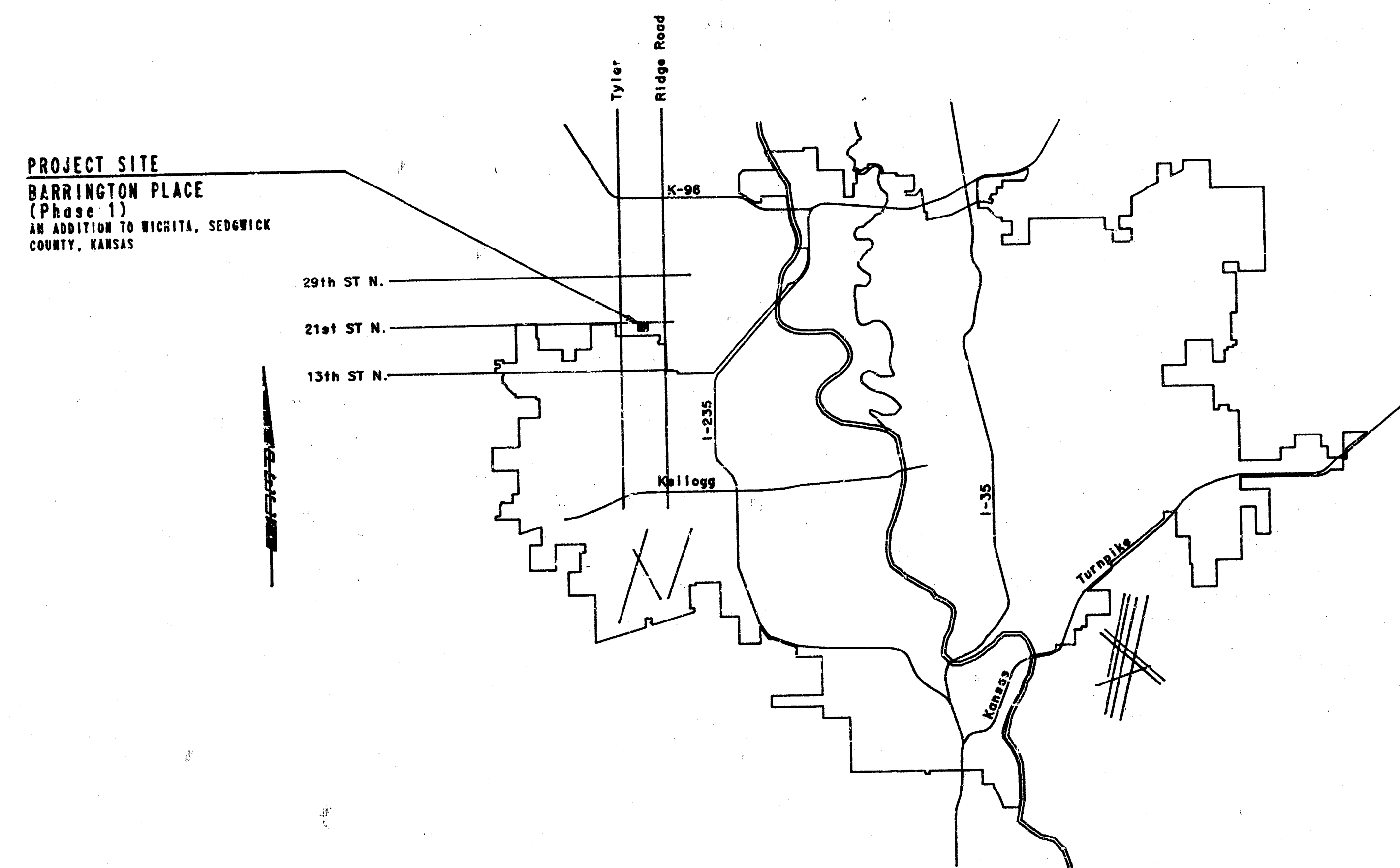


7

CONSTRUCTION PLANS FOR LATERAL 7, MAIN 15 OF THE SOUTHWEST INTERCEPTOR SEWER IN THE CITY OF WICHITA, SEDGWICK COUNTY, KANSAS MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER



LOCATION MAP

INDEX OF SHEETS

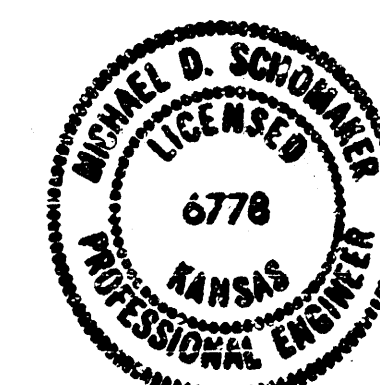
SHEET NO. 1	TITLE SHEET
SHEET NO. 2	KEY MAP & EASEMENT GRADING
SHEET NO. 3	PLAN
SHEET NO. 4-7	PLAN/PROFILE
SHEET NO. 8	TYPE "D" MANHOLE DETAILS
SHEET NO. 9	TYPE "P" MANHOLE DETAILS
SHEET NO. 10	TYPE "C" MANHOLE DETAILS
SHEET NO. 11	FRAME & COVER DETAIL
SHEET NO. 12	RISER DETAILS

CITY OF WICHITA PROJECT NO. 468-76-245-81845-000-000-001

MAY, 1988

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

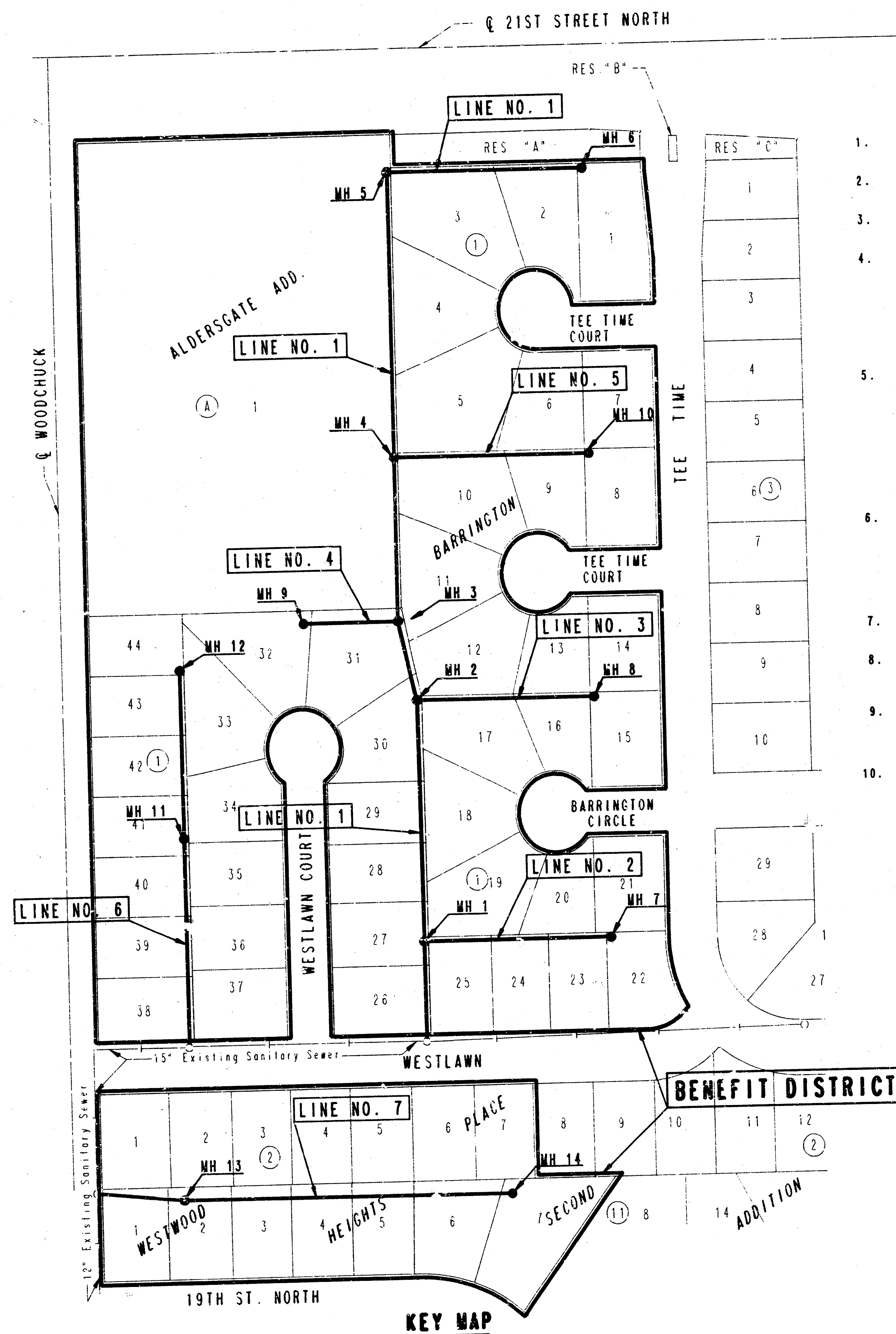
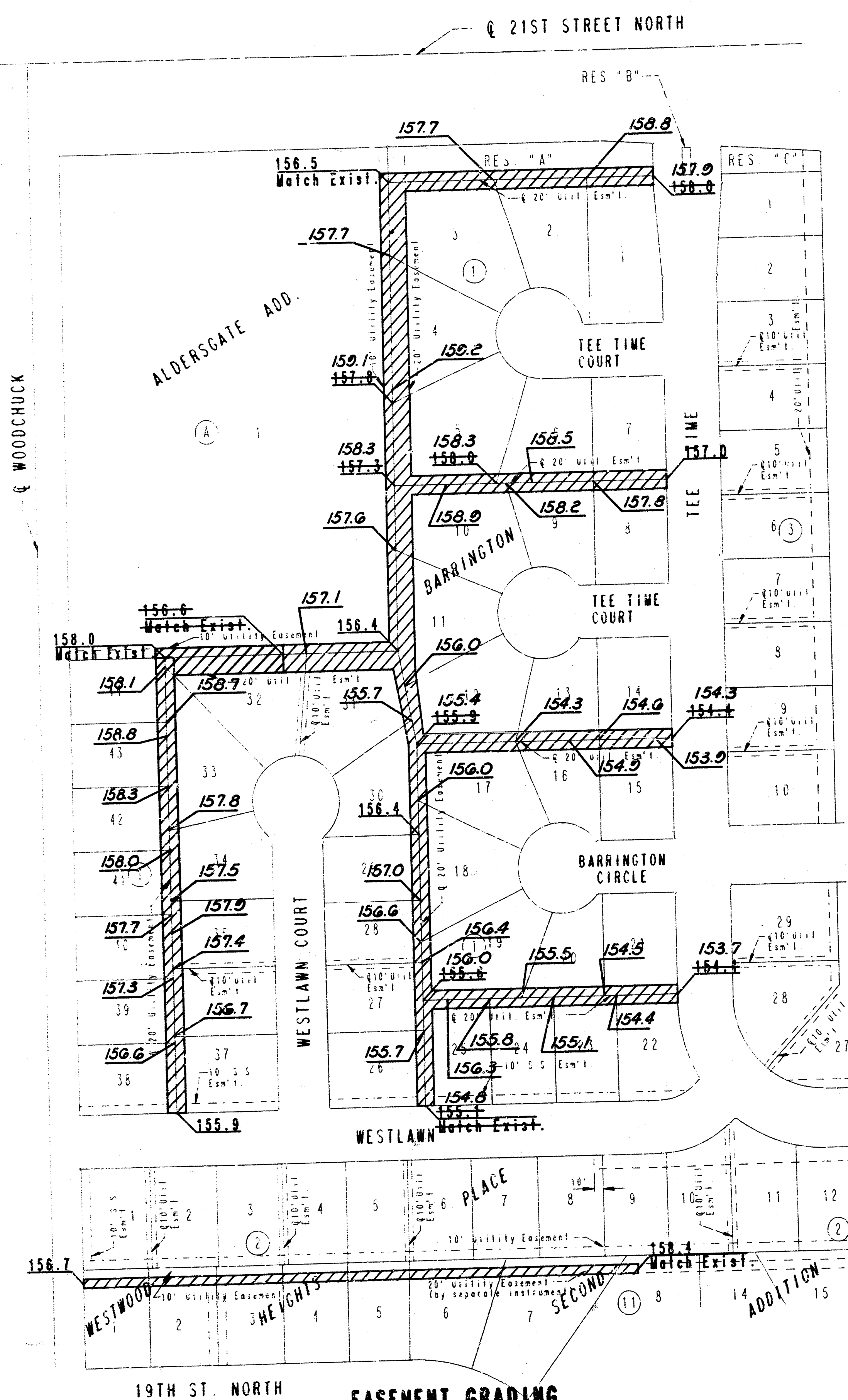
*Booked As Per Plan
RPL
10-18-88*



REVISED MANHOLE TOP ELEVATIONS

M.H. #	Plan Elev.	Rev. Elev.	Raise	Lower
1	155.9	156.4	0.5'	
2	156.3	155.8		0.5'
3	156.7	156.8	0.1'	
4	157.6	158.7	1.1'	
6	158.0	159.1	1.1'	
8	155.2	155.0		0.2'
9	156.9	157.5	0.6'	
10	157.8	158.1	0.3'	
11	157.1	157.9	0.8'	
12	157.9	159.1	1.2'	

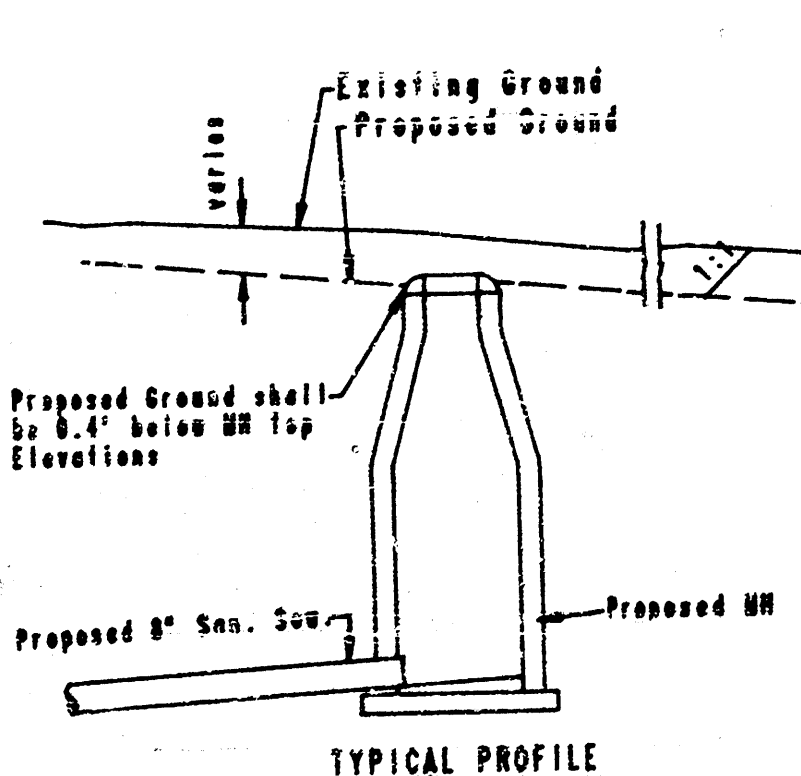
SCALE: 1" = 100'



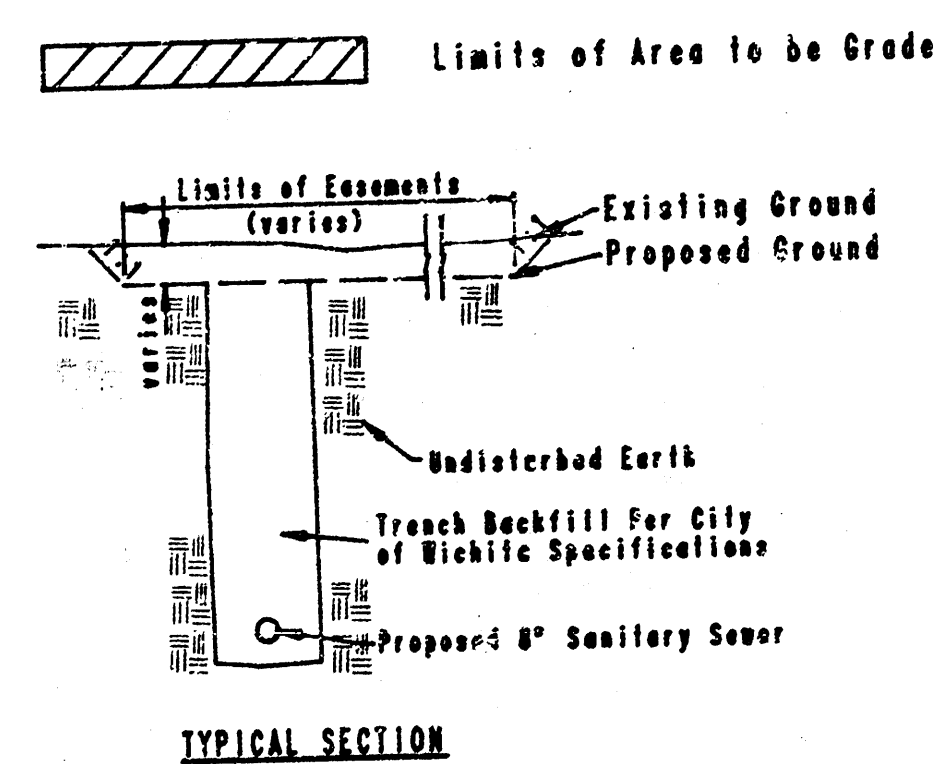
- ## GENERAL NOTES
- ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
 - ALL ELEVATIONS SHOWN ARE CITY OF WICHITA DATUM (USGS-1187.4 - CITY DATUM).
 - THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
 - AT LEAST 48 HOURS PRIOR TO BEGINNING EXCAVATION, IF REQUIRED, (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE AT (316) 687-2470 TO REQUEST THE FOLLOWING UTILITY COMPANIES TO LOCATE ANY EXISTING LINES WITHIN THE PROJECT AREA: GAS SERVICE COMPANY, K.G. RE., 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 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 SHALL 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 FASEMENTS TO THE ELEVATIONS SHOWN ON THE EASEMENT GRADING PLAN. COSTS FOR EASEMENT GRADING SHALL BE SUBSIDIARY TO THE OTHER ITEMS OF WORK.
 - UNLESS OTHERWISE SPECIFIED IN THE PLANS MANHOLES MAY BE TYPE "P", "C", OR "S" MANHOLES. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.
 - THE CONTRACTOR SHALL AVOID TRIMMING OF ANY TREES NOT MARKED FOR REMOVAL WHERE POSSIBLE. WHERE THE CONTRACTOR BELIEVES TRIMMING IS UNAVOIDABLE HE SHALL COORDINATE SUCH WORK WITH THE ENGINEER.

RISER LOCATION TABLE

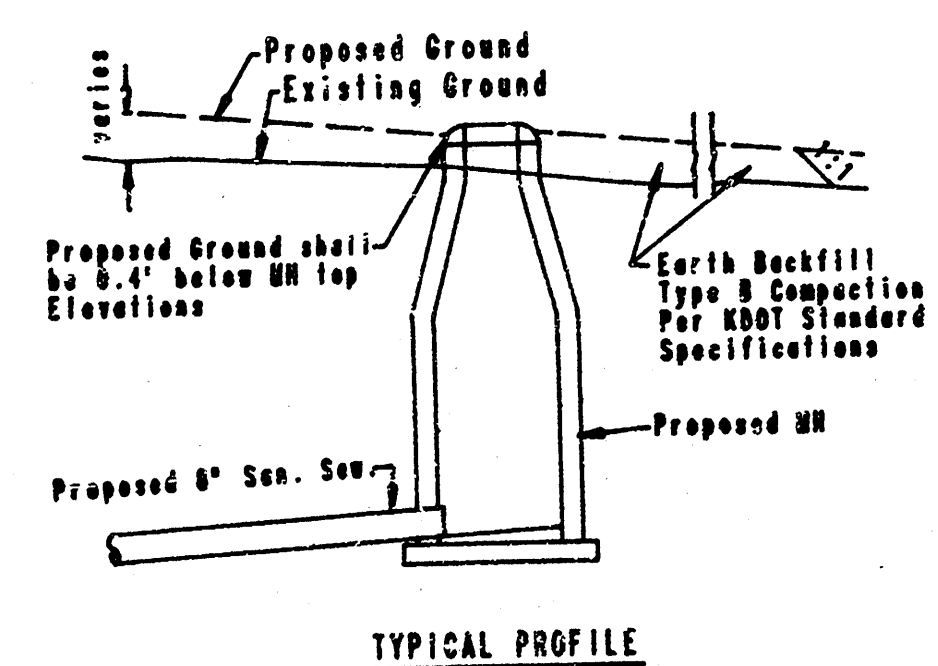
TEE SADDLE LOCATION					# RISER PIPE
NO.	LINE NO.	STATION	BLOCK NO.	LOT NO.	DIRECTION (L.F.)
1	1	0+16	1	26	Lt. 6.0
2	1	0+33	1	27	Lt. 4.5
3	1	1+64	1	28	Lt. 2.5
4	1	2+25	1	18	Rt. 2.5
5	1	2+38+27	1	29	Lt. 2.5
6	1	3+07	1	30	Lt. 2.0
7	1	3+45	1	17	Rt. 2.0
8	6	0+11	1	38	Lt. 6.5
9	6	0+16	1	37	Rt. 6.5
10	6	0+87	1	39	Lt. 4.5
11	6	0+94	1	36	Rt. 4.5
12	6	1+57	1	40	Lt. 3.0
13	6	1+58+29	1	35	Rt. 3.0
14	7	0+11	11	1	Rt. 4.0
15	7	0+16	2	1	Lt. 3.5
16	7	0+91	11	2	Rt. 3.5
17	7	0+96	2	2	Lt. 3.5
18	7	1+08+22	11	3	Rt. 3.5
19	7	1+23+27	2	3	Rt. 3.5
20	7	2+43	11	4	Rt. 3.5
21	7	2+48	2	4	Rt. 3.0
22	7	3+23	2	5	Lt. 3.0
23	7	3+23	2	6	Rt. 3.0
24	7	3+23+26	11	6	Lt. 3.0
25	7	3+23+27	2	7	Lt. 3.0
26	7	4+67	2	7	Lt. 3.0



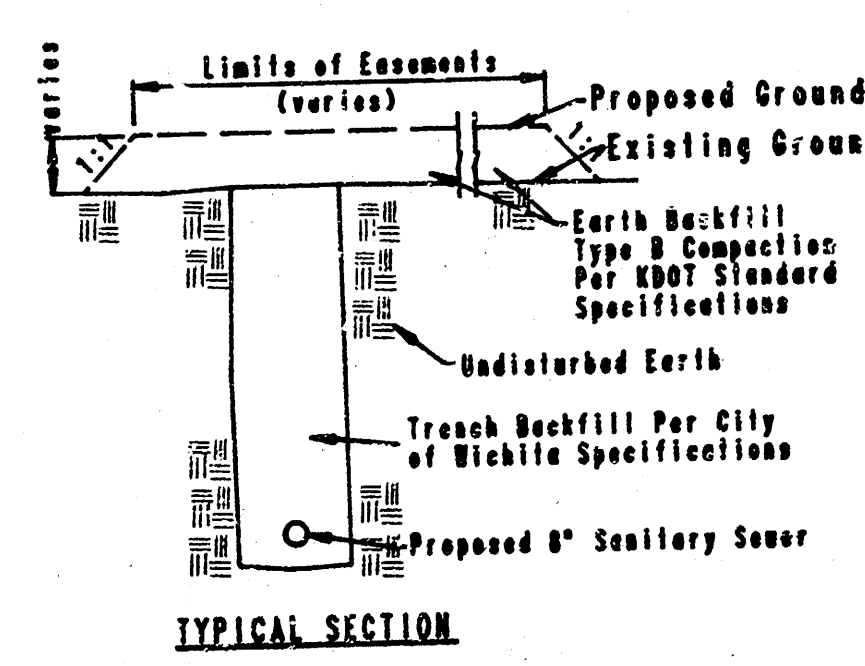
"CUT" SITUATIONS



TYPICAL SECTION



TYPICAL PROFILE

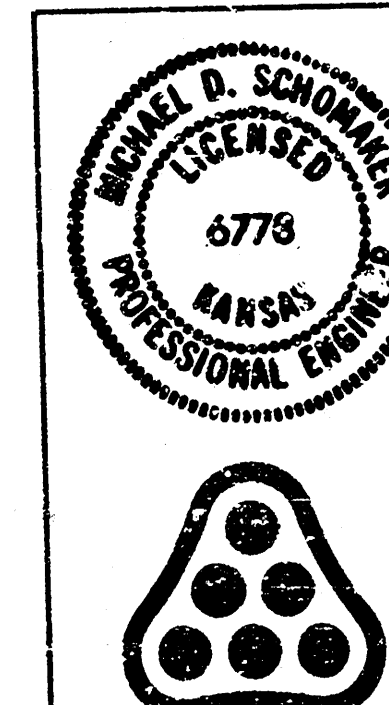


TYPICAL SECTION

"FILL" SITUATIONS

BENCH MARKS

- BW - RR Spike in South face Power Pole, North side 21st St. North approx. 1/2 mile West of Ridge Road. Elev.=164.306
- BW - 3/4" Iron Pipe at Northeast corner Aldersgate Addition. Elev.=157.296
- BW - RR Spike in West face 24" Elm in Lot 26, Block 4, Barrington Place. Elev.=155.12
- BW - RR Spike in East face 18" Osage Orange near Southwest corner of Lot 2, Block 2, Barrington Place. Elev.=159.42



KEY MAP AND EASEMENT GRADING MICHAEL E. LINDEBAR, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-76-245-81845-000-000-001 PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS		Designed by MDS, CRJ Drawn by TWV, GLW	Job No. 34-88091-1 Date MAY, 1988	Sht. 2 of 12
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BARRINGTON PLACE

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

NE COR. NE 1/4
SEC. 9, T27S, R1W
OF THE 6TH P.M.

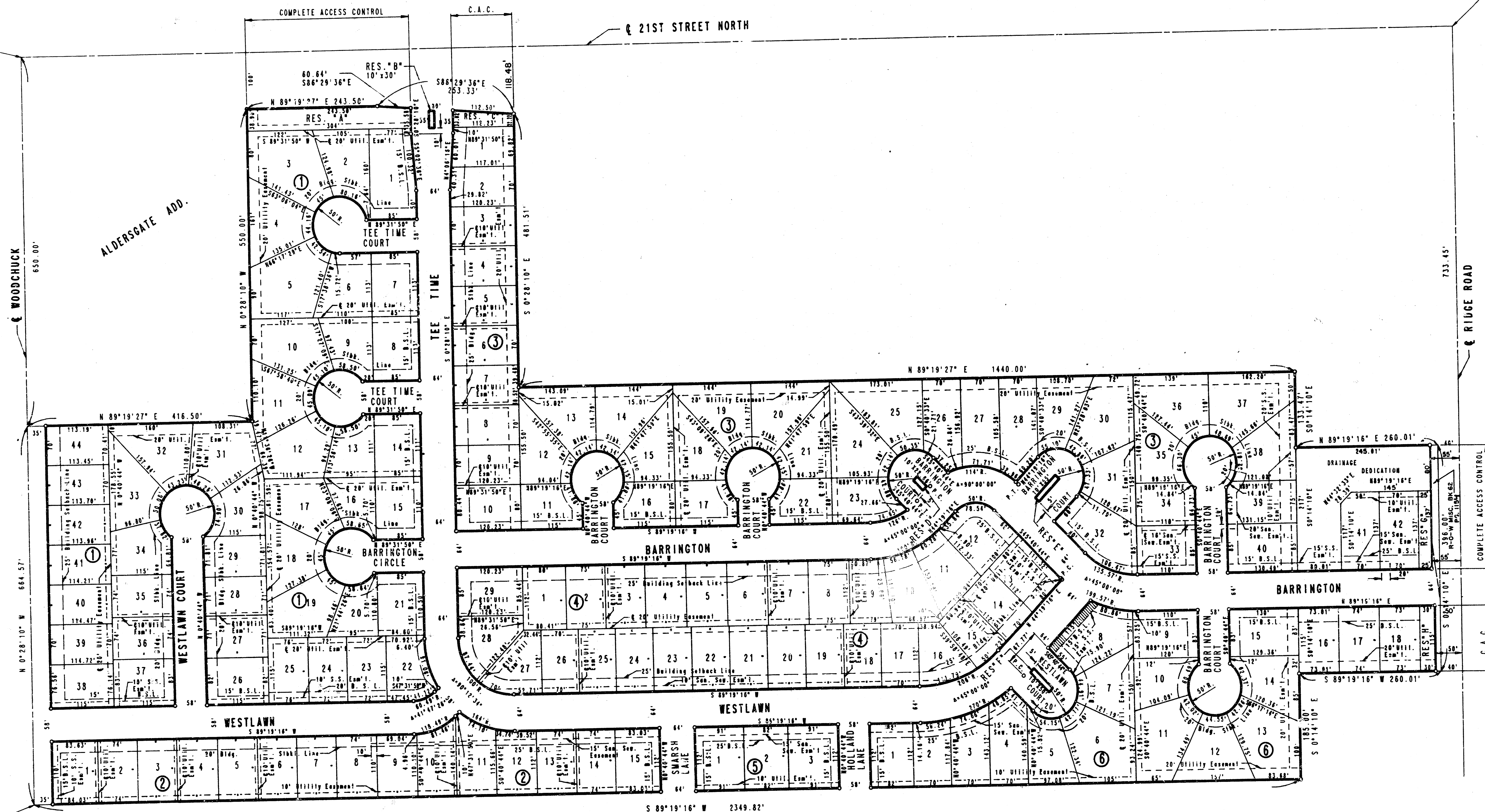
N. 1/4 COR.
SEC. 9, T27S, R1W
OF THE 6TH P.M.

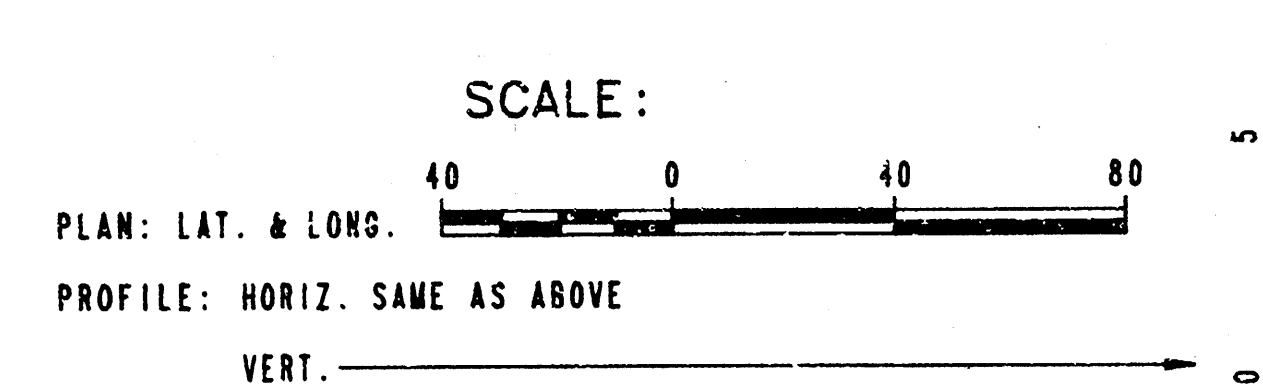
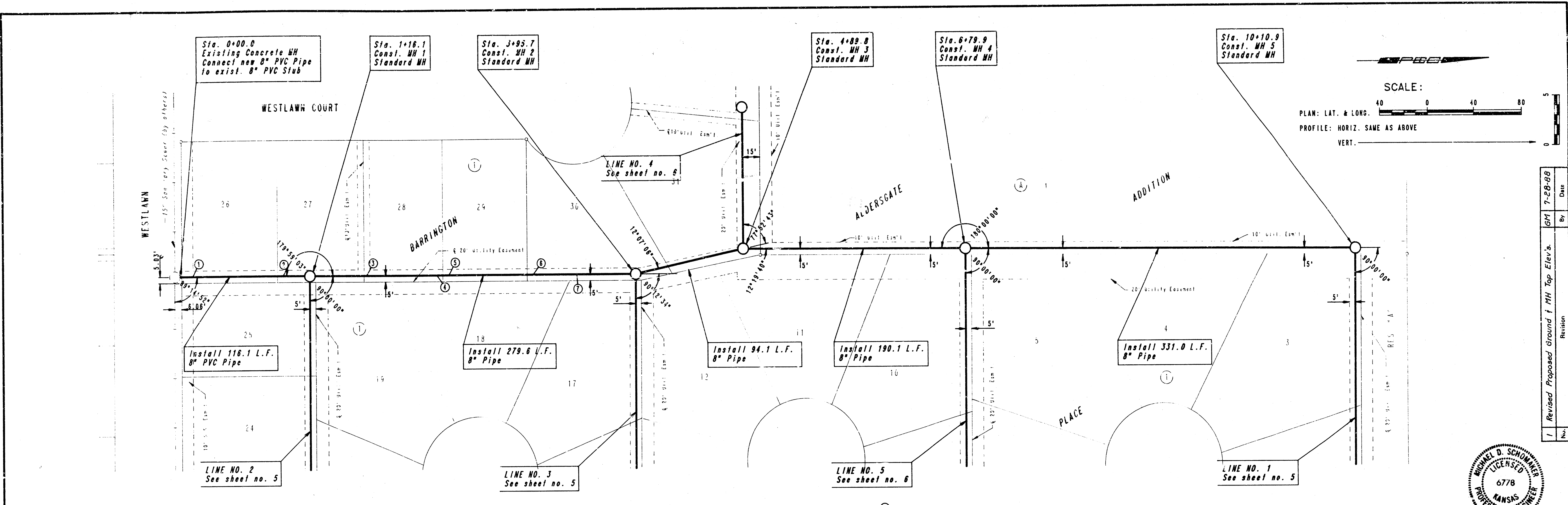
SCALE: 1" = 100'

• IRON SET
B.S.L. = BUILDING SETBACK LINE
C.A.C. = COMPLETE ACCESS CONTROL

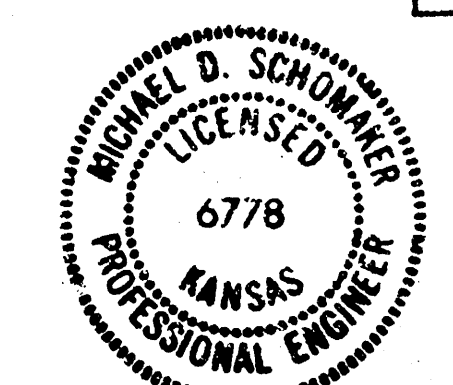
B.M. - B.M. SPIKE IN SW SIDE POWER POLE 75' N.
AND 50' E. OF CENTERLINE OF RIDGE
ROAD AND 21 STREET NORTH
ELEV. +1330.70 CITY DATUM

POINT OF BEGINNING
SW COR. N. 1/2, NE 1/4
SEC. 9, T27S, R1W
OF THE 6TH P.M.

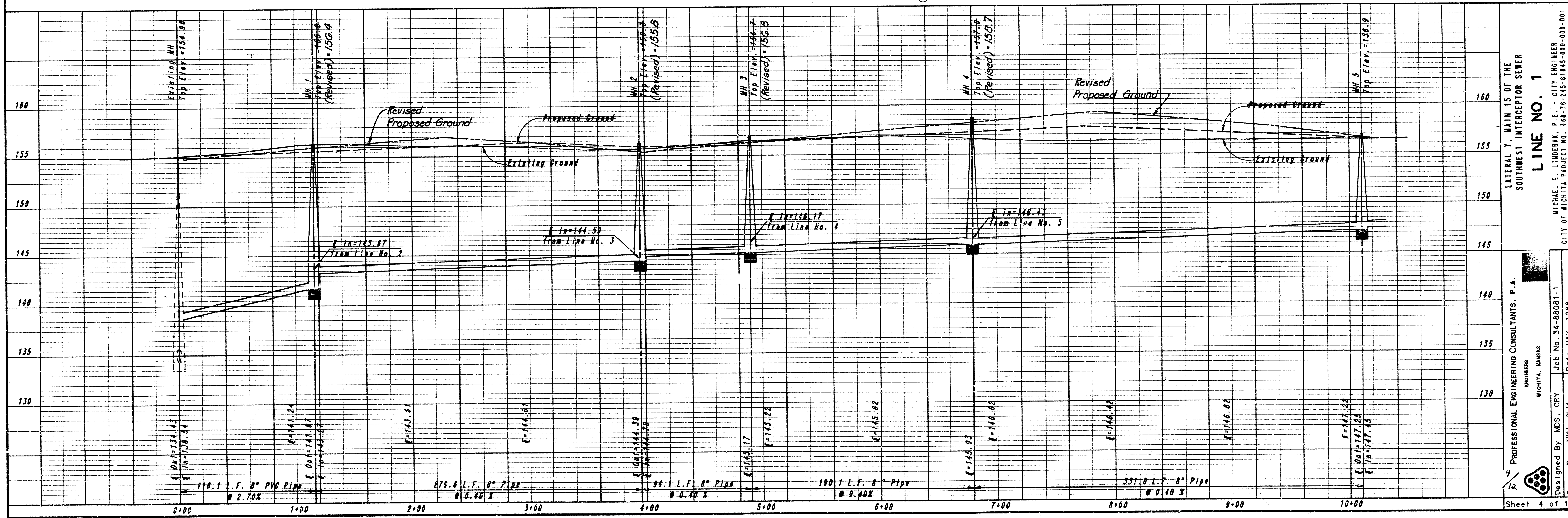




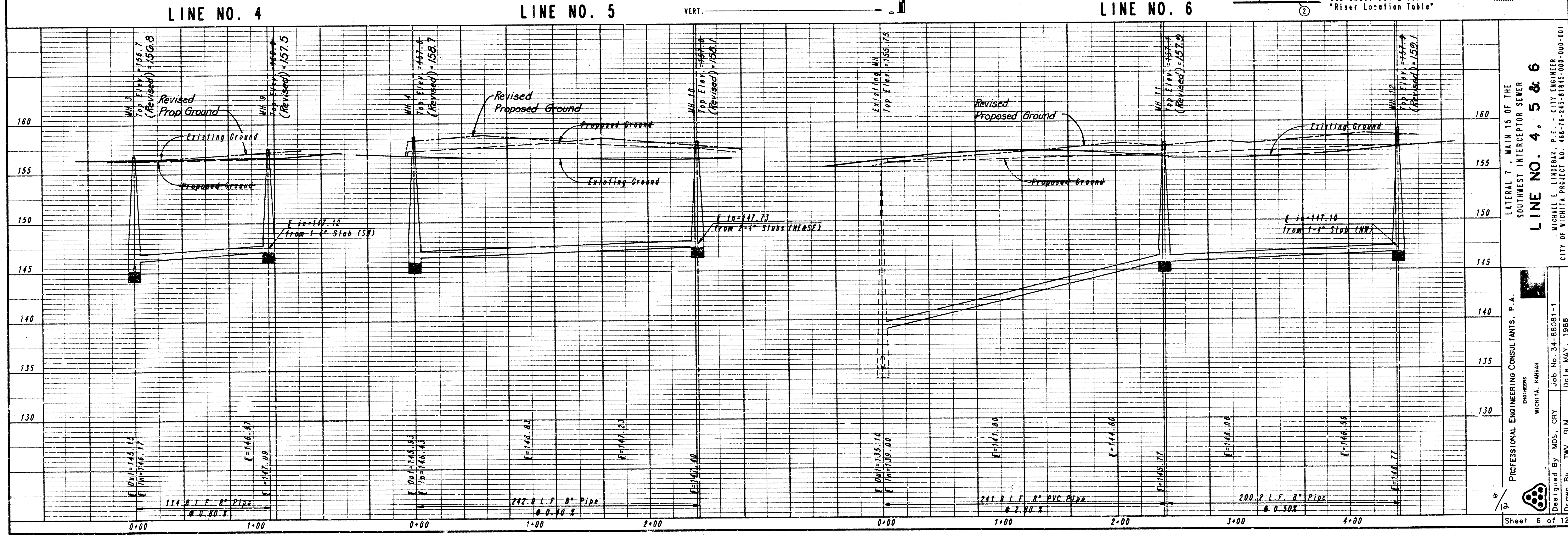
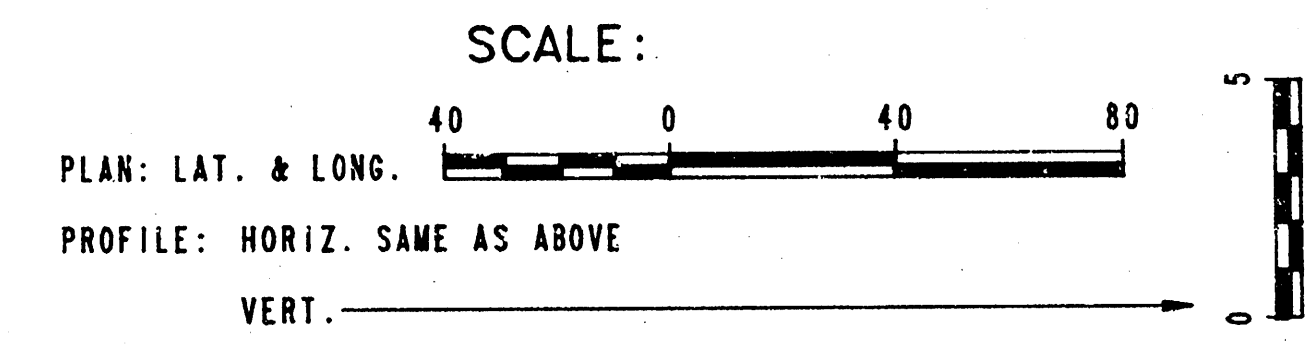
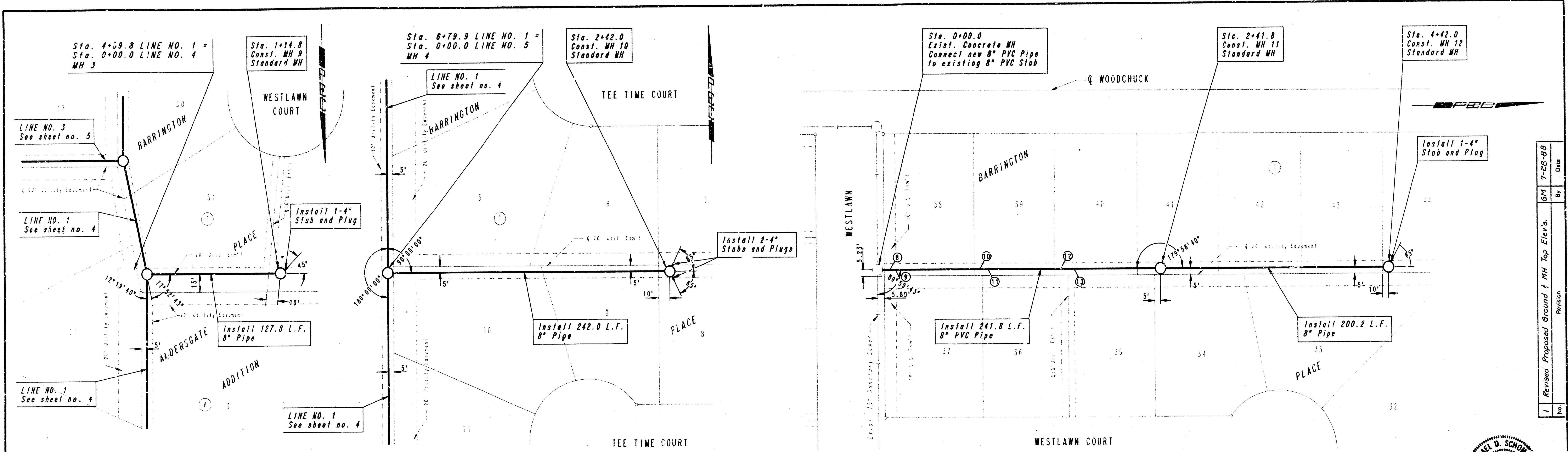
No.	Revision	By	Date
1	Revised Proposed Ground 1 MH Top Elev's	GLM	7-28-88



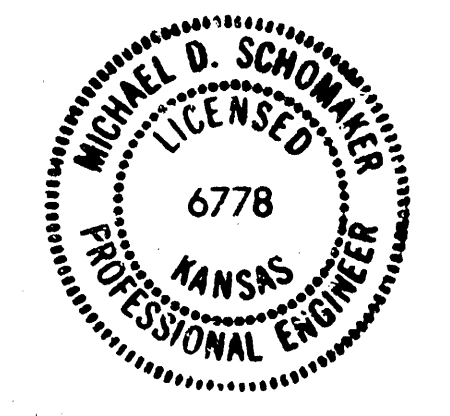
LINE NO. 1
See sheet no. 2 for "Riser Location Table"



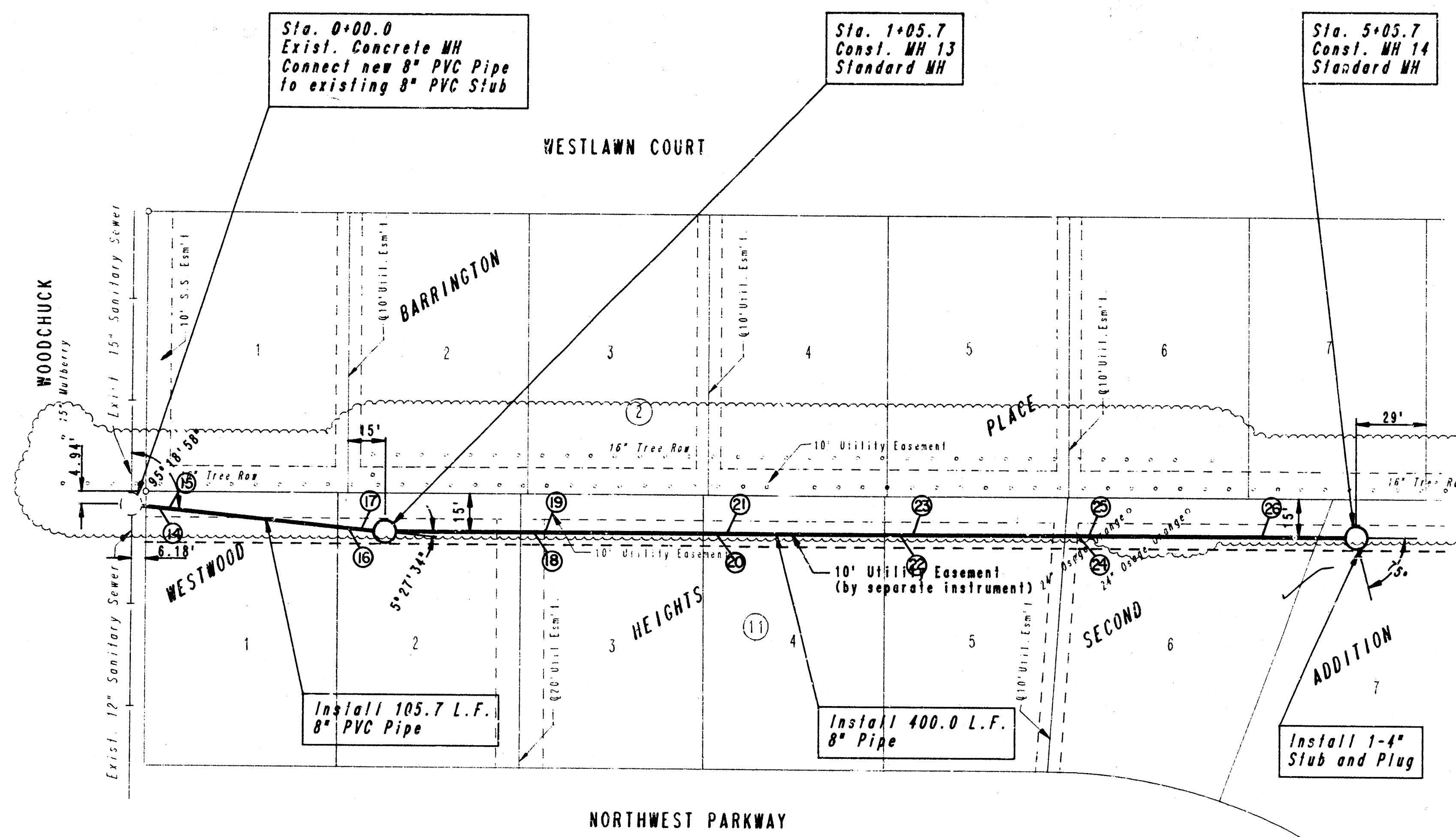
LINE NO. 1
LATERAL 7, MAIN 15 OF THE
SOUTHWEST INTERCEPT SEWER
MICHAEL E. LINDBERK, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 488-76-245-8145-000-000-001
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS
Job No. 34-88081-1
Designed By: MDS, CRY
Drawn By: TWV, GLM
Date: MAY, 1988
Sheet 4 of 12



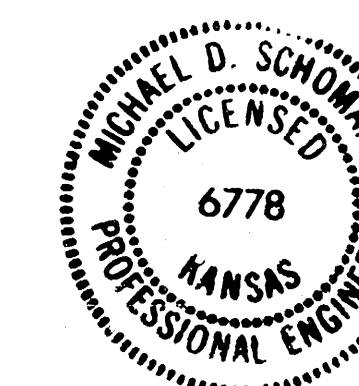
By	Date
GM	7-28-88



LINE NO. 4, 5 & 6
 LATERAL 7 - MAIN 15 OF THE
 SOUTHWEST INTERCEPTOR SEWER
 MICHAEL E. LINDBERGH, P.E., CITY ENGINEER
 CITY OF WICHITA PROJECT NO. 48676-235-81842-800-000-001
 PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 WICHITA, KANSAS
 Job No. 34-88081-1
 Designed By: MDS, ORY
 Drawn By: TW, GLM
 Date: MAY, 1988
 Sheet 6 of 12

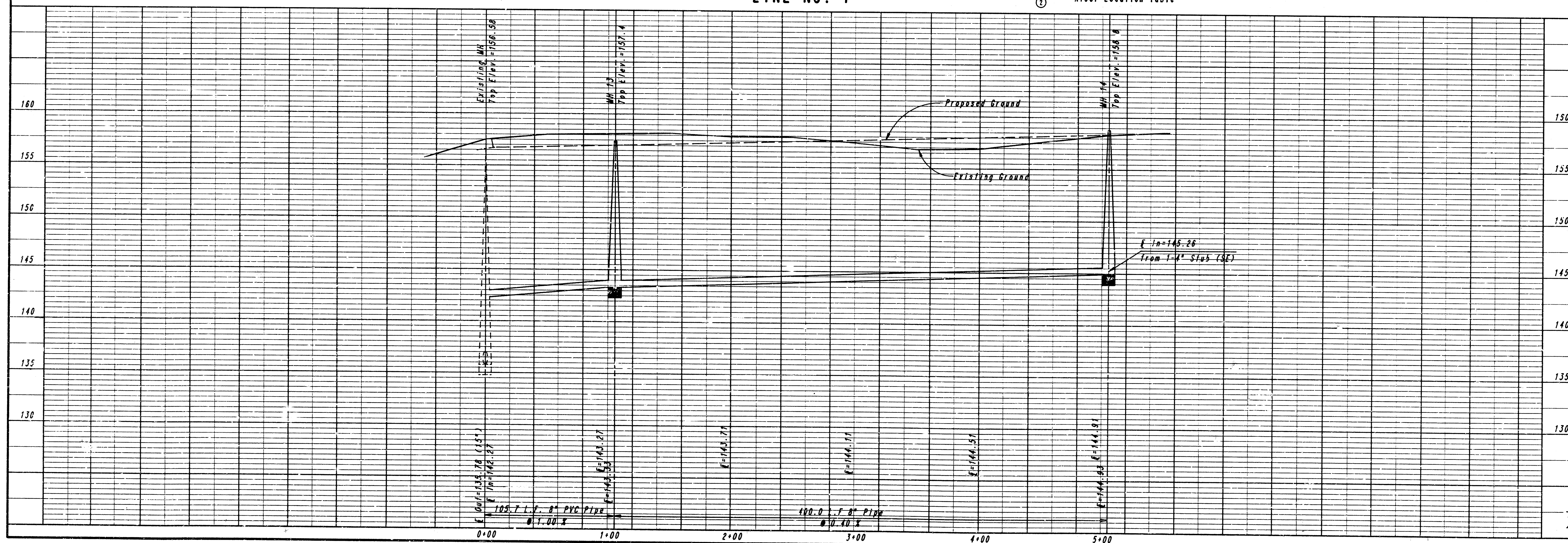


SCALE:
 PLAN: LAT. & LONG.
 PROFILE: HOR. Z. SAME AS ABOVE
 VERT. _____



LINE NO. 7

See sheet no. 2 for
 "Riser Location Table"



Sheet 7 of 12

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS

Job No. 34-B8081-1
 Designed By: MDS, CRY
 Drawn By: TWV, GLM
 Date: MAY, 1988

LATERAL 7, MAIN 15 OF THE
 SOUTHWEST INTERCEPTOR SEWER
LINE NO. 7
 MICHAEL E. LINDBERGH, P.E., CITY ENGINEER
 CITY OF WICHITA PROJECT NO. 468-76-245-R1845-000-001

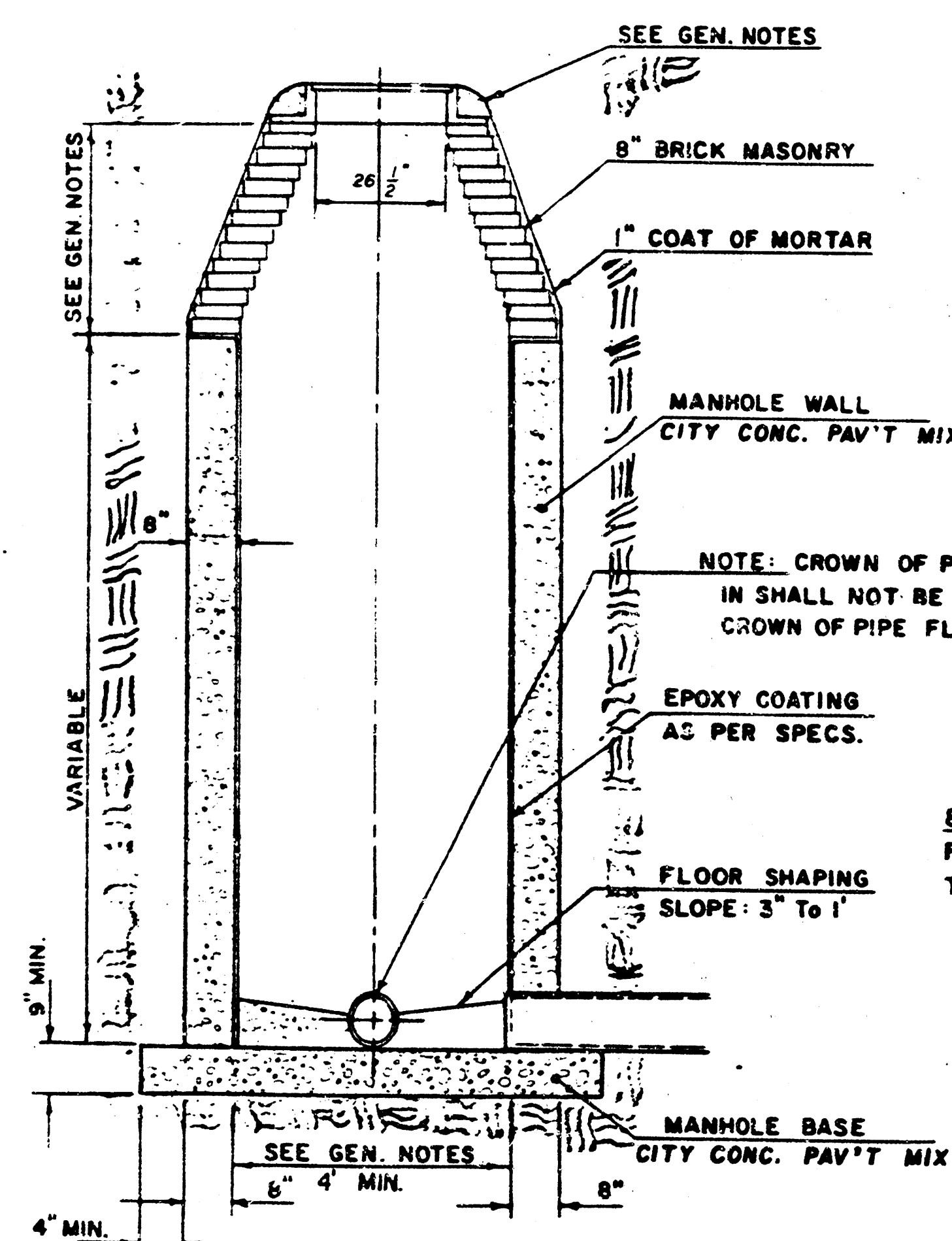
SEWER APPURTENANCES DETAILS

ADOPTED AS STANDARD DESIGN

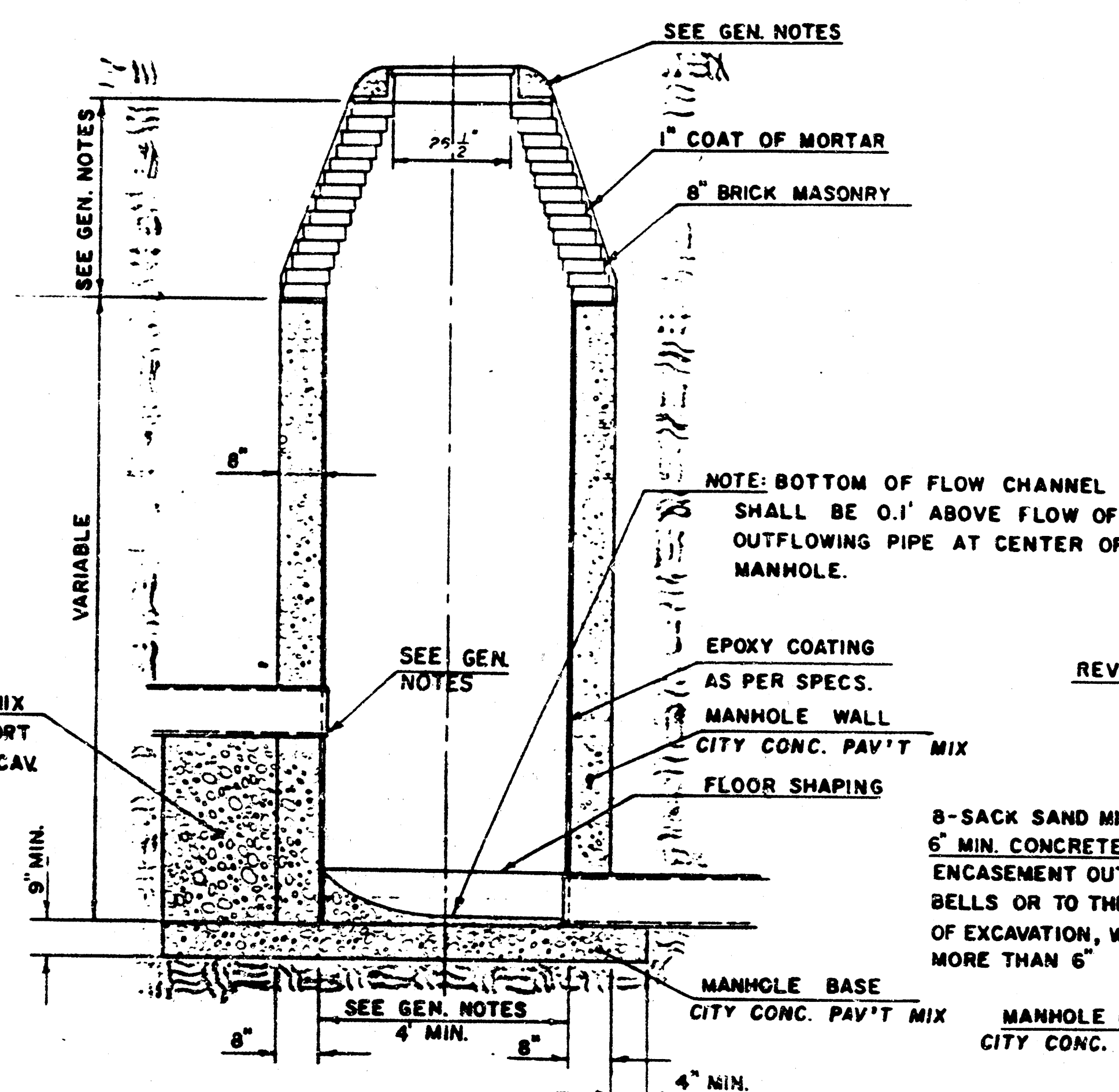
BY

CITY OF WICHITA, KANSAS

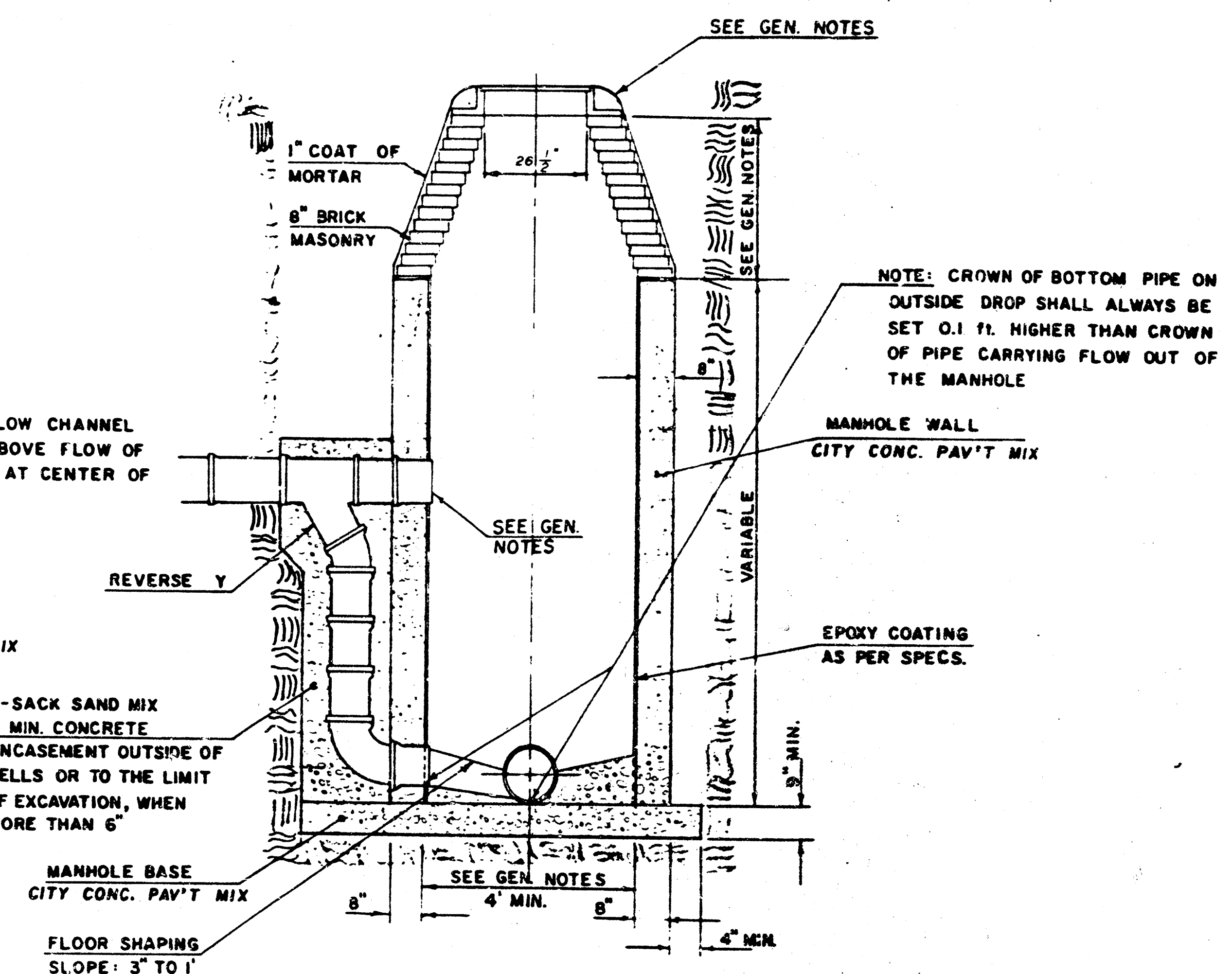
TYPE "D" MANHOLE



TYPE "D" INSIDE DROP MANHOLE



TYPE "D" OUTSIDE DROP MANHOLE

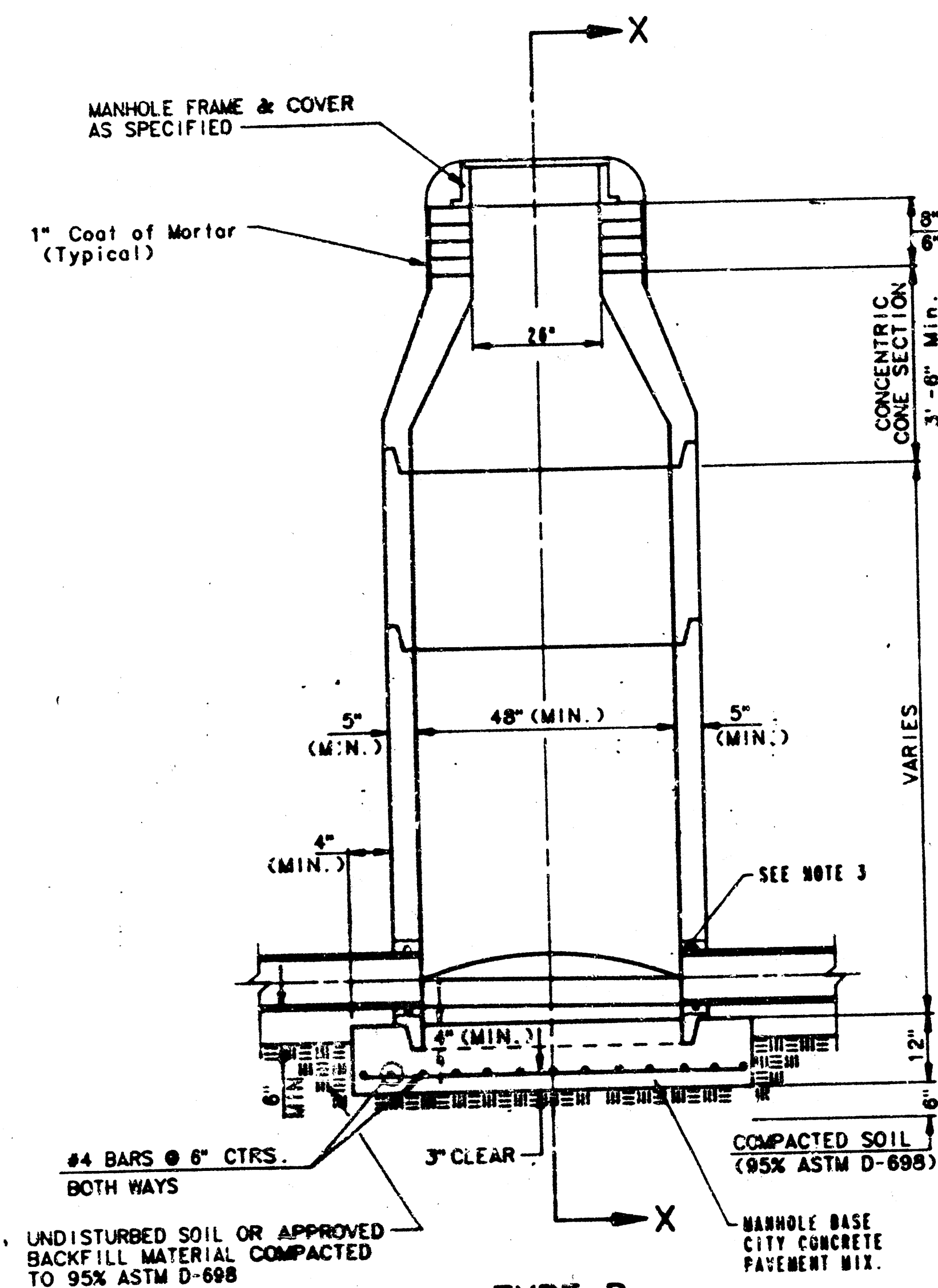


GENERAL NOTES

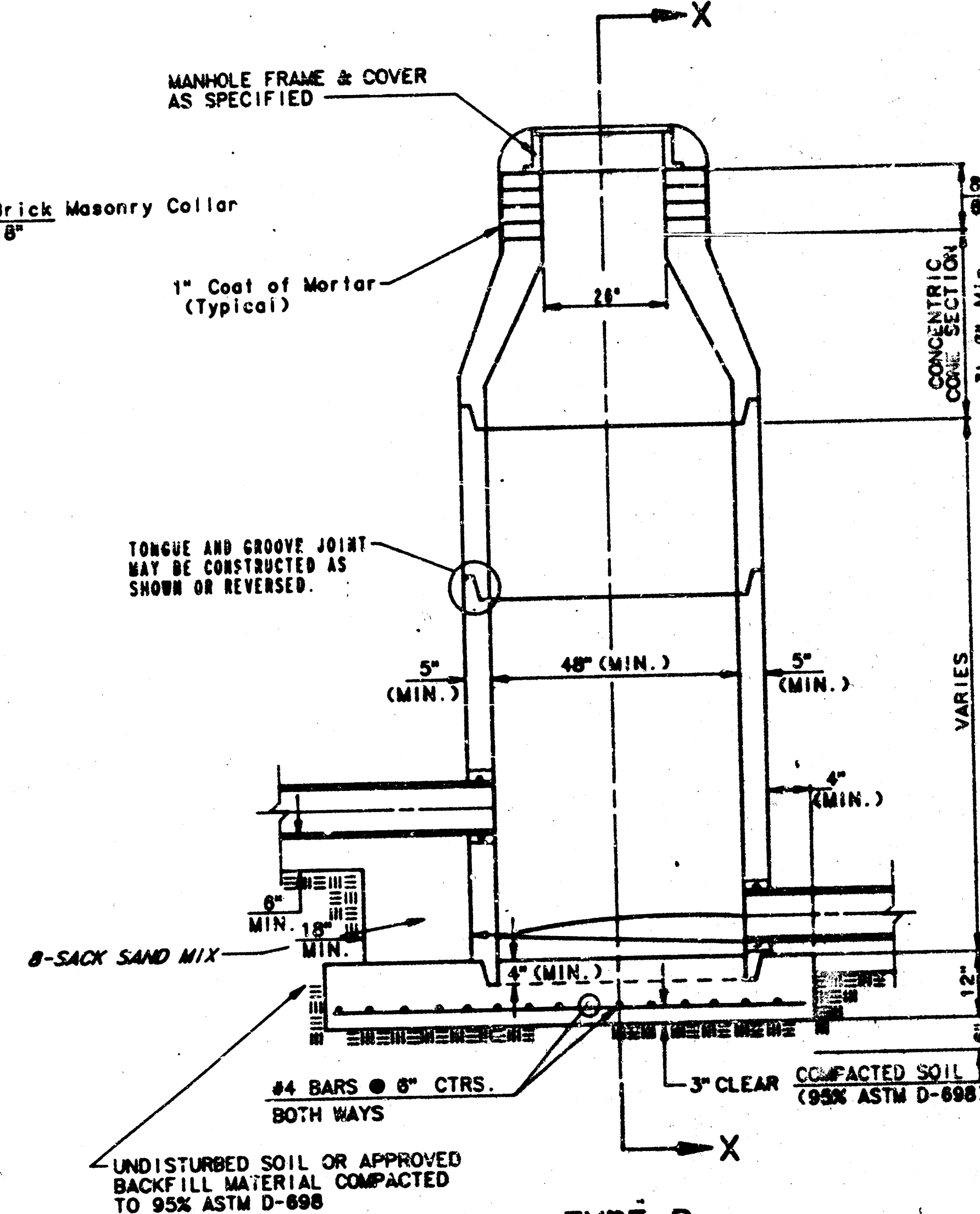
- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 BAGS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS.
- ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WALL WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE PROTECTED BY AN APPROVED EPOXY COATING. TYPE "D" MANHOLES MAY BE USED ON PIPE SIZES 8" TO 36" WHEN THE MANHOLE DEPTH EXCEEDS THE REQUIRED CORBEL HEIGHT BY 1' PLUS THE OUTSIDE DIAMETER OF THE LARGEST PIPE IN THE MANHOLE.
- MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE A DIAMETER OF 4'. MANHOLES CONSTRUCTED WHERE THE PIPE SIZES ARE 24" OR LARGER SHALL HAVE A 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 BASE. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE PLACED 6" ABOVE THE BOTTOM OF THE MANHOLE BASE. COST OF FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
- 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 GROUTED INTO THIS OPENING WITH NON-SHRINK GROUT. THE EXTERIOR OF THIS COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. THE INTERIOR PLASTIC LINING SHALL BE SEALED AROUND THE INLET PIPE OPENING IN SUCH A MANNER THAT WILL EFFECTIVELY MAINTAIN THE INTEGRITY OF THE PROTECTIVE PLASTIC LINER.
- 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 FURNISHED TO MATCH THE BOTTOM HALVES OF THE INLET 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 REVEAL LINED 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 GRADED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE GRADE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE GRADE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF GRADE 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 "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.

NOTE: EPOXY COATING ON INTERIOR CONCRETE SURFACES MAY BE DELETED WHEN TYPE "D" MANHOLES ARE CONSTRUCTED ON SEWERS WITH DIAMETERS SMALLER THAN 10".

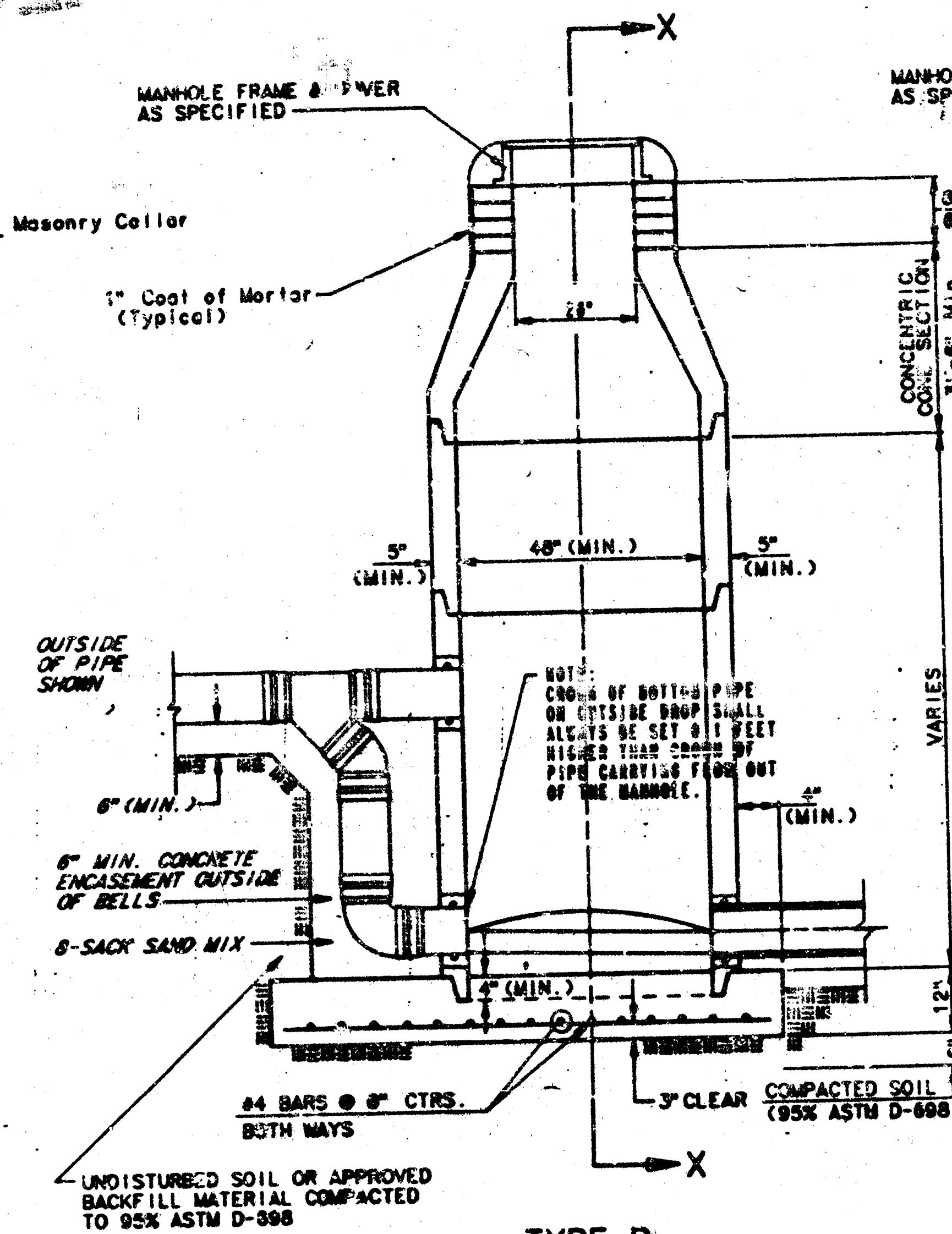
SEWER APPURTENANCES DETAILS ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA



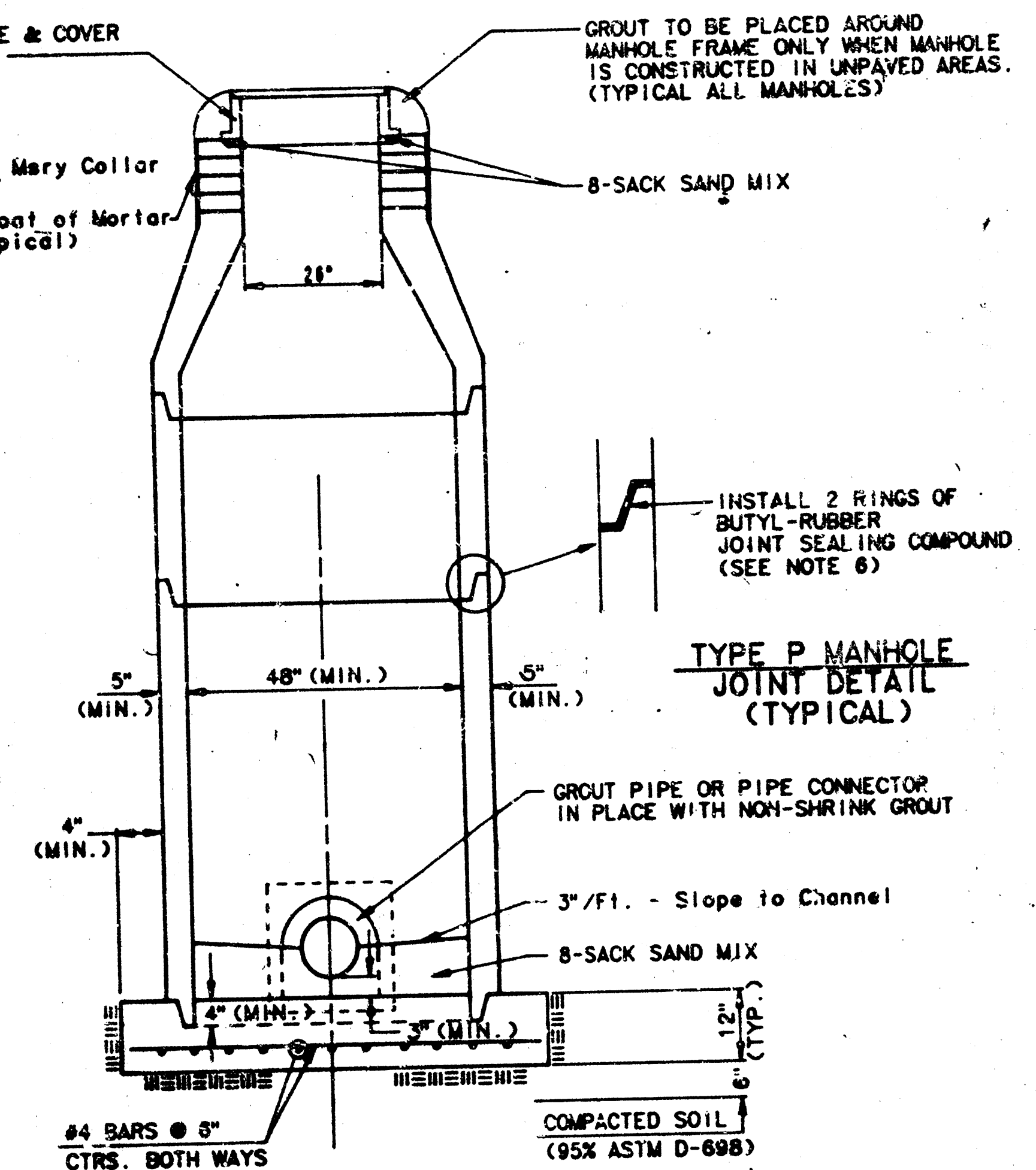
**TYPE P
STANDARD MANHOLE**



**TYPE P
INSIDE DROP MANHOLE**



**TYPE P
OUTSIDE DROP MANHOLE**



**SECTION X
(TYPICAL)**

GENERAL NOTES

- ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
- NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
- APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A S. S. COMPOSITE PIPE OR P. V. C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V. C. P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
- ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS OF EMULSION TYPE BITUMINOUS COATING, DRY THICKNESS OF 8 MILS (MIN.).
- EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT OF EMULSION TYPE BITUMINOUS COATING.
- JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
- PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
- TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT RIGIDITY THICKNESS OF SHAPED INVERT.
- LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
- 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 PAVING 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. 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 8" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 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 INSTALLATION OF THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P. V. C. AND A. S. S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK 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. 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 OR WHERE 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 DRAWING 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 REVEAL 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 CROOKS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
- A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 6" RALLS AND A VERTICAL HEIGHT OF 4" MINIMUM AND 16" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.

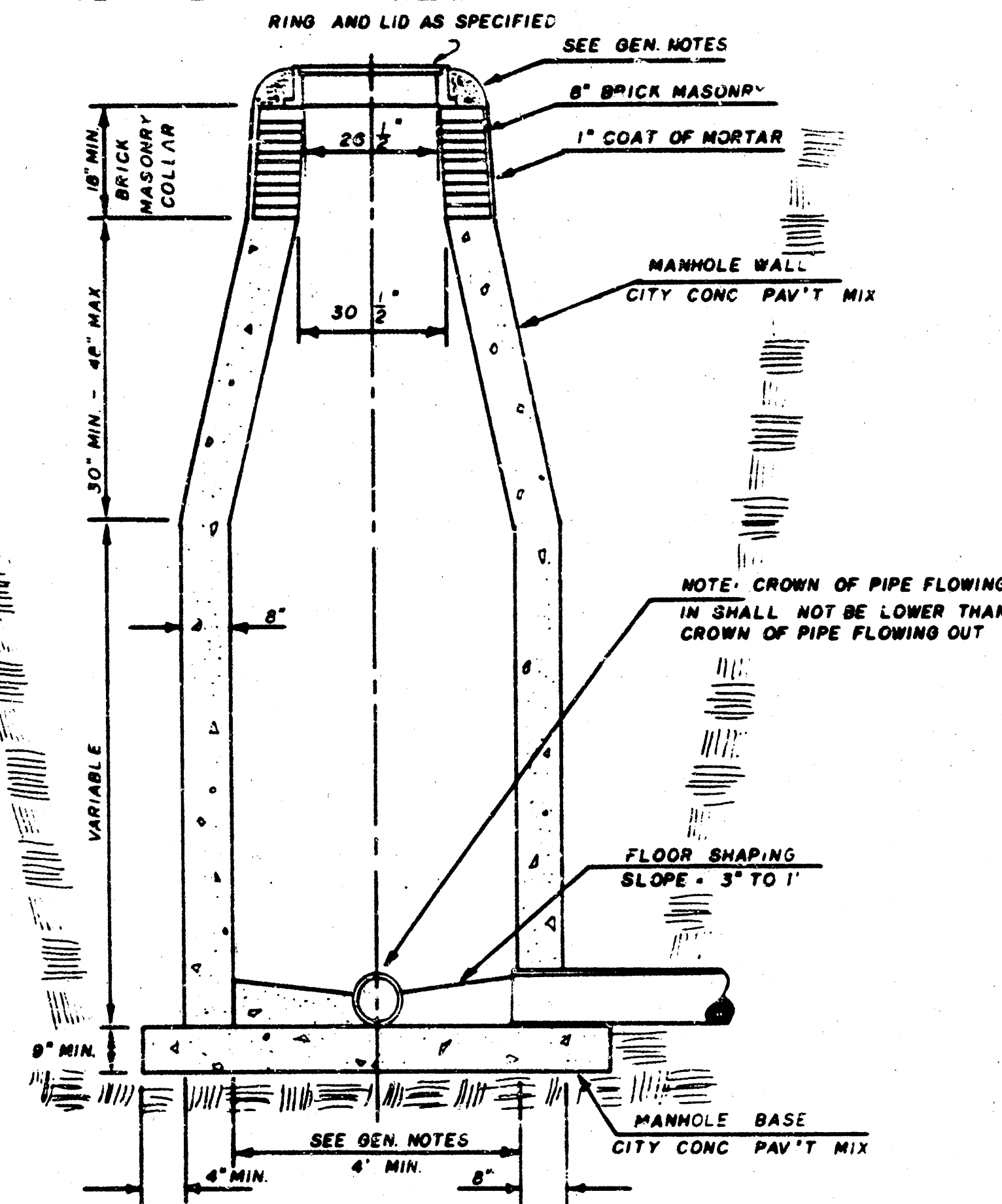
SEWER APPURTENANCES DETAILS

ADOPTED AS STANDARD DESIGN

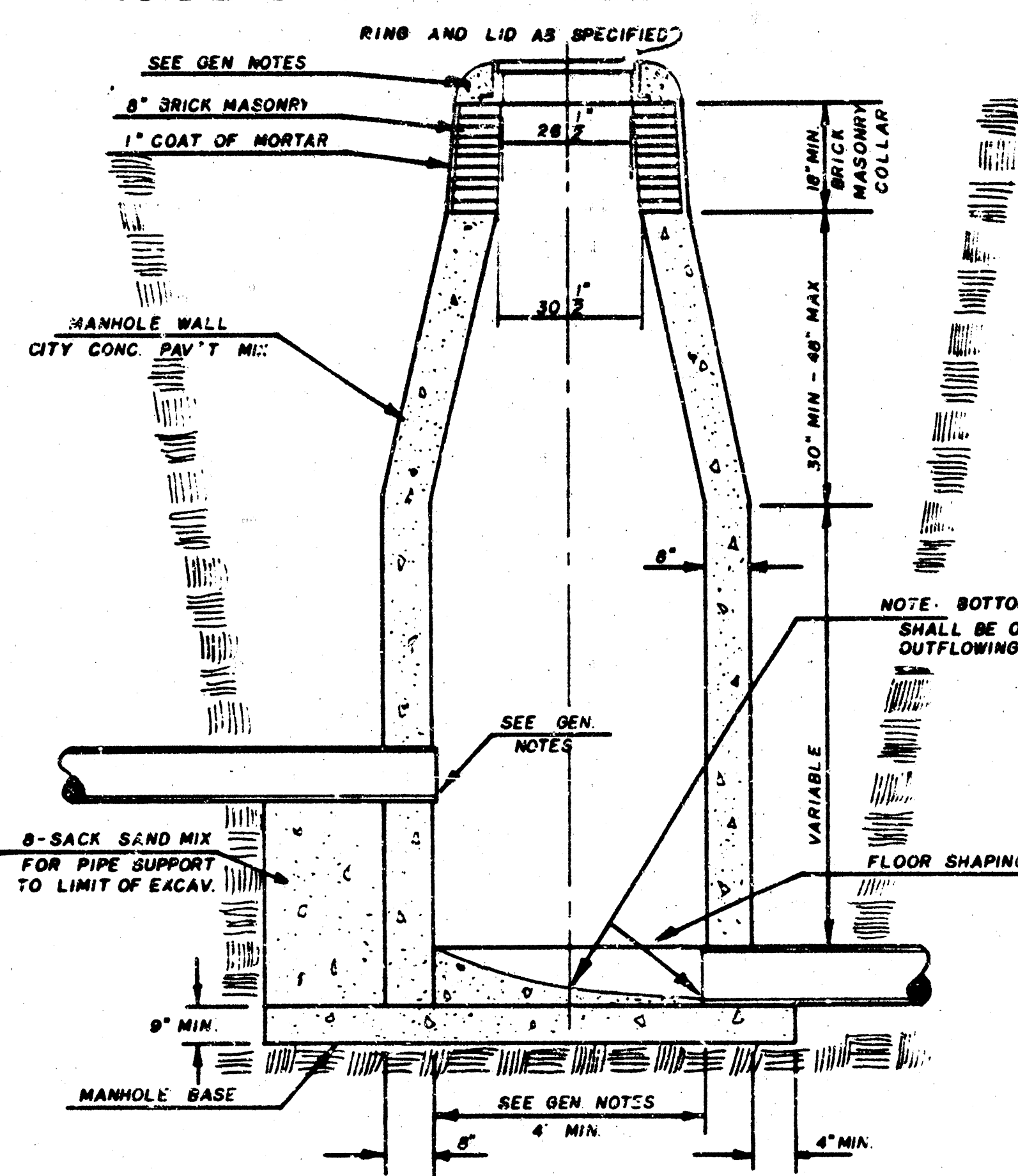
BY

City of Wichita, Kansas

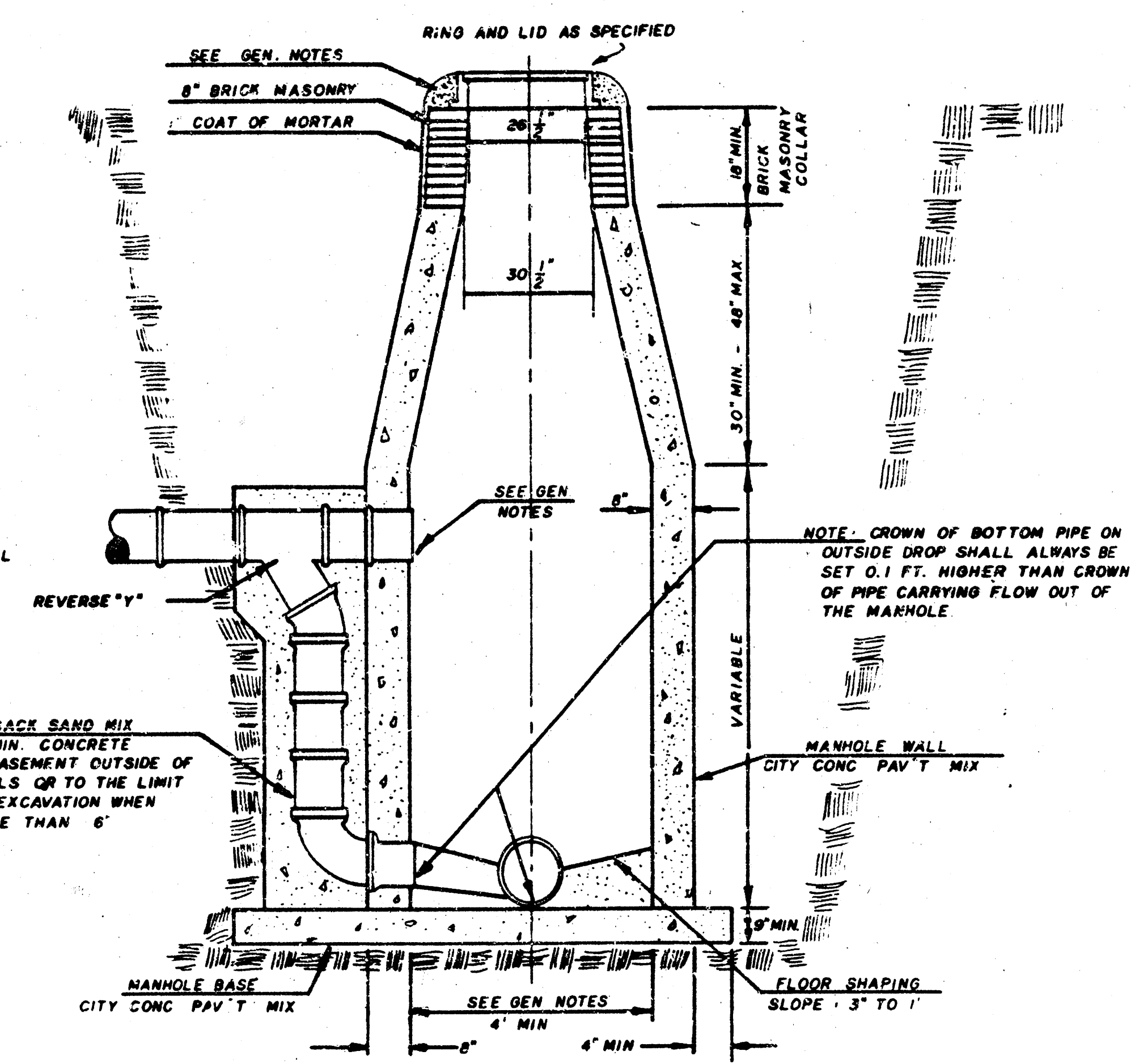
STANDARD MANHOLE TYPE "C"



INSIDE DROP MANHOLE TYPE "C"



OUTSIDE DROP MANHOLE TYPE "C"



GENERAL NOTES

- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 6 SACKS 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 ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. TYPE "C" MANHOLES CAN BE CONSTRUCTED ONLY WHERE PIPE SIZES ARE 8" OR SMALLER. THE INSIDE DIAMETER OF TYPE "C" MANHOLES SHALL BE 4'. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
- REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASE. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE PLACED 6" ABOVE THE BOTTOM OF THE MANHOLE BASE. COST OF FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
- 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 GROUTED INTO THIS OPENING WITH NON-SHRINKING GROUT. THE EXTERIOR OF THIS COMPLETE CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT.
- THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF-CLEANING AND FREE UP 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 REVEAL 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 "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.

MANHOLE FRAME AND COVER DETAIL

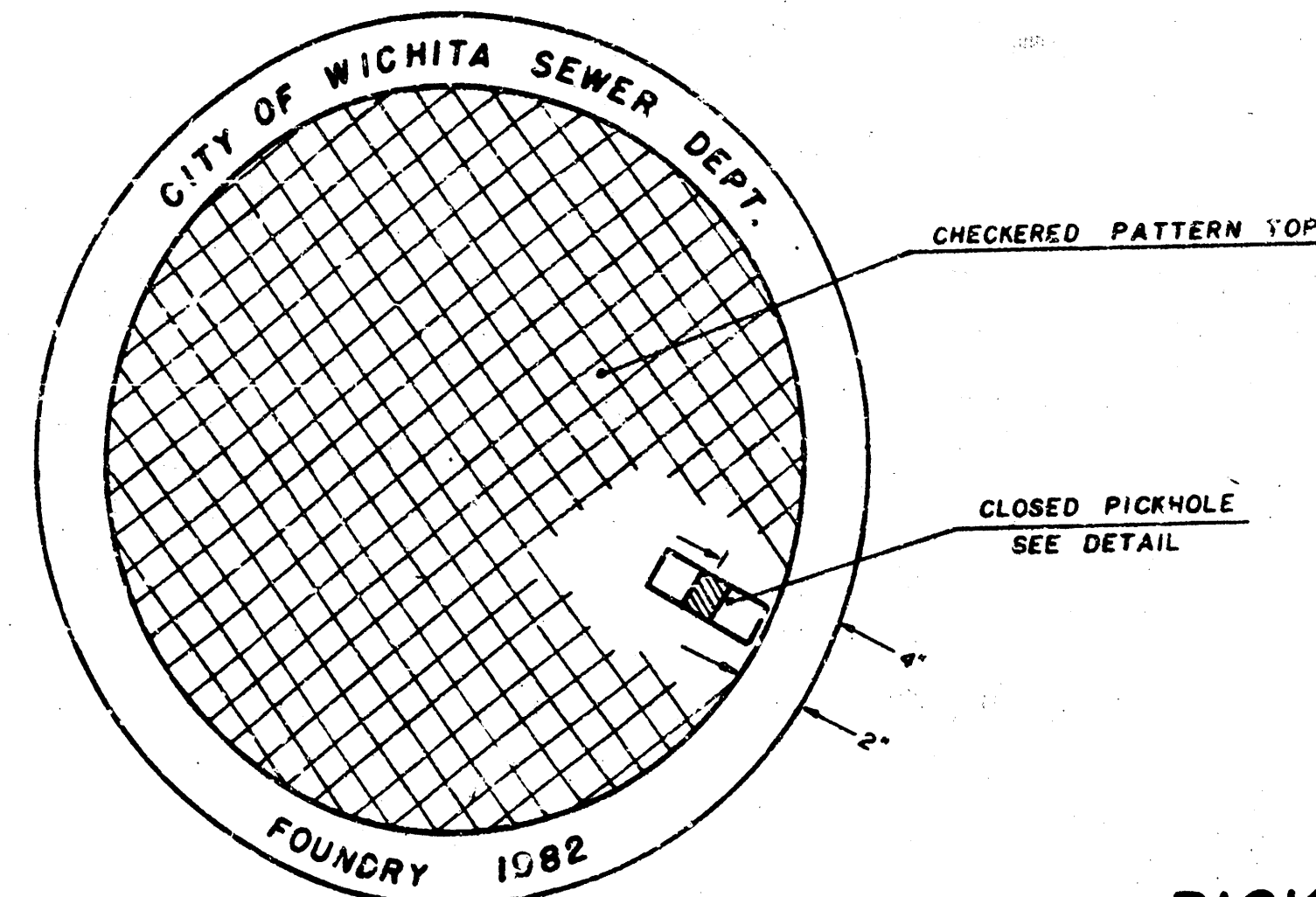
ADOPTED AS STANDARD DESIGN

BY

City of Wichita, Kansas

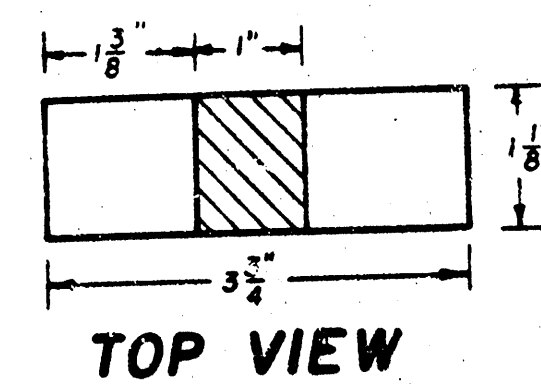
MANHOLE COVER

Weight: 180 Lbs.

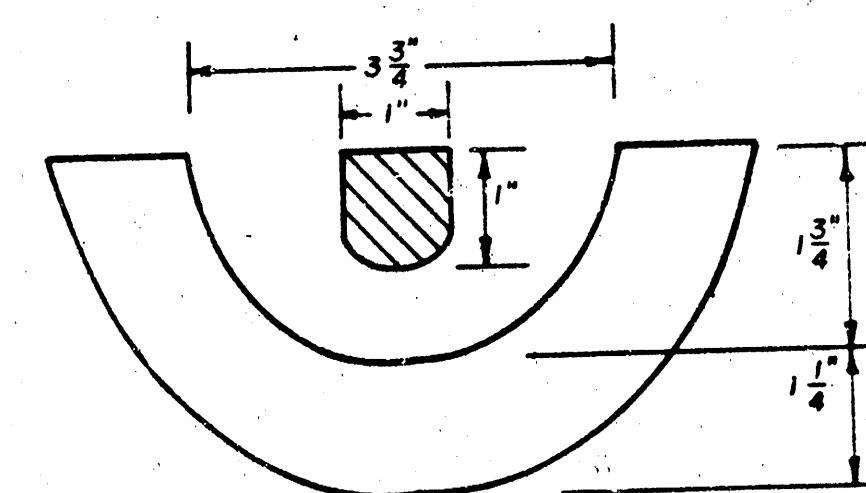


TOP VIEW

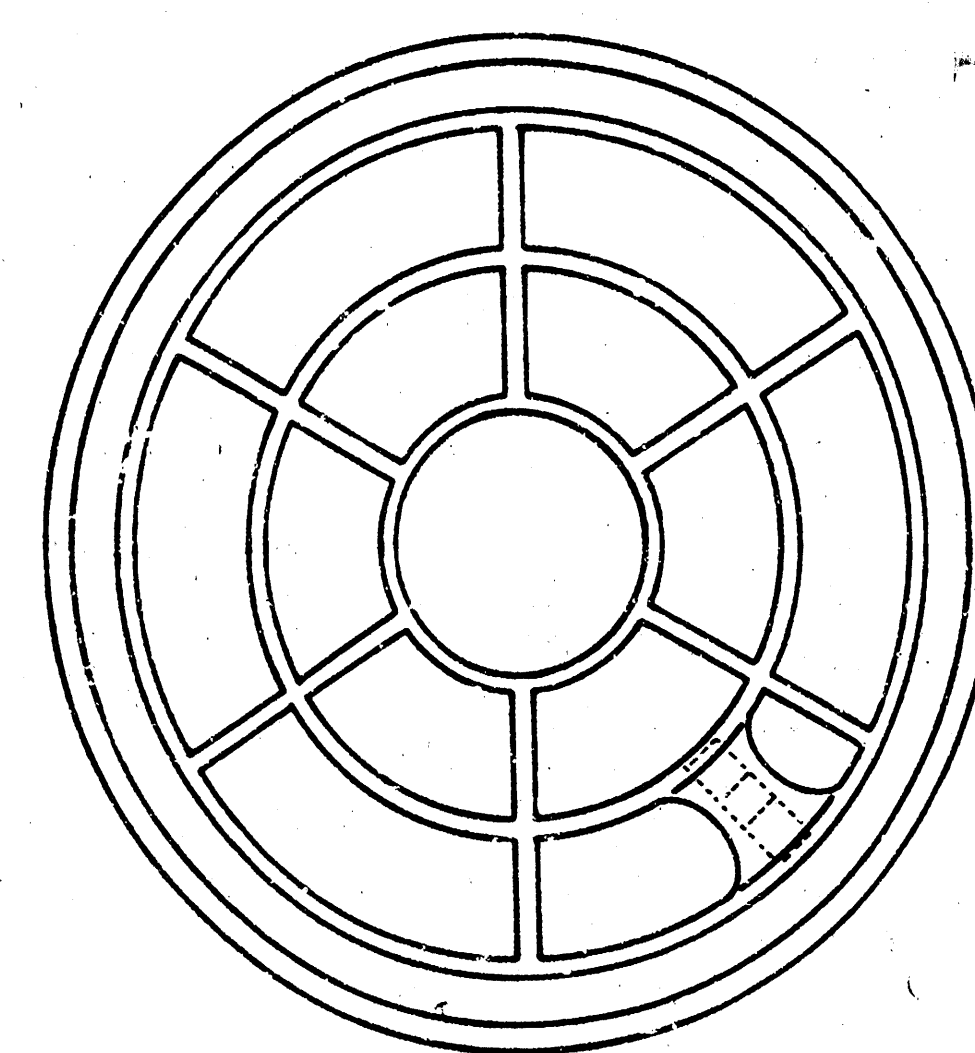
PICKHOLE DETAIL



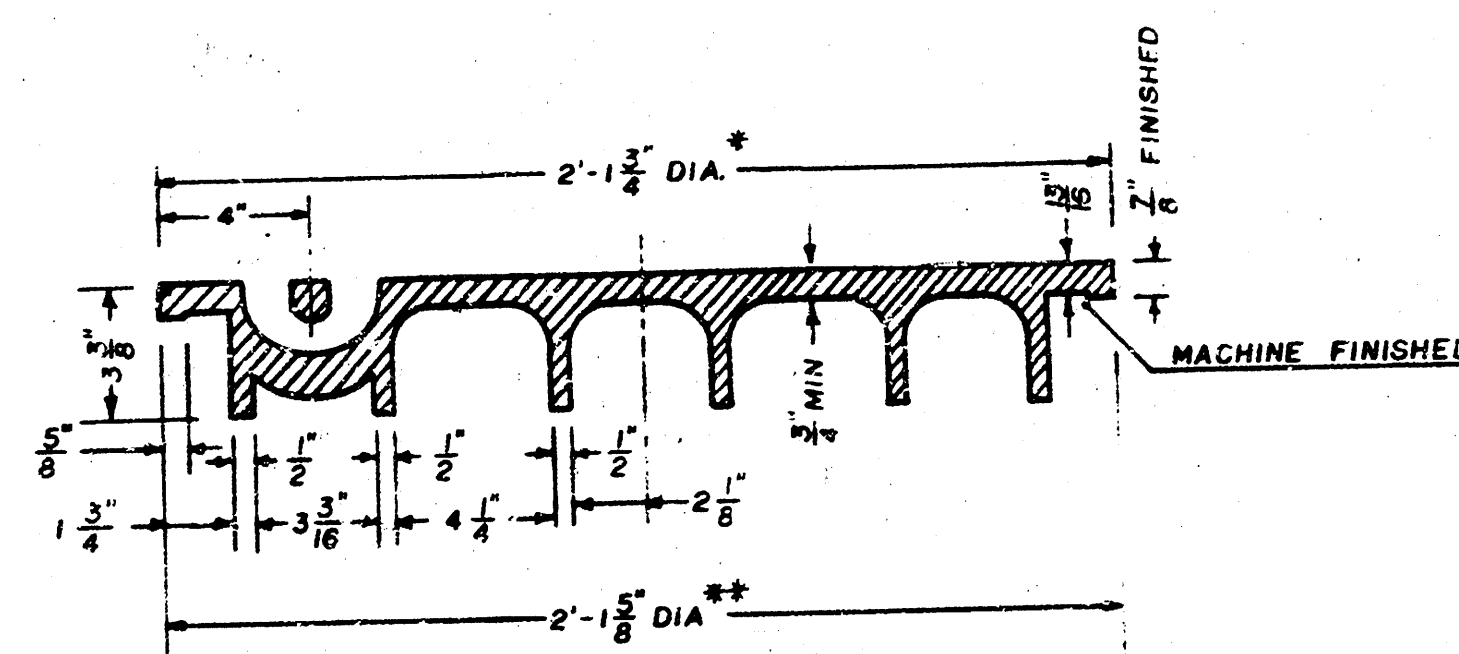
TOP VIEW



SECTION VIEW



BOTTOM VIEW

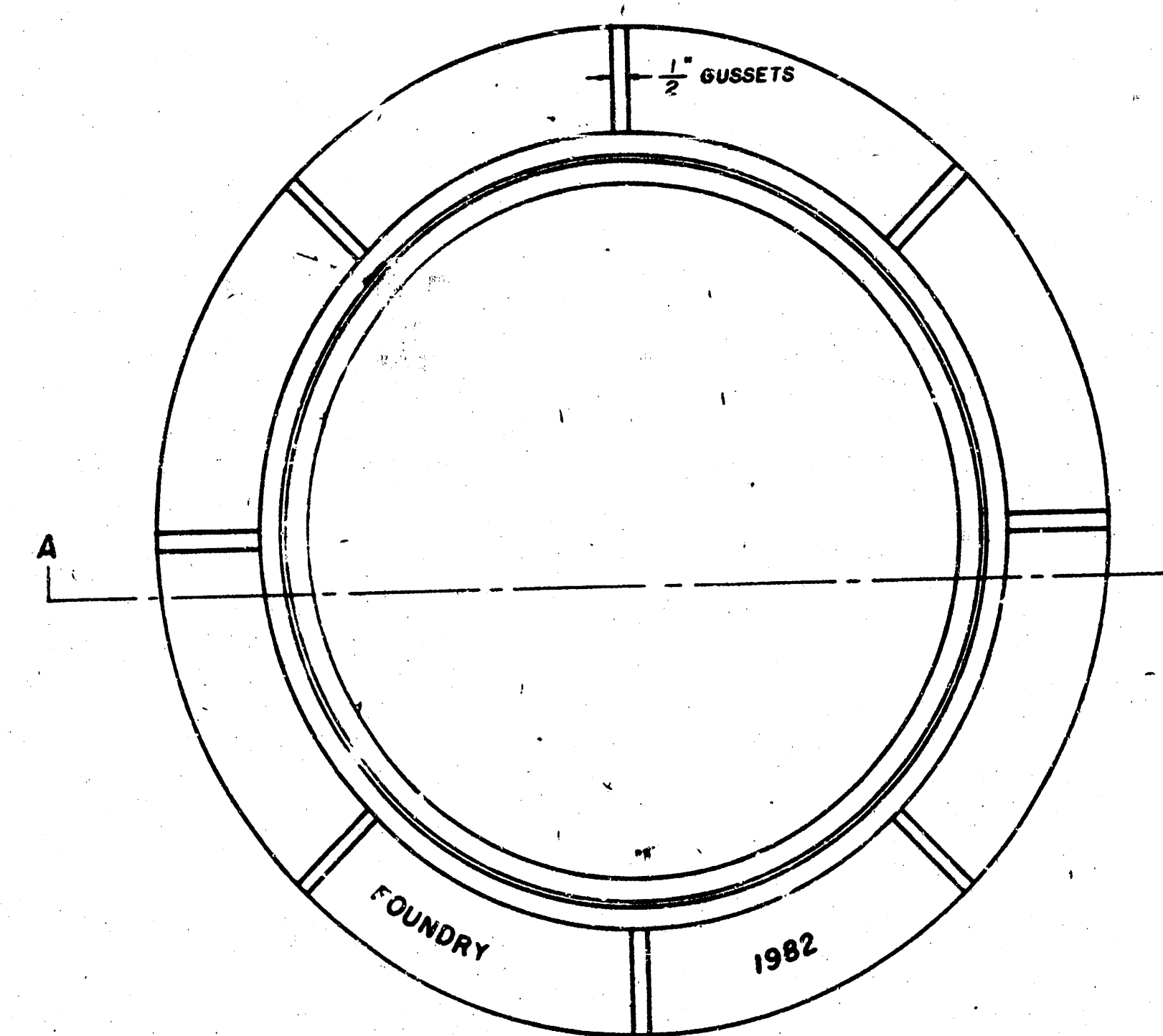


SECTION VIEW

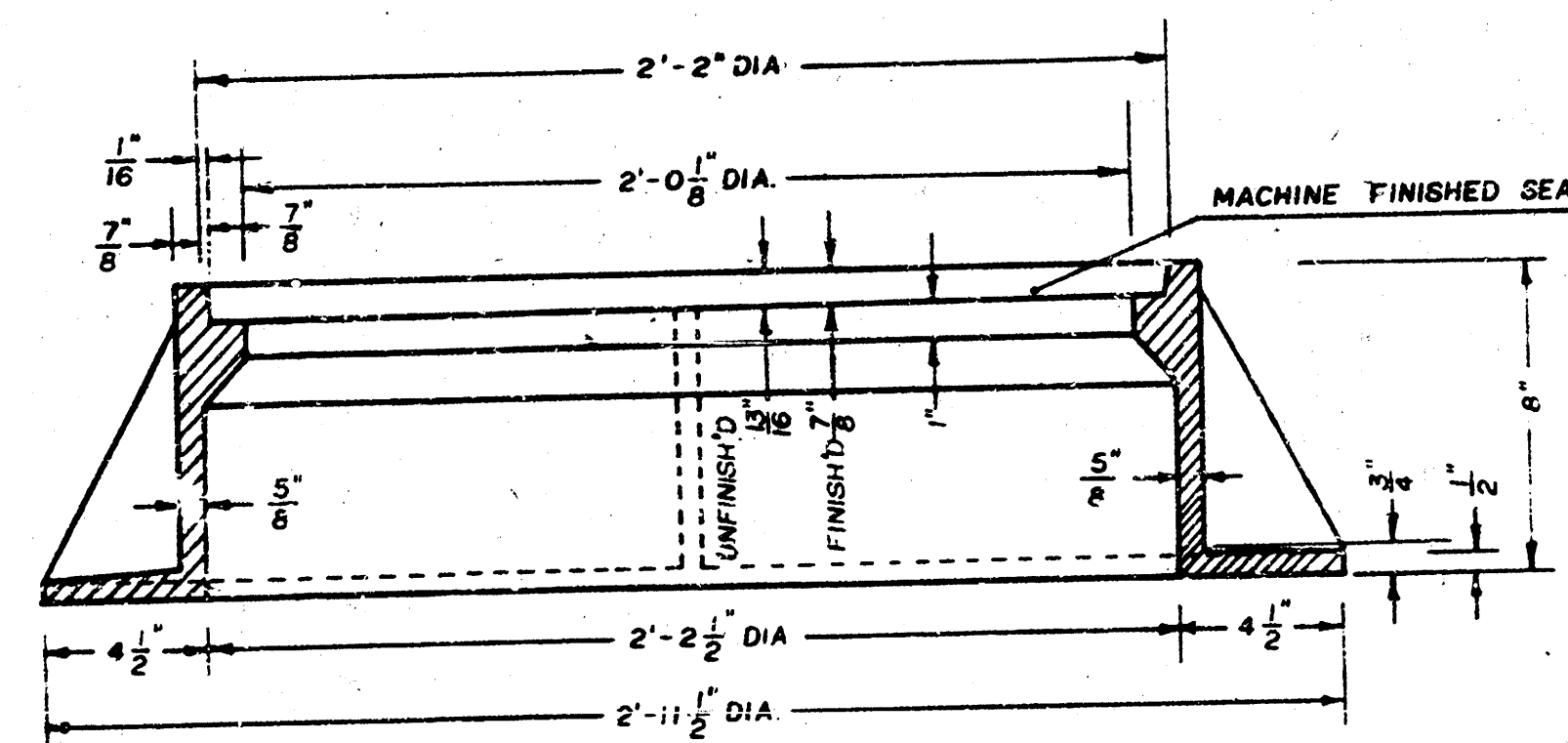
* OUTSIDE DIA. TOP OF COVER
** OUTSIDE DIA. BOTTOM OF COVER

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 DETAIL 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.

VERTICAL RISER DETAIL

ADOPTED AS STANDARD DESIGN

BY

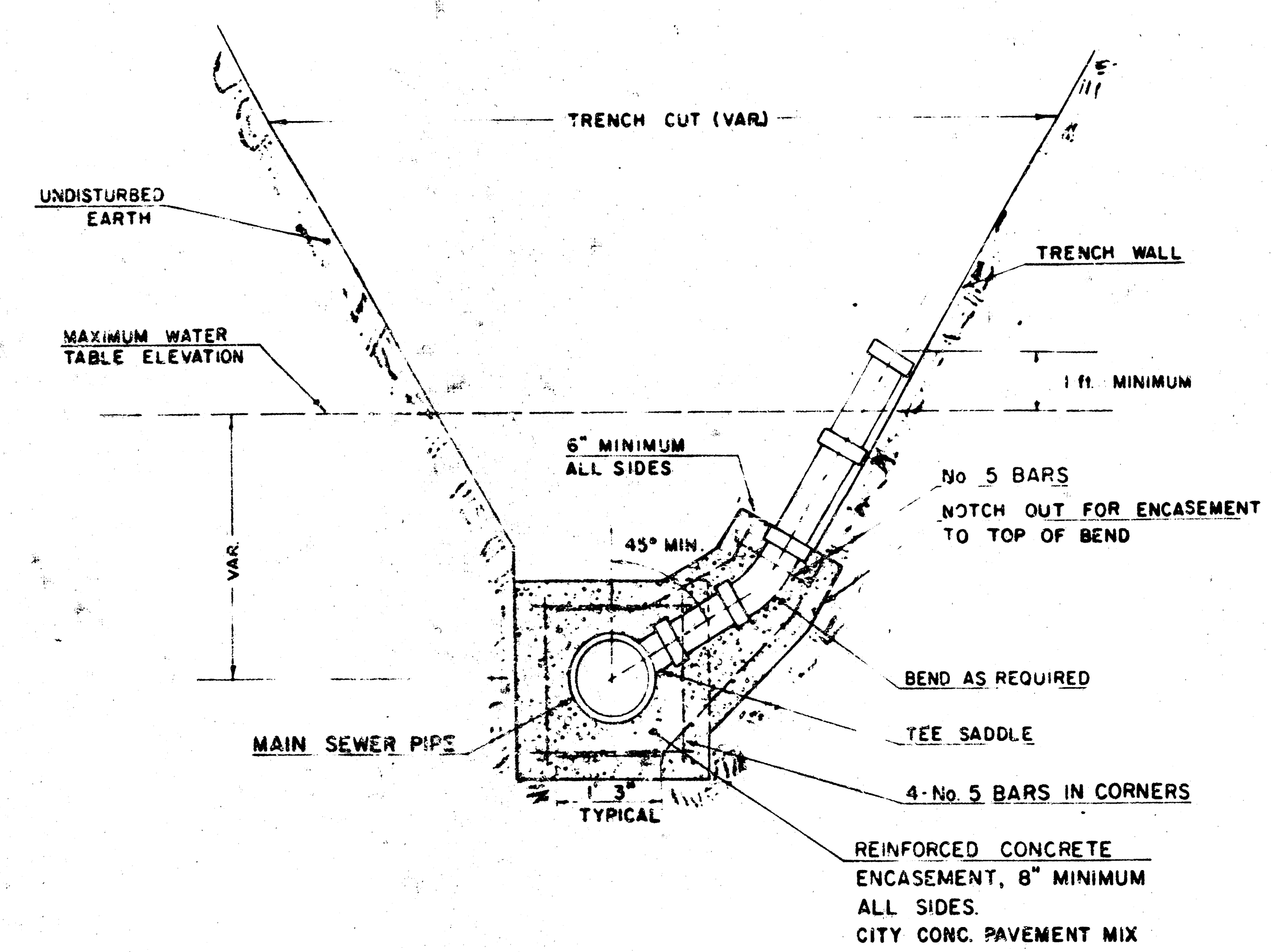
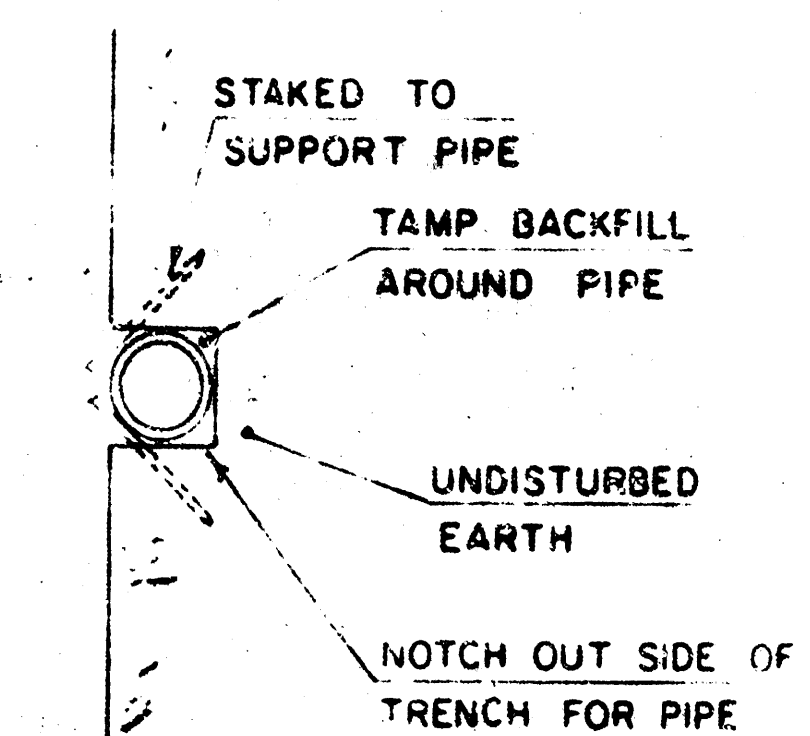
CITY OF WICHITA, KANSAS

GENERAL NOTE

RISERS SHALL BE INSTALLED TO SERVE ALL LOTS OR RACS WHEN THE MAIN SEWER LINE IS BELOW THE WATER TABLE. RISERS SHALL ALSO BE INSTALLED TO SERVE ALL LOTS AND RACS WHEN THE MAIN SEWER LINE DEPTH IS SUCH THAT WOULD MAKE THE BUILDING SEWER LINE CONNECTION DIFFICULT. INSTALLATION OF RISERS BECAUSE OF MAIN LINE SEWER DEPTH SHALL BE APPROVED BY THE ENGINEER. THE LOCATION OF RISERS TO SERVE DEVELOPED PROPERTY SHALL BE APPROVED BY THE PROPERTY OWNER. PIPE STUBS SHALL BE INSTALLED IN MANHOLES WHERE LOCATIONS OF MANHOLES WILL PROVIDE SATISFACTORY SERVICE CONNECTIONS AS DETERMINED BY THE FIELD ENGINEER. THE VERICAL DISTANCE BETWEEN THE MAIN LINE OF THE MANHOLE PIPE STUB AND THE MAIN LINE OF THE MAIN SEWER LINE SHALL NOT EXCEED 12 INCHES. MANHOLE PIPE STUBS SHALL NOT BE SET BELOW AN ELEVATION WHICH WILL PERMIT THE TOP OF THE INSIDE OF THE STUB TO MATCH THE TOP OF THE INSIDE OF THE MAIN SEWER PIPE. PIPE STUBS AND RISERS INSTALLED TO SERVE COMMERCIAL OR INDUSTRIAL PROPERTY SHALL BE 12 INCH. PIPE STUBS AND RISERS INSTALLED TO SERVE RESIDENTIAL PROPERTY MAY BE EITHER 12 INCH OR 6 INCH DEPENDING UPON THE AVAILABLE GRADE AND THE SIZE OF THE LOT AS DETERMINED BY THE FIELD ENGINEER. ENCASEMENT OF VERIFIED CLAY MAIN SEWER PIPE SHALL EXTEND TO THE FIRST JOINT IN THE MAIN SEWER CLAY PIPE ON EACH SIDE OF THE RISER INSTALLATION. ENCASEMENT OF A.C.S., COMPOSITE OR P.V.C. MAIN SEWER PIPE SHALL EXTEND A MINIMUM OF 12 INCH ON BOTH SIDES OF THE CENTERLINE OF THE RISER. FOUR INCH AND SIX INCH RISER PIPE SHALL BE ENCASED WITH CONCRETE TO THE TOP OF THE END AS INDICATED IN THE DRAWINGS. FOUR INCH AND SIX INCH CLAY PIPE USED FOR RISERS SHALL BE EXTRA STRENGTH PIPE CONFORMING TO THE REQUIREMENTS OF THE LATEST REVISION OF A.S.T.M. DESIGNATION C-400. ALL COMPRESSION JOINTS AS SPECIFIED FOR CLAY PIPE IN THE STANDARD SPECIFICATIONS. FOUR INCH AND SIX INCH A.B.S. OR P.V.C. PIPE SHALL BE APPROVED FOR USE IN THE CITY BY THE CHIEF PLUMBING AND MECHANICAL INSPECTOR FOR THE CENTRAL INSPECTION DIVISION OF THE DEPARTMENT OF HOUSING AND ECONOMIC DEVELOPMENT. LOCATIONS OF THE ENDS OF THE RISERS SHALL BE MARKED BY PAINTING OR BY COLORED PLASTIC TAPE TO THE END OF THE RISER WHICH SHALL BE EXTENDED TO THE GROUND SURFACE AS THE EXCAVATION IS BACKFILLED SUCH THAT THE COLORED TAPE WILL BE VISIBLE WHEN THE PROJECT IS COMPLETED. THE ENDS OF THE RISER PIPE AND MANHOLE STUBS SHALL BE CAPPED OR PLUGGED USING PLUGS FURNISHED BY THE MANUFACTURER OF THE PIPE. CONCRETE METHODS FOR SUPPORTING AND BACKFILLING RISER PIPE SHALL BE APPROVED BY THE ENGINEER.

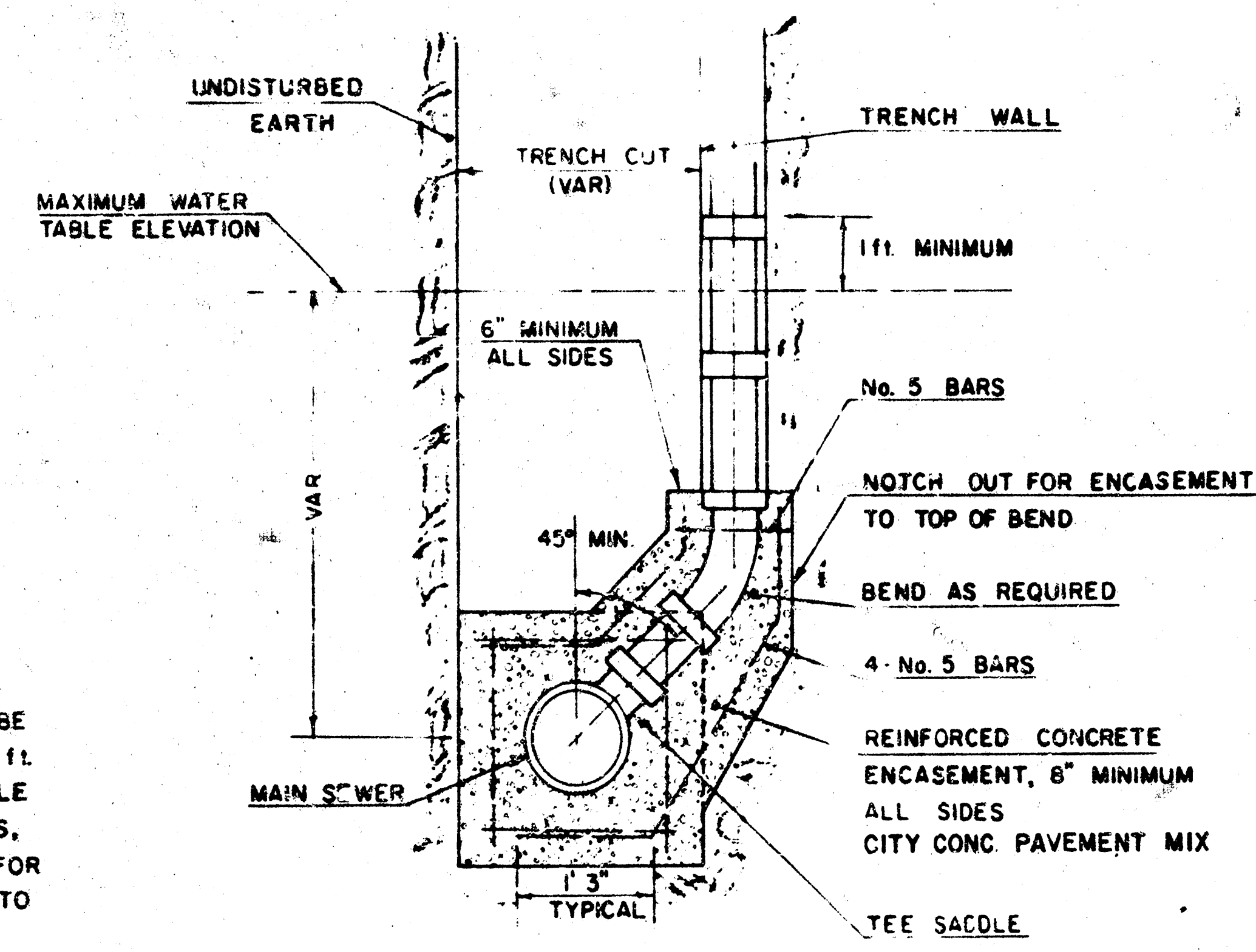
FURNISHING AND INSTALLING RISERS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR 12 INCH PIPE AND REINFORCED CONCRETE ENCASEMENT FOR THE VARIOUS MAIN SEWER PIPE SIZES INDICATED WHICH PRICE SHALL INCLUDE ALL COSTS FOR COMPLETION OF THIS ITEM INCLUDING: SADDLES, BENDS, CONCRETE REINFORCING STEEL, CAPS OR TIES, AND ALL OTHER NECESSARY MATERIALS OR WORK. CONCRETE ENCASEMENT OF THE RISER PIPE TO THE TOP OF THE BEND AS SHOWN BY THE DRAWINGS WILL NOT BE PAID FOR DIRECTLY AND THE COST FOR THIS WORK SHALL BE CONSIDERED AS SUBSIDIARY TO THE OTHER ITEMS OF WORK.

THE PROJECT INSPECTOR SHALL REPORT ON INSPEC OR CARDS THE LOCATION OF ALL RISERS CONSTRUCTED AS MEASURED FROM THE NEAREST MANHOLE, THE DIRECTION OF SERVICE, THE ELEVATION OF THE TOP OF THE RISER, AND THE PAY QUANTITIES INVOLVED. THE PROJECT INSPECTOR SHALL ALSO REPORT ON INSPEC OR CARDS THE LOCATION, DIRECTION OF SERVICE, AND SIZE OF ALL STUBS INSTALLED IN MANHOLES.



TYPICAL RISER FOR SLOPING TRENCH WALLS

NOTE:
TOP OF 4" OR 6" RISER PIPE TO BE EXTENDED TO AN ELEVATION OF 1 ft. MINIMUM ABOVE THE WATER TABLE ELEVATION, WHEN WATER EXISTS, OR TO AN ELEVATION SUITABLE FOR PROVIDING SERVICE TO THE LOT TO BE SERVED AND THEN PLUGGED.



TYPICAL RISER FOR VERTICAL TRENCH WALLS