

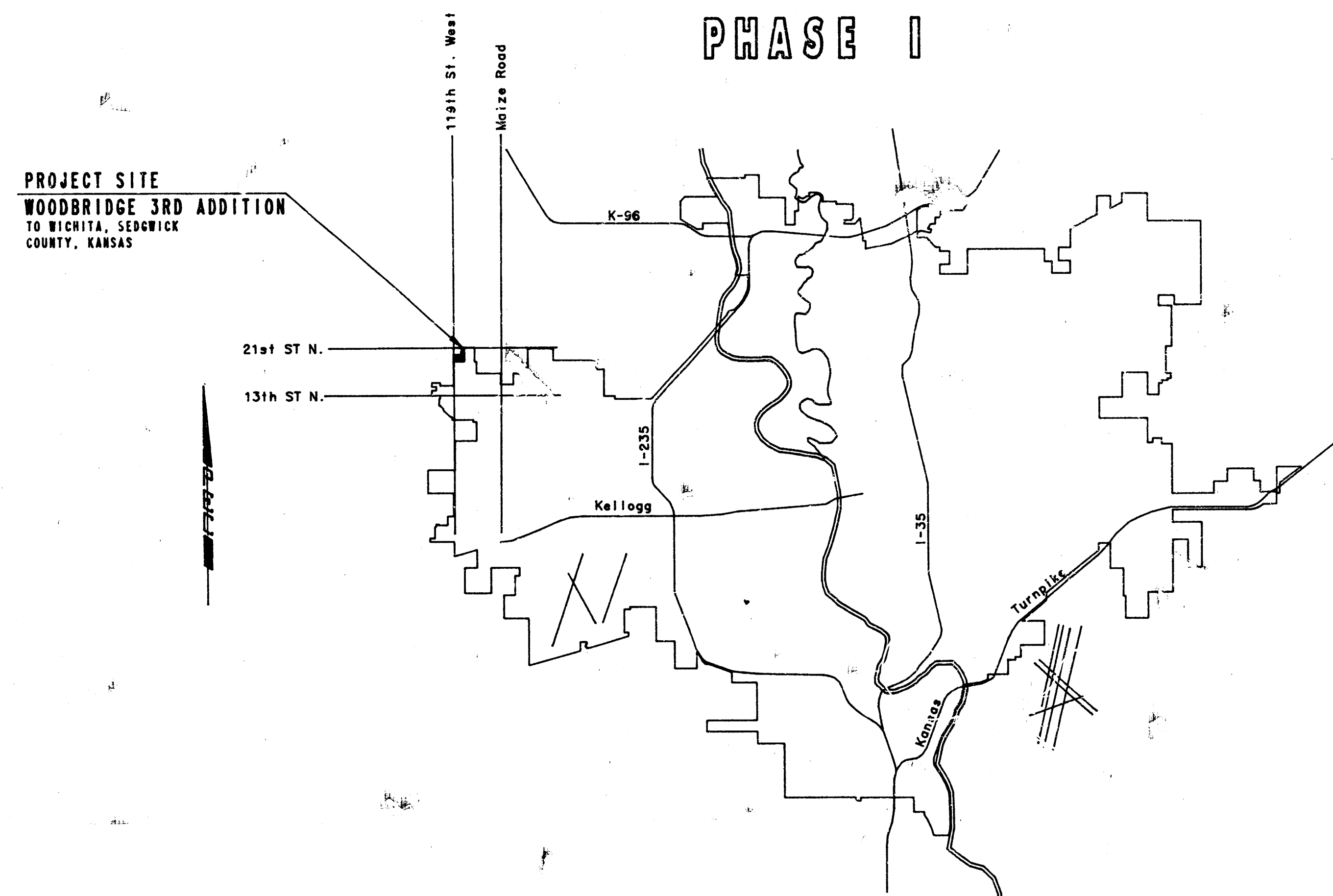
CONSTRUCTION PLANS FOR LATERAL 20, MAIN 12 OF THE SOUTHWEST INTERCEPTOR SEWER TO THE CITY OF WICHITA, SEDGWICK COUNTY, KANSAS

MICHAEL E. LINDEBAK, P.E.-CITY ENGINEER

PHASE I

INDEX OF SHEETS

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	KEY MAP
SHEET NO. 3-6	PLAN/PROFILE
SHEET NO. 7	TYPE "P" MANHOLE DETAILS
SHEET NO. 8	TYPE "C" MANHOLE DETAILS
SHEET NO. 9	FRAME & COVER DETAIL



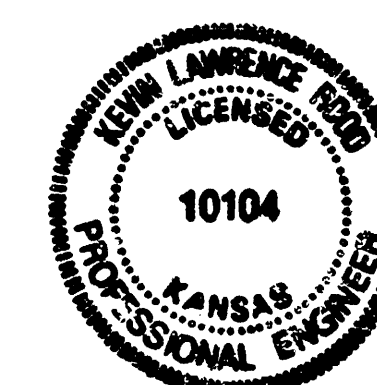
LOCATION MAP

CITY OF WICHITA PROJECT NO. 468-76-245-81561-000-000-001

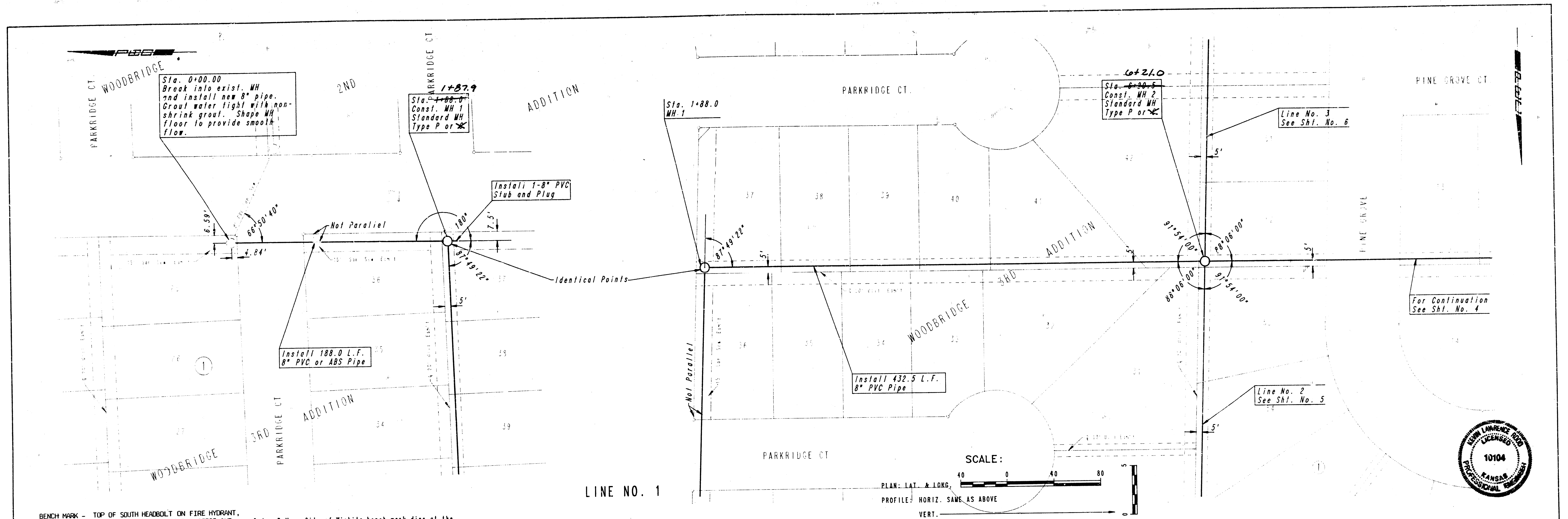
JULY, 1986

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

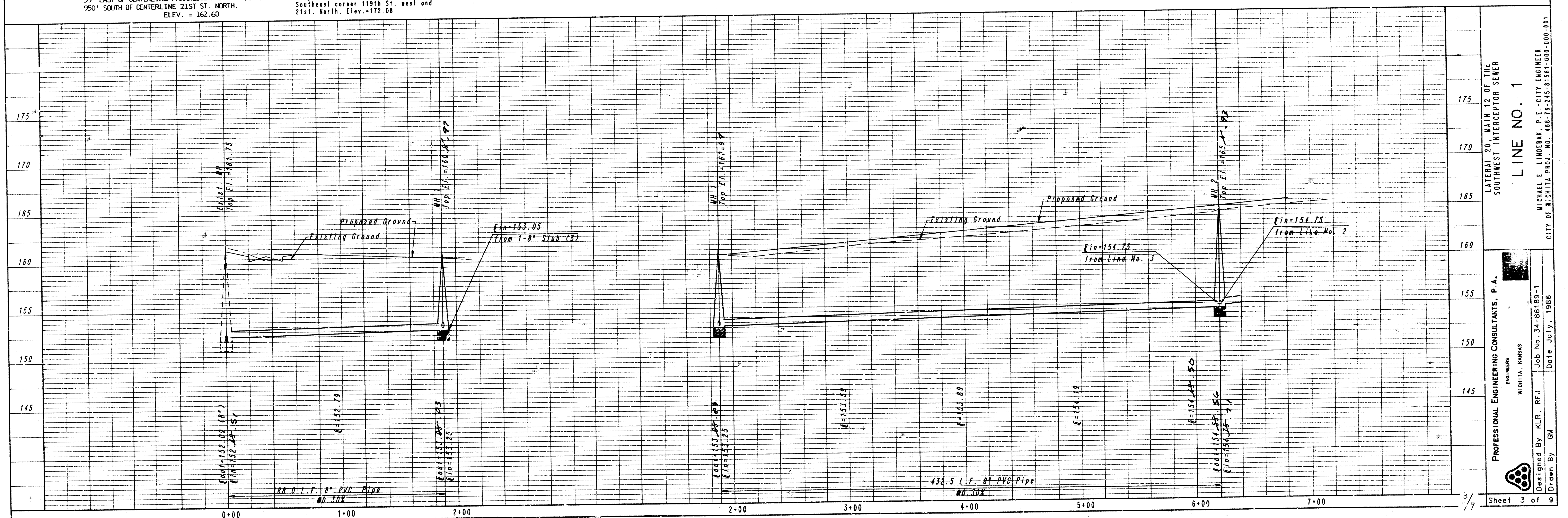
AS BUILT
RDL
5-87



FILMED FROM THE BEST
AVAILABLE COPY



BENCH MARK - TOP OF SOUTH HEADBOLT ON FIRE HYDRANT, 39' EAST OF CENTERLINE PARKRIDGE AND 950' SOUTH OF CENTERLINE 21ST ST. NORTH. ELEV. = 162.60
 Datum B.M. - City of Wichita bench mark disc at the Southeast corner 119th St. west and 21st St. North. Elev. = 172.08

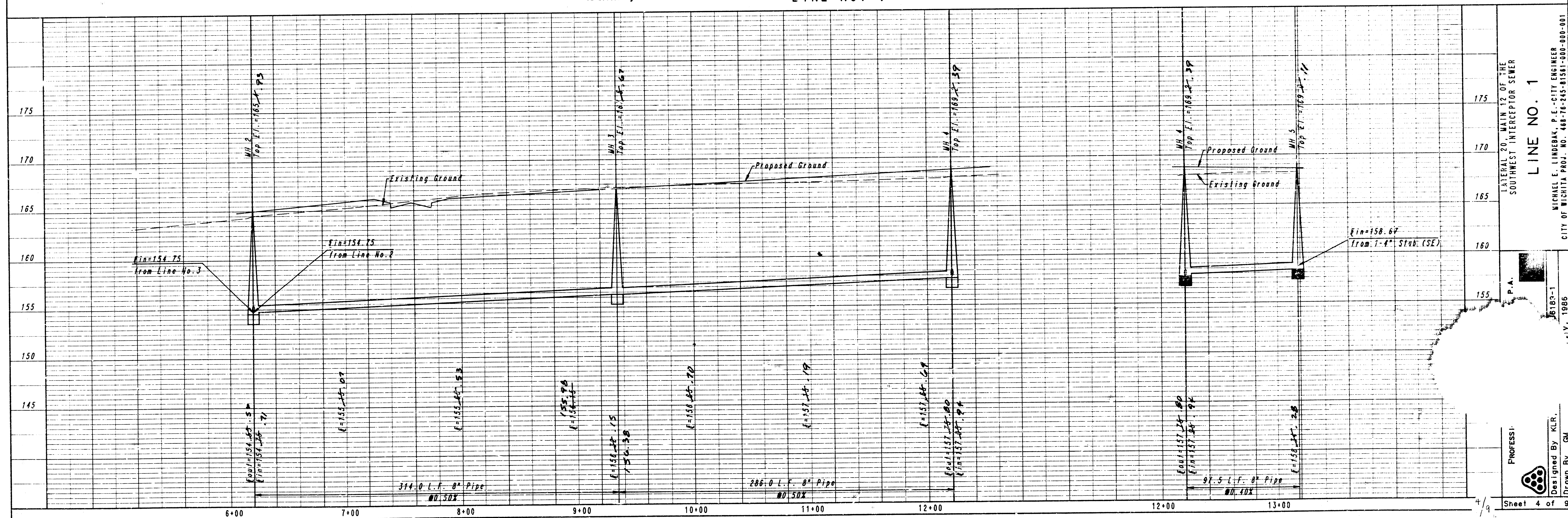
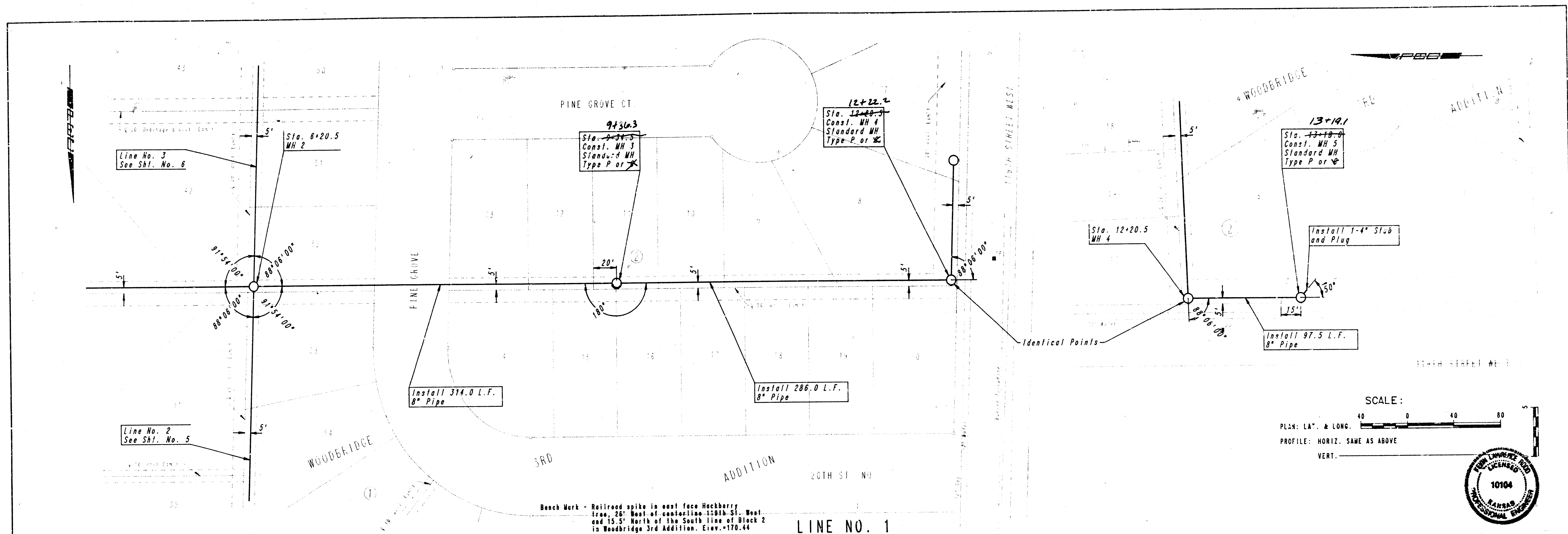


LINE NO. 1

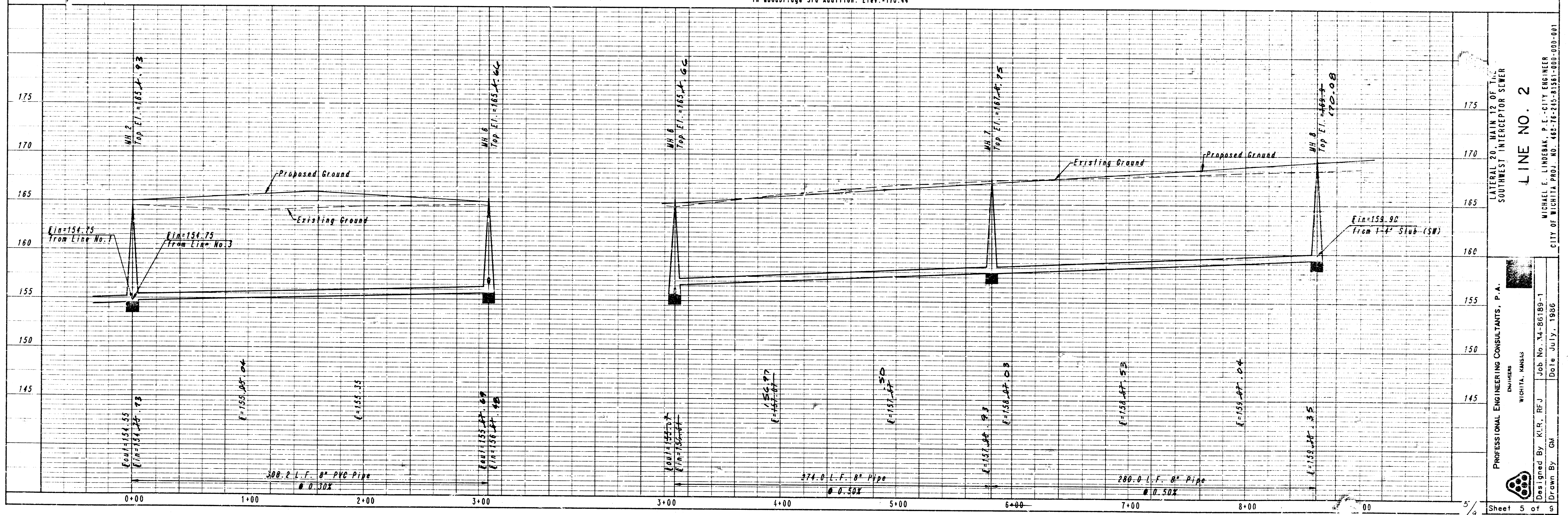
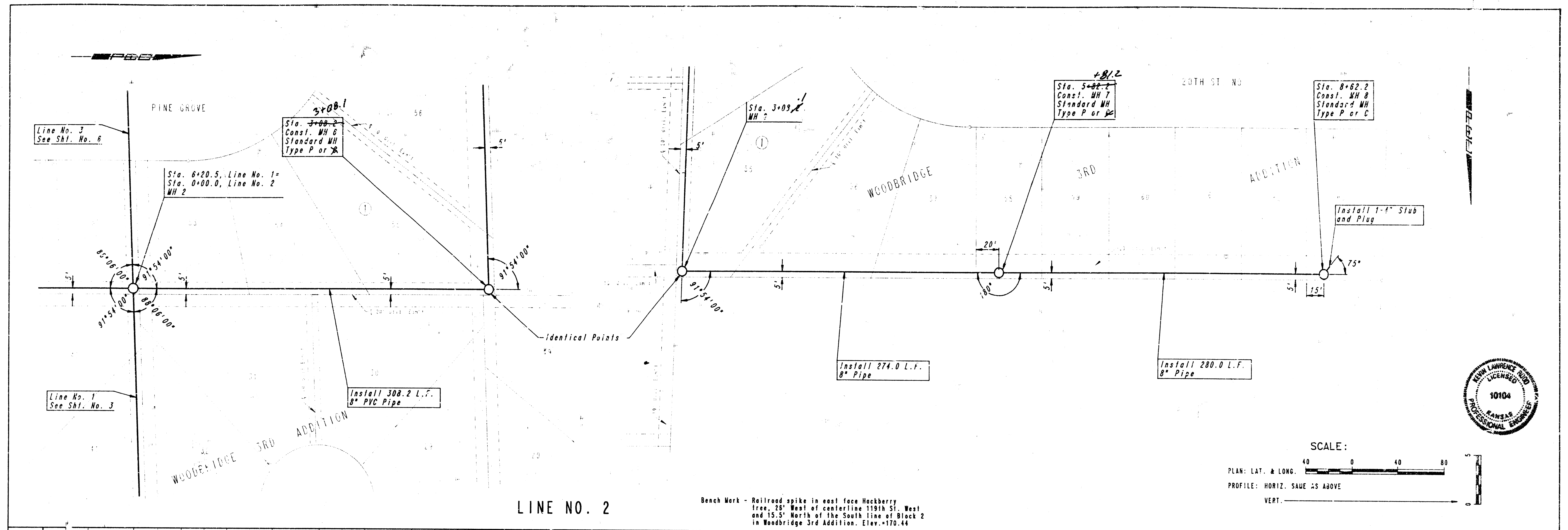
LATERAL 20, MAIN 12 OF THE SOUTHWEST INTERCEPTOR SEWER
 MICHAEL E. LINDBAK, P.E. - CITY ENGINEER
 CITY OF WICHITA PROJ. NO. 488-78-245-81561-000-001

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS
 Job No. 34-86189-1
 Designed By KLR, RFJ
 Drawn By GM
 Date July, 1986
 Sheet 3 of 9

FILMED FROM THE BEST AVAILABLE COPY.....



FILMED FROM THE BEST
AVAILABLE COPY.....



Sheet 5 of 9

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

Job No. 44-86189-1
Designed By K.R. RFJ
Drawn By GN

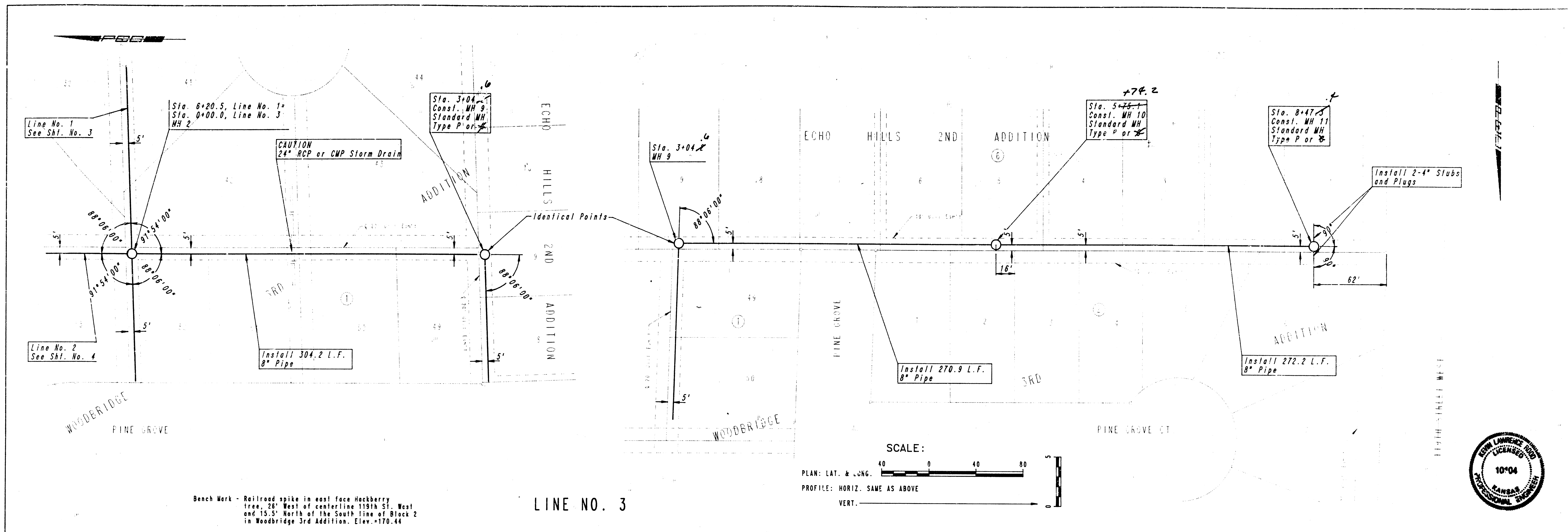
Date July, 1986

LATERAL 20' MAIN 12" OF THE
SOUTHWEST INTERCEPTOR SEWER

LINE NO. 2

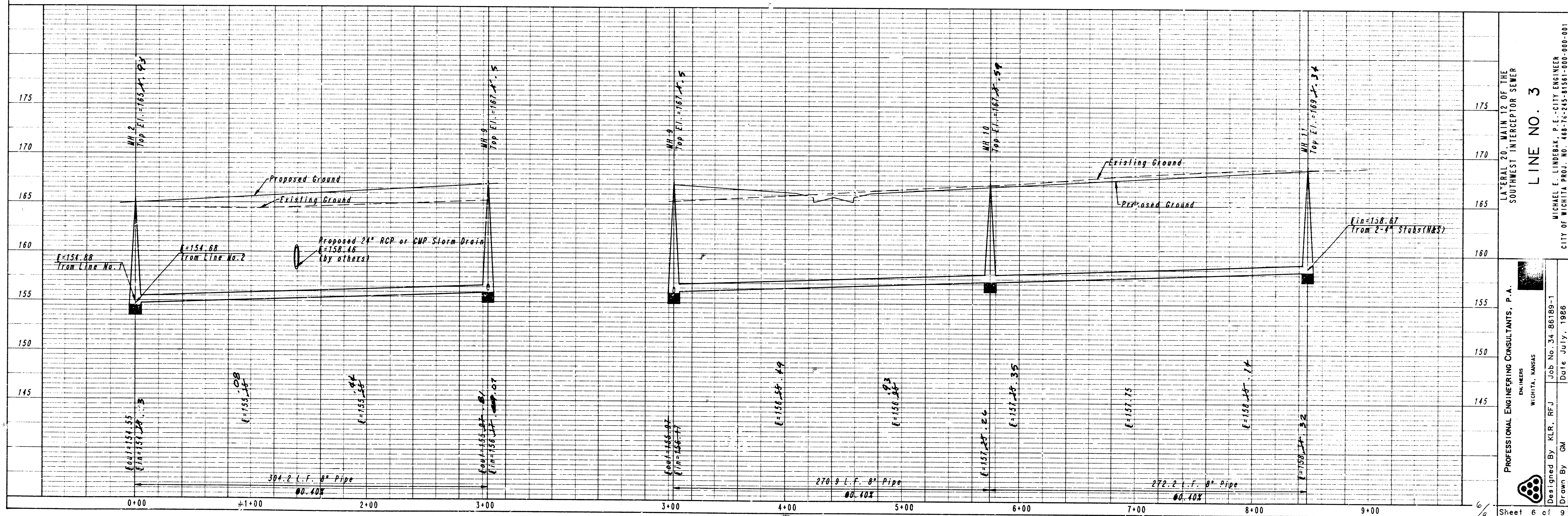
MICHAEL E. LINDBERGH, P.E., CITY ENGINEER
CITY OF WICHITA PROJ. NO. 465-76-215-A1561-800-000-001

FILMED FROM THE BEST
AVAILABLE COPY.....



Bench Mark - Railroad spike in east face Hackberry tree, 26' West of centerline 119th St. West and 15.5' North of the South line of Block 2 in Woodbridge 3rd Addition. Elev. = 170.44

LINE NO. 3



LINE NO. 3
 LATERAL 20, MAIN 12 OF THE
 SOUTHWEST INTERCEPTOR SEWER

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

Michael F. Linde, P.E., City Engineer
 City of Wichita Proj. No. 468-76-245-11561-000-000-001

Designed By: KLR, RFJ
 Drawn By: GM
 Date: July, 1986

Sheet 6 of 9

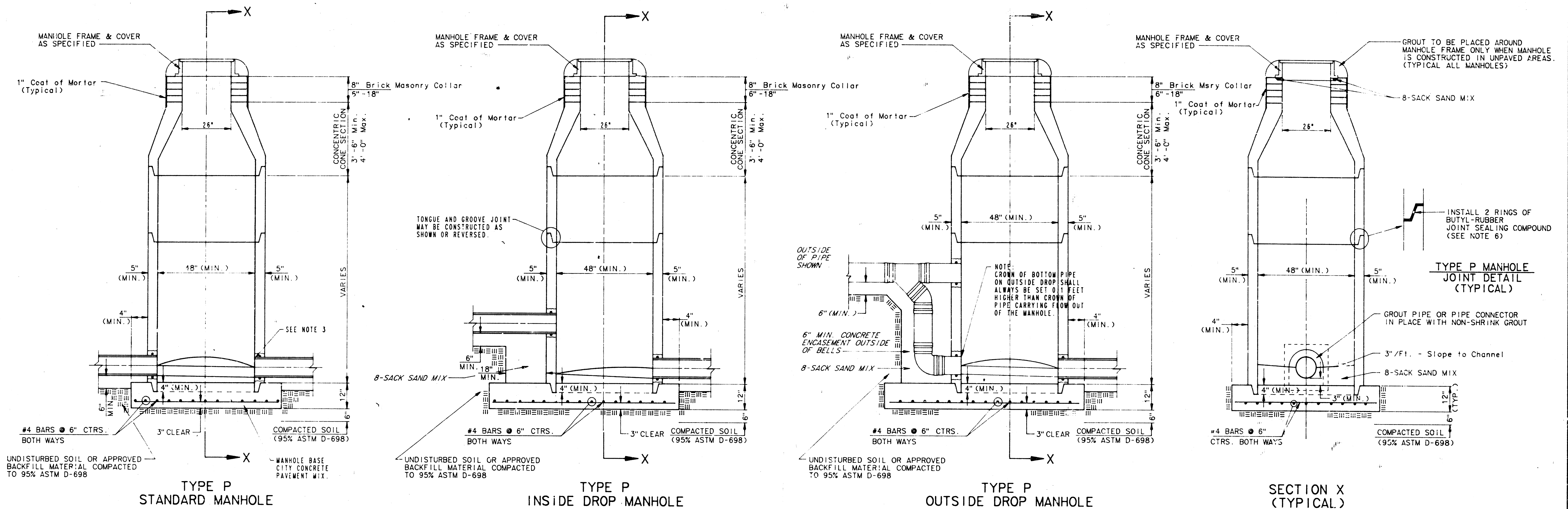
FILMED FROM THE BEST
 AVAILABLE COPY.....

SEWER APPURTENANCES DETAILS

ADOPTED AS STANDARD DESIGN

BY

CITY OF WICHITA



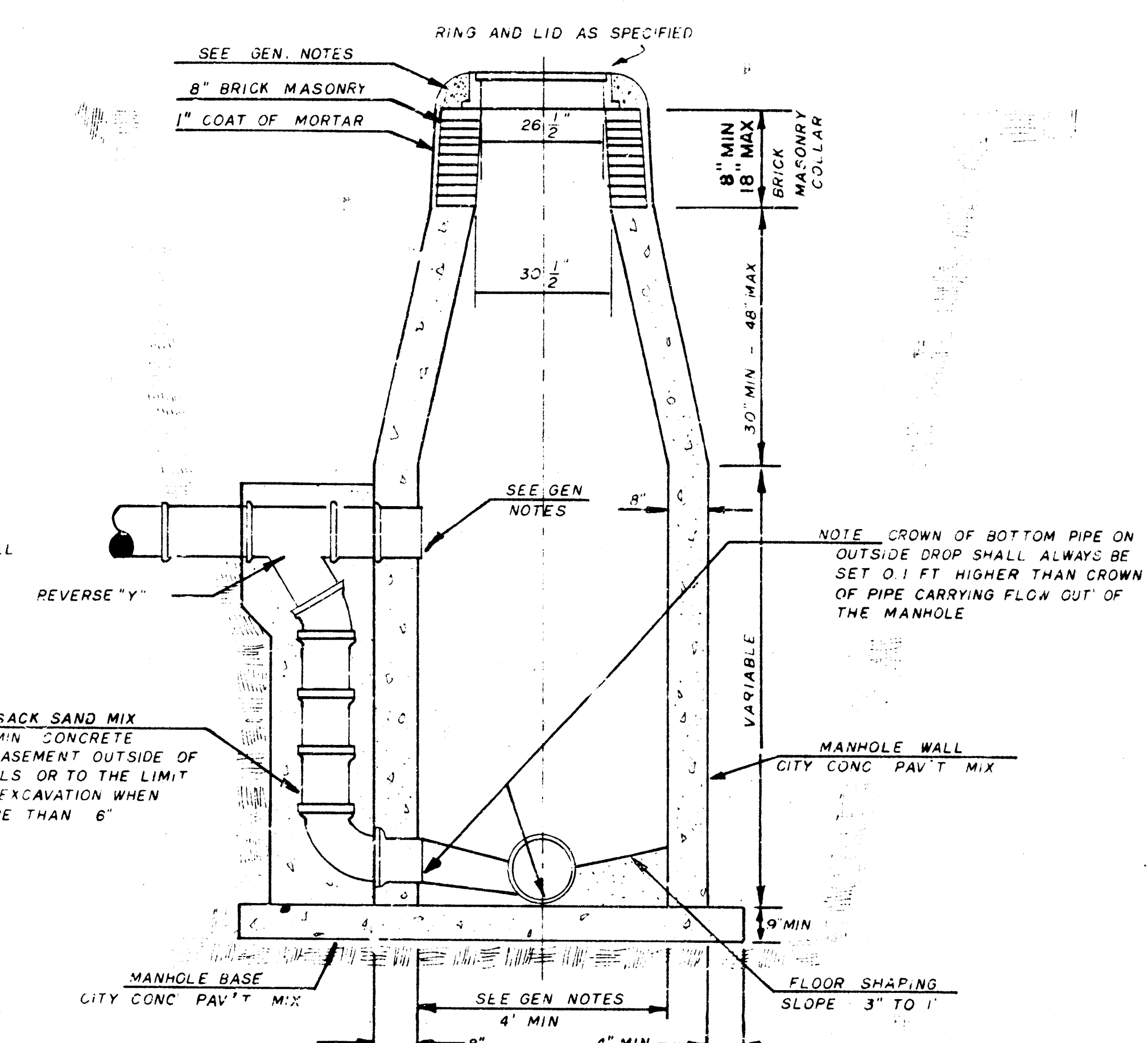
- GENERAL NOTES**
- PRECAST MANHOLE NOTES**
1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISION OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
 2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
 3. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER PIPE SHALL BE GROUDED 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.
 4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS TNEWC SERIES 66 HI-BUILD EPOXYDINE, DRY THICKNESS OF 8 MILS (MIN.)
 5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
 6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
 7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
 8. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
 9. LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
 10. 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 SAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADJUTURE. 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.

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 FURNISHING 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 DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUDED 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 GROUDED 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.
13. 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.
14. 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.

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 LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. 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.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.

City of Wichita, Kansas

OUTSIDE DROP MANHOLE TYPE "C"



1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 3% OF ELEMENT 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 ADJUSTMENTS. MORTAR SHALL BE PLACED IN THE JOINTS WITH MASONRY IN THE CHANNELS AND IN MANHOLE ARE CONTACTED IN UNPAVED AREAS. TYPE "N" MANHOLES ARE TO BE CONSTRUCTED ONLY WHERE PIPE SIZES ARE 4" OR SMALLER. THE INSIDE DIAMETER OF TYPE "N" MANHOLE SHALL BE 4". COMPLETED MANHOLE SHALL BE ABOVE GRADE AND WATER TIGHT.
2. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE WALL. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS PLACED 12" CENTER TO CENTER IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE PLACED TO AVOID THE BOTTOM OF THE CHANNELS AND TO AVOID CONTACT WITH MASONRY. IN LINED REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR THE MANHOLE.
3. AN OPENING SHALL BE CUT IN THE MANHOLE WALL FOR THE UPPER INLET PIPE. THE OPENING SHALL BE CUT IN THE MANHOLE WALL. THE UPPER INLET PIPE SHALL BE WROUGHT-IRON PIPE WITH A FLANGE WITH MANHOLES. THE FLANGE SHALL BE WELDED TO THE COMPLETED CONNECTION. IT IS STATED WITH AN APPROVED DESIGNING ENGINEER THAT THE CONNECTION WILL BE WATER TIGHT.
4. THE FLOW OF ALL MANHOLES SHALL BE SHOWN BY FLOW CHANNELS SUCH THAT THE MANHOLES ALL BE SELF-DRAINING AND NOT 2' AHEAD WHEN JOINTS SHOULD BE DEPOSITED AS DISCHARGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPE TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO THE OUTLET PIPE. THE FLOW CHANNELS SHALL BE FORMED TO THE OUTLET PIPE AND SHALL BE FORMED TO THE OUTLET PIPE. THE FLOW CHANNELS SHALL BE FORMED TO THE OUTLET PIPE AND SHALL BE FORMED TO THE OUTLET PIPE.

THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 2 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 MAT 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.

7. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE GRADED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN PLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRADLE SHALL BE TERMINATED AT THE PLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. THE JOINT OF CRADLE WITHIN MANHOLE EXCAVATION OR TO PLAY PIPE JOINT ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE FOR THE MANHOLE.

6. MANIFOLD COVER CASTINGS AND MANIFOLD FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.

6. THE VERTICAL CLEARANCE INSIDE OVER MANHOLES SHALL NOT BE LESS THAN 1' FOR INFLUING PIPES 12" OR SMALLER AND 2' FOR AN INFLUING PIPE LARGER THAN 12". THE CROWN OF INFLUING PIPE SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLUING PIPE.

STANDARD MANHOLES TYPE "A" AND "B" ARE IN THE 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 "IN" UNLESS INDICATED OTHERWISE.

MANHOLE FRAME AND COVER DETAIL

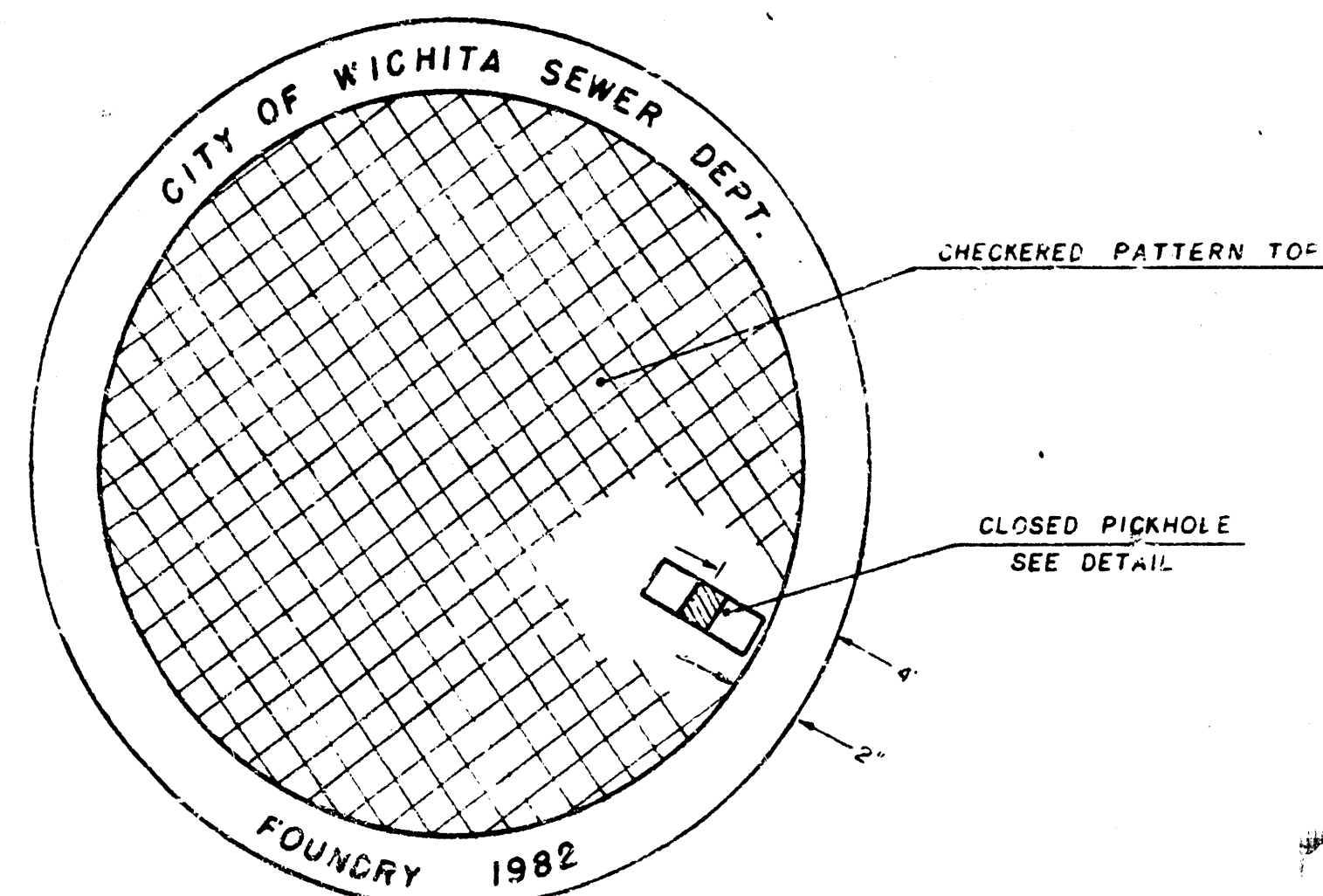
ADOPTED AS STANDARD DESIGN

BY

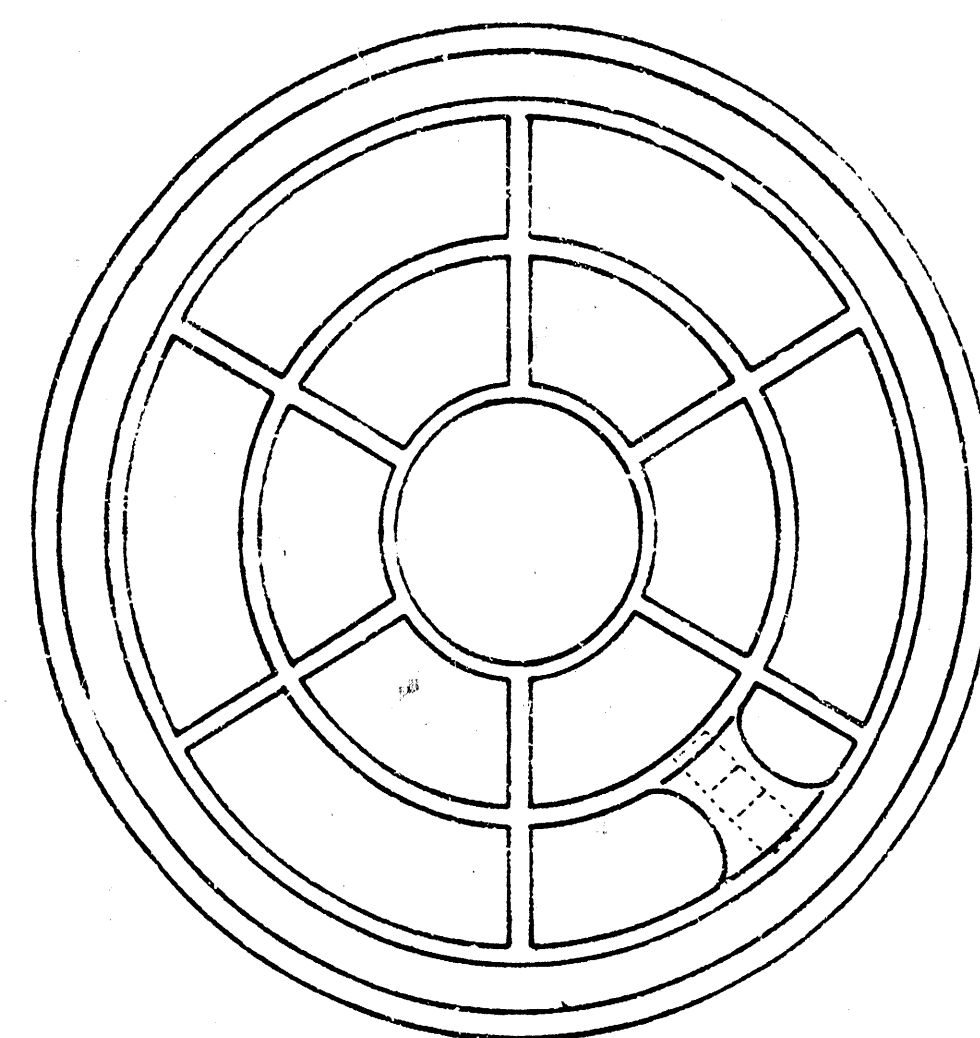
City of Wichita, Kansas

MANHOLE COVER

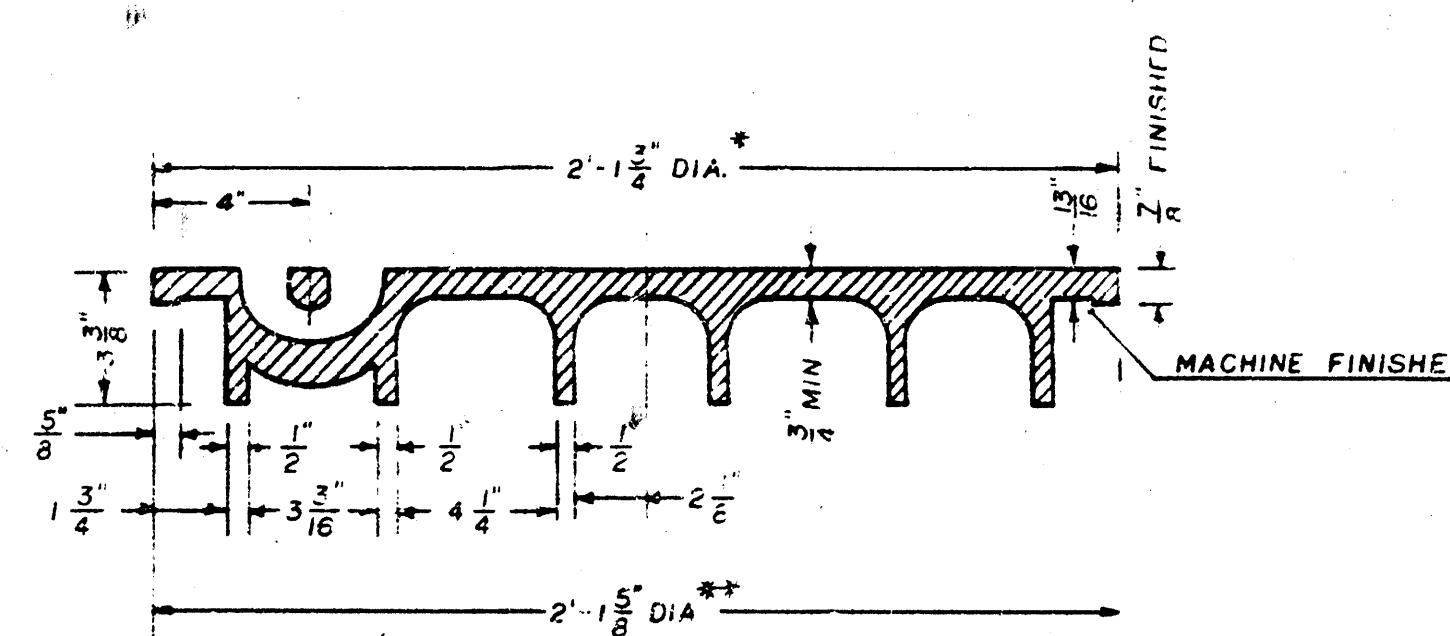
Weight: 180 Lbs.



TOP VIEW



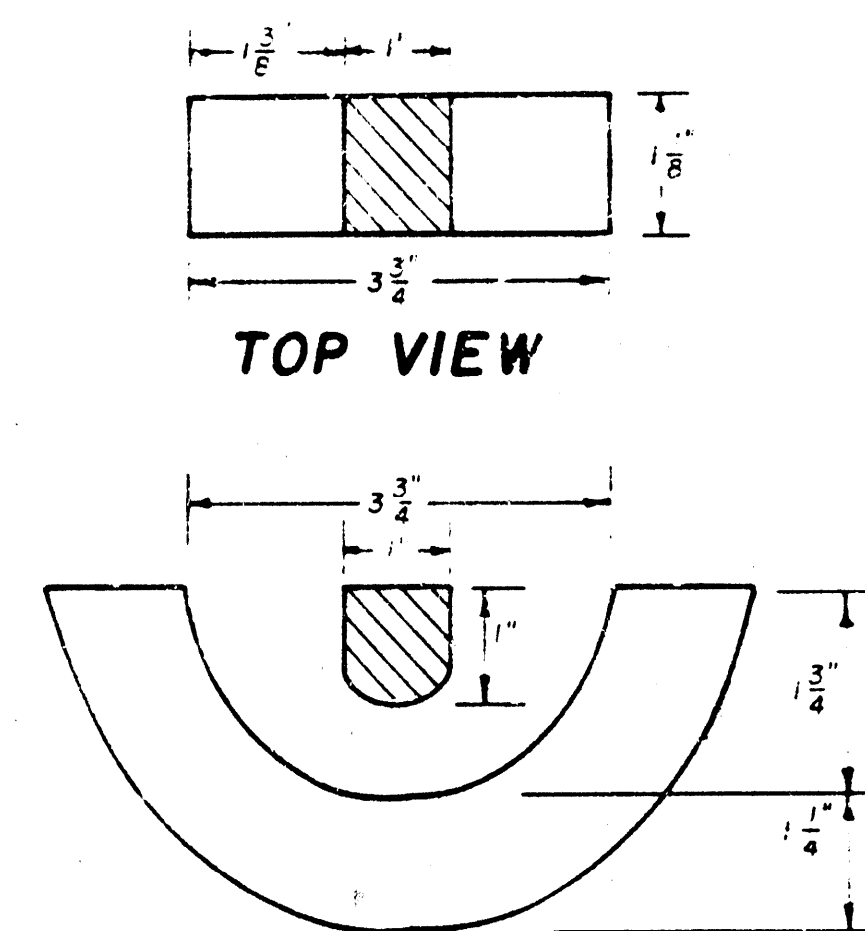
BOTTOM VIEW



SECTION VIEW

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

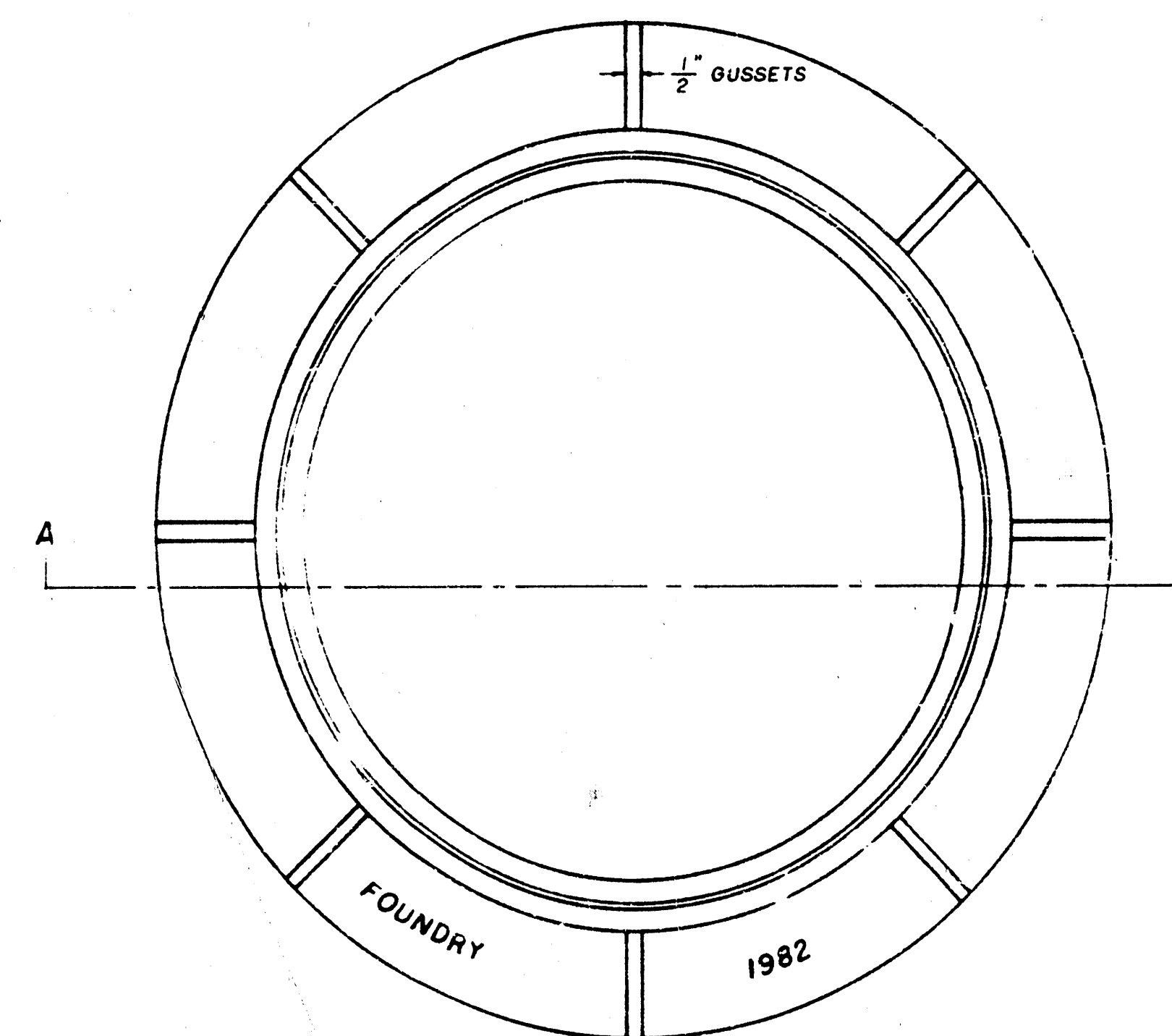
PICKHOLE DETAIL



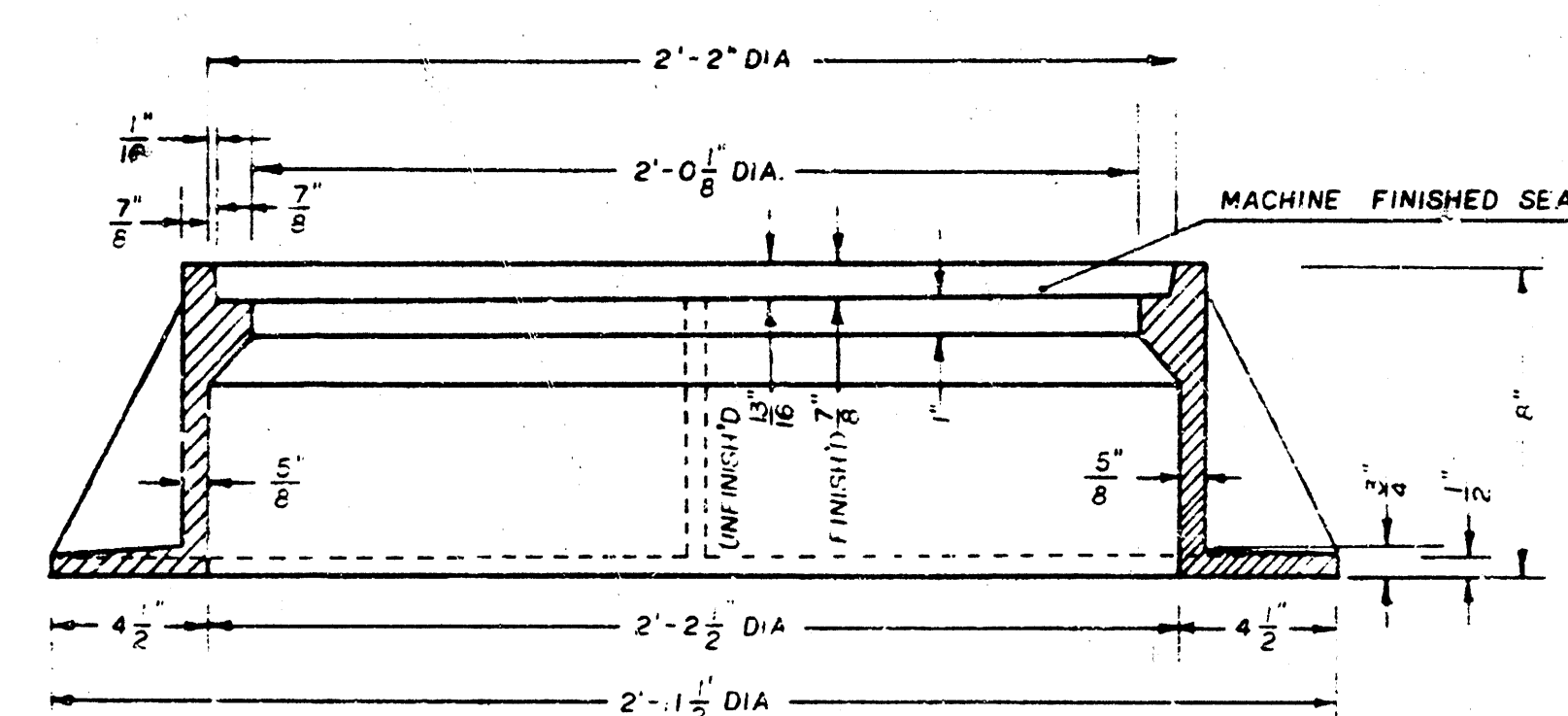
SECTION VIEW

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, SPRINKAGE 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.