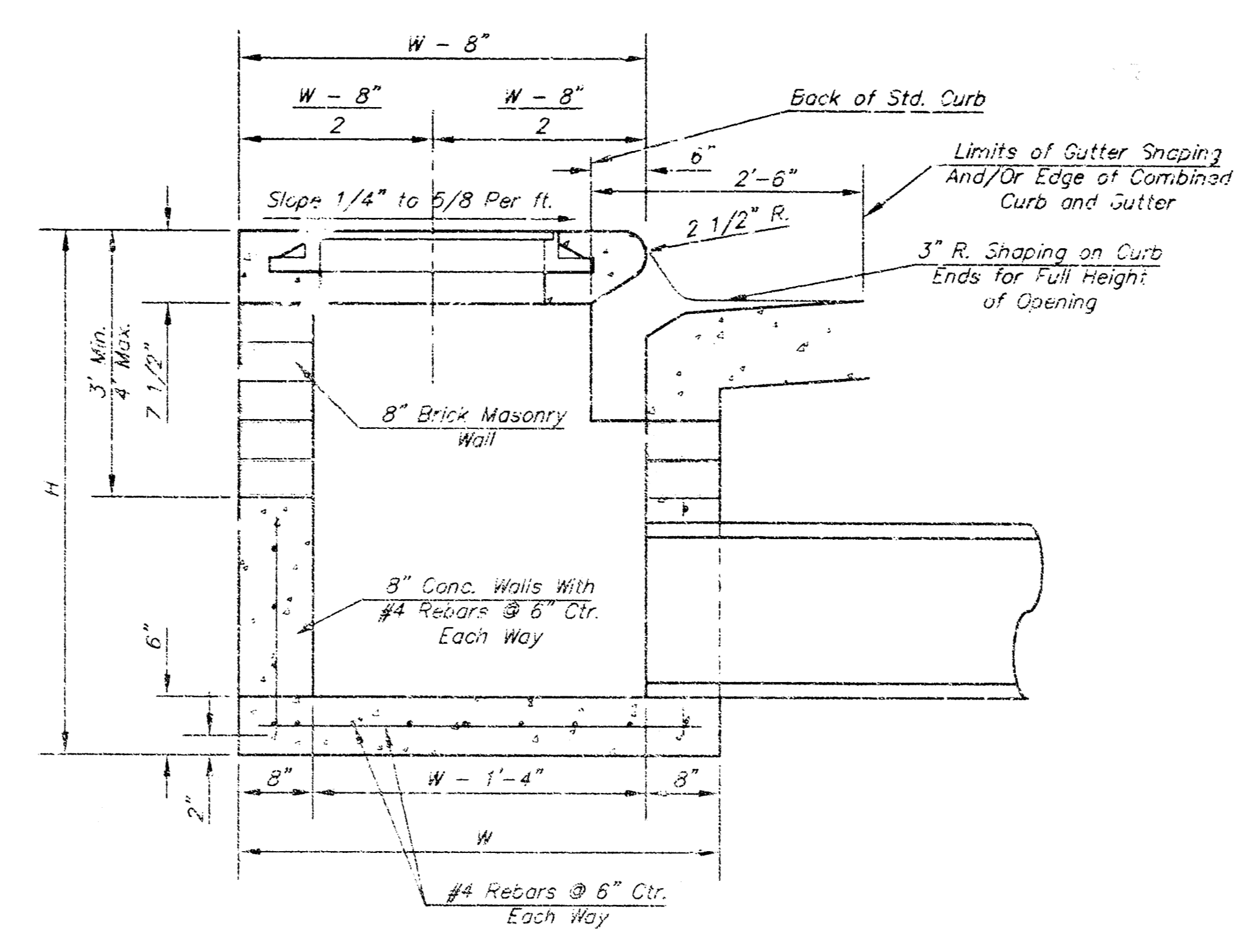
STEEL SCHEDULE

BAR	a ₁	a ₂	a ₃	a ₄	a ₅	a ₆	a ₇	a ₈	b ₁	b ₂	b ₃	b ₄	WT. LBS.
NUMBER	4	4	2	1	3	5	7	9	6	1	1		
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#6		
LENGTH	W-4'-4"	5'-7"	6'-7"	4'-0"	6'-1"	-	-	-	1'-9"	6'-2"	4'-8"	60±	
	W-5'-4"	7'-2"	8'-7"	5'-0"	6'-1"	-	-	-	1'-9"	6'-2"	4'-8"	81±	
	W-6'-4"	9'-7"	10'-7"	6'-0"	6'-1"	-	-	-	1'-9"	6'-2"	4'-8"	101±	
	W-7'-4"	11'-7"	12'-7"	7'-0"	6'-1"	-	-	-	1'-9"	6'-2"	4'-8"	121±	
	W-8'-4"	13'-7"	14'-7"	8'-0"	6'-1"	1'-9"	6'-2"	4'-8"				141±	

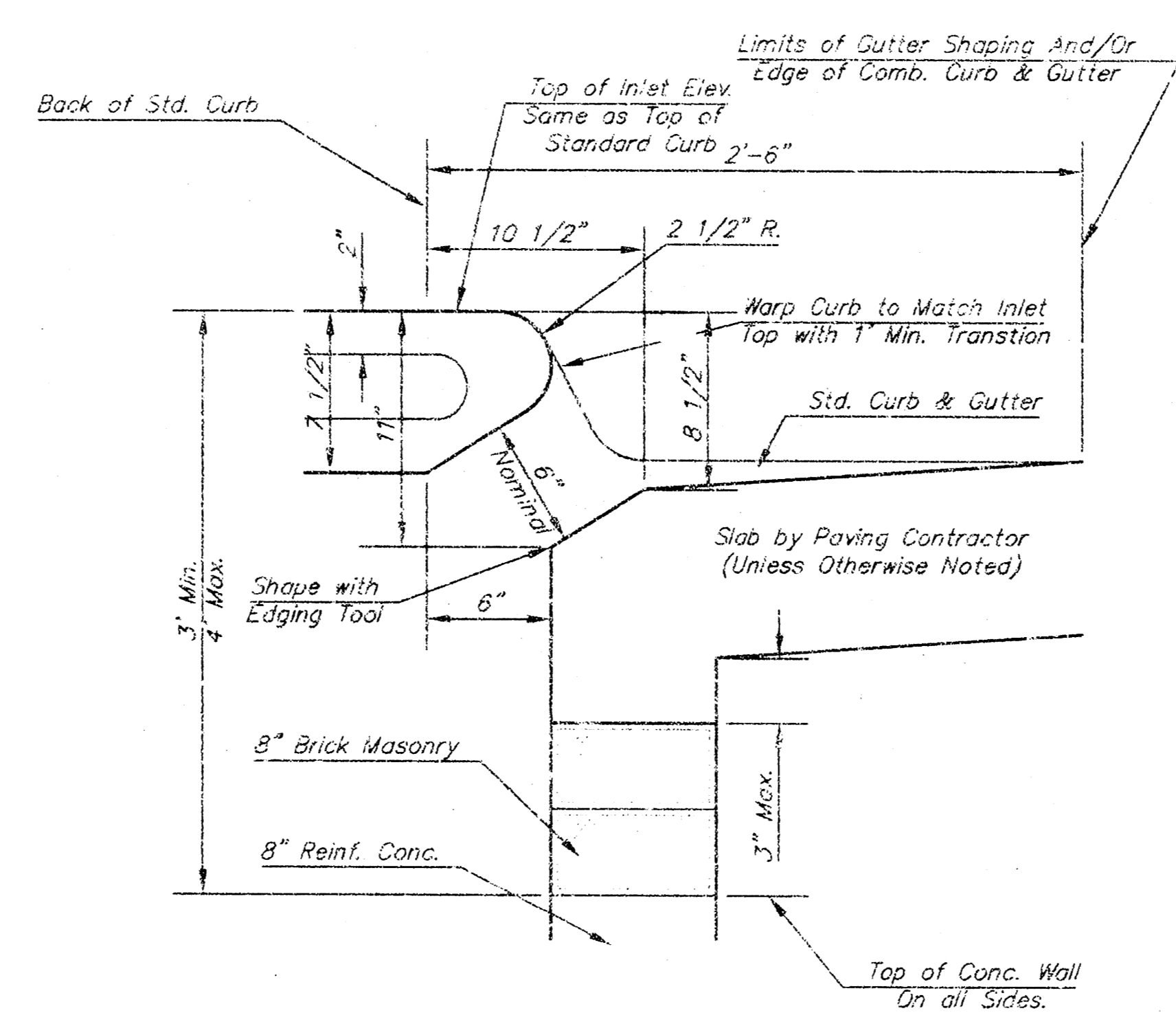
Note: a₁ Bars to be Placed Approx. 2" Below Top of Inlet Cover.

STANDARD CURB INLET PRECAST TOPS

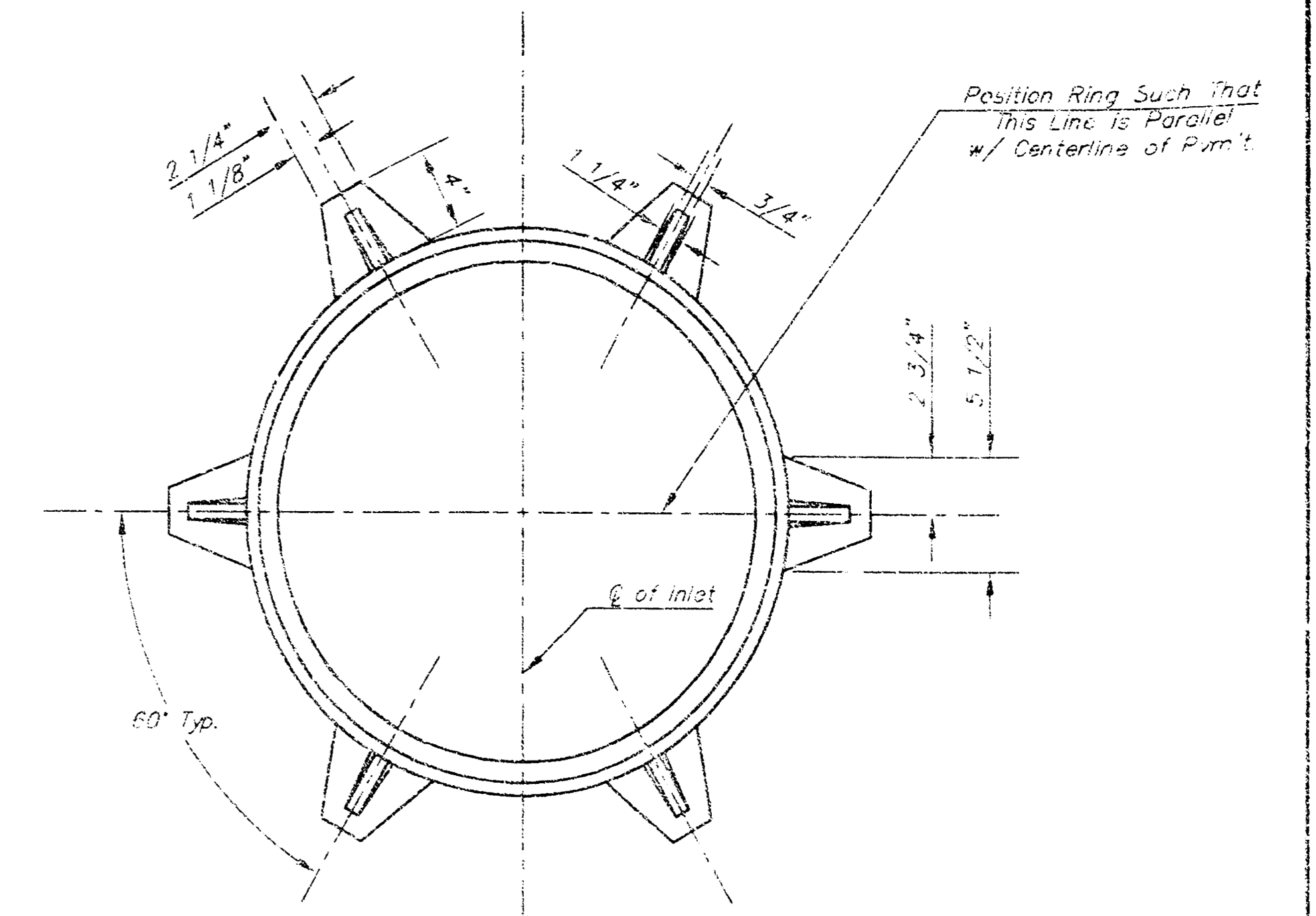
W	PRE-CAST TOP SIZE	PIPE SIZE	CUL. YD. CONC.
4'-4"	3'-8" 6'-4" 7 1/2"	21" & SMALLER	0.38±
5'-4"	4'-8" 6'-4" 7 1/2"	24" & 30"	0.51±
6'-4"	5'-8" 6'-4" 7 1/2"	36" & 42"	0.64±
7'-4"	6'-8" 6'-4" 7 1/2"	48" & 54"	0.77±
8'-4"	7'-8" 6'-4" 7 1/2"	60" & 66"	0.90±



SECTION A-A

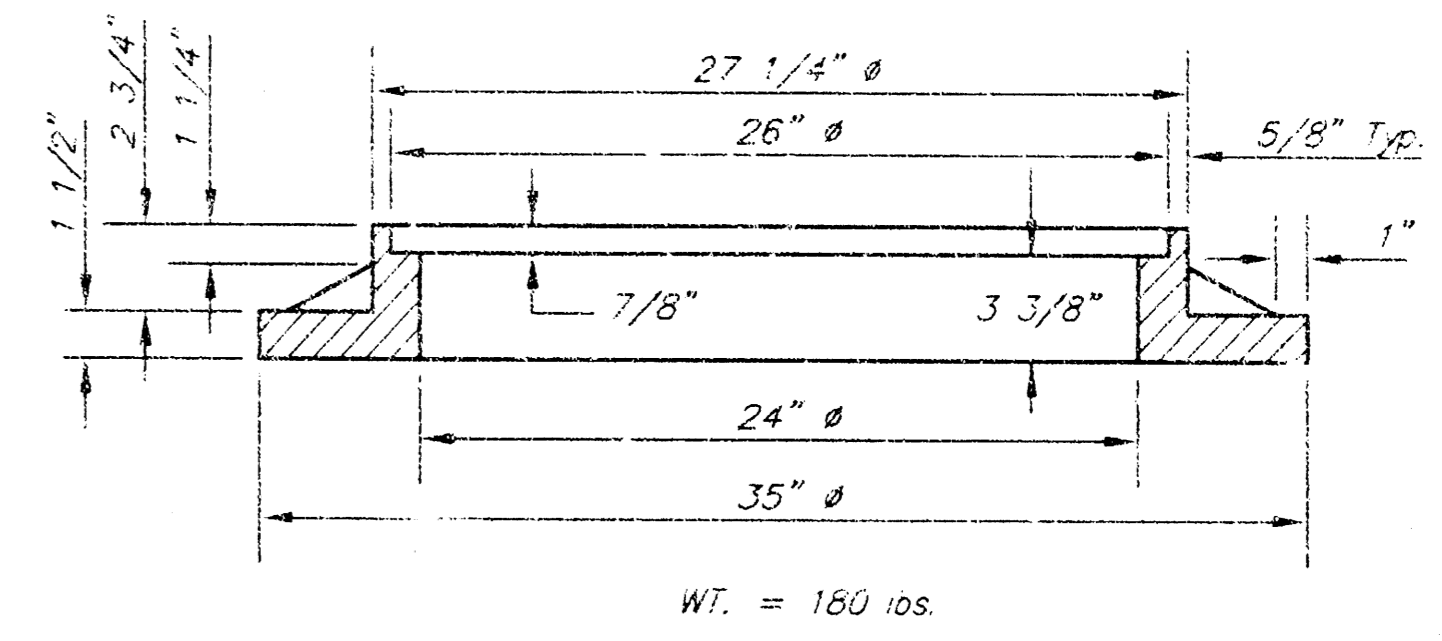


SECTION B-B



MANHOLE RING AND COVER

*See City of Wichita Standard Manhole Ring and Cover Detail Sheet for Cover Details to Be Used With Inlet Frame.



BENDING DIAGRAM

GENERAL NOTES

- Concrete tops to be installed on thin mortar cushion to insure full support along brick walls. Concrete tops may be cast in place or precast. Concrete used for inlet construction shall be concrete pavement mix.
- Contractor shall have the option of constructing 8" brick masonry walls between the concrete inlet base and top on this inlet when W=6'-4" and H=7'-0" or less.
- Inlet invert shall be shaped with 3 sack sand mix concrete to create flow channels and to increase hydraulic efficiency such that the inlet will be self cleaning between all inlet and/or outlet pipes.
- The ends of all pipes installed in inlets shall be cut off flush with the inside face of the inlet wall.

Revised - Dec. 21, 1984

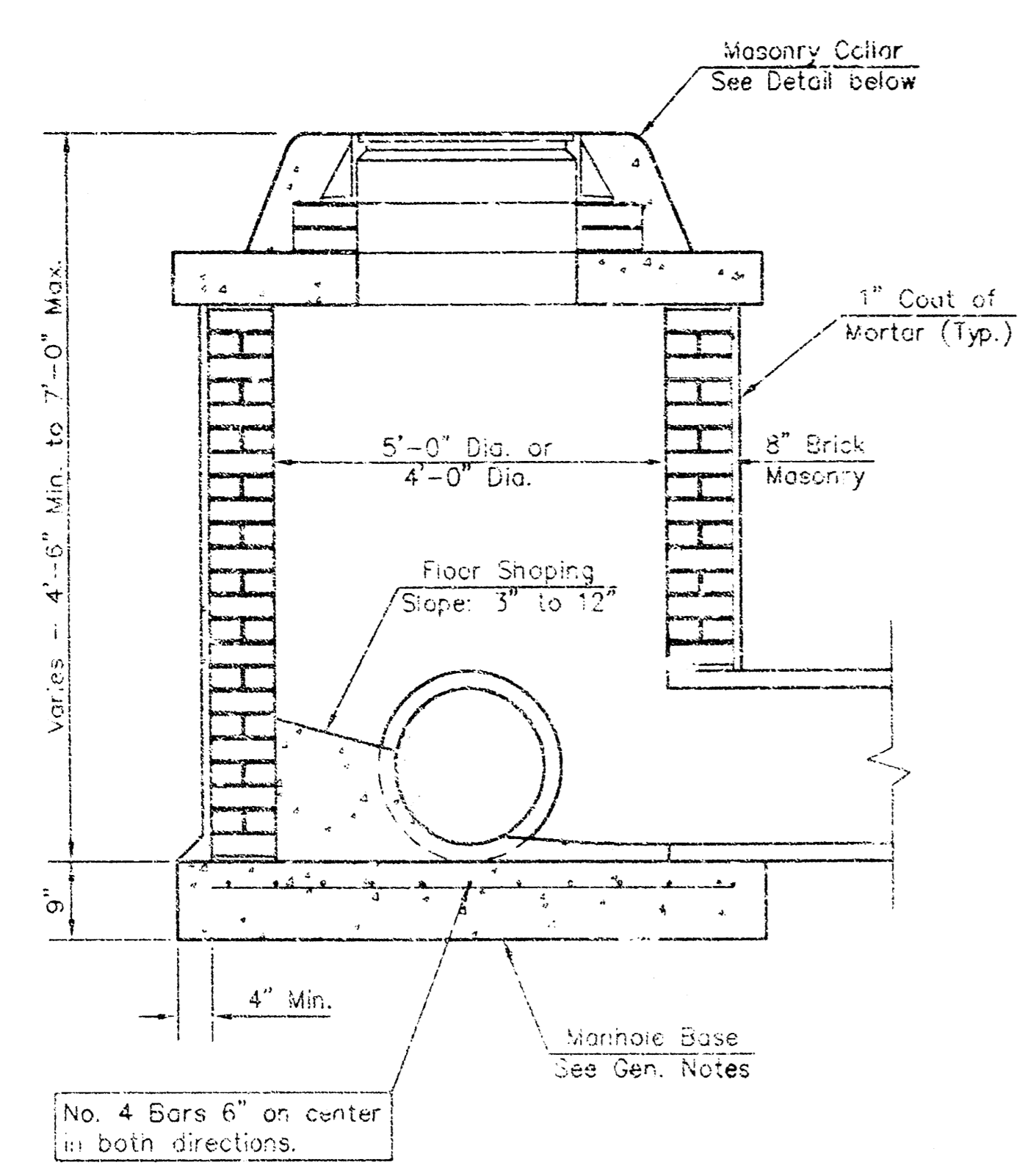
CITY OF WICHITA STANDARD TYPE 1
CURB INLET DETAILS
 INLET OPENING= 6" x 8'-0"

CGW PRIV. PROJ. NO.: 839 PPS(607861)

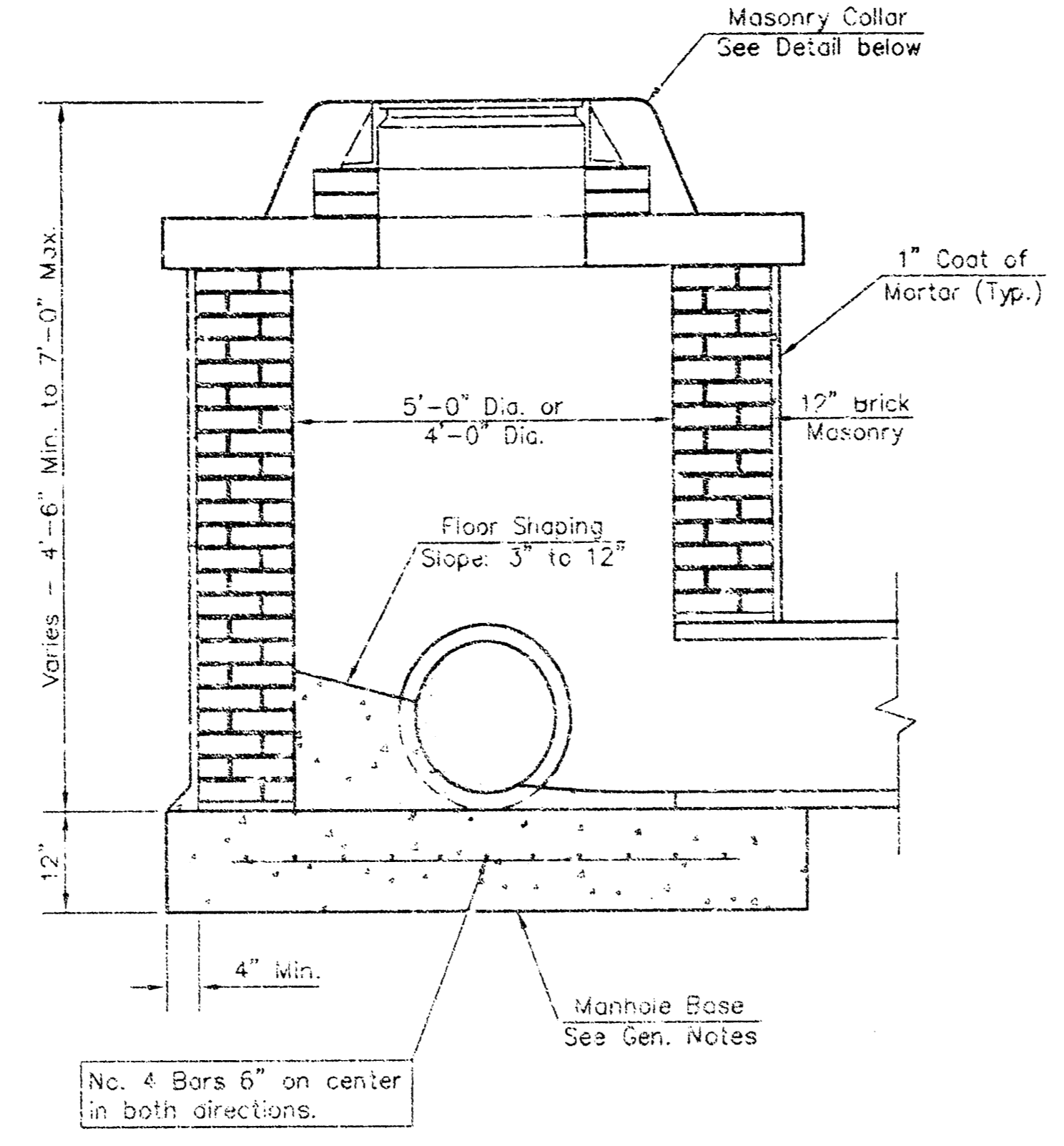
CERTIFIED ENGINEERING DESIGN

488 NORTH OHIO
 WICHITA, KANSAS 67214
 (316) 262-8008

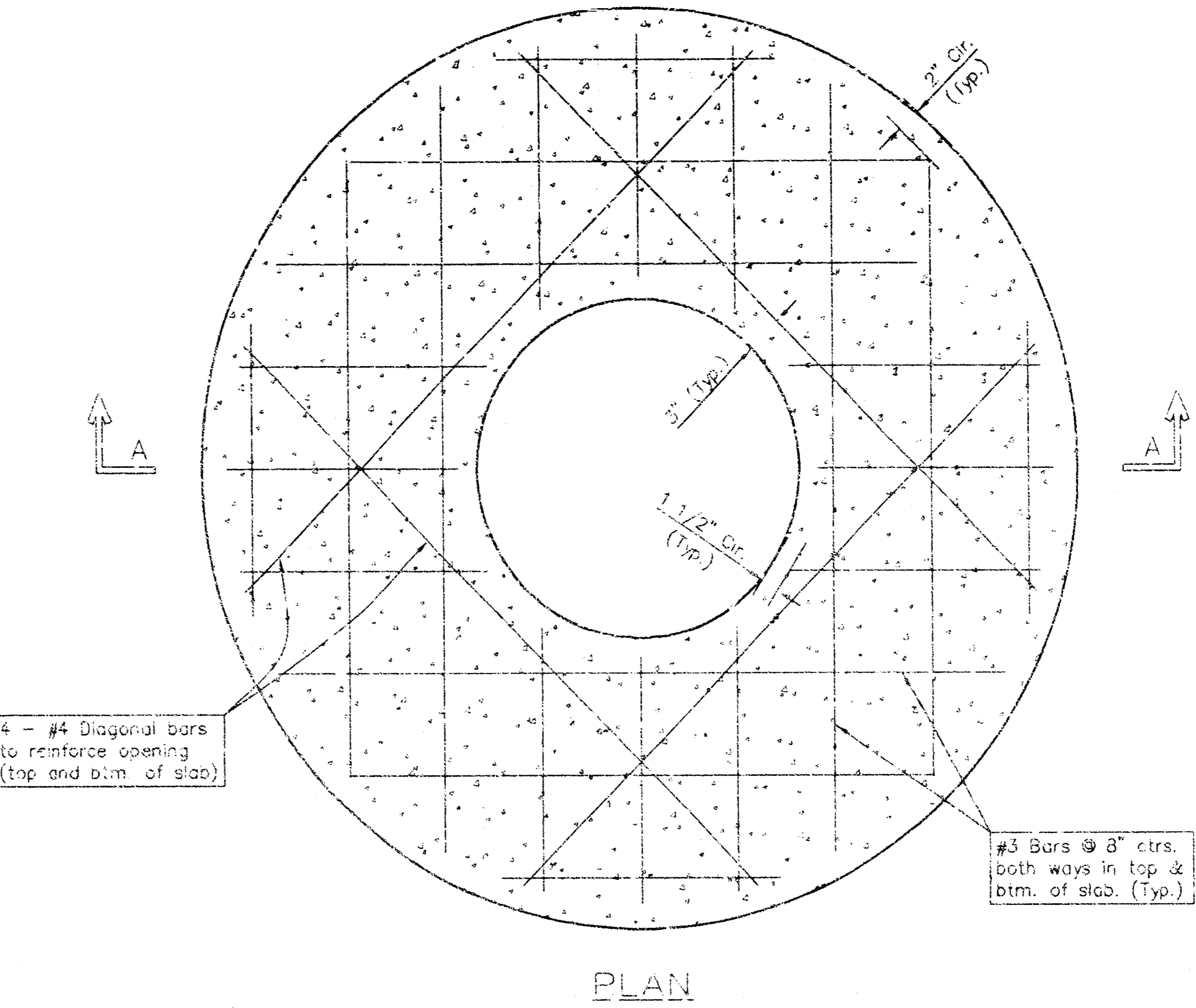
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 DRAWN: DATE: TOTAL 7
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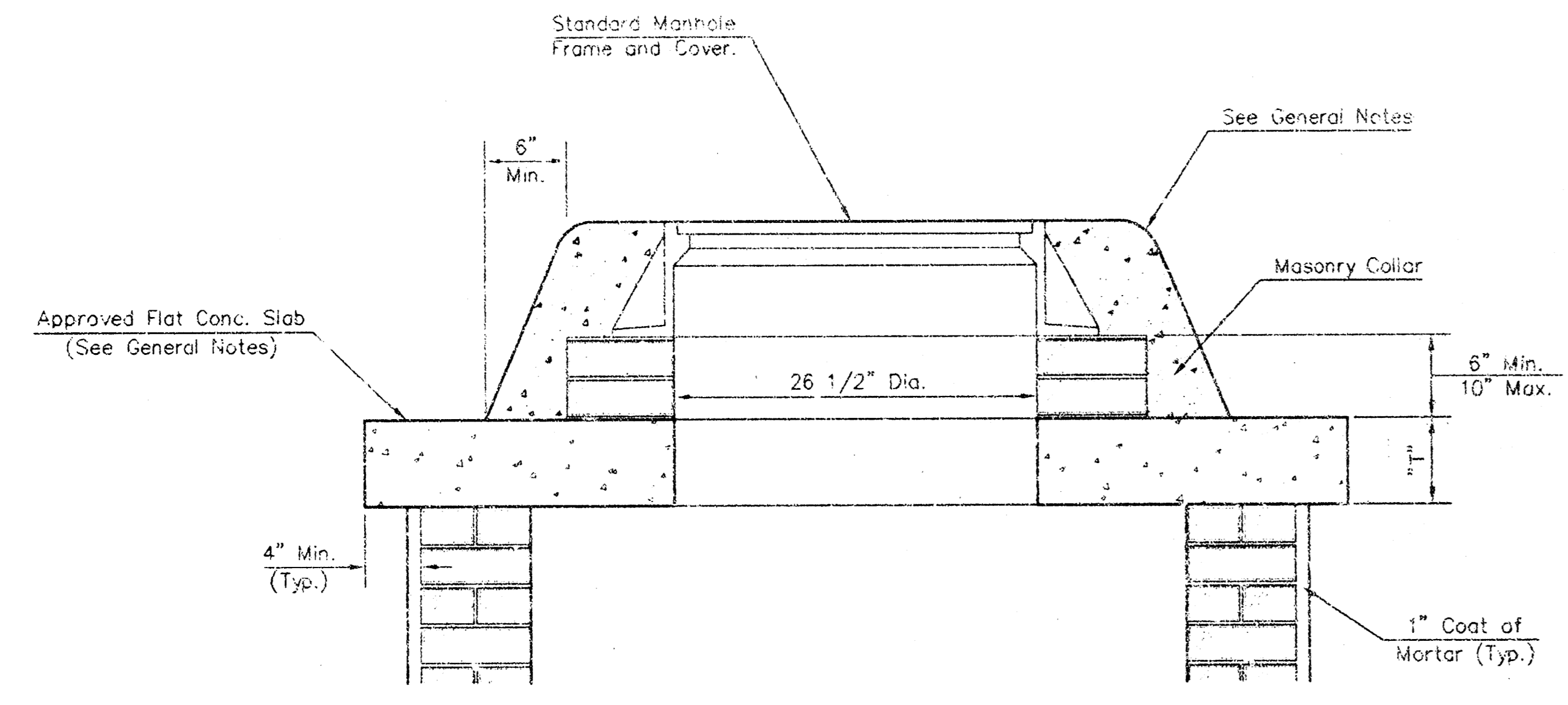
SHALLOW TYPE "A" MANHOLE



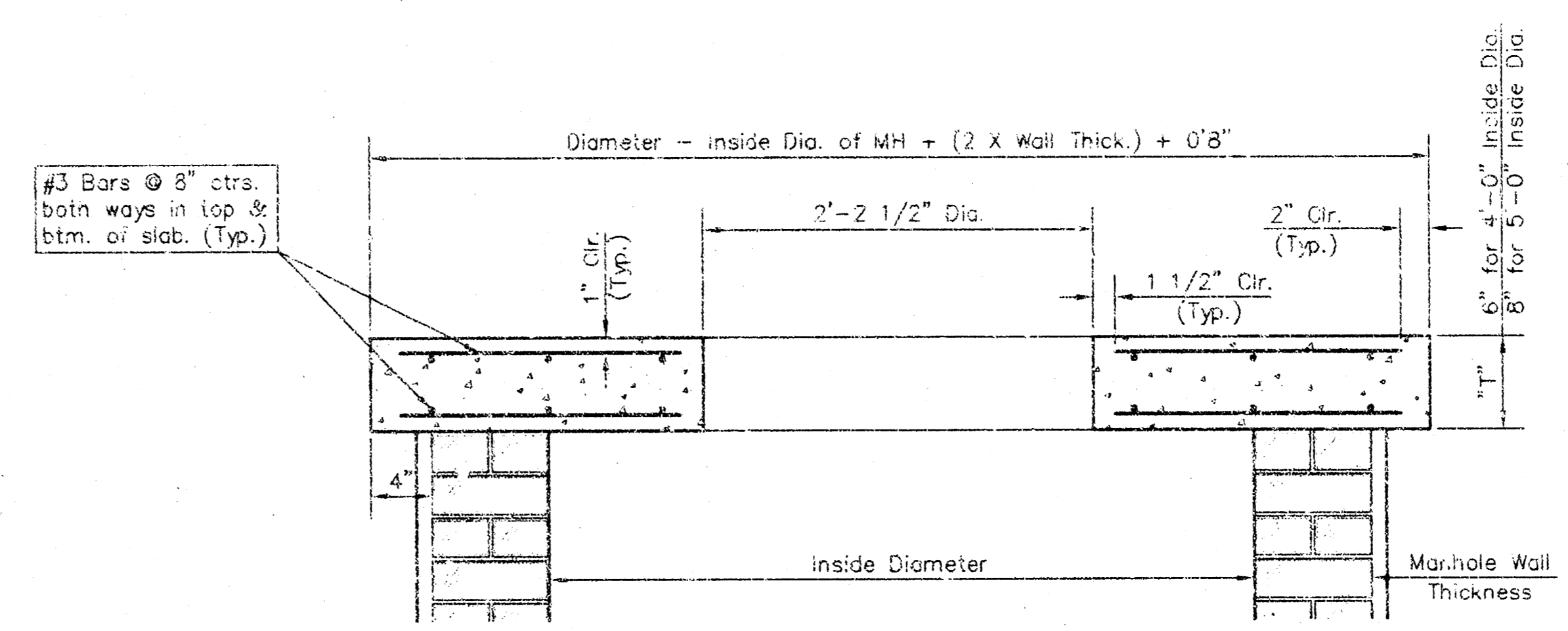
SHALLOW TYPE "B" MANHOLE



PLAN



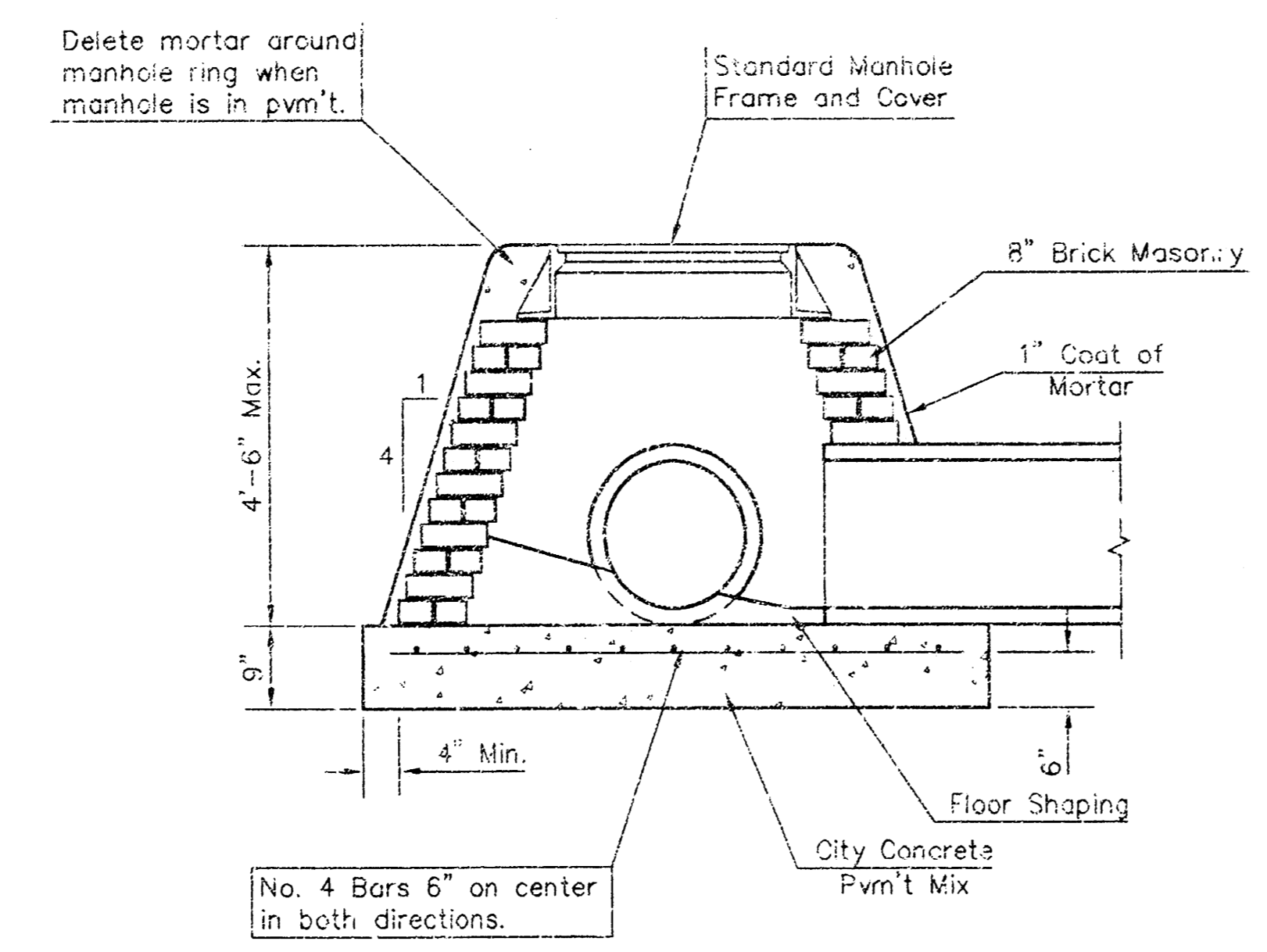
MASONRY COLLAR DETAIL



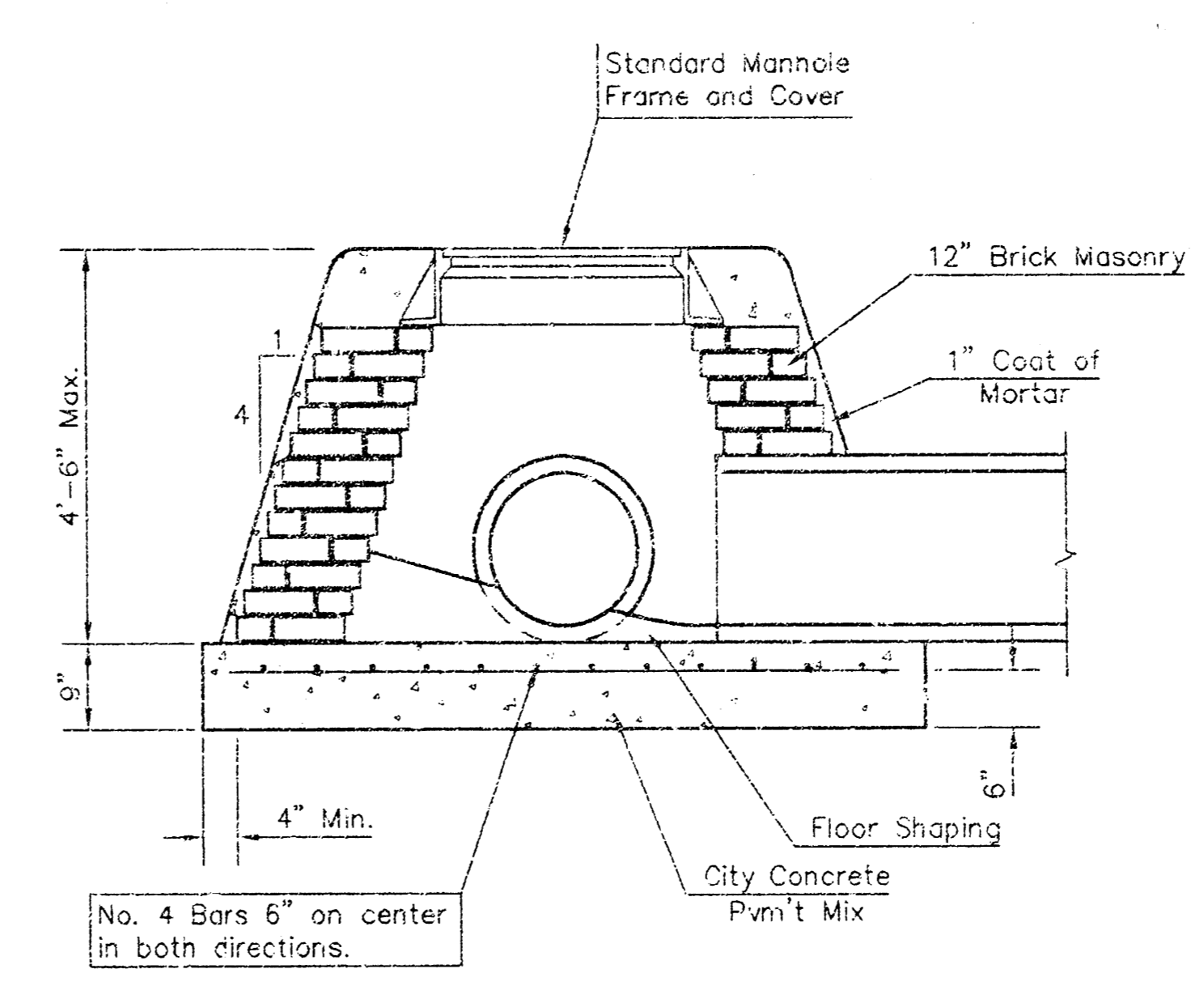
SECTION A-A

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 ring 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 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 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, this 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.
 - All brick used in manhole construction shall meet Grade SW of ASTM C652 or C62-87.



SPECIAL SHALLOW TYPE "A" MANHOLE



SPECIAL SHALLOW TYPE "B" MANHOLE

STANDARD/SPECIAL SHALLOW MANHOLES TYPE 'A' & 'B'