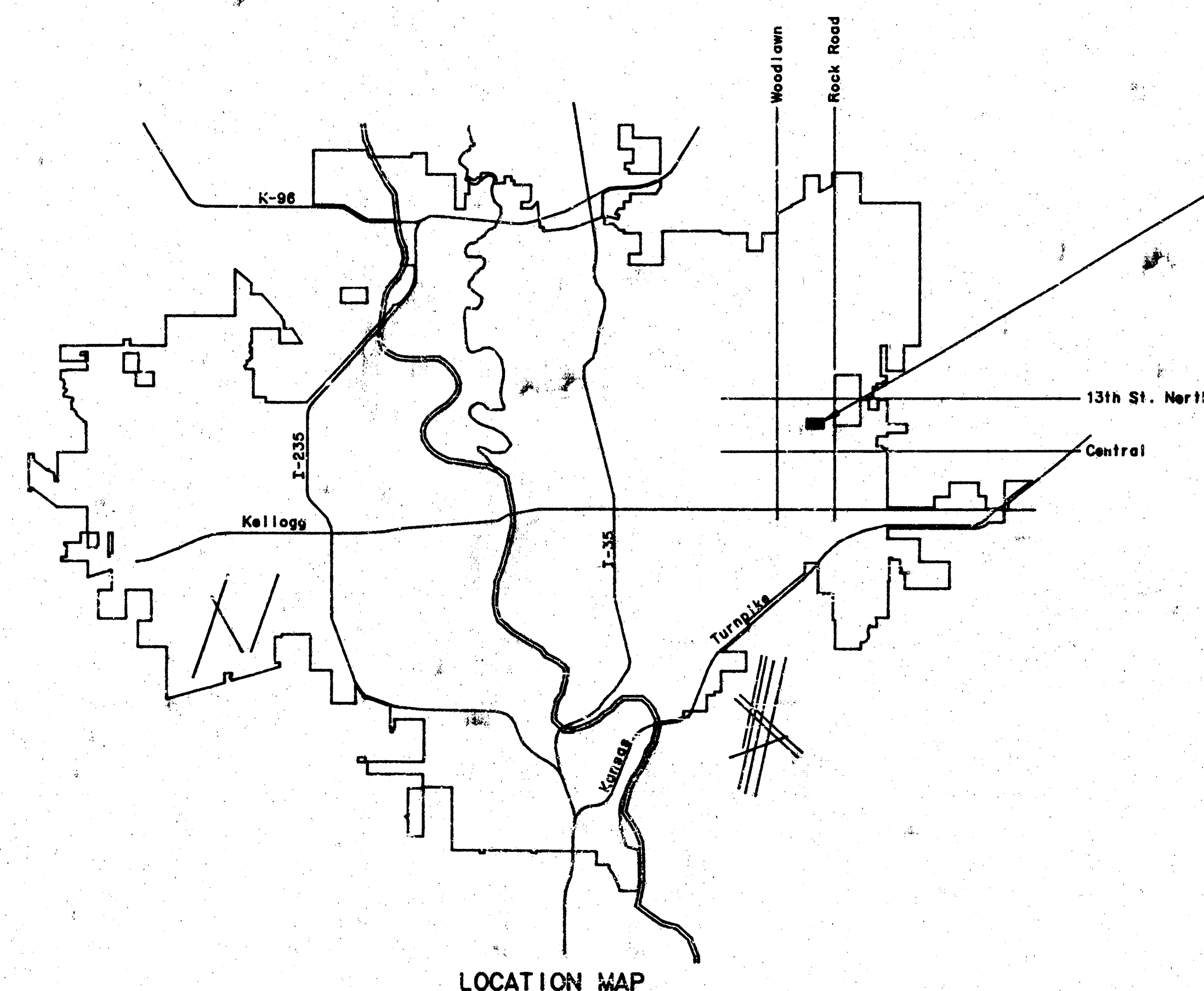


CONSTRUCTION PLANS FOR
LATERAL 86
 OF THE
WAR INDUSTRIES SEWER
 IN

THE CITY OF WICHITA,
 SEDGWICK COUNTY, KANSAS
 MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER



PROJECT SITE
 FAIRFIELD ESTATES 2ND ADDITION
 (PAGE - 23)
 AN ADDITION TO WICHITA,
 SEDGWICK COUNTY, KANSAS

INDEX OF SHEETS

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SHEET NO. 8	TYPE "D" MANHOLE DETAILS
SHEET NO. 9	FRAME & COVER DETAIL

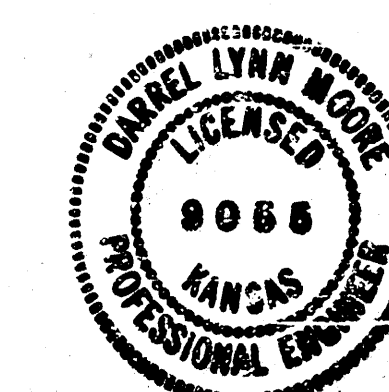
LOCATION MAP

INDEX CODE 740290

CITY OF WICHITA PROJECT NO. 468-76-245-81533-000-000-001

APRIL, 1990

PLANS PREPARED BY
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS



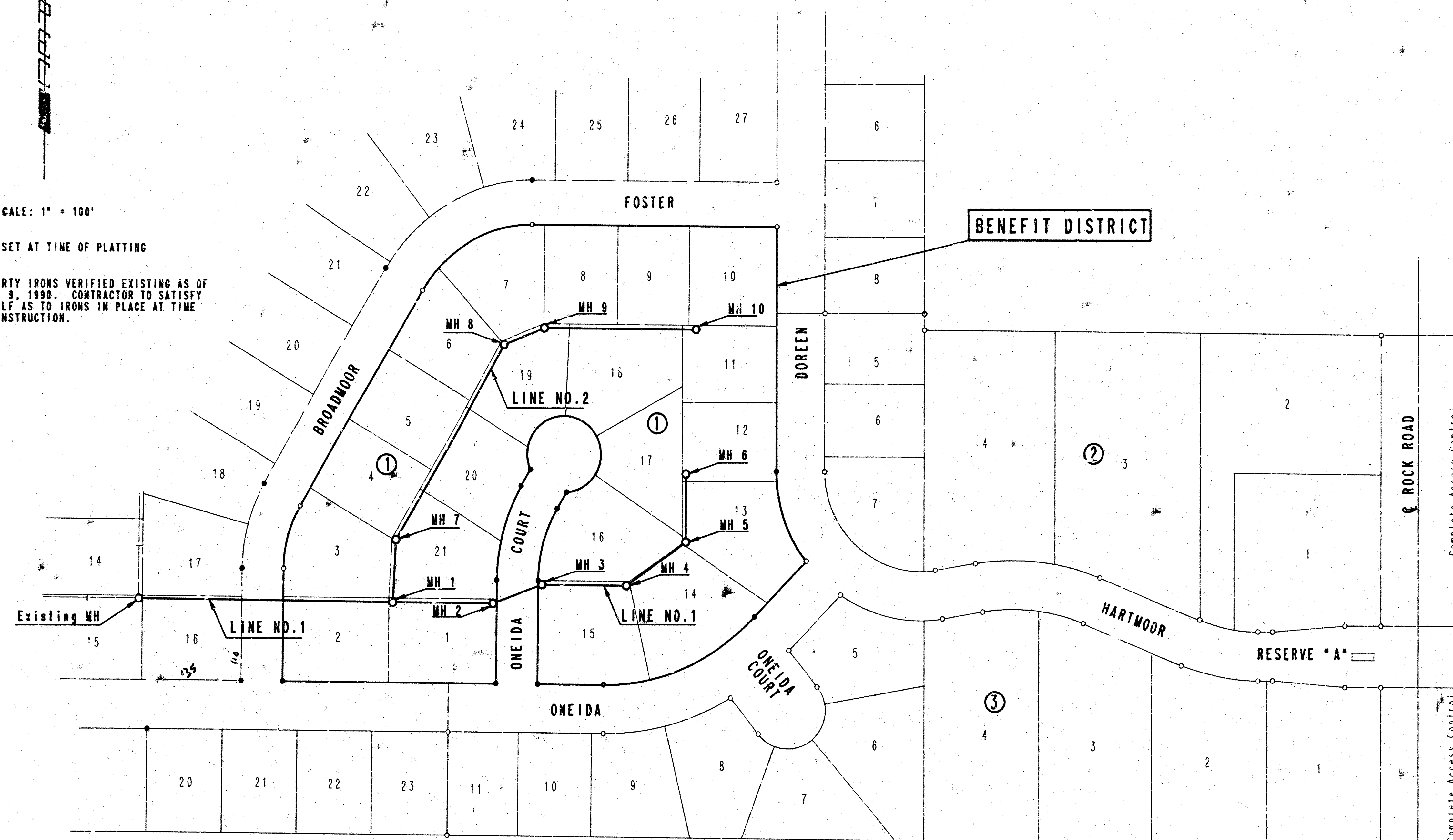
*Built Per Plan
 RDL
 8-90*

FAIRFIELD ESTATES 2ND ADDITION

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

SCALE: 1" = 100'

- = IRON SET AT TIME OF PLATTING
- = PROPERTY IRONS VERIFIED EXISTING AS OF MARCH 9, 1990. CONTRACTOR TO SATISFY HIMSELF AS TO IRONS IN PLACE AT TIME OF CONSTRUCTION.



S.E. COR. N.E. 1/4
Sec. 18, T2S, R2E
of the 616 P.M.

GENERAL NOTES

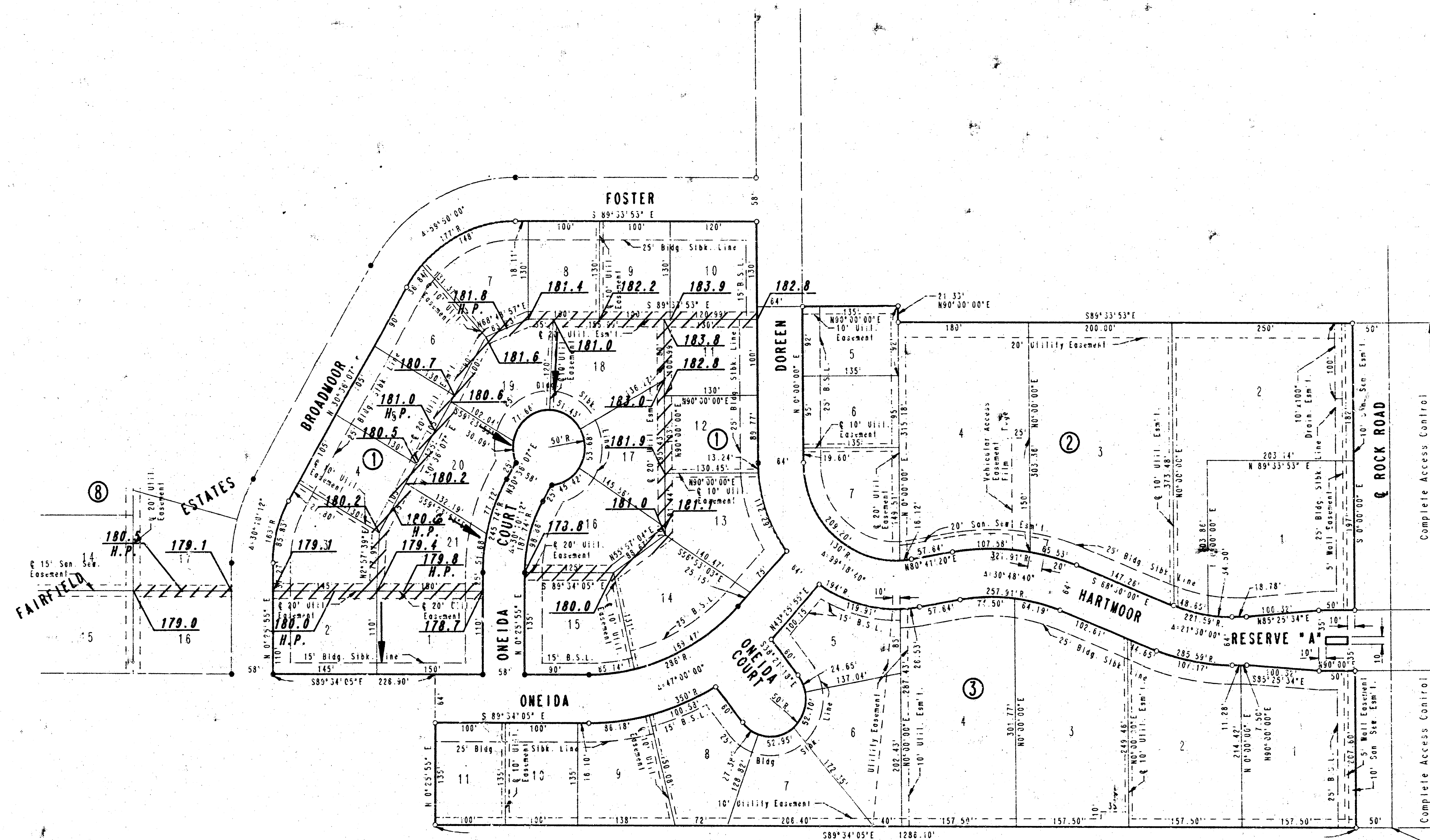
- ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
- ALL ELEVATIONS SHOWN ARE CITY OF WICHITA DATUM (USGS - 1187.4 = CITY DATUM).
- THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
- AT LEAST 48 HOURS PRIOR TO BEGINNING EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 887-2470 TO REQUEST THE FOLLOWING UTILITY COMPANIES TO LOCATE ANY EXISTING LINES WITHIN THE PROJECT AREA: GAS SERVICE COMPANY, K.S. & E., THE WICHITA WATER DEPARTMENT, AIR CAPITAL CABLEVISION, AND THE TELEPHONE COMPANY.
- 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 THE DESIGN. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
- 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. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE OTHER ITEMS OF WORK.
- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
- CONTRACTOR SHALL GRADE THE SANITARY SEWER ALIGNMENT TO THE PROFILE AND ELEVATIONS SHOWN ON THE EASEMENT GRADING PLAN. ALL COSTS FOR GRADING SHALL BE SUBSIDIARY TO THE PROJECT.
- UNLESS OTHERWISE SPECIFIED ON THE PLANS, MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.

	No. _____		Revision _____		By _____		Date _____	
	LATERAL 86							
	WAR INDUSTRIES SEWER							
	KEY MAP AND GENERAL NOTES							
	MICHAEL E. LINDEBAY, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-76-245-81533-000-000-001							
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.								
ENGINEERS WICHITA, KANSAS								
Designed by DLB, RFJ		Job No. 34-90044-1		Date APRIL, 1990		Sht. 2 of 9		
Drawn by TDS, DWM								

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FAIRFIELD ESTATES 2ND ADDITION

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS



SCALE: 1" = 100'

• = IRON SET AT TIME OF PLATTING

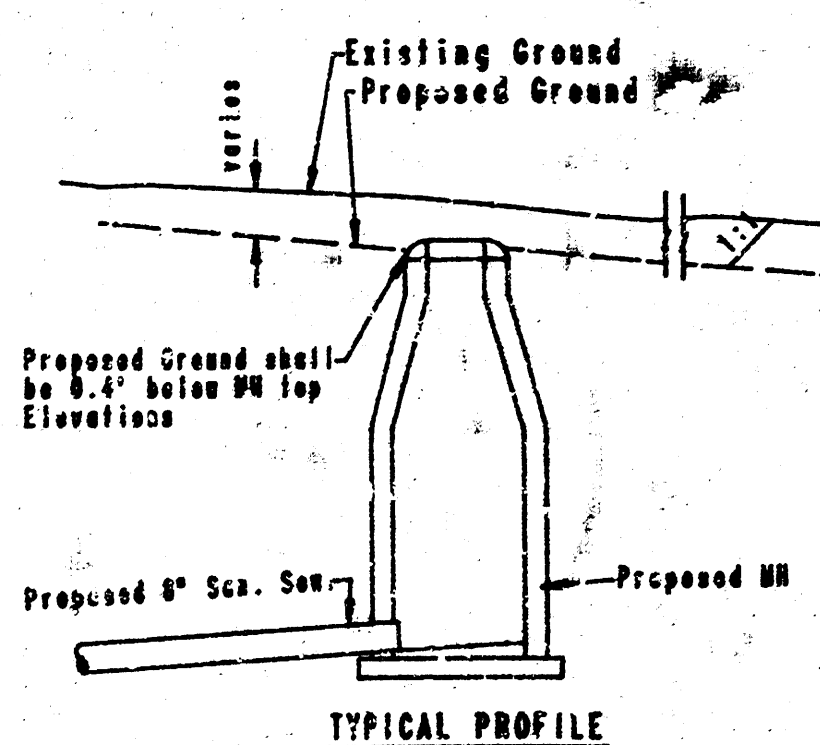
• = PROPERTY IRONS VERIFIED EXISTING AS OF MARCH 9, 1990. CONTRACTOR TO SATISFY HIMSELF AS TO IRONS IN PLACE AT TIME OF CONSTRUCTION.

EASEMENT GRADING

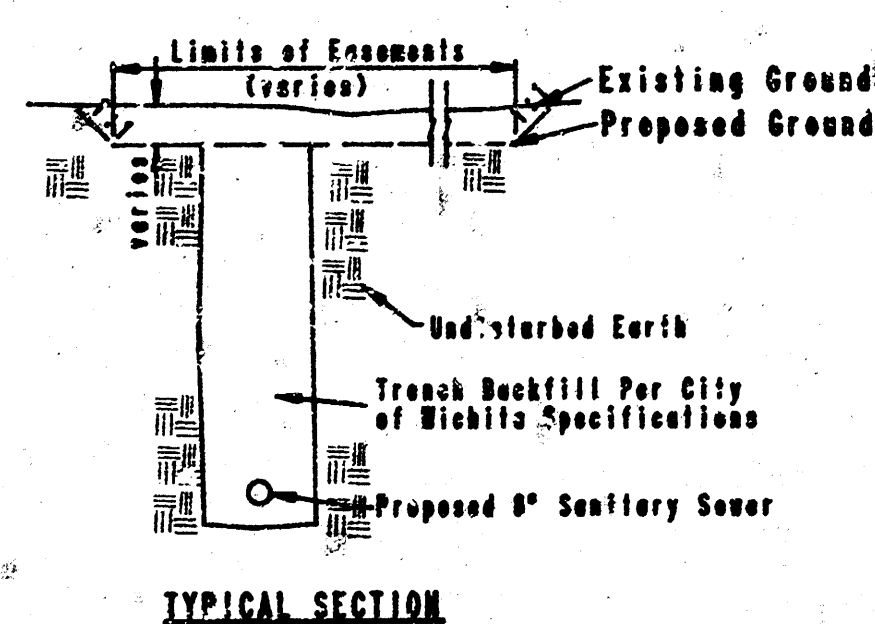
= AREAS TO BE GRADED

= Location where surface drainage will be directed along the side lot lines from the rear yard easements to the front of the lots. This grading will be "by others".

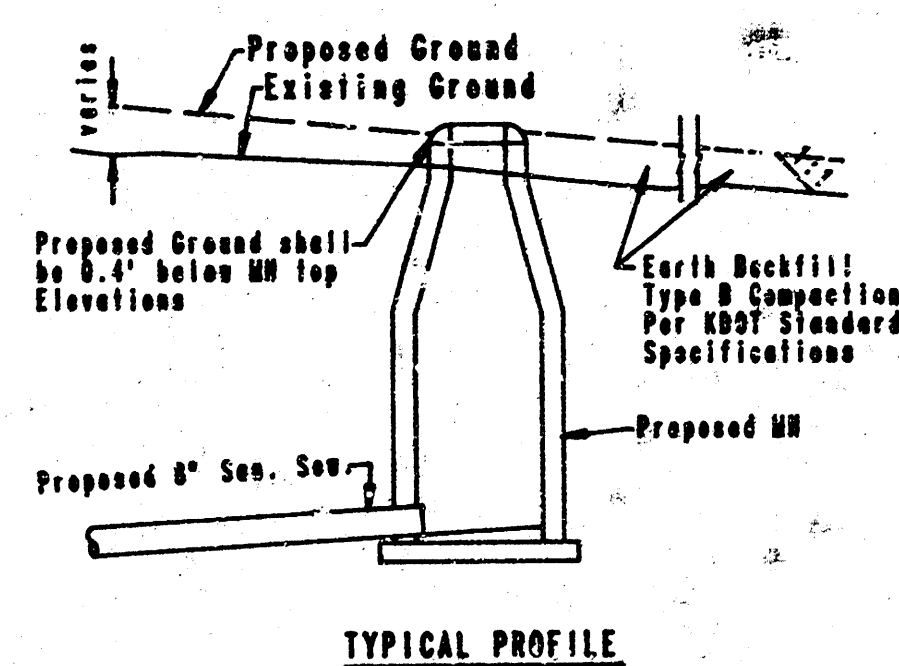
H.P. = HIGH POINT



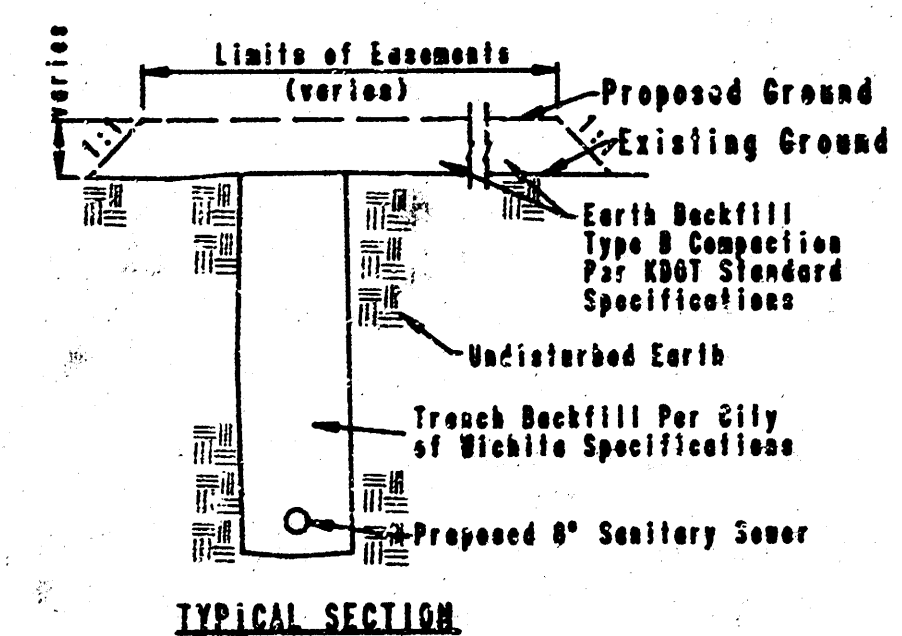
"CUT" SITUATIONS



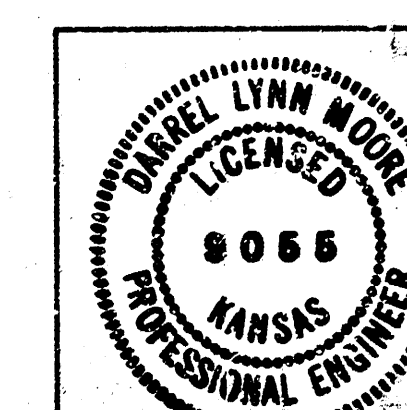
TYPICAL SECTION



"FILL" SITUATIONS

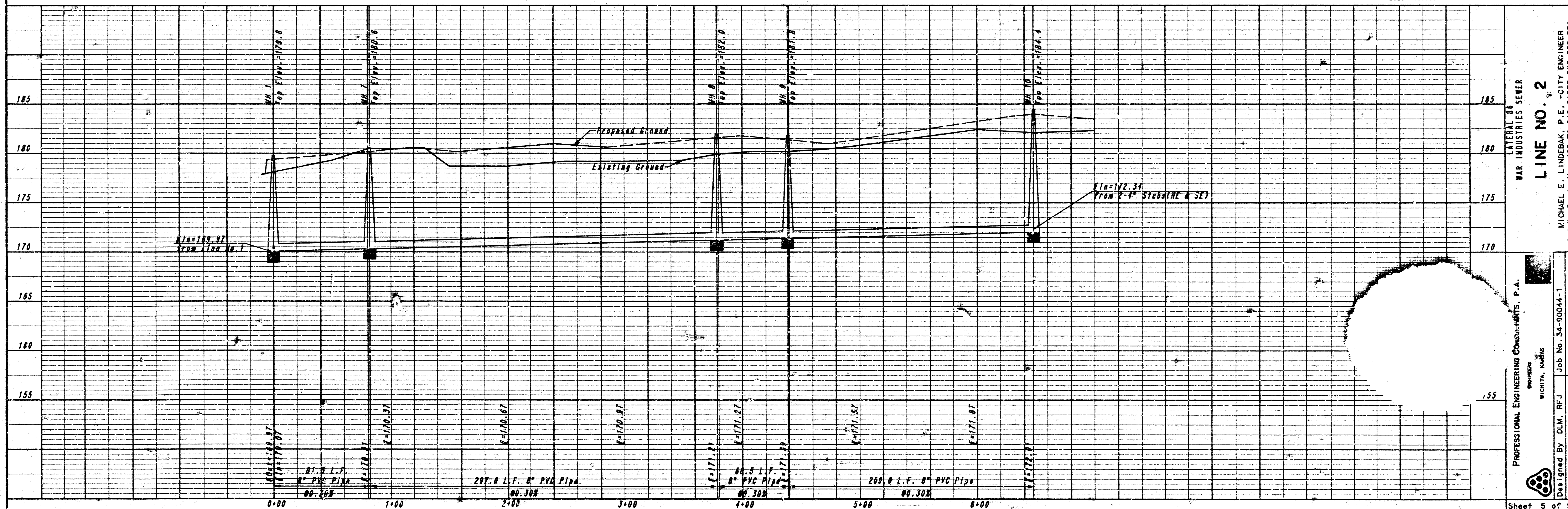
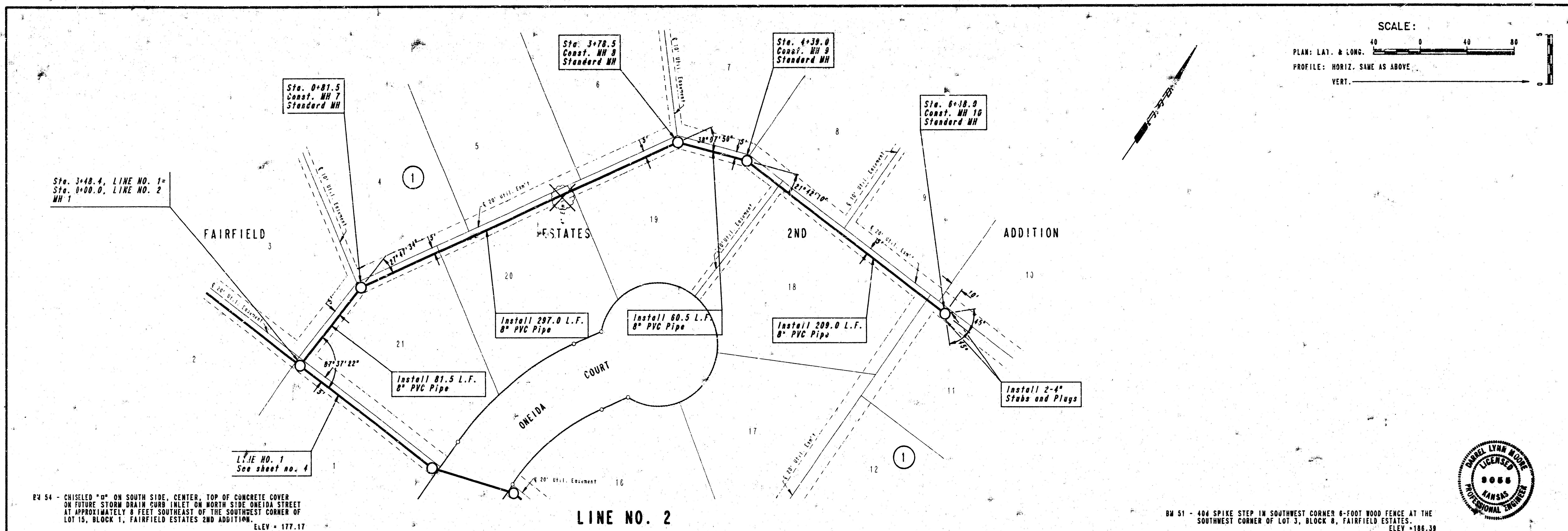


TYPICAL SECTION



No.	Revision	By	Date
	LATERAL 66		
	WAR INDUSTRIES SEWER		
	PLAT AND EASEMENT GRADING		
	MICHAEL E. LINDEBAR, P.E. - CITY ENGINEER		
	CITY OF WICHITA PROJECT NO. 468-76-245-81533-000-001		
	PROFESSIONAL ENGINEERING CONSULTANTS, P.A.		
	ENGINEERS		
	WICHITA, KANSAS		
Designed by	D.M. RFJ	Job No.	34-90044-1
Drawn by	DMW	Date	APRIL, 1990
		Sht.	3 of 9

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CITY OF WICHITA



PRECAST MANHOLE NOTES

11. 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 AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR THE MANHOLE AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
12. OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DEEPS ARE NOT AVAILABLE ON EXISTING MANHOLES. SUCH OPENINGS MUST FIT EXISTING MANHOLES SUCH AS BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND LOCATING THE NEW PIPE IN PLACE. WETTERBURN CAST-IRON PIPE SHALL BE USED WITH 12" C.I. AND 18" C.I. SIZES. THE PIPE SHALL BE PLACED TO BE ADJUSTED TO THE OPENING WITH AN APPROVED WOODENING SHEET FOR THE FULL MANHOLE WALL THICKNESS. THE LATTER OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COMPOUND. SUCH SEALING SHALL BE DONE WITHIN 24 HOURS OF THE TIME THE PIPE IS PLACED. THE PIPE SHALL BE CONFIRMED TO HAVE NEW FLOW CHANNELS FOR THE NEW CONNECTION AS INDICATED BY THE CRAWLING. THIS WORK AT INCLUDING MODIFICATION OF MANHOLE FLOORS SHALL BE PAID FOR AT THE UNIT PRICE FOR THE OUTSIDE DEEP STAGE CONSTRUCTION ON EXISTING MANHOLE.
13. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF-CLEANING. THE FLOORS SHALL BE SHAPED TO ALLOW THE SEWAGE TO FLOW THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE WITHIN SLOPES OF THE INFLUENCING PIPES AND THE OUTLET PIPE. THE FLOORS SHALL BE SHAPED TO ACCEPT THE FLOWING DEEP CHANNELS. FLOW CHANNELS FOR THE INLET PIPE MANHOLE SHALL BE CONSTRUCTED AS INDICATED BY THE CRAWLING. MANHOLE FLOORS SHALL HAVE SLOPES OF 1/8" PER FOOT IN THE DIRECTION OF THE FLOW. THE FLOORS SHALL BE SHAPED TO ACCEPT THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TWO NAILS REQUIRED TO BEAT LINE OF THE PIPE. THE NAILS SHALL BE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE SUCH FORMS THE FLOW CHANNEL.
14. PIPES INSTALLED WITHIN THE PRECAUTION MADE FOR THE MANHOLE SHALL BE CARRIED WITH CONCRETE TO THE LIMITS OF THE MANHOLE. EXISTING PIPES SHALL BE CUT OFF TO THE FIRST JOINT EXPOSED TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRANK SHALL BE VERIFICATION AT THE CLAY MADE JOINT IS A HARDEN WHICH WILL MAINTAIN THE PERMANENTLY THE JOINT. THE JOINT SHALL BE WITHIN 12" OF THE EXTERIOR OF THE CLAY MADE JOINT. THE JOINT SHALL BE INSTALLED IN THE UNIT PRICE BID FOR THE MANHOLE.

15. 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.
16. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 4" FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2" FOR INFLOWING PIPES SIZED 18" OR LARGER. THE VERTICAL DROP IN OUTFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BUILT WITH MANHOLE FRAMES OF THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BUILT AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE FRAMESHETS WILL BE 4" GULCHES INDICATED OTHERWISE.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCRETE RING. THE COLLAR WILL HAVE A 6" WALL THICKNESS AND A MINIMUM OF 12" DIAMETER. THE EXTERIOR COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.



Revised: Jan 12

Shot 5 of 7

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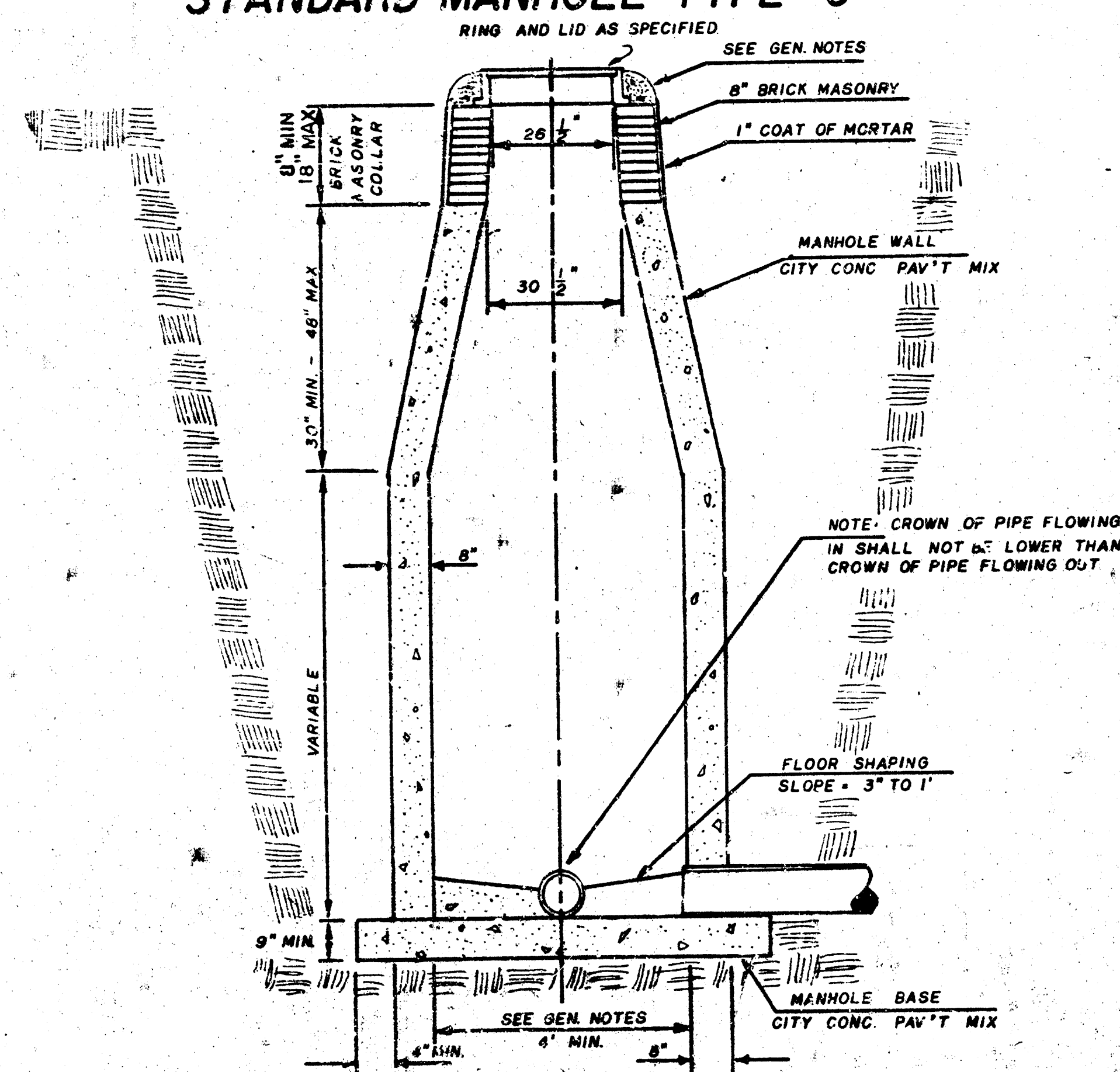
SEWER APPURTENANCES DETAILS

ADOPT AS STANDARD DESIGN

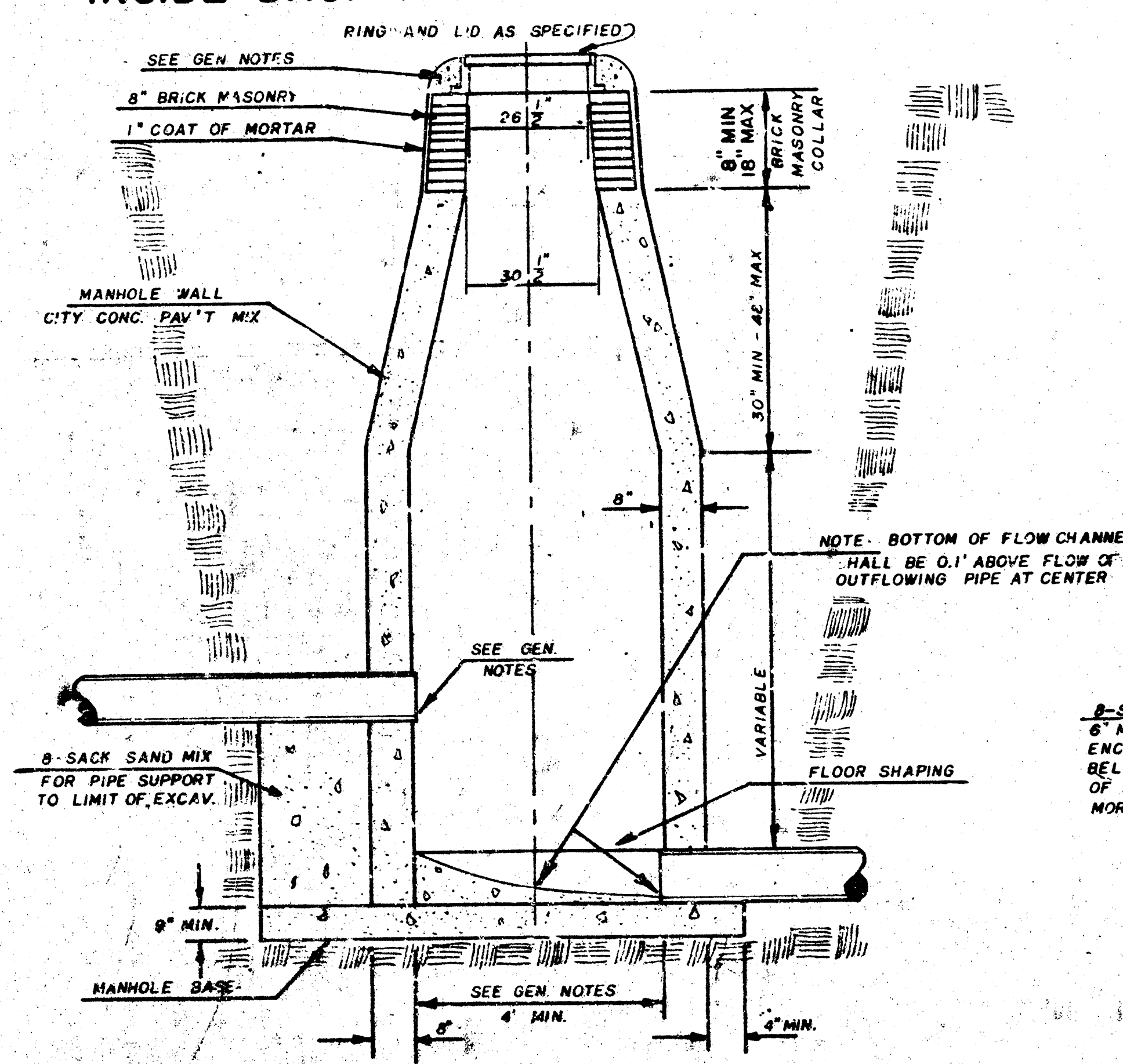
BY

City of Wichita, Kansas

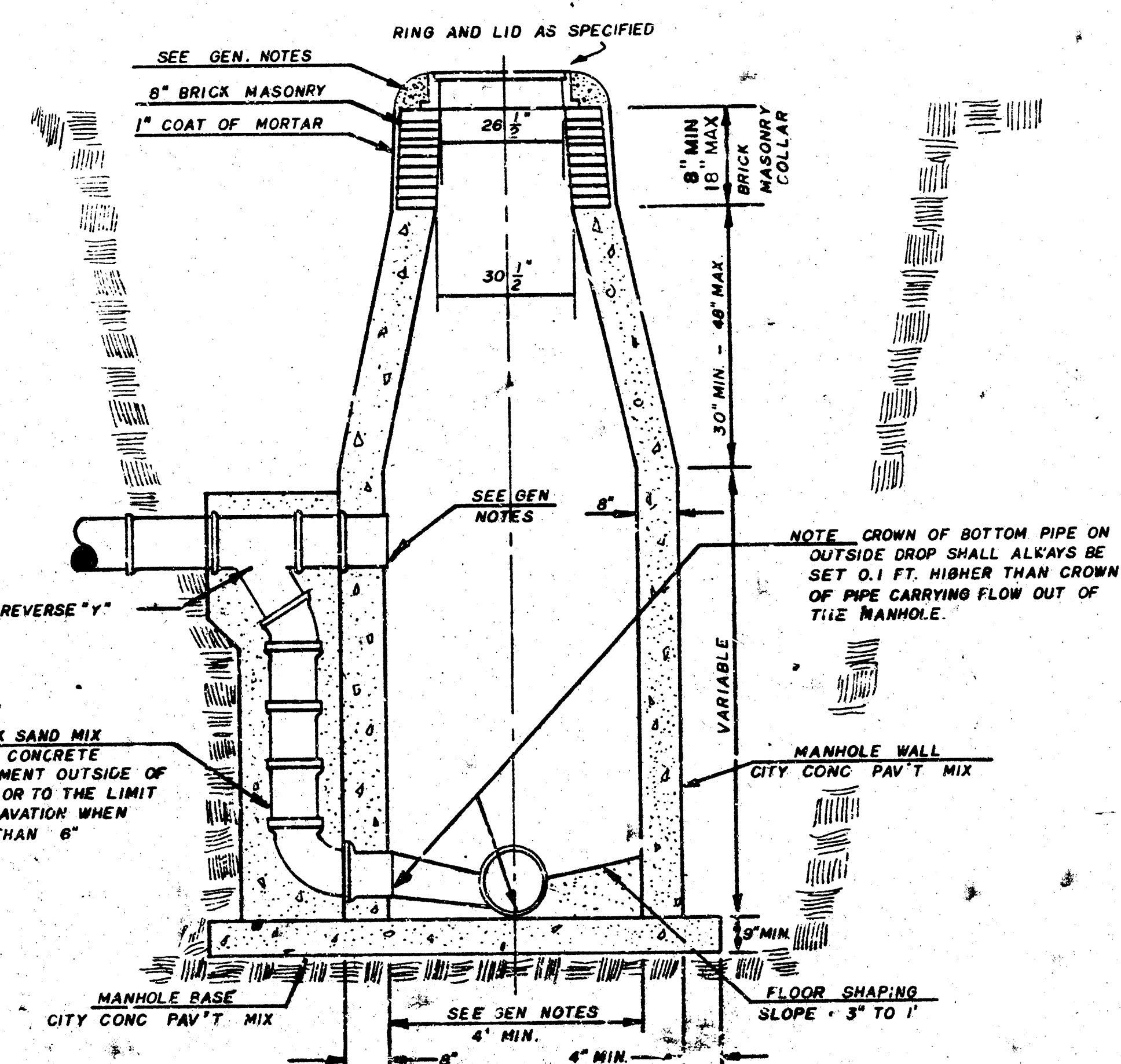
STANDARD MANHOLE TYPE "C"



INSIDE DROP MANHOLE TYPE "C"



OUTSIDE DROP MANHOLE TYPE "C"



GENERAL NOTES

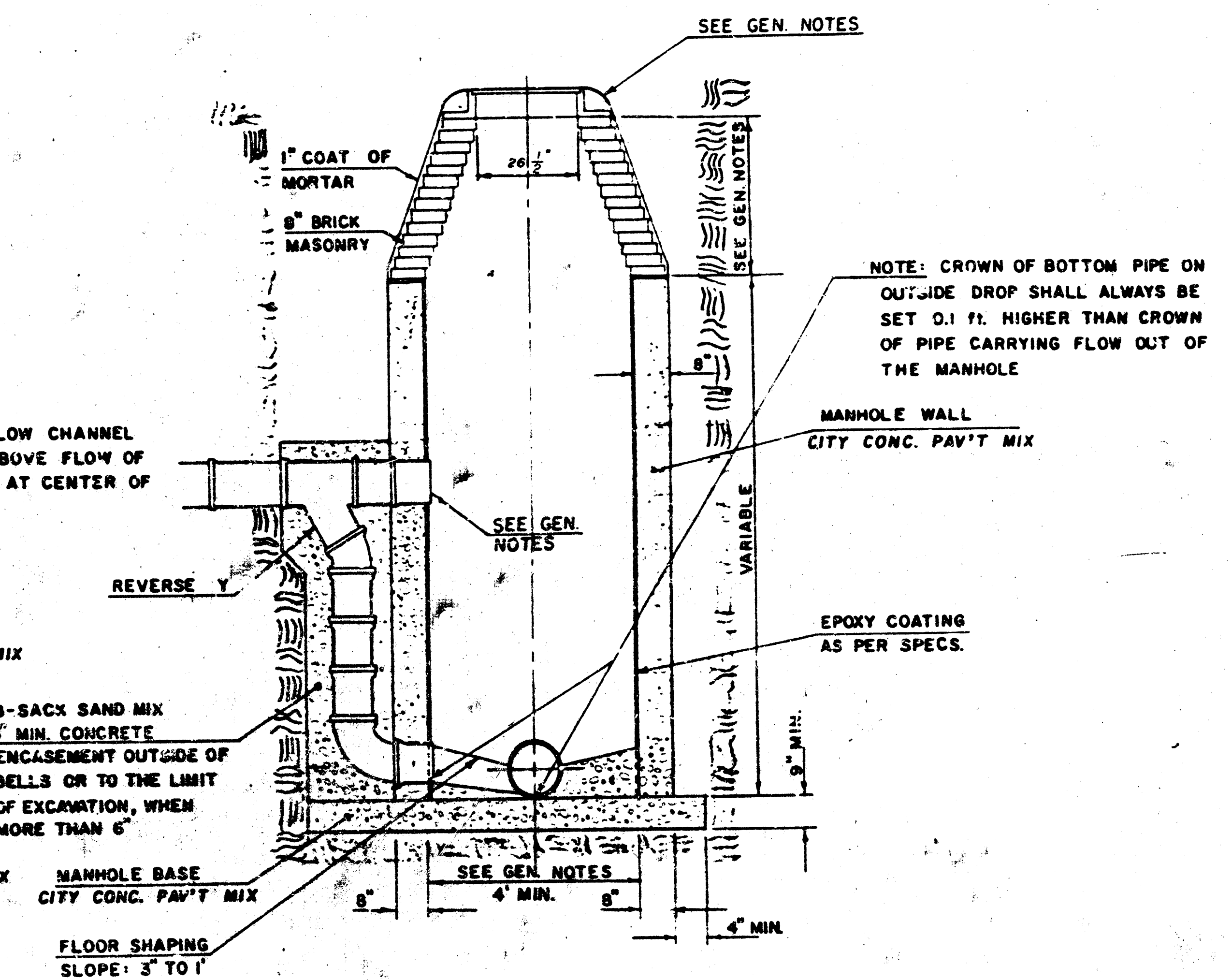
1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 BAGS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADJUSTMENT. MORTAR SHALL BE PLACED IN THE JOINTS AND SHOWED IN THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. TYPE "C" MANHOLES CAN BE CONSTRUCTED ONLY WHERE PIPE SIZES ARE 6" OR SMALLER. THE INSIDE DIAMETER OF TYPE "C" MANHOLES SHALL BE 4". COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
2. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASE. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS PLACED AT 6" CENTERS IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE PLACED ABOVE THE BOTTOM OF THE MANHOLE BASES AND SHALL BE INSTALLED IN THE REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
3. AN OPENING SHALL BE CUT IN THE MANHOLE WALL FOR THE UPPER INLET PIPE FOR INSIDE AND OUTSIDE DROP MANHOLES. THE UPPER INLET PIPE SHALL BE SET INTO THE WALL WITH AN ANCHOR BOLT. THE JOINT BETWEEN THE UPPER INLET PIPE AND THE WALL SHALL BE FILLED WITH NON-SHRINKING GROUT. THE EXTERIOR OF THIS COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT.
4. 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 OF THE INLET AND OUTLET PIPES AND THE OUTFLOWING PIPES 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 MANHOLE SHALL HAVE THE TOP HALF REMOVED TO HEAT 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.

5. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE GRADED 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 CLAMP-PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. THE 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.
6. 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.
7. 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.
8. STANDARD MANHOLES TYPE "C" AND STANDARD INSIDE DROP MANHOLES TYPE "C" SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES TYPE "C" SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

CITY OF WICHITA, KANSAS.

TYPE "D" OUTSIDE DROP MANHOLE



4. 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

8. STANDARD MANHOLES TYPE "D" AND STANDARD INSIDE DROP MANHOLES TYPE "D" SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES TYPE "D" SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

APRIL 1987 *Sht. 8 of 9.*

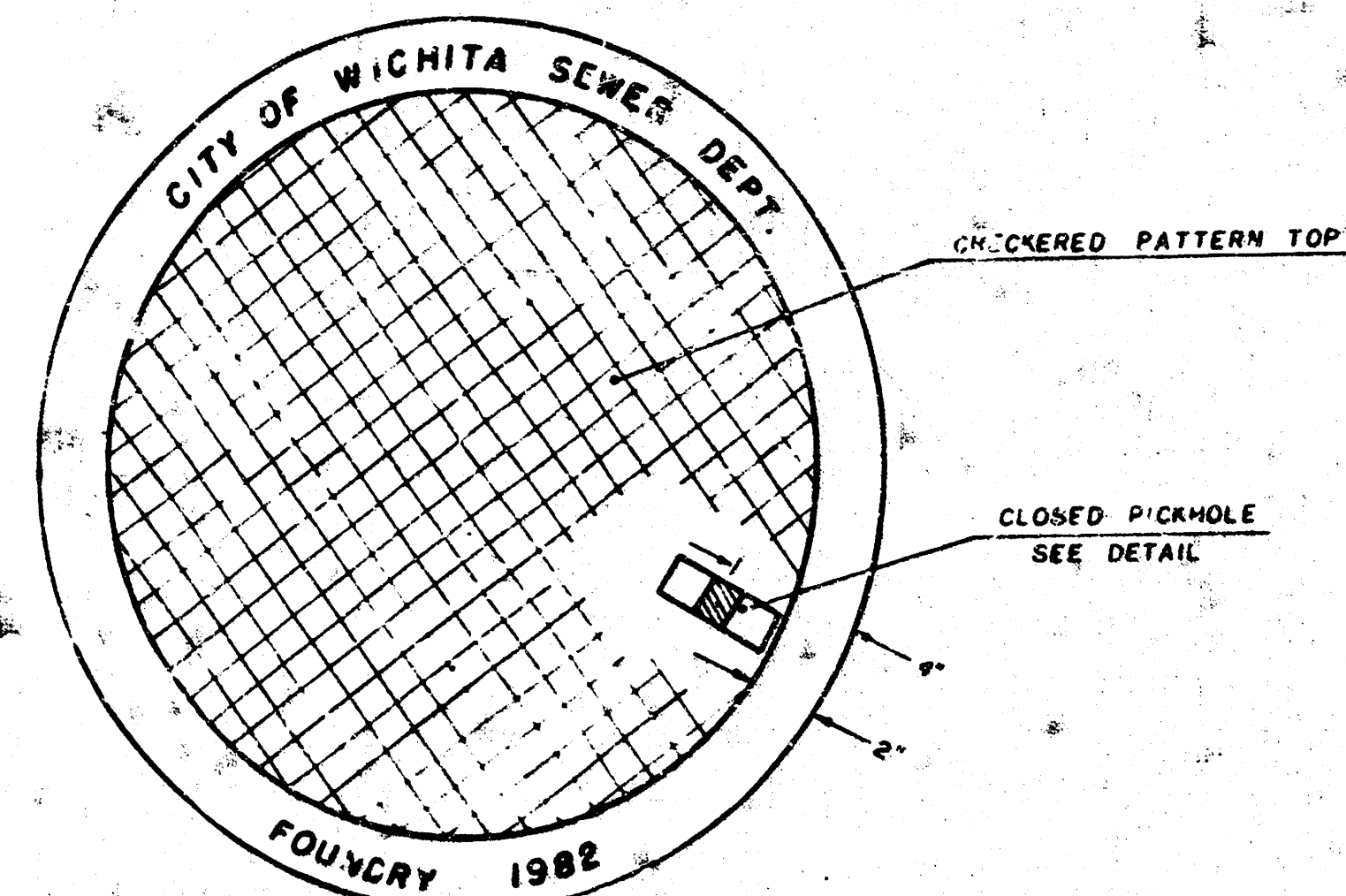
MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN
BY

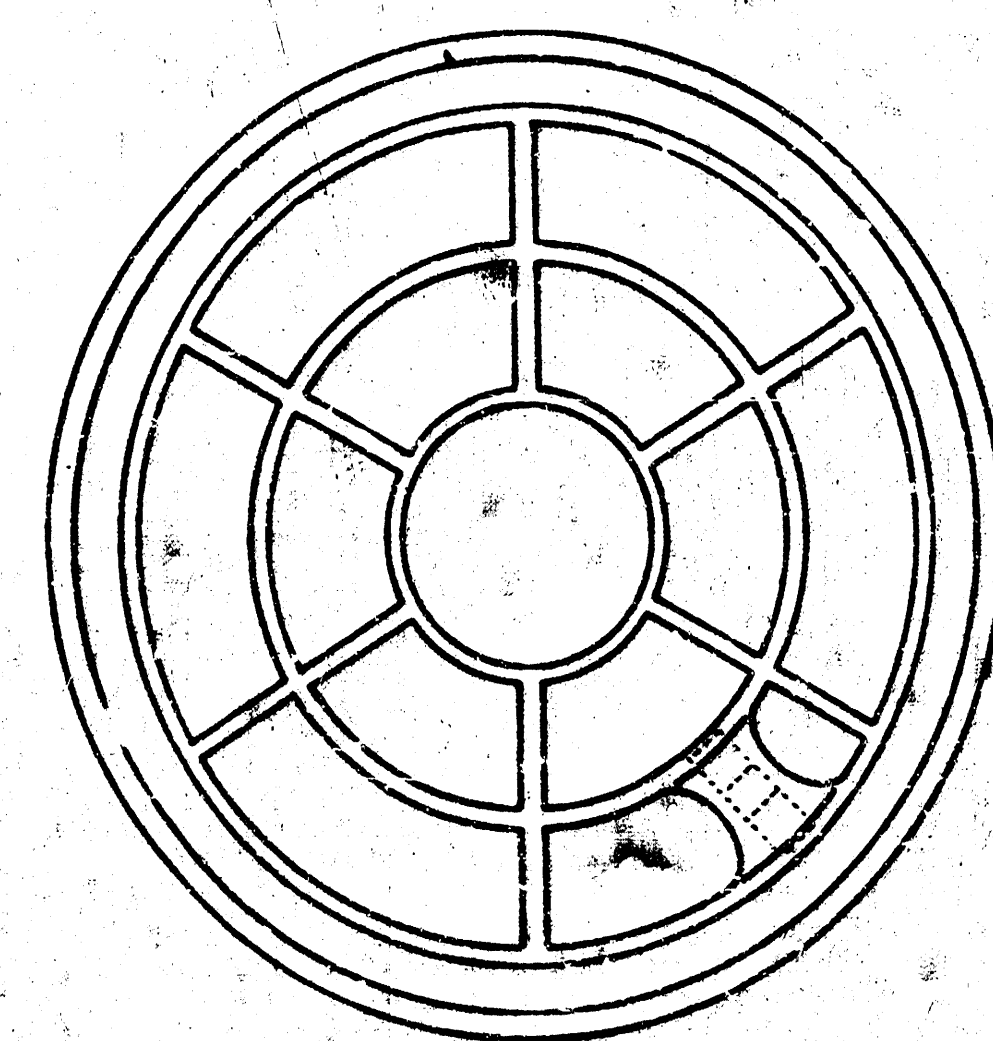
City of Wichita, Kansas

MANHOLE COVER

Weight: 220 Lbs.

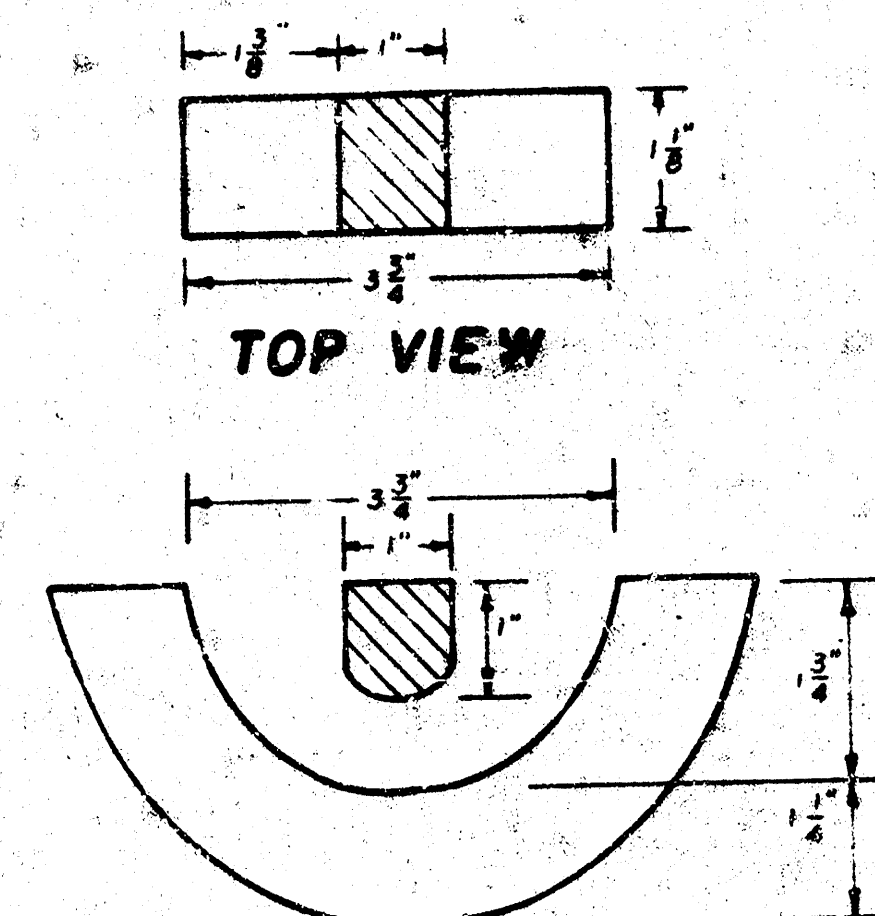


TOP VIEW

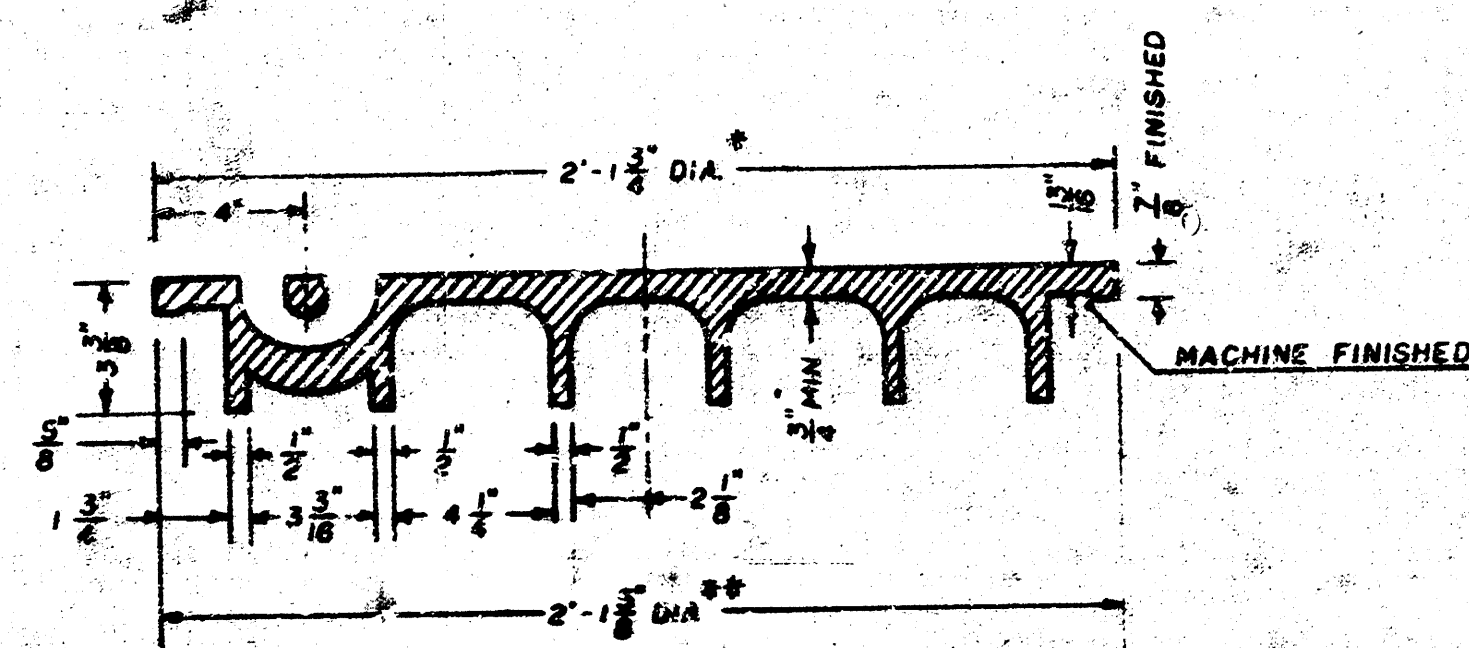


BOTTOM VIEW

PICKHOLE DETAIL



SECTION VIEW

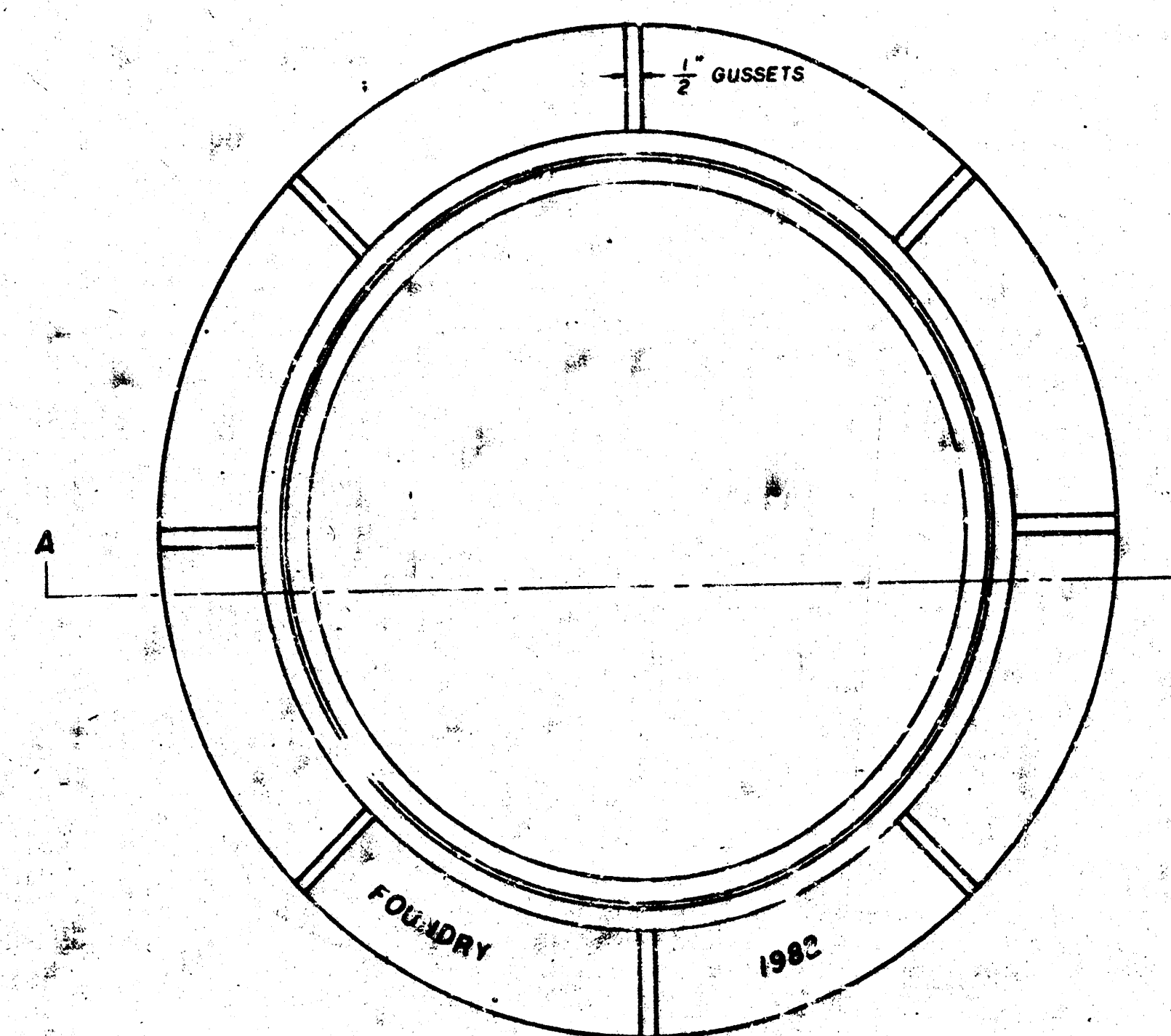


SECTION VIEW

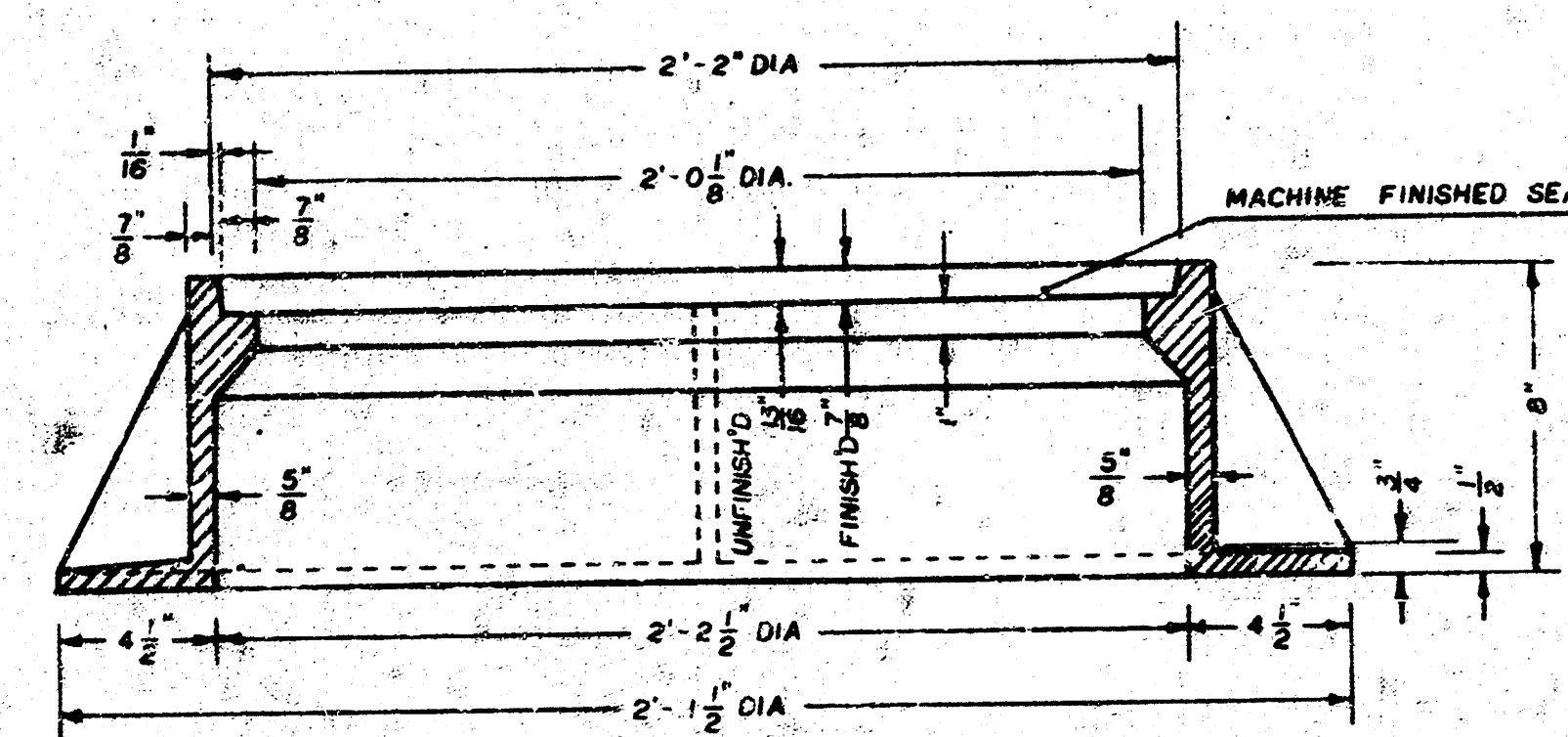
* OUTSIDE DIA. TOP OF COVER
** OUTSIDE DIA. BOTTOM OF COVER

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.