

CITY OF WICHITA, KANSAS

DRAINAGE IMPROVEMENTS

27TH STREET NORTH AND ESTELLE/VOLUTSIA

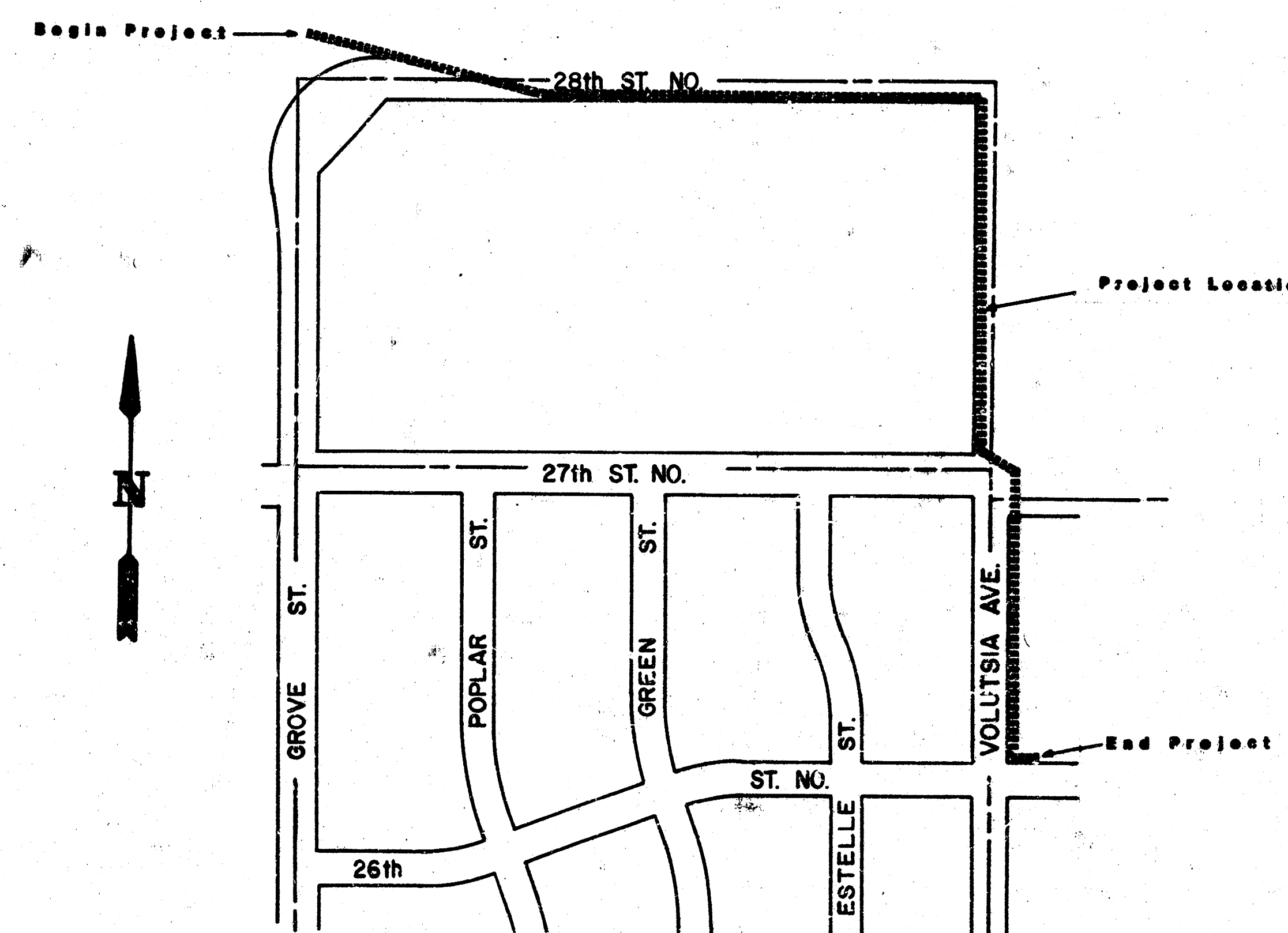
MICHAEL E. LINDEBAK, P.E. CITY ENGINEER

MARCH 1986

PROJ. NO. 826 68 365 50218 430 000 000

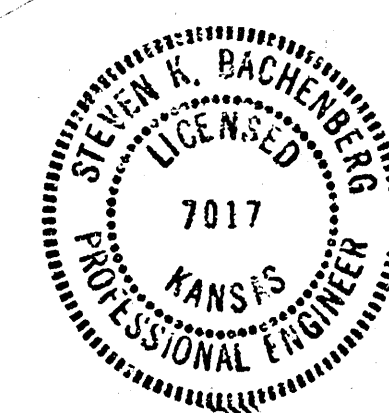
INDEX TO DRAWINGS

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2. Plan and Profile - Sta. 0+00 to Sta. 6+00
3. Plan and Profile - Sta. 6+00 to Sta. 12+00
4. Plan and Profile - Sta. 12+00 to Sta. 18+50
5. Plan and Profile - Sta. 18+50 to Sta. 24+50
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7. 27th Street and Volutsia Intersection Details
8. Standard Manhole Detail
9. Standard Type 1A Curb Inlet
10. Standard Manhole Frame and Cover Detail



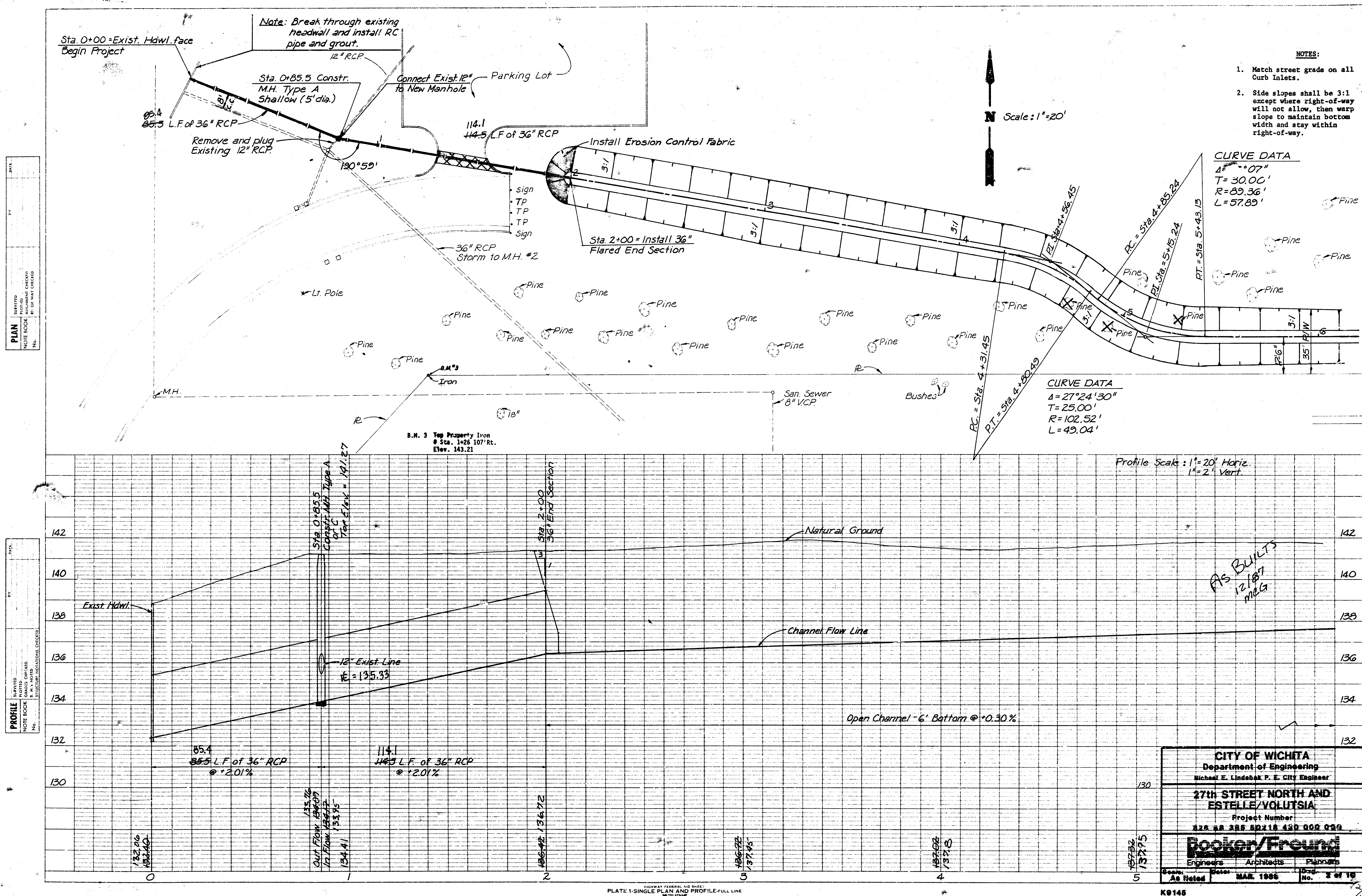
AS BUILT
12/87
MCG

PLANS PREPARED BY
Booker/Freund
Engineers Architects Planners
WICHITA, KANSAS



1/10 K-0148

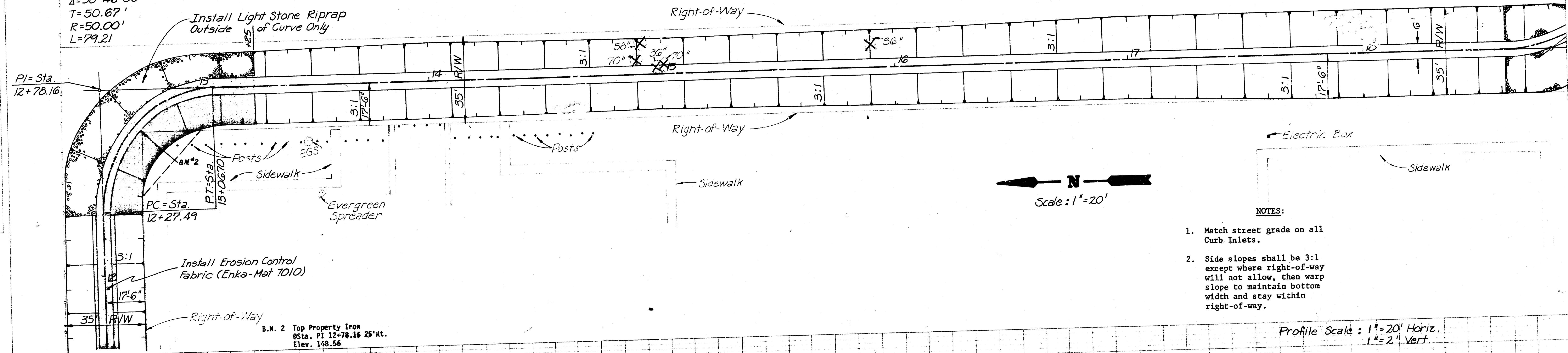
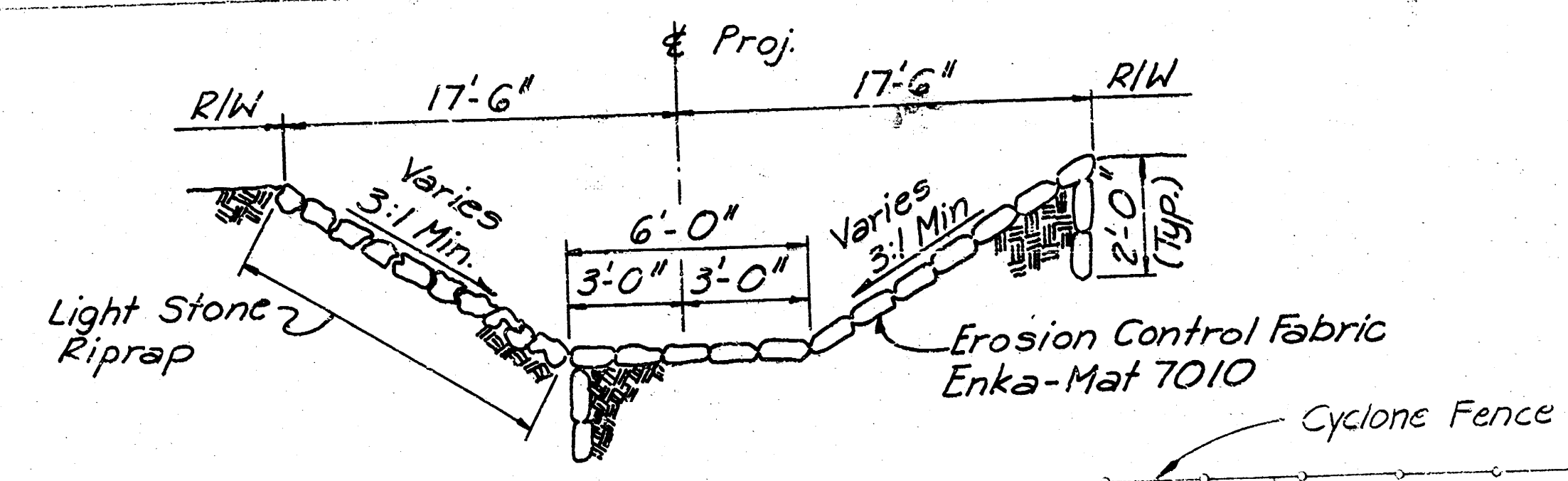
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PLAN
SHEET NO. 1
DATE: 12/18/87
BY: MCG
CHECKED: [Signature]
NOTES: SEE SHEET 2 FOR CURVE DATA

CURVE DATA
 $\Delta = 90^\circ 46' 00''$
 $T = 50.67'$
 $R = 50.00'$
 $L = 79.21'$



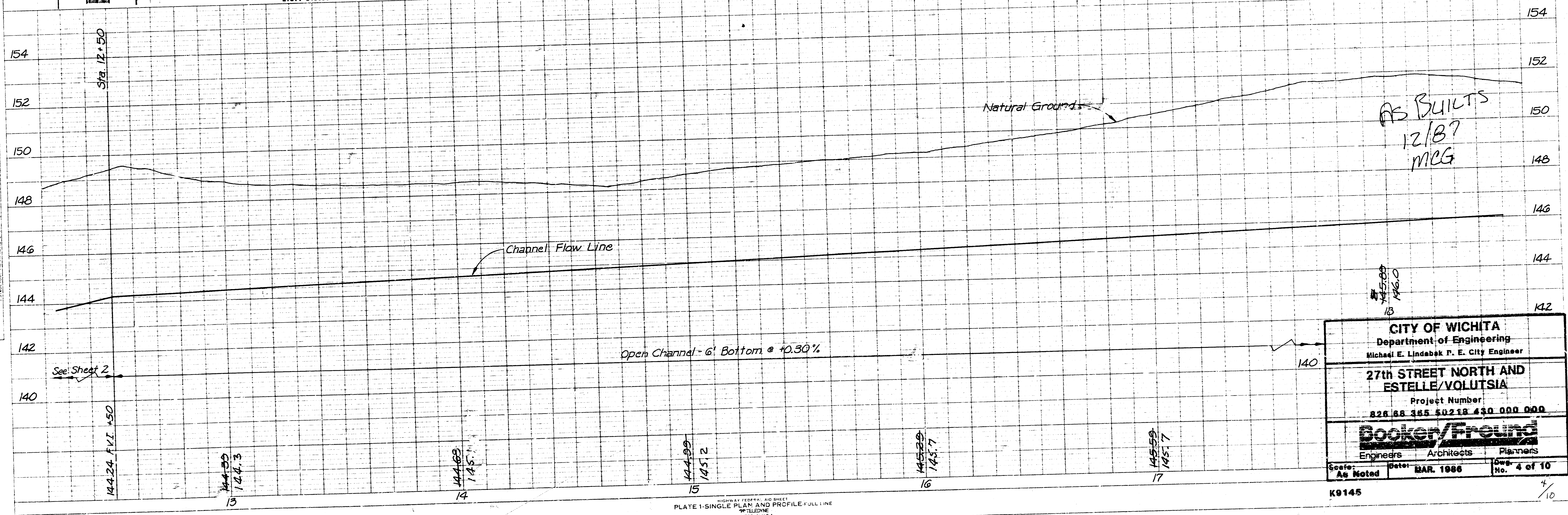
N
Scale: 1" = 20'

NOTES:

1. Match street grade on all Curb Inlets.
2. Side slopes shall be 3:1 except where right-of-way will not allow, then warp slope to maintain bottom width and stay within right-of-way.

Profile Scale: 1" = 20' Horiz.
1" = 2' Vert.

PROFILE
SHEET NO. 2
DATE: 12/18/87
BY: MCG
CHECKED: [Signature]
NOTES: SEE SHEET 1 FOR PLAN



AS BUILTS
12/18/87
MCG

CITY OF WICHITA
Department of Engineering
Michael E. Lindabek P. E. City Engineer

27th STREET NORTH AND ESTELLE/VOLUTSIA
Project Number
826 88 385 50218 430 000 000

Booker/Freund
Engineers Architects Planners

Scale: As Noted Date: MAR. 1986 Draw: 4 of 10
K9145

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CURVE DATA
 $\Delta = 36^\circ 34' 21''$
 $T = 20.00'$
 $R = 60.52'$
 $L = 36.63'$

Sta. 19+42.23 Constr. Type 1A
 Curb Inlet W=6'-4"
 Top Elev. = 150.88

PT=Sta 18+60.75
 39.3 LF
 39.3 LF of 36" RCP

339.8 LF
 342.77 LF of 36" RCP

4'-5" from back of curb
 to C of R.C.P.

Sta. 22+85 Constr. Type 1A
 Curb Inlet W=6'-4"
 Match Exist. Curb Elev. = 152.51

Sta. 24+50.91 Constr. Type 1A
 Curb Inlet W=5'-4"
 Top Elev. = 155.88 155.96

167.6 LF
 165.97 LF of 24" RCP

4'-5" from Back of Curb
 to C of RCP

Install Light Stone
 Riprap

For Intersection Improvements
 See Sheet 7

B.M. 1 Top Property Iron
 @ Sta. 19+00 30' Rt.
 Elev. 150.84

Scale: 1"=20'

LEGEND

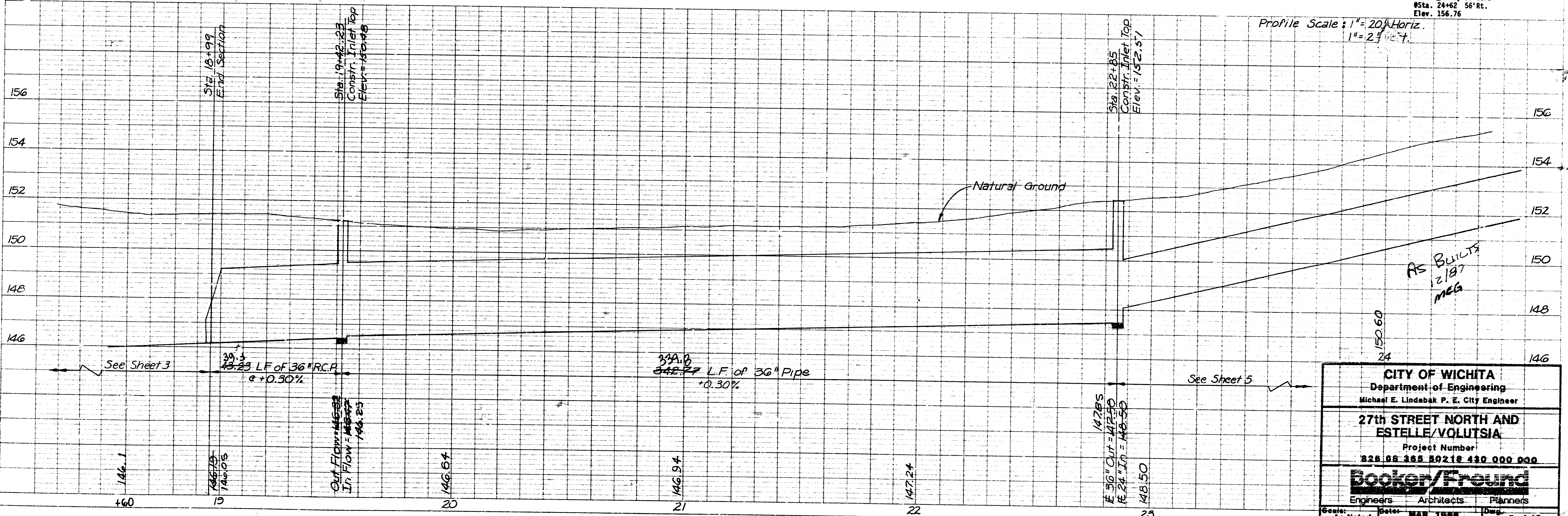
- Pavement Removal
- Concrete Removal & Replacement
- Pavement Removal & Replacement with 2" Asphaltic Conc. Surface and 6" Conc. Base
- 2" Asphaltic Conc. Overlay

NOTES:

1. Match street grade on all Curb Inlets.
2. Side slopes shall be 3:1 except where right-of-way will not allow, then warp slope to maintain bottom width and stay within right-of-way.

B.M. 1A Chis. "T" Top of Curb
 @ Sta. 24+62 56' Rt.
 Elev. 156.76

Profile Scale: 1"=20' Horiz.
 1"=2' Vert.



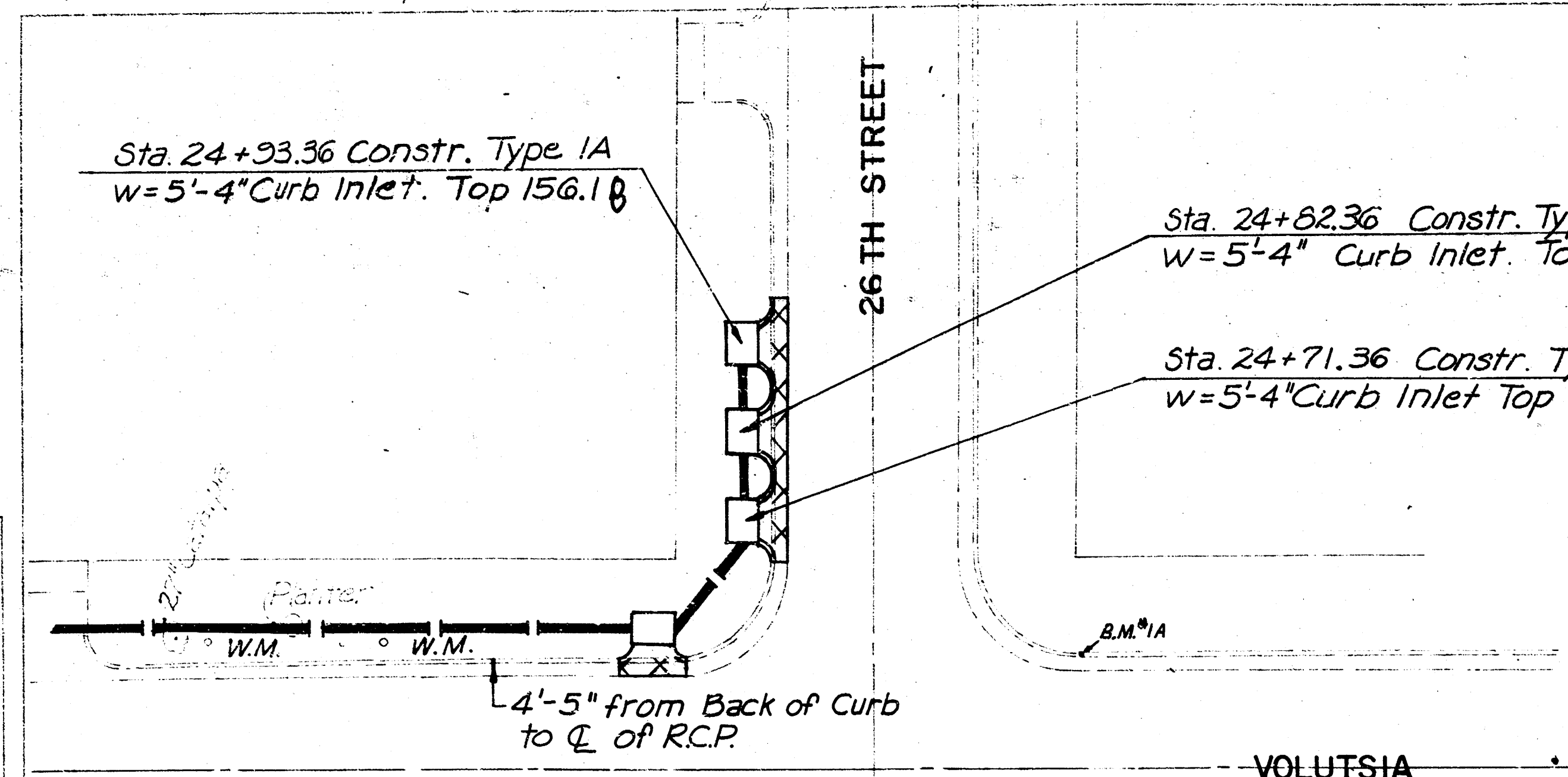
CITY OF WICHITA		
Department of Engineering		
Michael E. Lindebak P. E. City Engineer		
27th STREET NORTH AND ESTELLE/VOLUTSIA		
Project Number		
826 08 365 80218 430 000 000		
Booker/Freund		
Engineers	Architects	Planners
Scale: As Noted	Date: MAR. 1988	Draw. No. 5 of 10

KP145

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PLAN
NOTE BOOK
No.

PROFILE
NOTE BOOK
No.

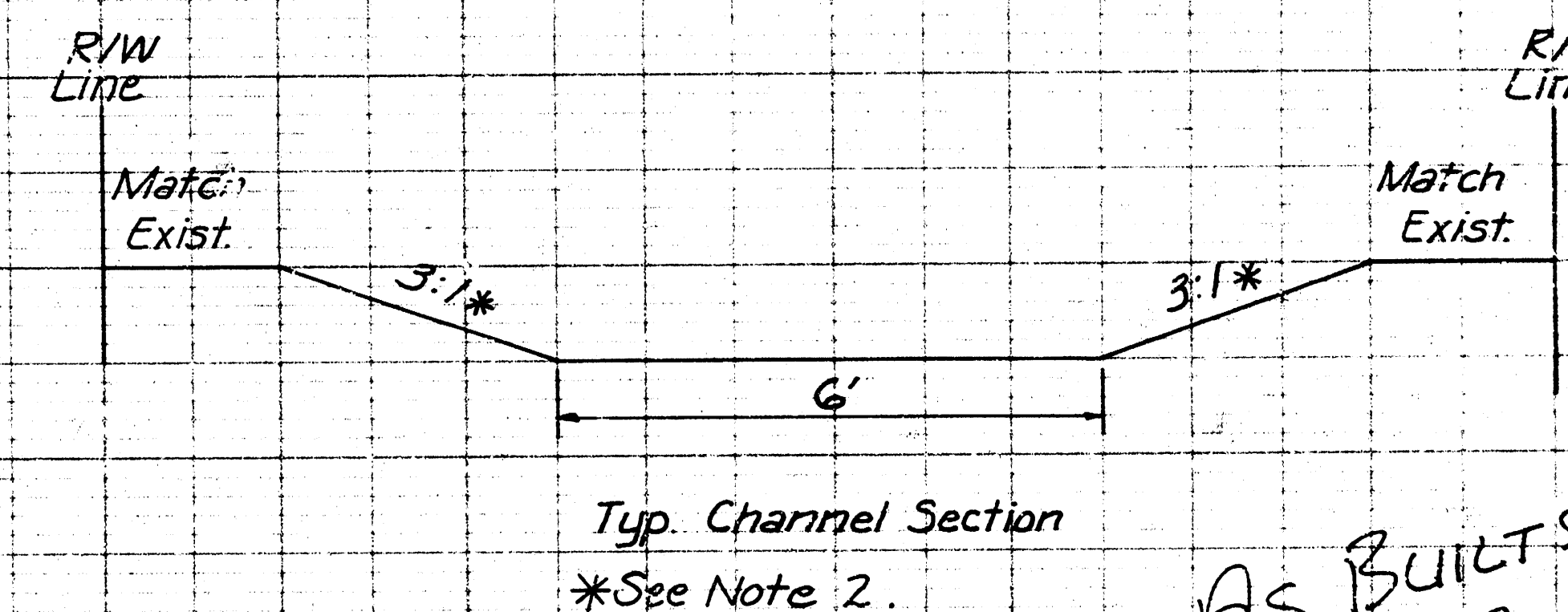
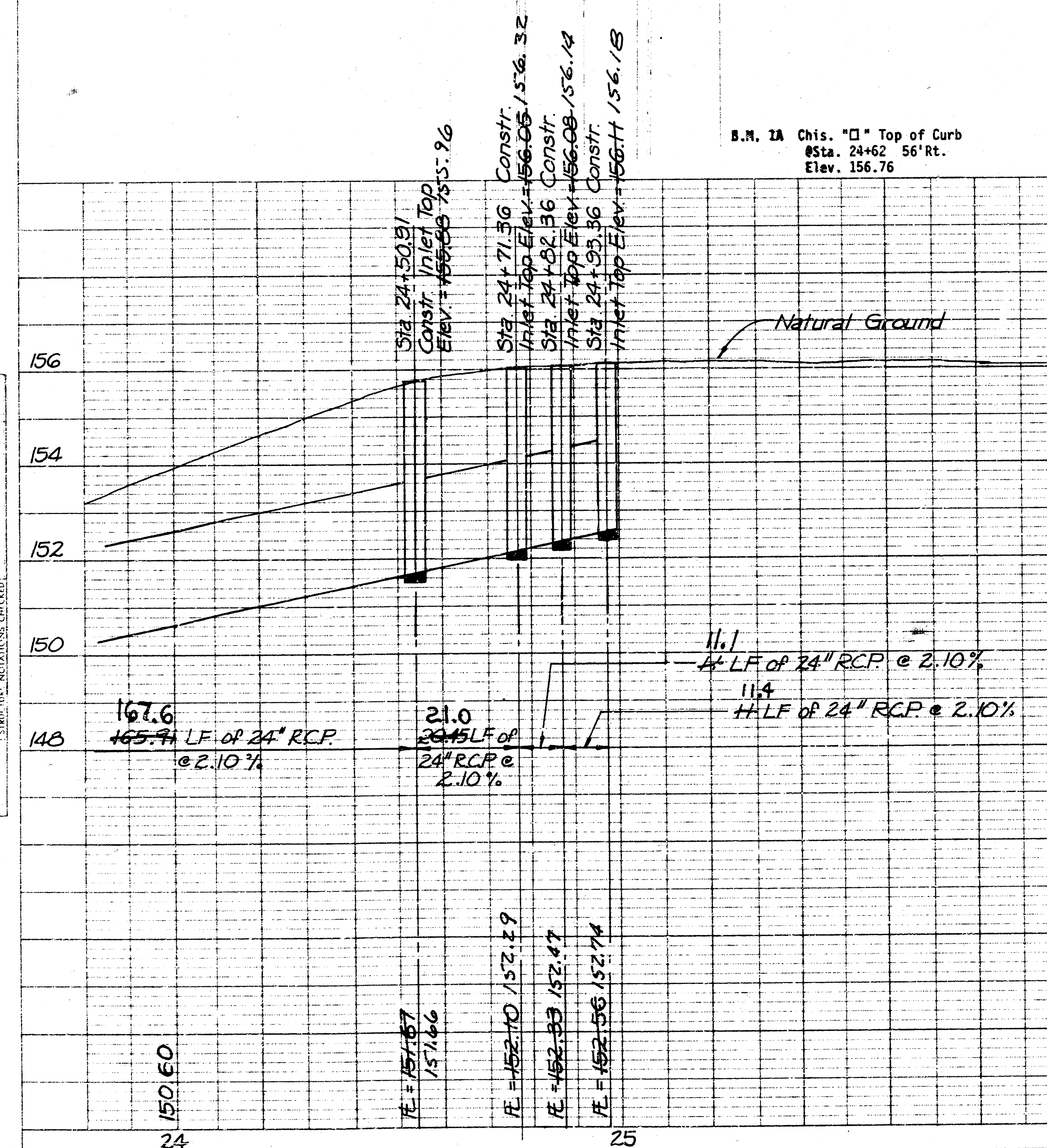


NOTES:

1. Match street grade on all Curb Inlets.

GENERAL NOTES

1. Interurban traffic generated outside the project area and local business or apartment traffic generated within the project area are to be carried through construction.
2. Underground utility service lines and overhead utility pole lines are to be adjusted as necessary by others prior to or during construction unless the plans specifically call for their adjustment by the Contractor. 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 plan locations shown are not guaranteed. Additional existing utilities may also be encountered. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.
3. 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. 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.
4. Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be disposed of off-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.
5. 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 conflict with proposed new construction shall be saved and protected from damage.
6. The Contractor shall give all property owners and/or tenants of developed property directly affected by the construction of this project a minimum of 24 hours advance notice prior to start of construction.
7. 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 or a licensed professional engineer in accordance with state laws.



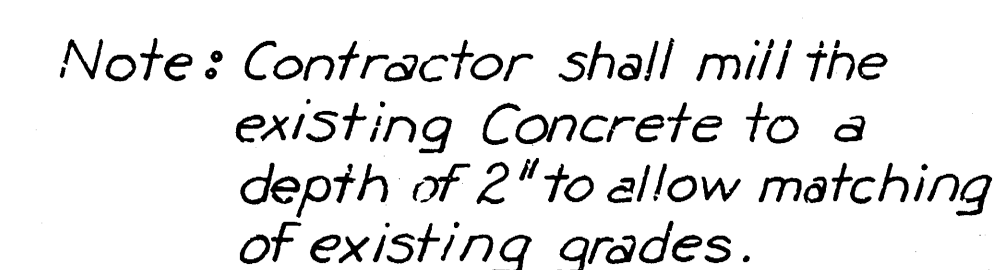
AS BUILT
12/87
MEG

CITY OF WICHITA Department of Engineering Michael E. Lindebak P. E. City Engineer		
27th STREET NORTH AND ESTELLE/VOLUTSIA		
Project Number 826 68 365 802 18 430 000 000		
Booker/Freund Engineers Architects Planners		
Scale: As Noted	Date: MAY 1988	Dwg. No.: 8 of 10

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PLATE 1-SINGLE PLAN AND PROFILE-FULL LINE
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TYPICAL SECTION
N.T.S.



- ### INTERSECTION QUANTITIES

107 S.Y. 6" Concrete Base
200 S.Y. 2" Asphaltic Concrete Overlay
59 L.F. 2'-6" Integral Curb & Gutter
18 L.F. 2'-6" Combined Curb & Gutter
93 S.Y. 2" Milling

CITY OF WICHITA / DEPT. OF ENGINEERING
MICHAEL E. LINDEBAK P.E. CITY ENGINEER

**27th STREET NORTH AND
ESTELLE/VOLUTSIA**

PROJECT NO. 826 68 365 50218 430 000 000

Booker/Freund

Engineers Architects Planners

SCALE AS NOTED	DATE MAR. 1986	DWG. NO. 7 of 10
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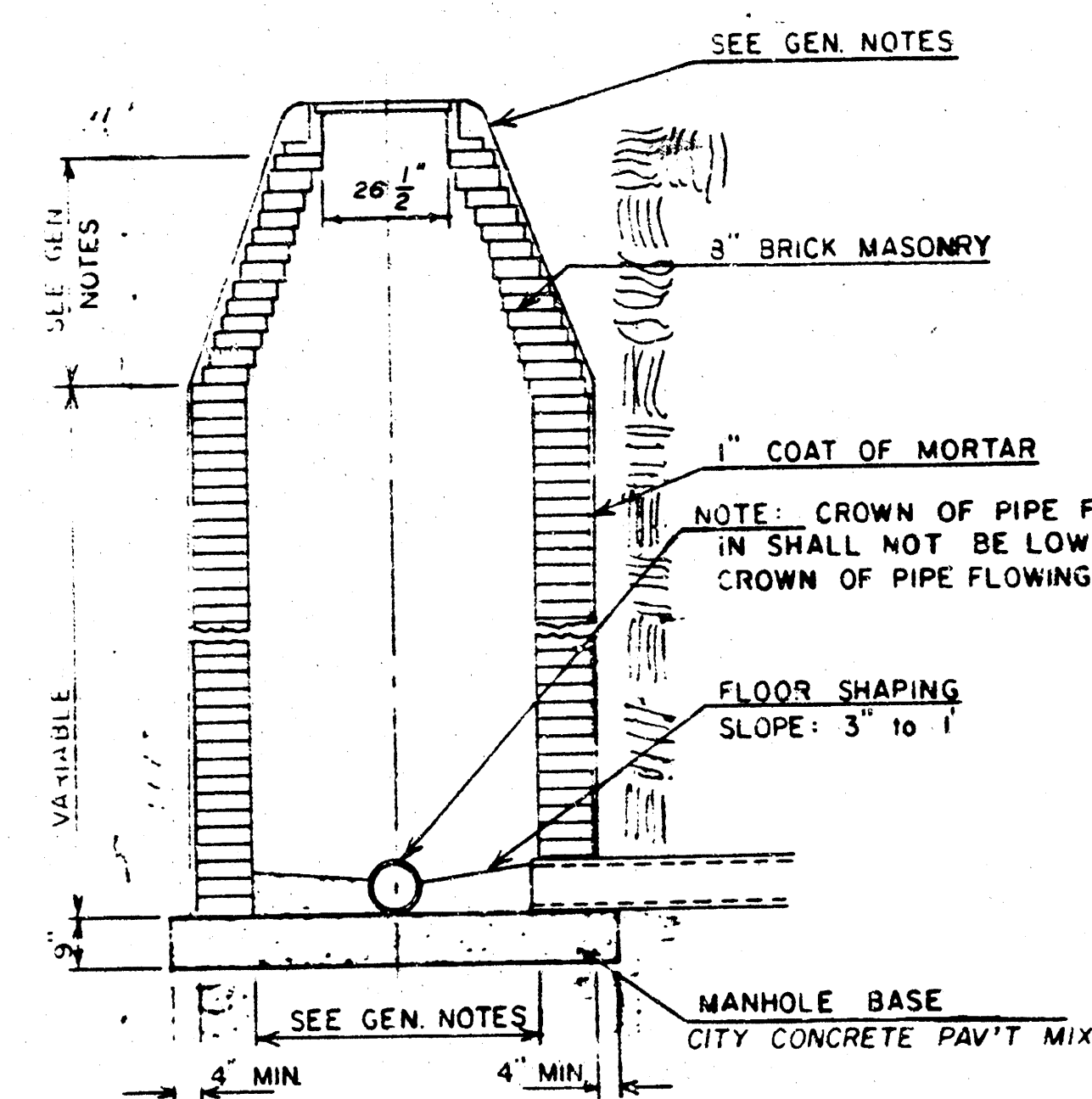
SEWER APPURTENANCES DETAILS

ADOPTED AS STANDARD DESIGN
BY

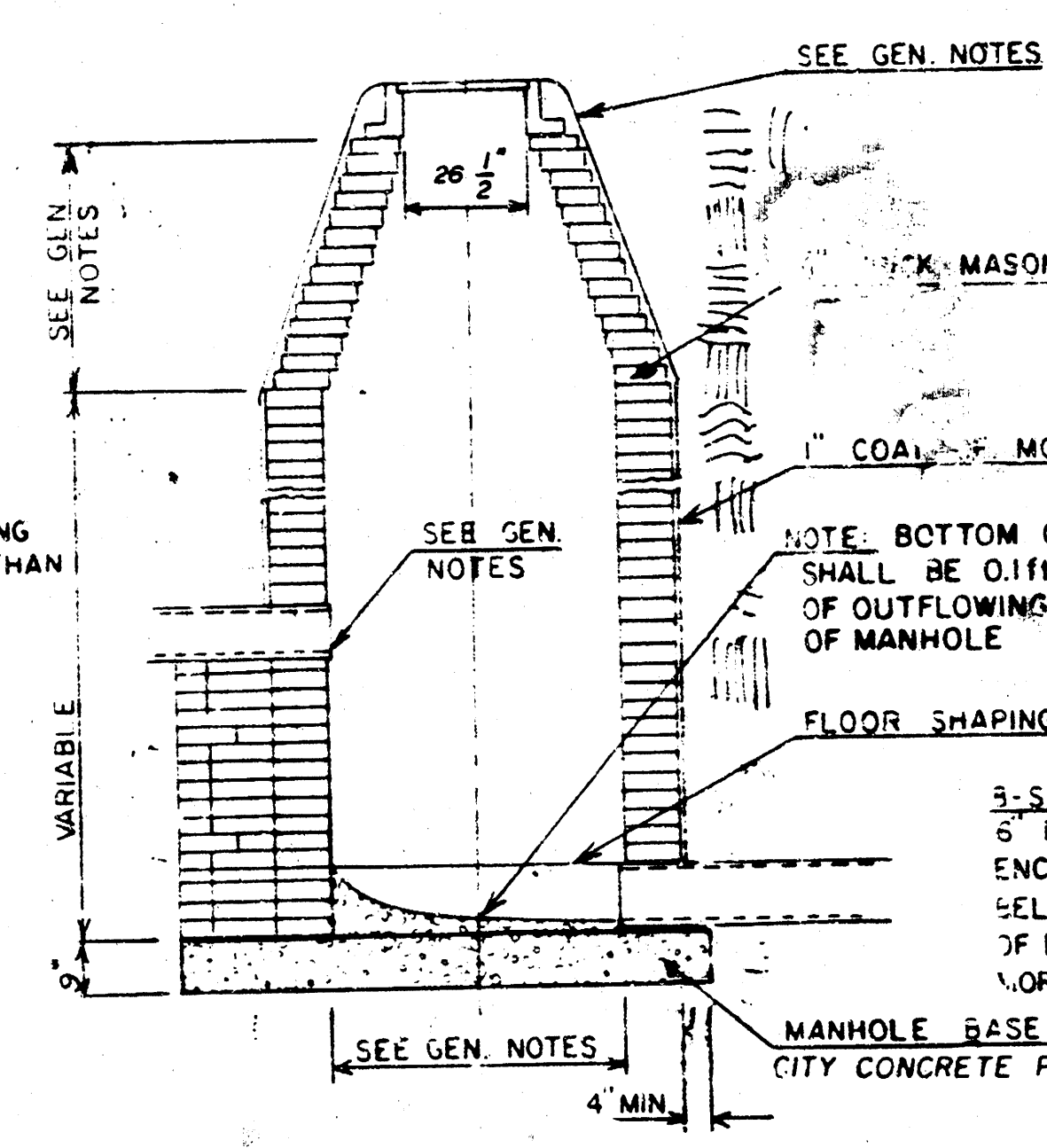
CITY of WICHITA, KANSAS

REVISED SEPTEMBER 1980
REVISED DECEMBER 1981

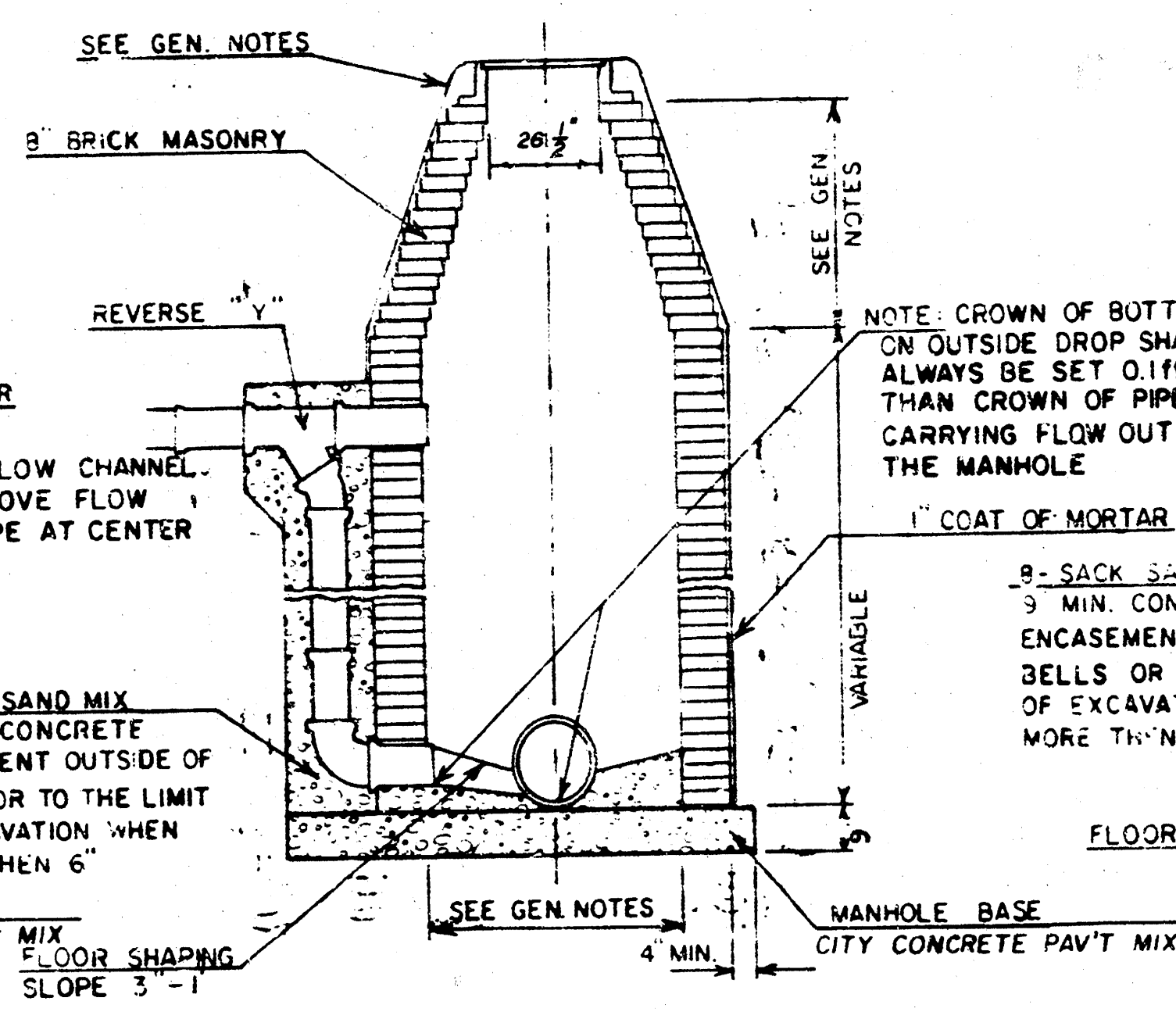
TYPE "A" MANHOLE



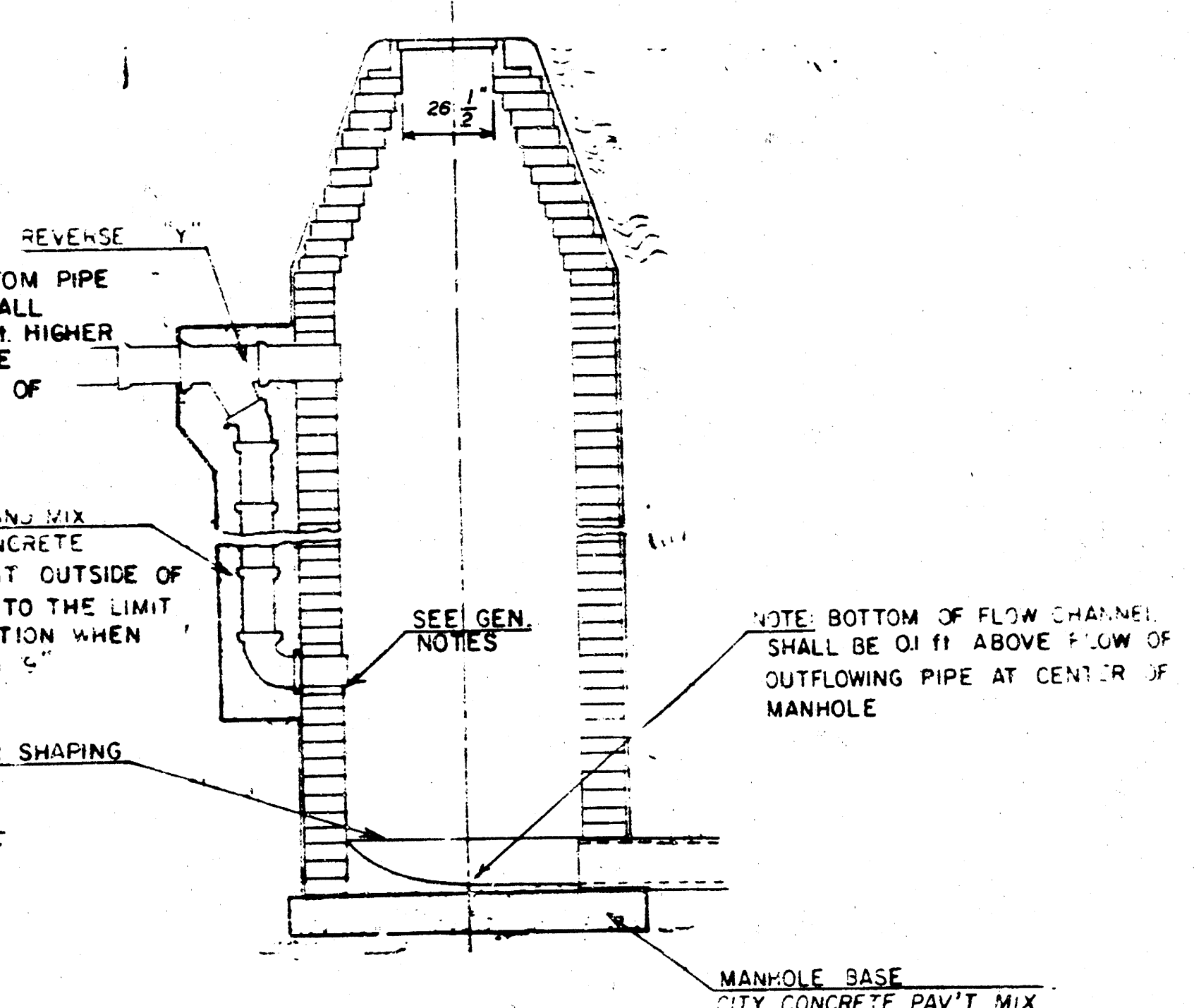
TYPE "A" INSIDE DROP MANHOLE



TYPE "A" OUTSIDE DROP MANHOLE



DETAIL OF OUTSIDE DROP
CONSTRUCTED ON EXISTING MANHOLE



GENERAL NOTES

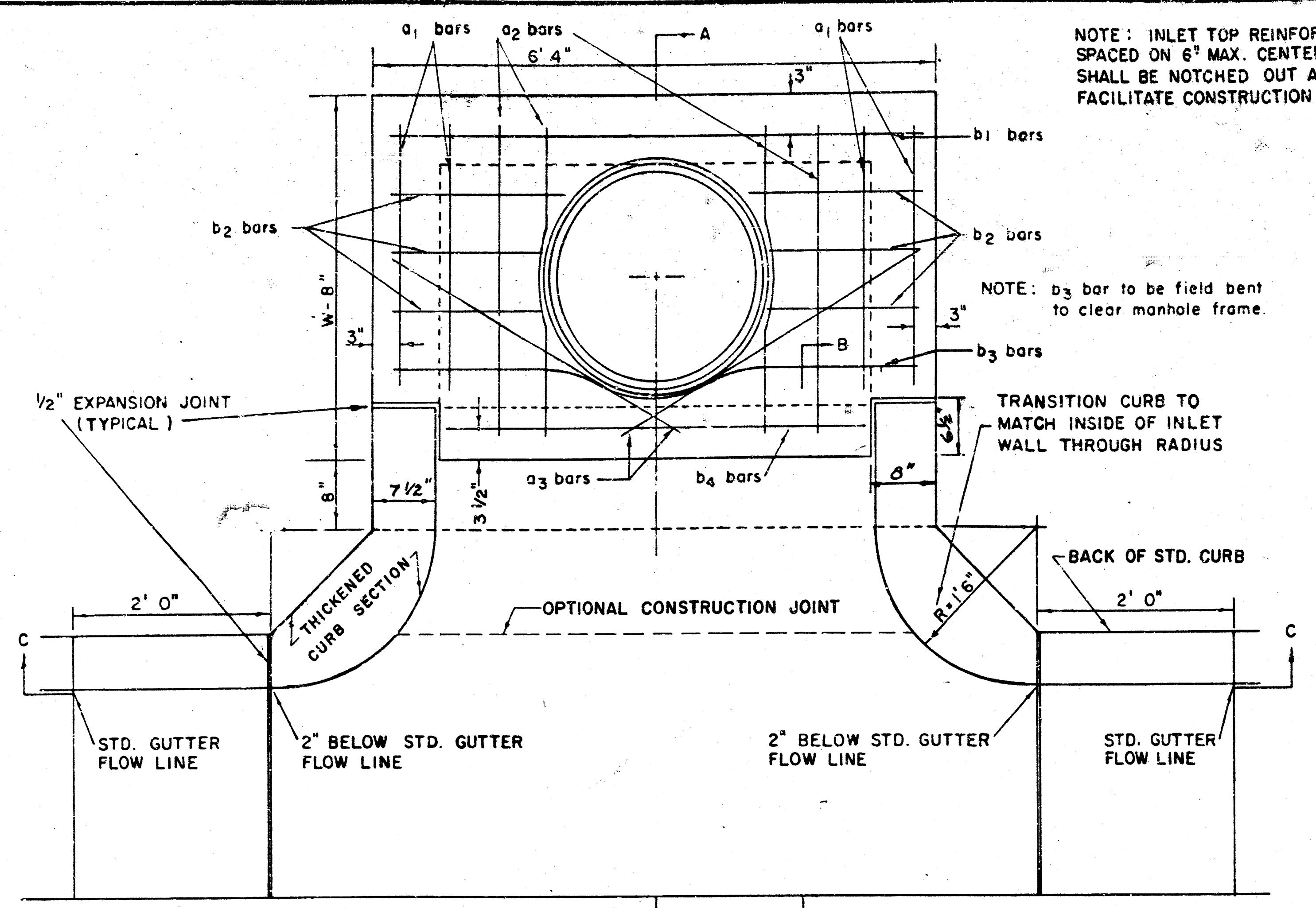
- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. TYPE "A" MANHOLES CAN BE USED ON SEWERS UP TO 16' IN DEPTH 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'. THE HEIGHT OF THE CORBELS ON 4' DIAMETER MANHOLES SHALL BE 4'. MANHOLES HAVING A DIAMETER OF 5' SHALL HAVE CORBELS 6' IN HEIGHT. 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 3" 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.
- OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND ROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINKING GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THE VERTICAL DROP FROM THE LOWER PIPE ON SUCH OUTSIDE DROP CONNECTIONS SHALL NOT EXCEED 4' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES SIZED LARGER THAN 12". EXCEPT THE CROWN OF THE LOWER PIPE SHALL NEVER BE SET BELOW THE CROWN OF ANY LARGER OUTFLOWING PIPE. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING 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 EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. 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 DRAWING.
- THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 4' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- STANDARD MANHOLES TYPE "A" AND STANDARD INSIDE DROP MANHOLES TYPE "A" SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES TYPE "A" SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

8/10

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NOTE: EXPANSION JOINT ONLY IN CURB AREA WITH CONC. PAVEMENT.

PLAN

STEEL SCHEDULE

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

* NOTE: a₃ BARS TO BE PLACED APPROX. 2" BELOW TOP OF INLET COVER

BENDING DIAGRAM

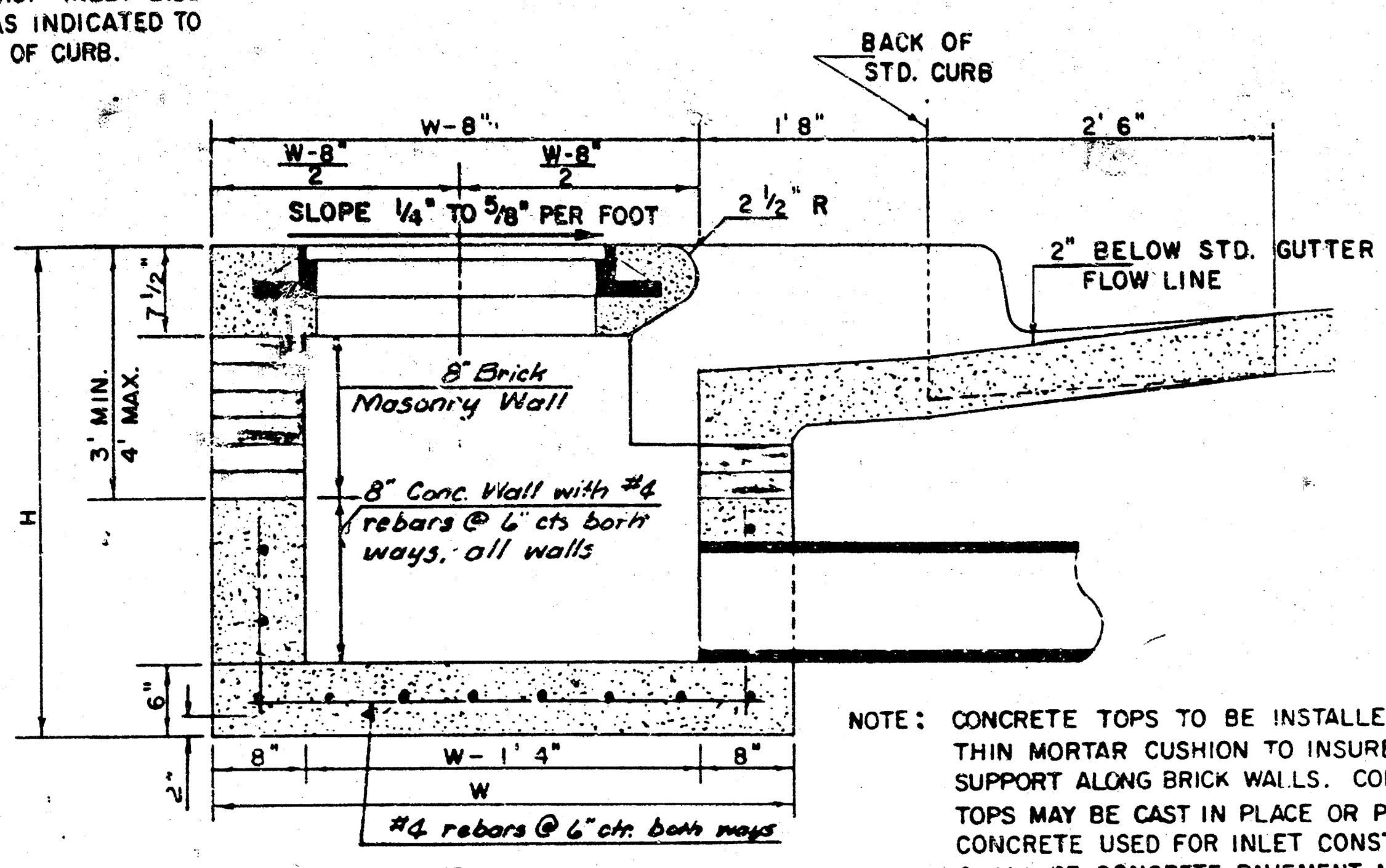
STANDARD CURB INLET PRECAST TOPS

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

NOTE: INLET TOP REINFORCING SHALL BE SPACED ON 6" MAX. CENTERS. INLET LIDS SHALL BE NOTCHED OUT AS INDICATED TO FACILITATE CONSTRUCTION OF CURB.

NOTE: b₃ bar to be field bent to clear manhole frame.

TRANSITION CURB TO MATCH INSIDE OF INLET WALL THROUGH RADIUS



SECTION A-A

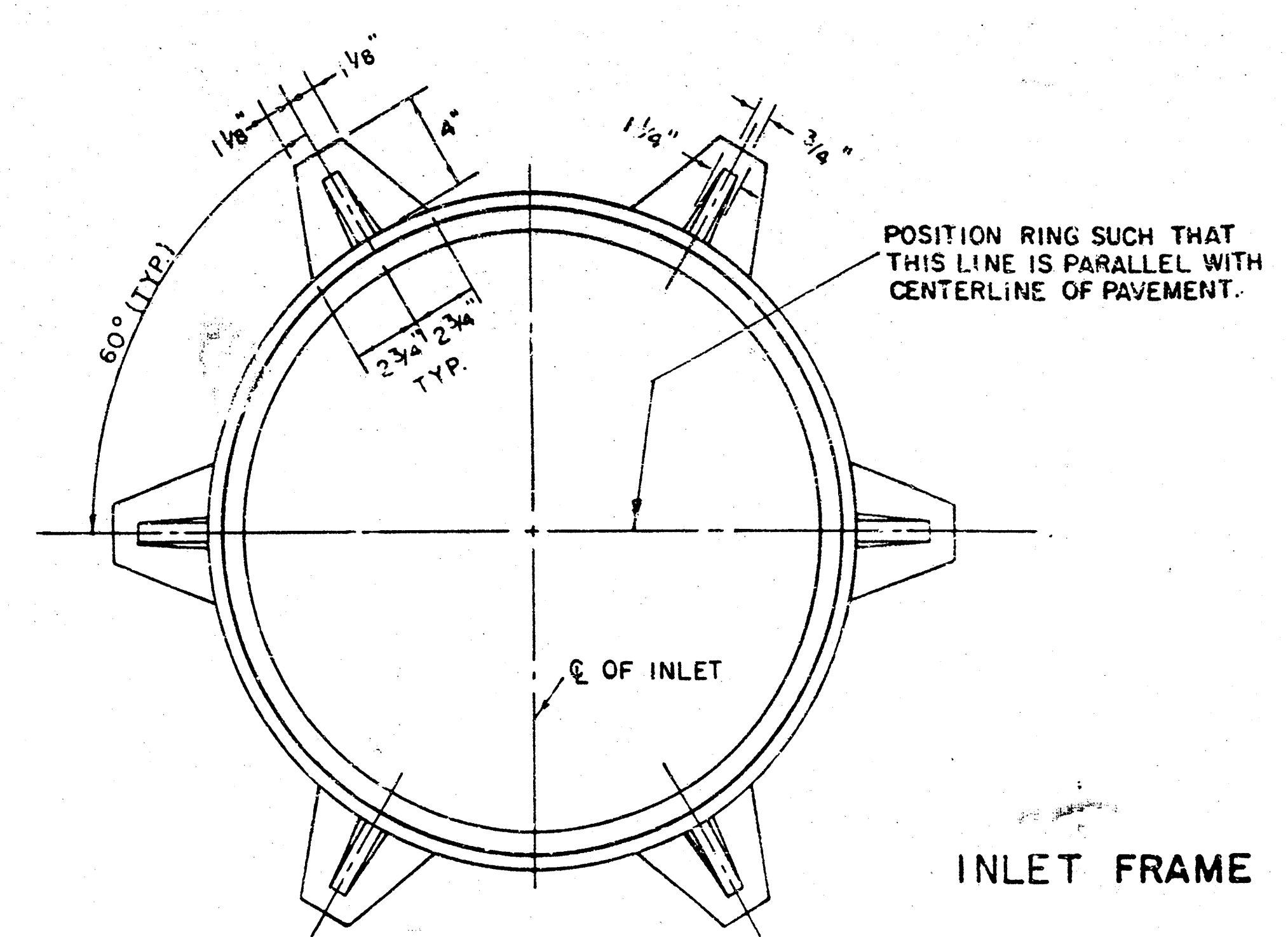
NOTE: CONCRETE TOPS TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK WALLS. CONCRETE TOPS MAY BE CAST IN PLACE OR PRECAST. CONCRETE USED FOR INLET CONSTRUCTION SHALL BE CONCRETE PAVEMENT MIX.

NOTE: 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.

ADDITIONAL CURB AND GUTTER CONSTRUCTION NECESSARY TO CONNECT SET-BACK INLET TO PAVEMENT WILL BE PAID FOR AT THE UNIT PRICE BID FOR EACH INLET HOOKUP.

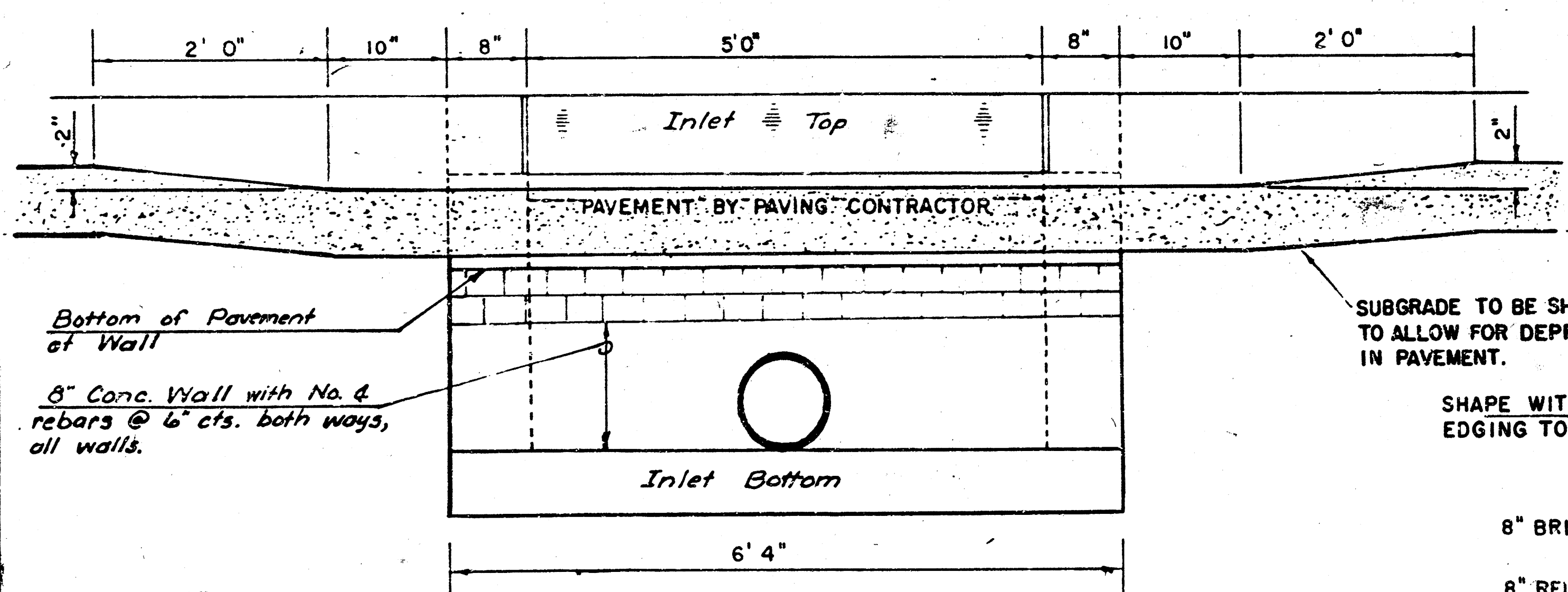
INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF-CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.

THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.

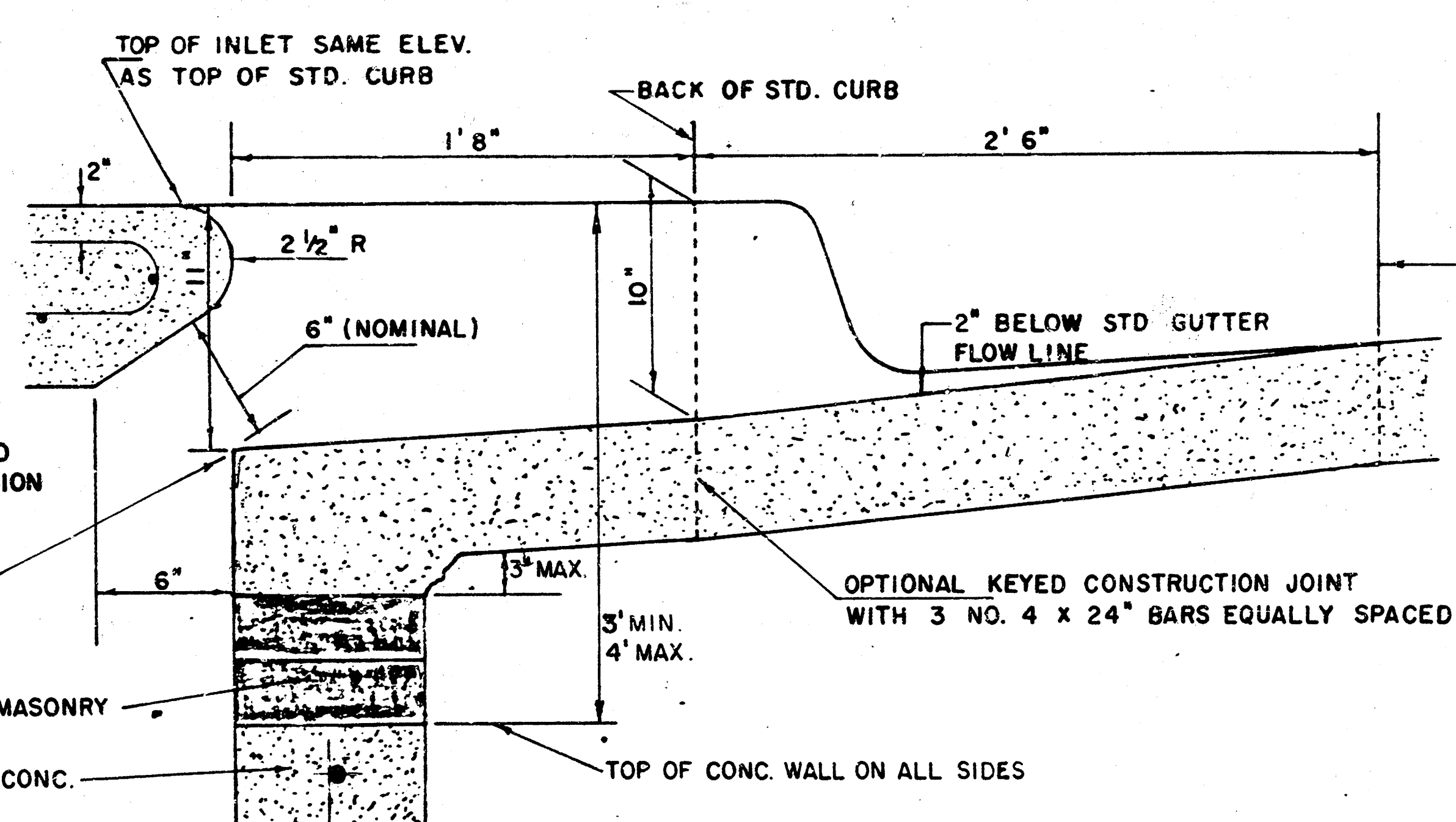


WEIGHT = 180 LBS.

SEE CITY OF WICHITA STANDARD MANHOLE FRAME AND COVER DETAIL SHEET FOR COVER DETAILS TO BE USED WITH INLET FRAME.



SECTION C-C



SECTION B-B

LIMITS OF GUTTER SHAPING AND/OR EDGE OF COMB. CURB AND GUTTER

REVISED 12-21-1984

K9145

DETAIL STANDARD TYPE 1A CURB INLET
CITY OF WICHITA, KANSAS
INLET OPENING = 6" x 5' 0"

JUNE 1984

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MANHOLE FRAME AND COVER DETAIL

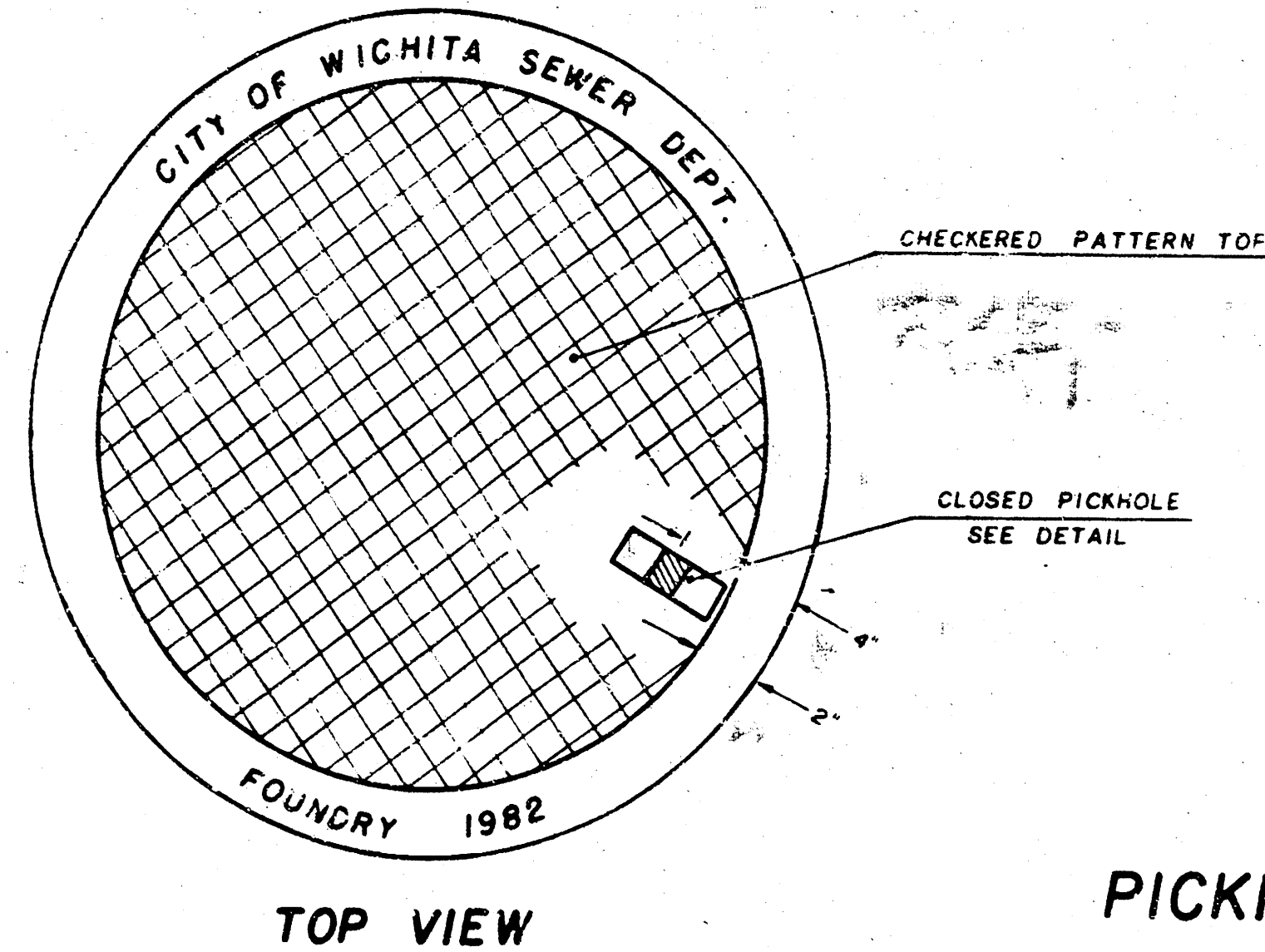
ADOPTED AS STANDARD DESIGN

BY

City of Wichita, Kansas

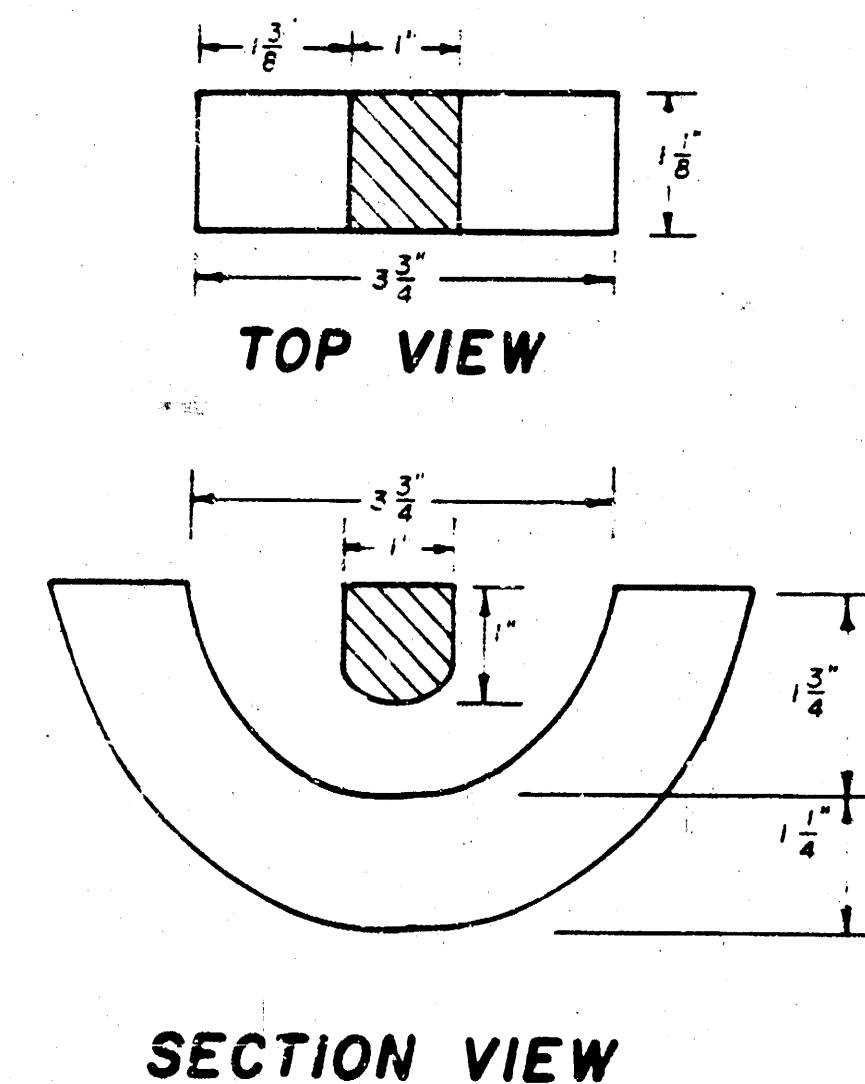
MANHOLE COVER

Weight: 180 Lbs.



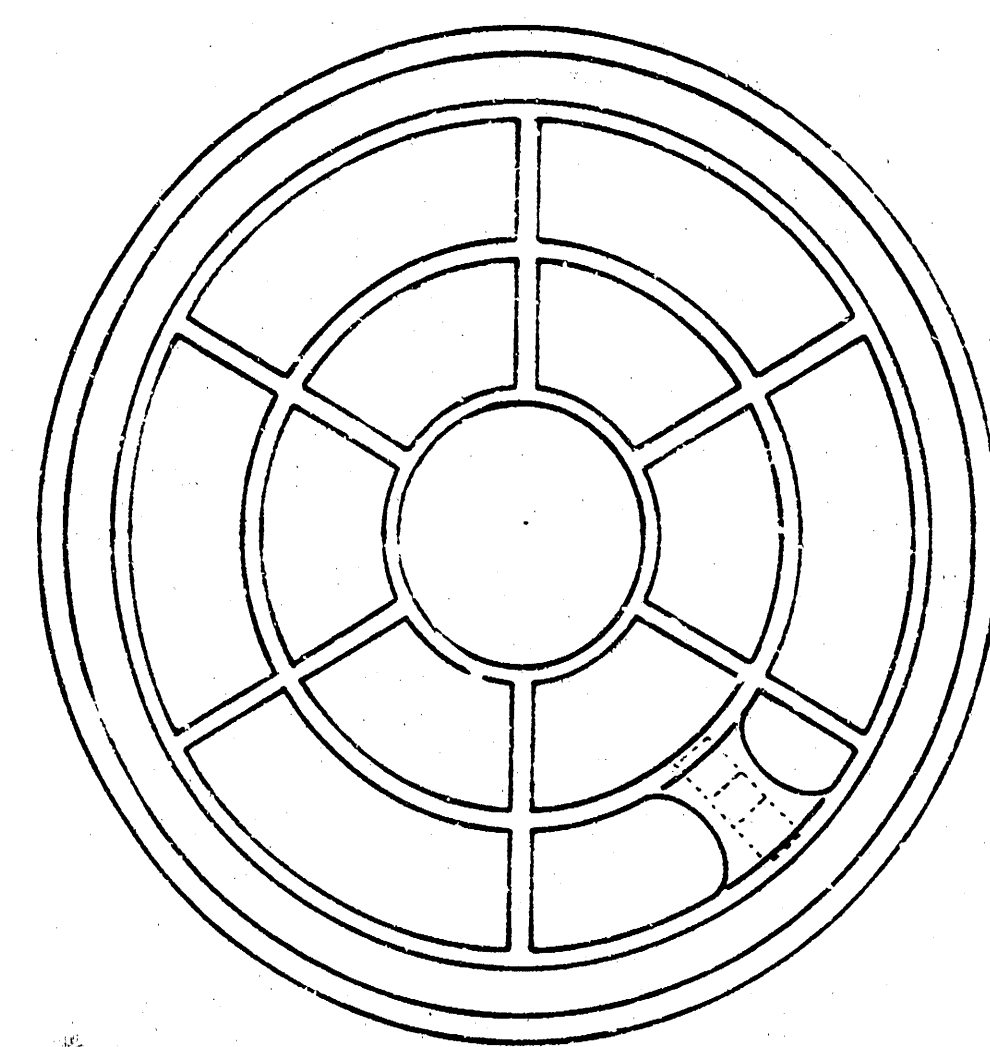
TOP VIEW

PICKHOLE DETAIL

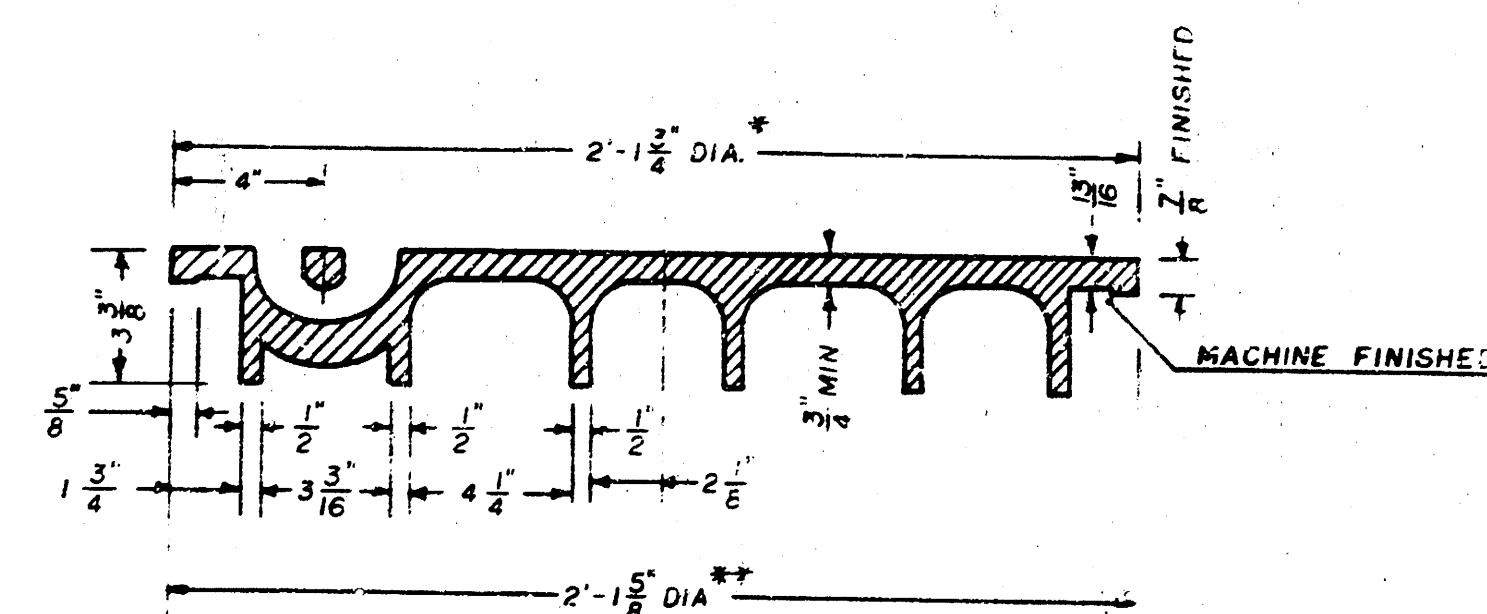


TOP VIEW

SECTION VIEW



BOTTOM VIEW

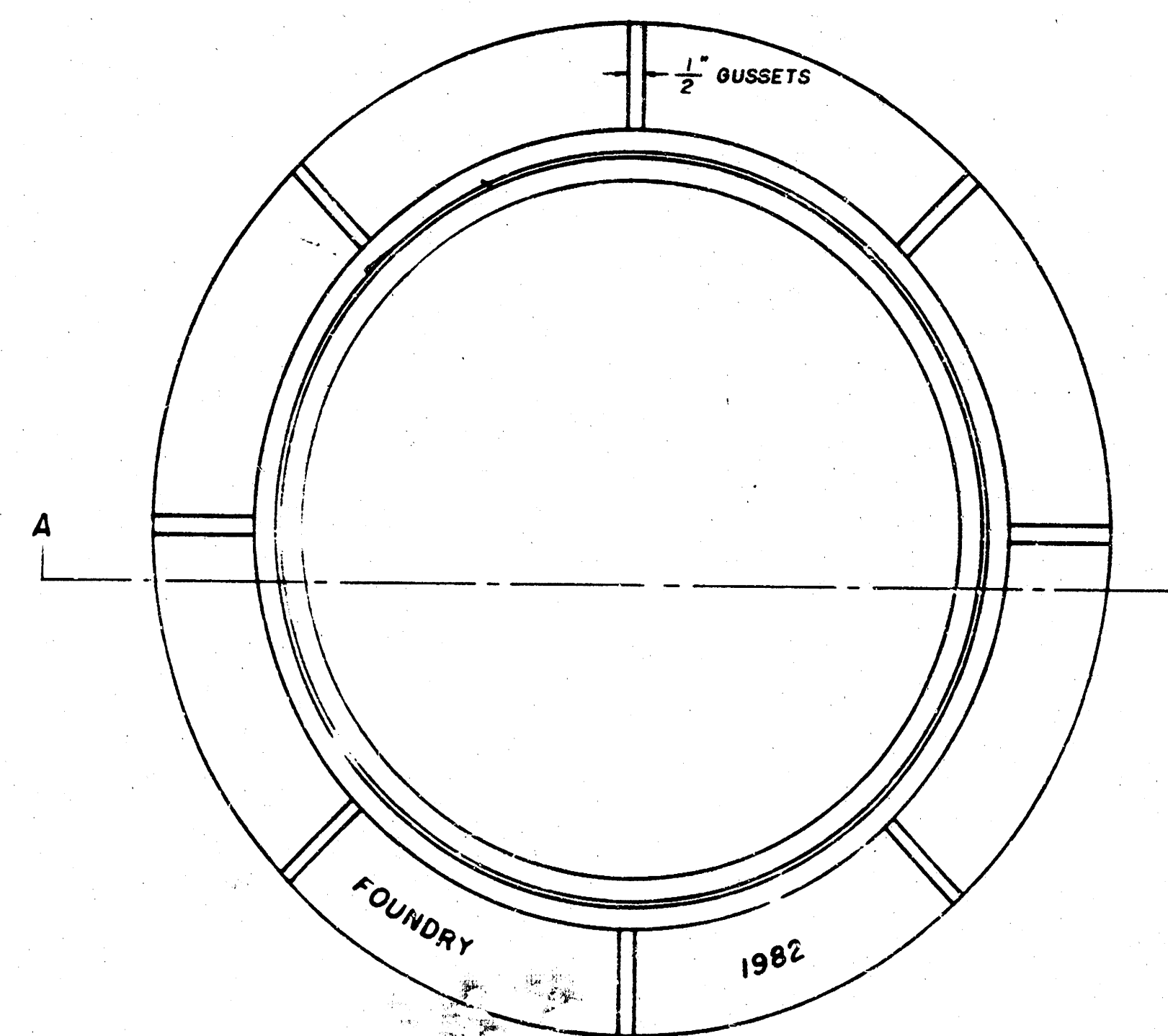


SECTION VIEW

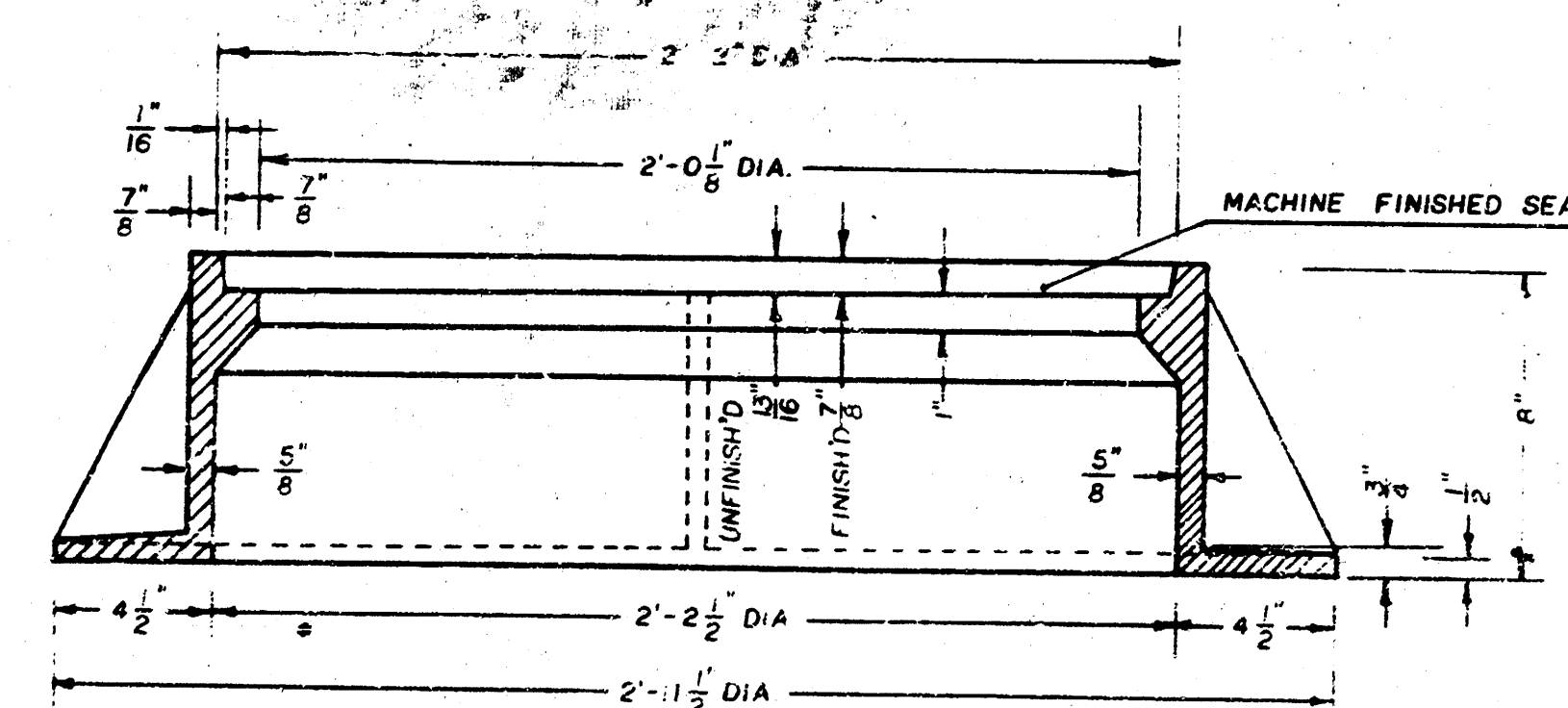
* OUTSIDE DIA. TOP OF COVER
** OUTSIDE DIA. BOTTOM OF COVER

MANHOLE FRAME

Weight: 240 Lbs.



TOP VIEW



SECTION A-A

GENERAL NOTES

1. MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.
2. MANHOLE CASTINGS SHALL BE COATED WITH AN ASPHALT PAINT RESULTING IN A SMOOTH, TOUGH AND TENACIOUS COATING WHICH IS NOT BRITTLE OR TACKY.
3. MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.
4. THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH THAT THESE SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.
5. THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1" IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE ABBREVIATED. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN A CHECKERED PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.

JNL DEC. 1981

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