

# SANITARY SEWER SYSTEM

## TO SERVE CENTRAL MAIZE MIDDLE SCHOOL

### PROJECT NUMBER: 1286 PPS

### OCA # 607861

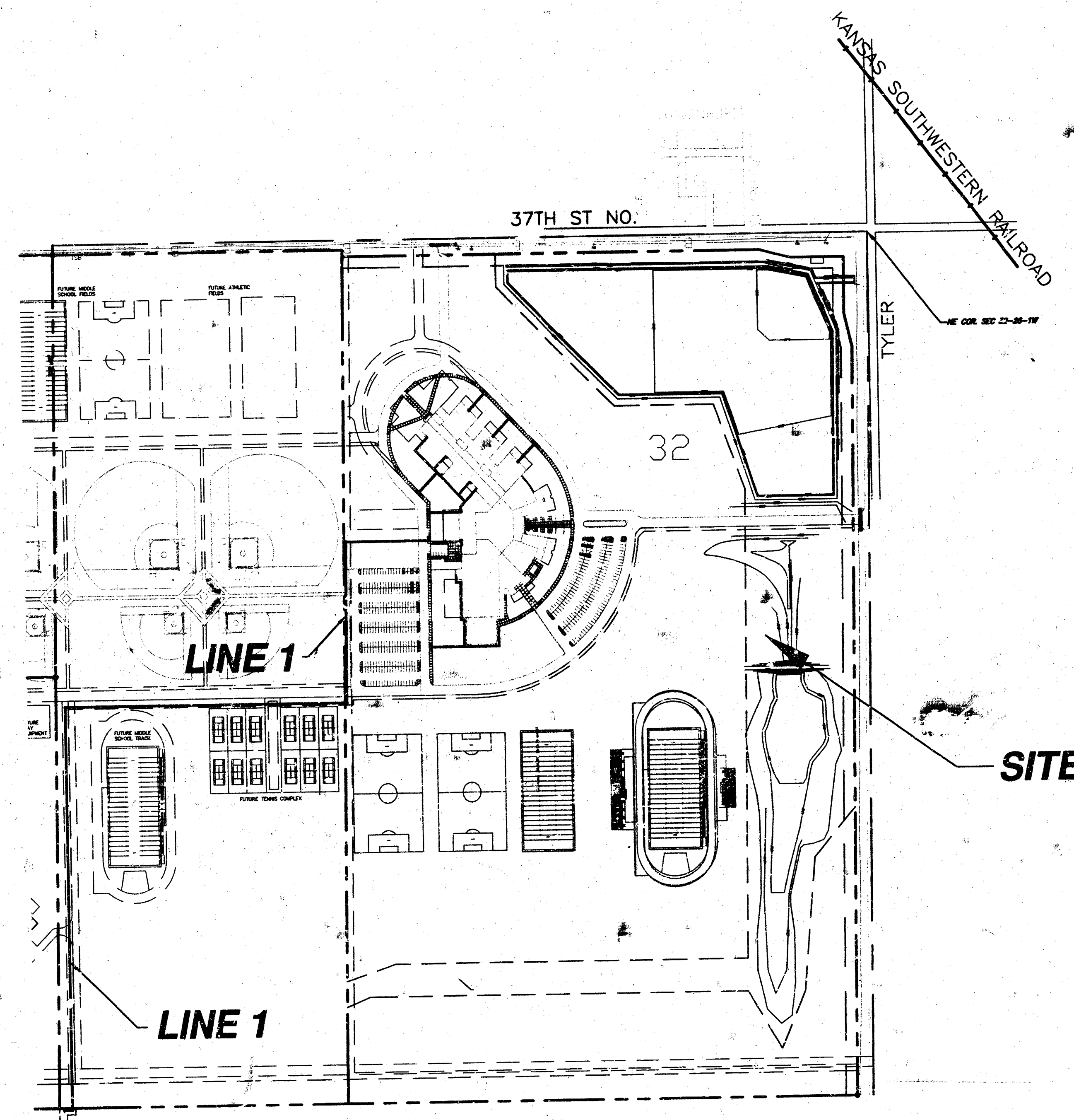
#### GENERAL NOTES

1. Contractor will be required to notify Kansas One-Call (687-2470), a minimum of 48 hours in advance of beginning any excavation.

The Contractor must notify the following utility companies in case of an emergency:

|                                     |                |
|-------------------------------------|----------------|
| Cox Communications                  | 262-0661       |
| Kansas Gas Service                  | 383-8600       |
| Westar Energy                       | 383-8600       |
| Aquila Net                          | 1-800-303-1337 |
| Southwestern Bell Telephone Company | 1-800-286-8313 |
| City of Wichita Water Department    | 262-6000       |
| City of Wichita Sewer Maintenance   | 262-6000       |

2. The Contractor shall give all property owners and/or tenants of developed property directly abutting the construction of this project a minimum of ten (10) days advance notice prior to start of construction.
3. 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.
4. It shall be the responsibility of the Contractor to maintain sewage flow during construction of this project. The Contractor's plan for maintaining sewage flow shall be approved by the Engineer prior to construction.
5. The Contractor shall seed and fertilize all disturbed turf areas upon completion of construction (incidental to bid item for site clearing and restoration).
6. Easement areas are to be final graded as shown on sheet 4.
7. The Contractor shall install Phase 1 Soil Erosion Prevention measures prior to any disturbance of the site. See sheets 7-9.



#### INDEX OF SHEETS

1. COVER SHEET
2. STANDARD TYPE 'P' MANHOLE DETAILS
3. MANHOLE FRAME AND COVER
- 4-6. PLAN/PROFILES

#### BENCH MARKS

- BM #1 60 d SPIKE IN NORTH POLE OF "H" FRAME  
TRANSMISSION LINE, EAST OF S.E. COR., N.E. 1/4,  
SEC. 32. ELEV. = 1363.49 N.G.V.D.
- BM #2 TOP OF IRON, N.W. COR., N.E. 1/4, N.W. 1/4,  
SECTION 32. ELEV. = 1353.38 N.G.V.D.

AS-BUILTS (03/12/2003)  
Inspector: Tim Kelly / Mike Shump (Ruggles & Bohm)  
Contractor: Mies Construction (Albert)  
Start Date: Line A 3-15-02 → 3-20-02  
Line 1 1-17-03 → 2-18-03

#### BUILT PER PLAN

APPROVED AS NOTED  
BY CITY ENGINEER OF WICHITA

Sanitary Sewers VRH 11/27/02  
Storm Sewers \_\_\_\_\_  
Driveway Approaches \_\_\_\_\_  
Water Mains \_\_\_\_\_  
Paving \_\_\_\_\_

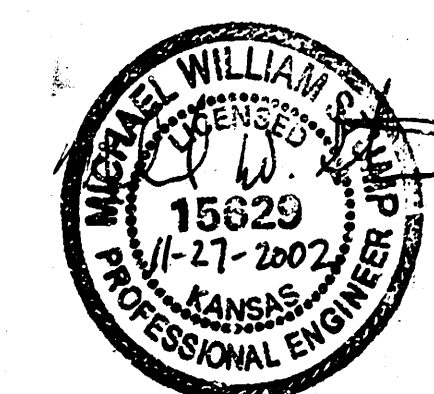
#### NOTE TO CONTRACTORS

Inspection and testing for this project are 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 public right-of-way by the Contractor without such inspection, nor shall any work be commenced without written authorization by the City Engineer.



Scale 1" = 300'

8/21/03  
RDL  
PDF

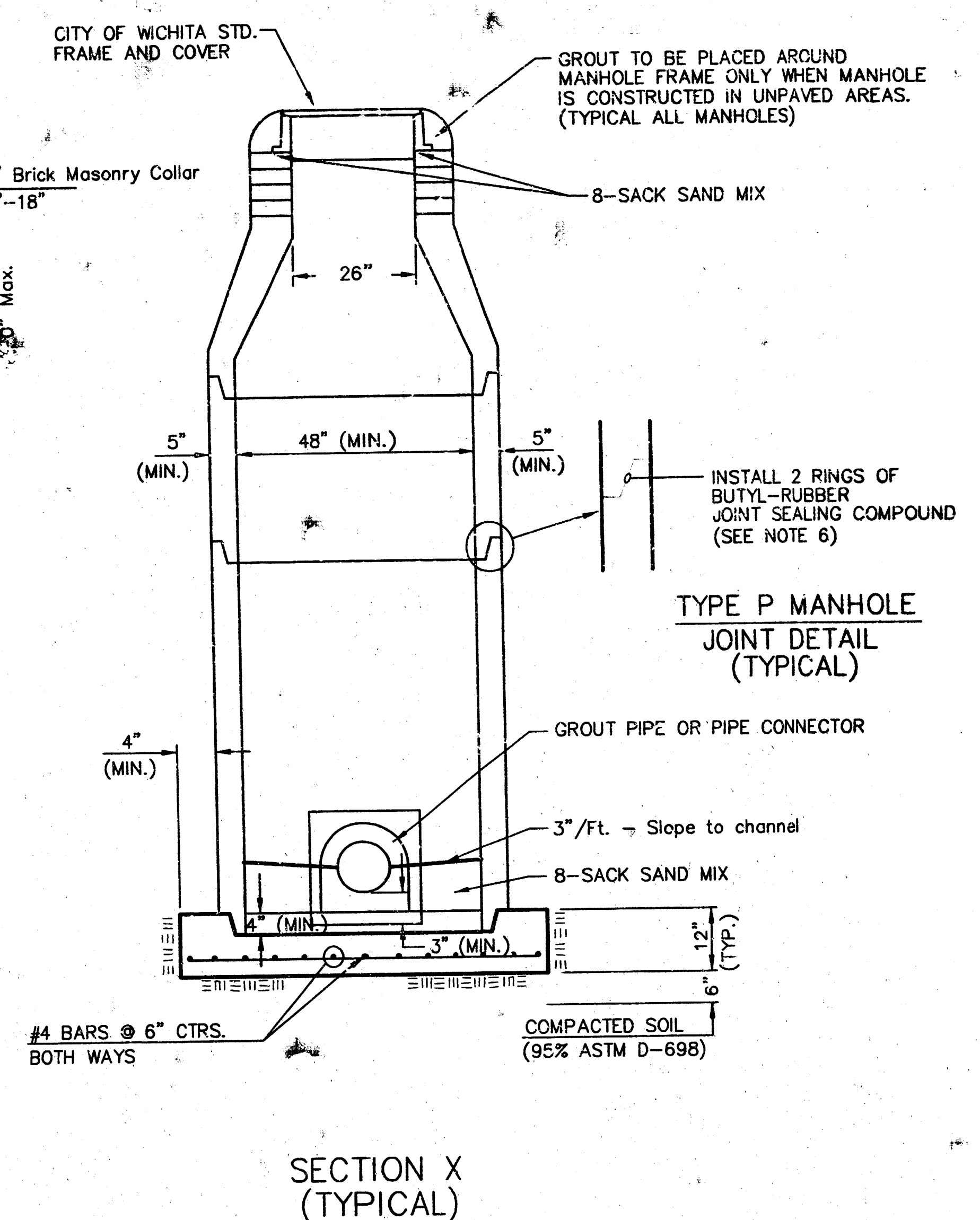
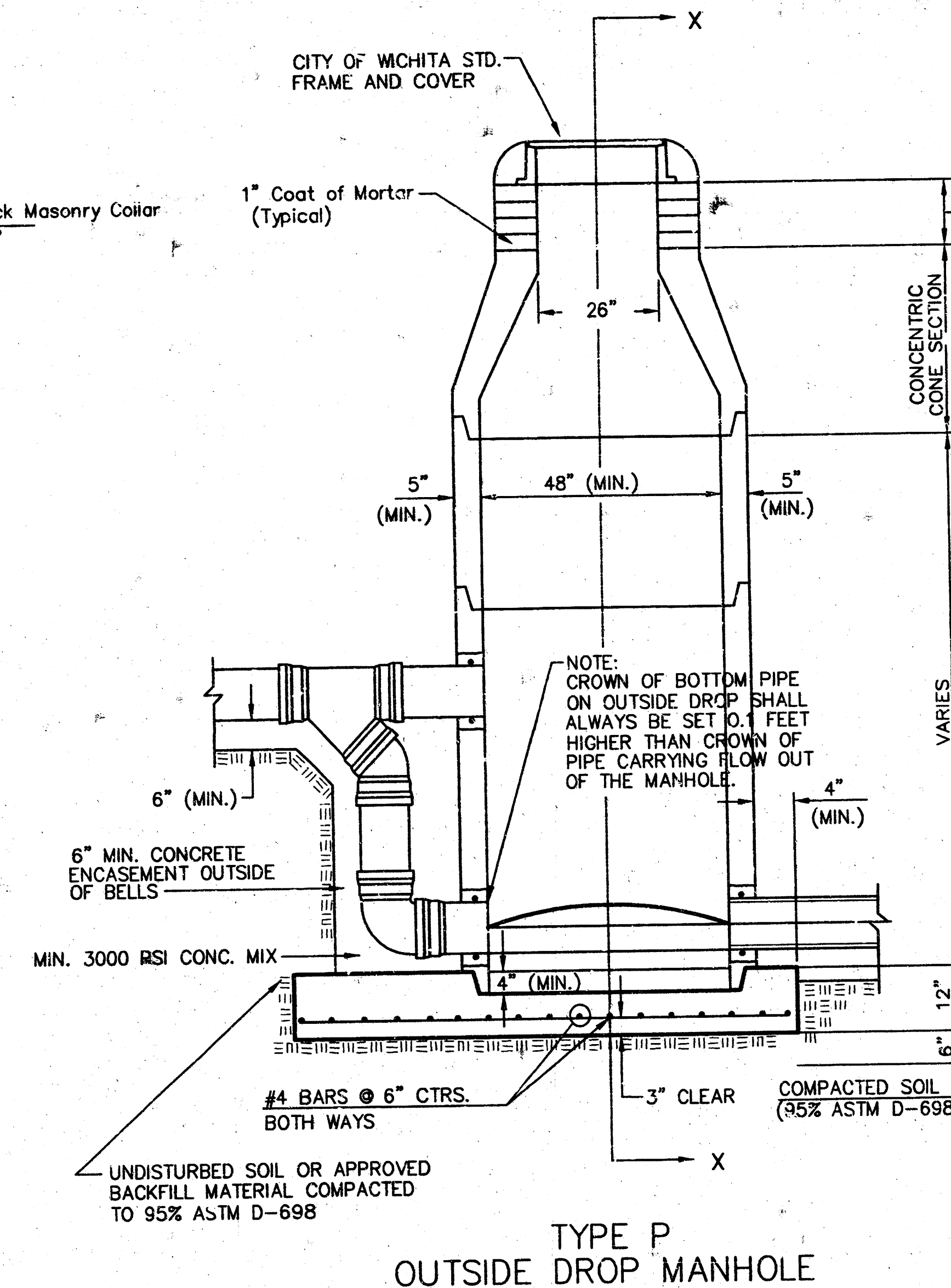
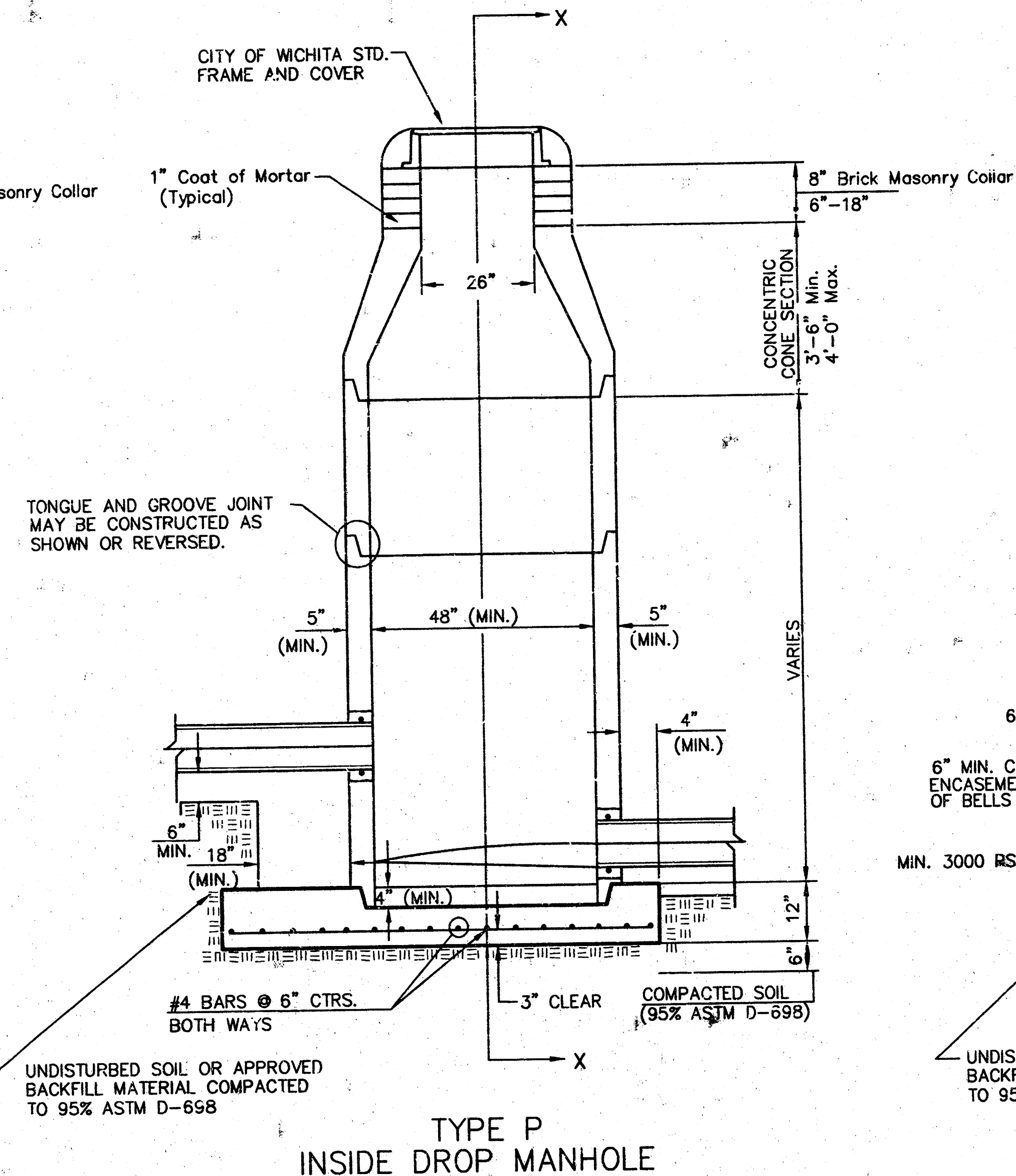
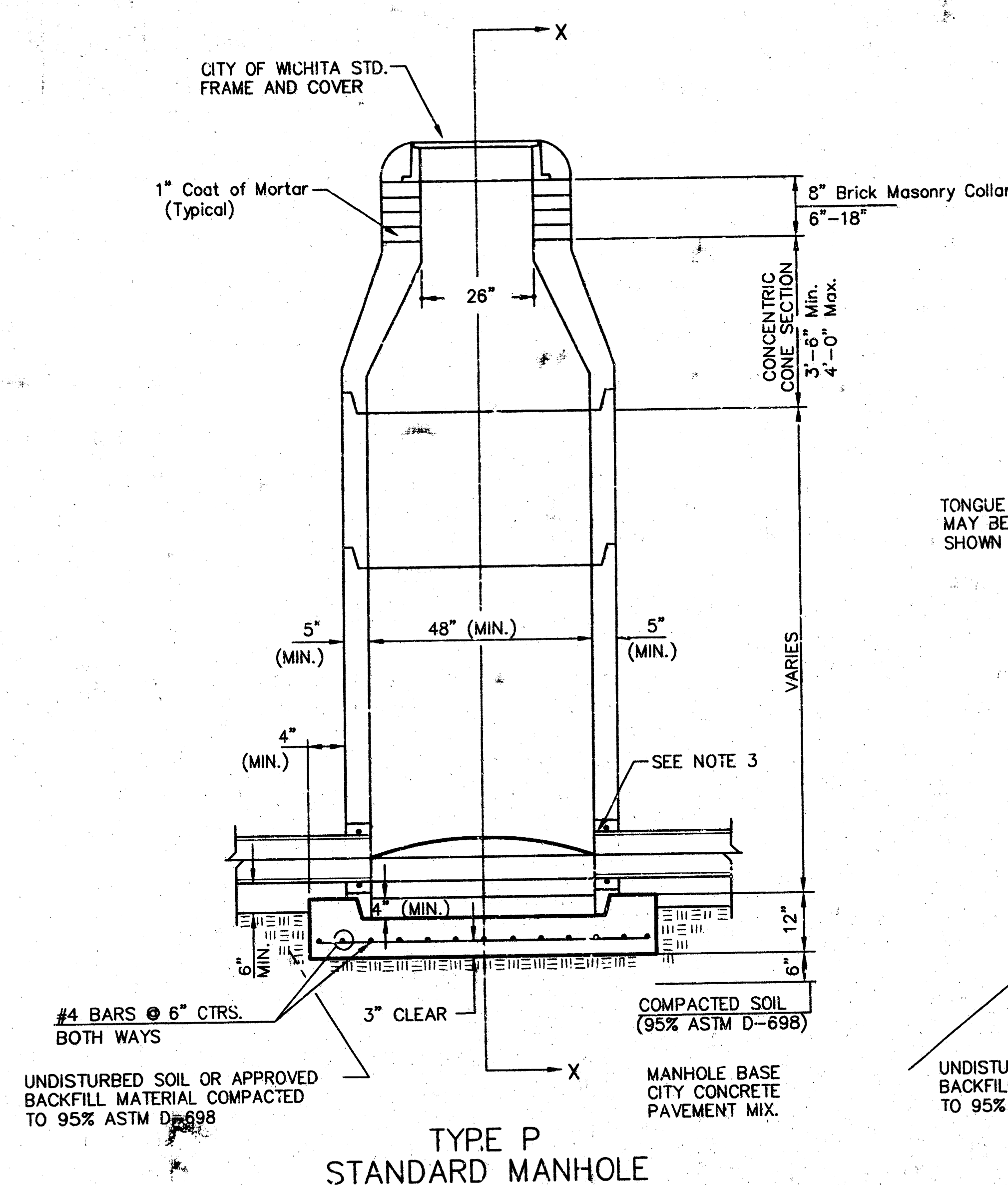


CITY OF WICHITA, KANSAS  
NEIL D. CABLE, P.E. - CITY ENGINEER



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(316) 264-4621 fax  
E-mail: info@rbkansas.com

# SEWER APPURTENANCES DETAILS



## GENERAL NOTES

- PRECAST MANHOLE 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.B.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 TNEC SERIES 66 HI-BUILD EPOXY, DRY THICKNESS OF 8 MILS (MIN.).
  - EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 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 MINIMUM 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.

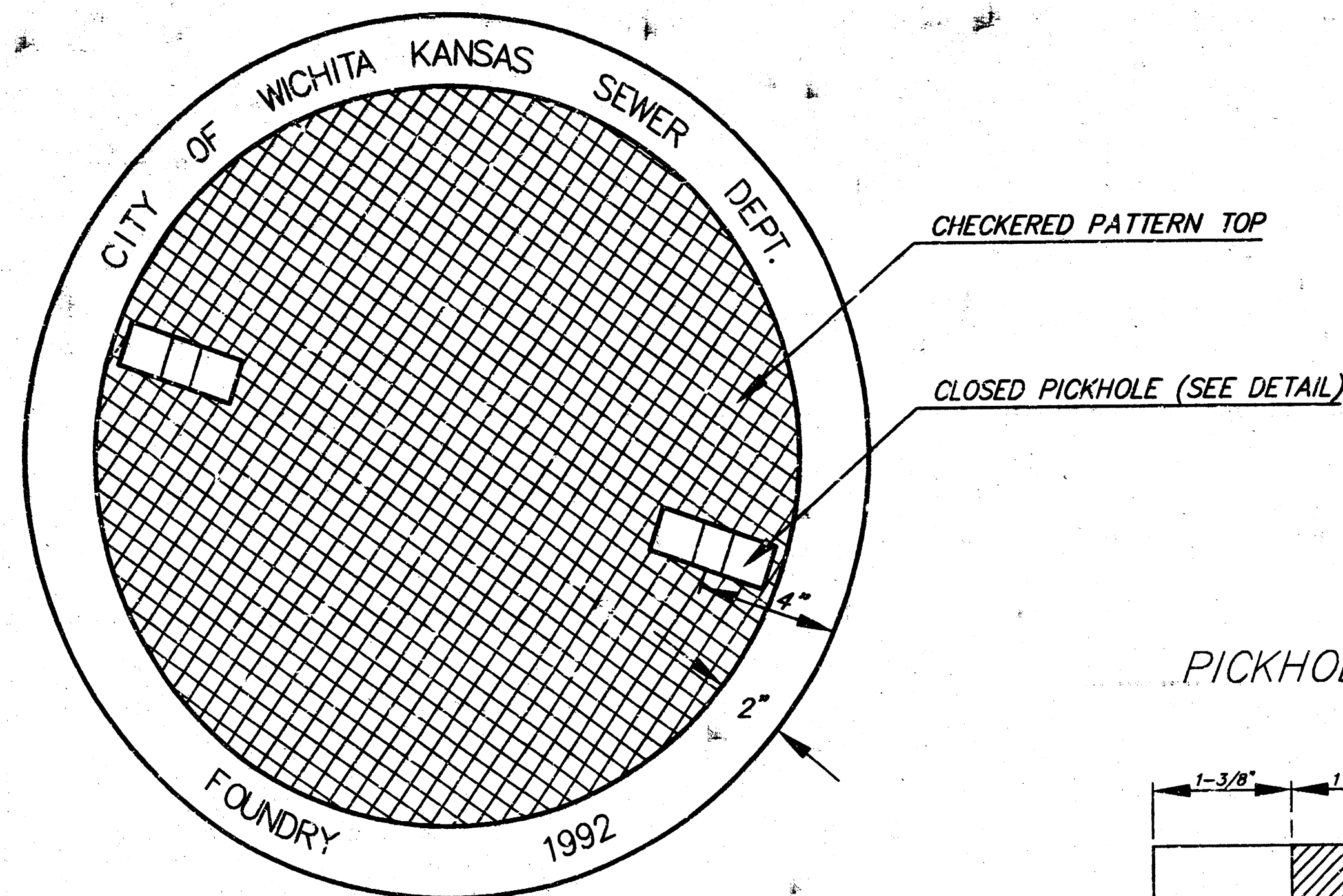
- REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
- 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 GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NON-SHRINK 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 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 GRADLED 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 2' 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 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 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. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.

As-BUILT (3/12/03) Built per Plan

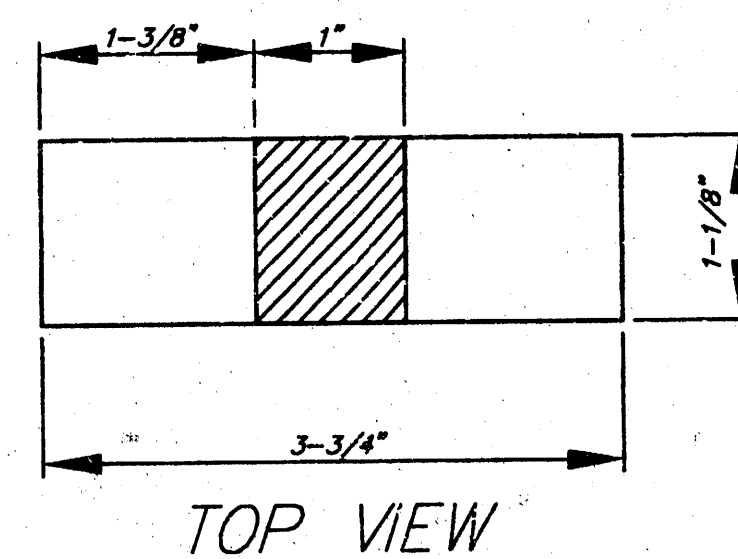
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| <b>THE CITY OF WICHITA</b><br><br>CITY ENGINEER'S OFFICE<br>CITY HALL - SEVENTH FLOOR<br>455 NORTH MAIN STREET<br>WICHITA, KANSAS 67202<br>(316) 268-6201<br>(316) 268-4114 FAX |  | <b>STANDARD TYPE 'P' MANHOLES</b><br>M. E. LINDEBAK P.E. - CITY ENGINEER<br>PROJECT NUMBER<br>1286 PPS<br>DATE<br>MAR 96 |  | OCA #<br>607861<br>SHEET 2 OF 6 |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------|--|---------------------------------|--|

MANHOLE COVER  
Weight = 180 Lbs.

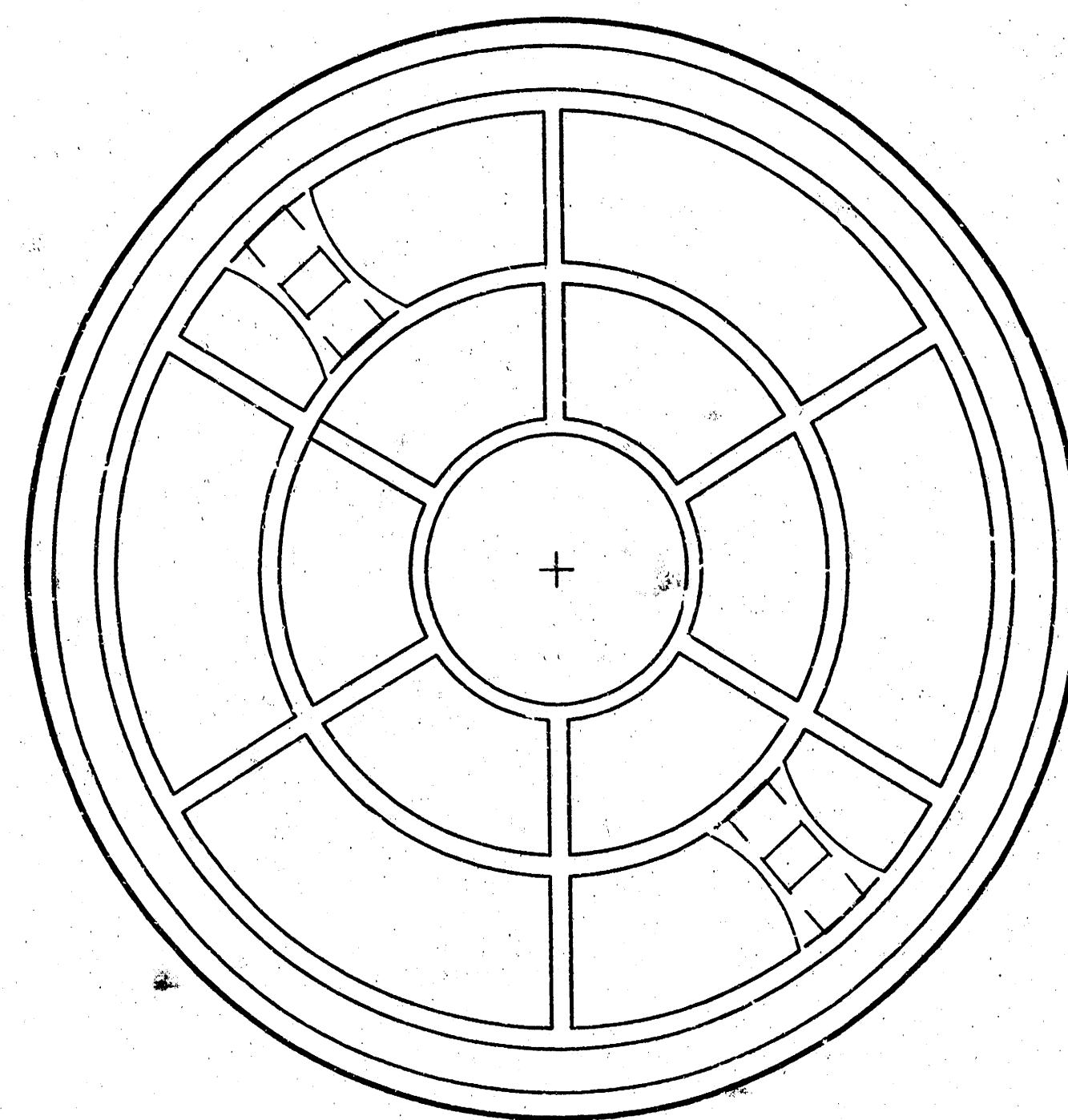


TOP VIEW

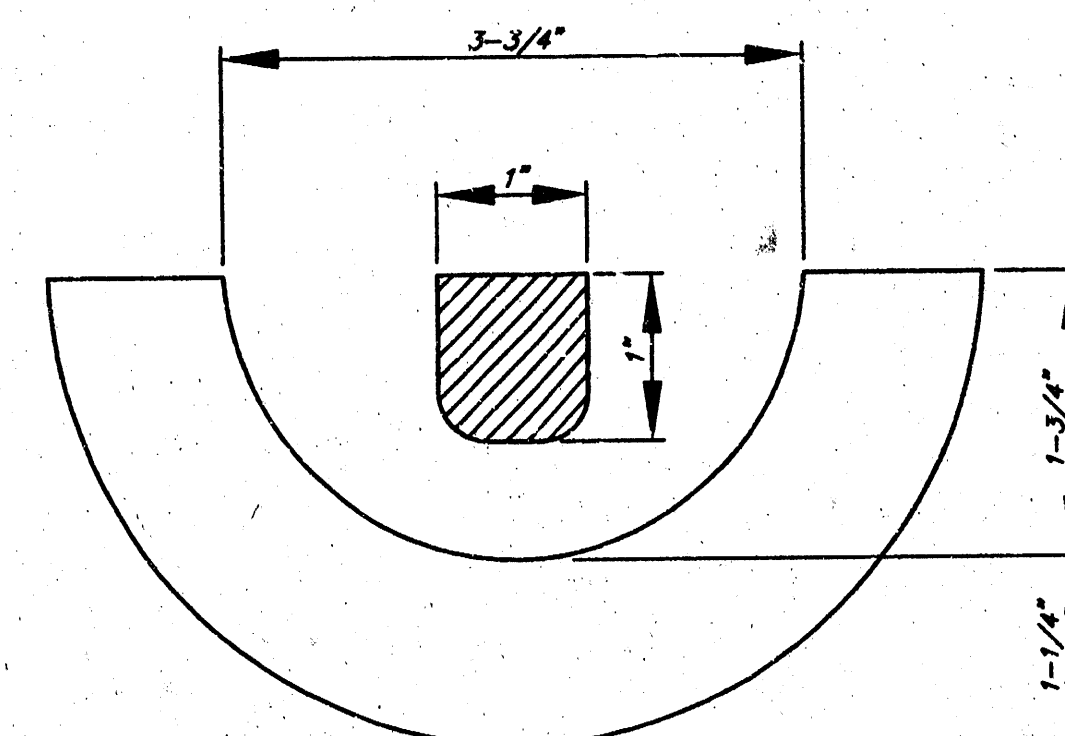
PICKHOLE DETAIL



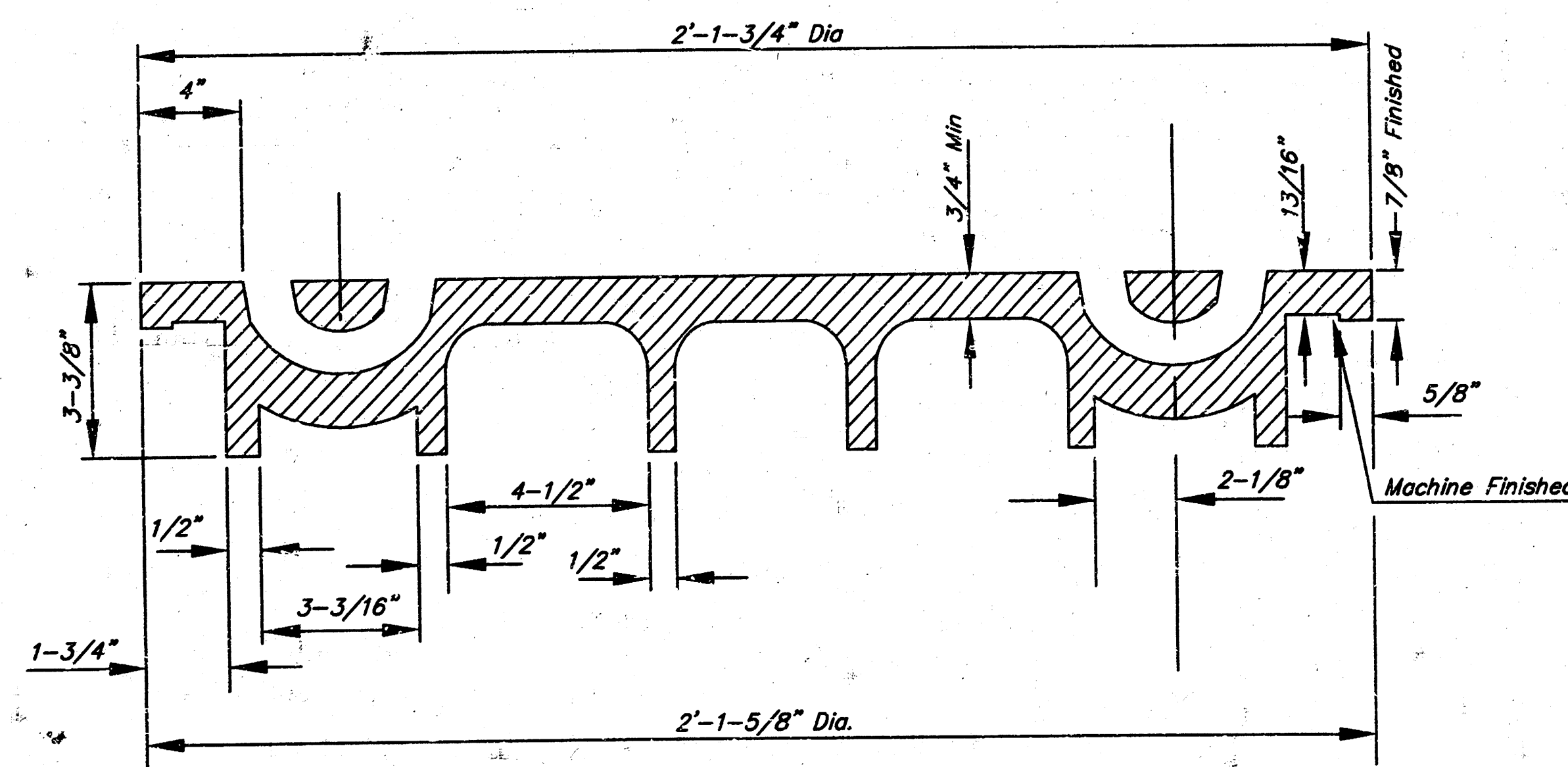
TOP VIEW



BOTTOM VIEW



SECTION VIEW

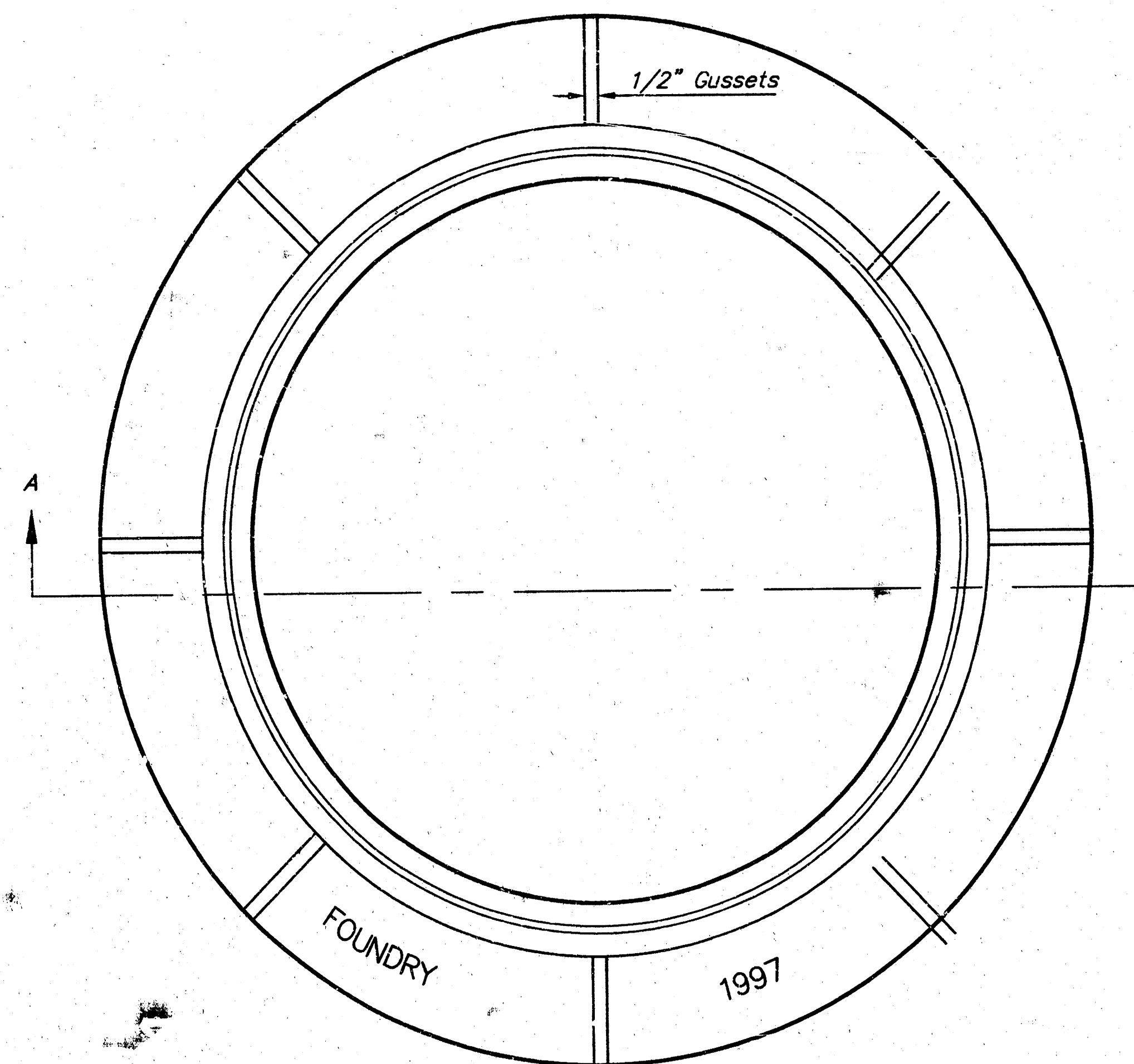


SECTION VIEW

## MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY  
CITY OF WICHITA, KANSAS

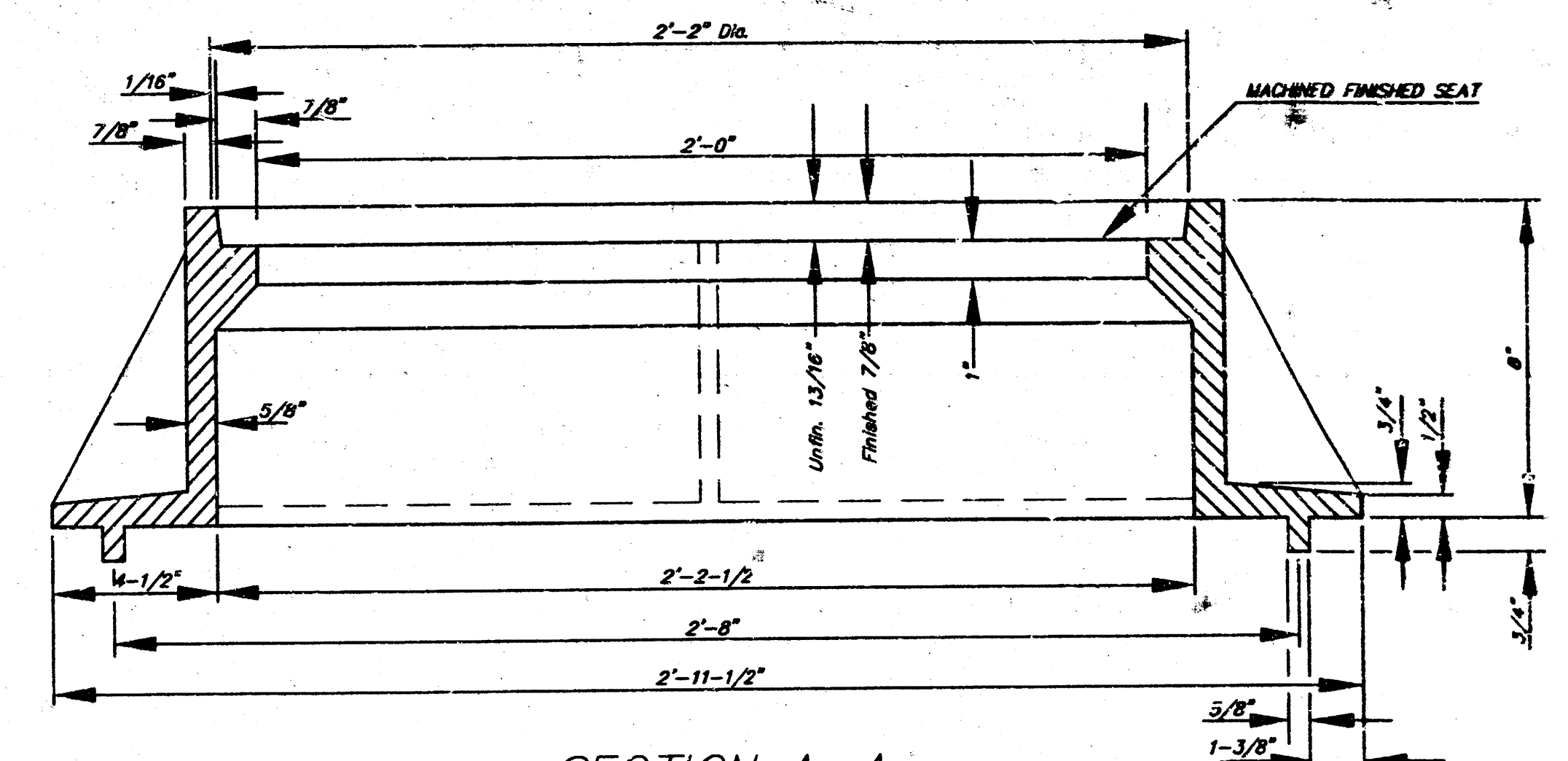
MANHOLE FRAME  
Weight = 240 Lbs.



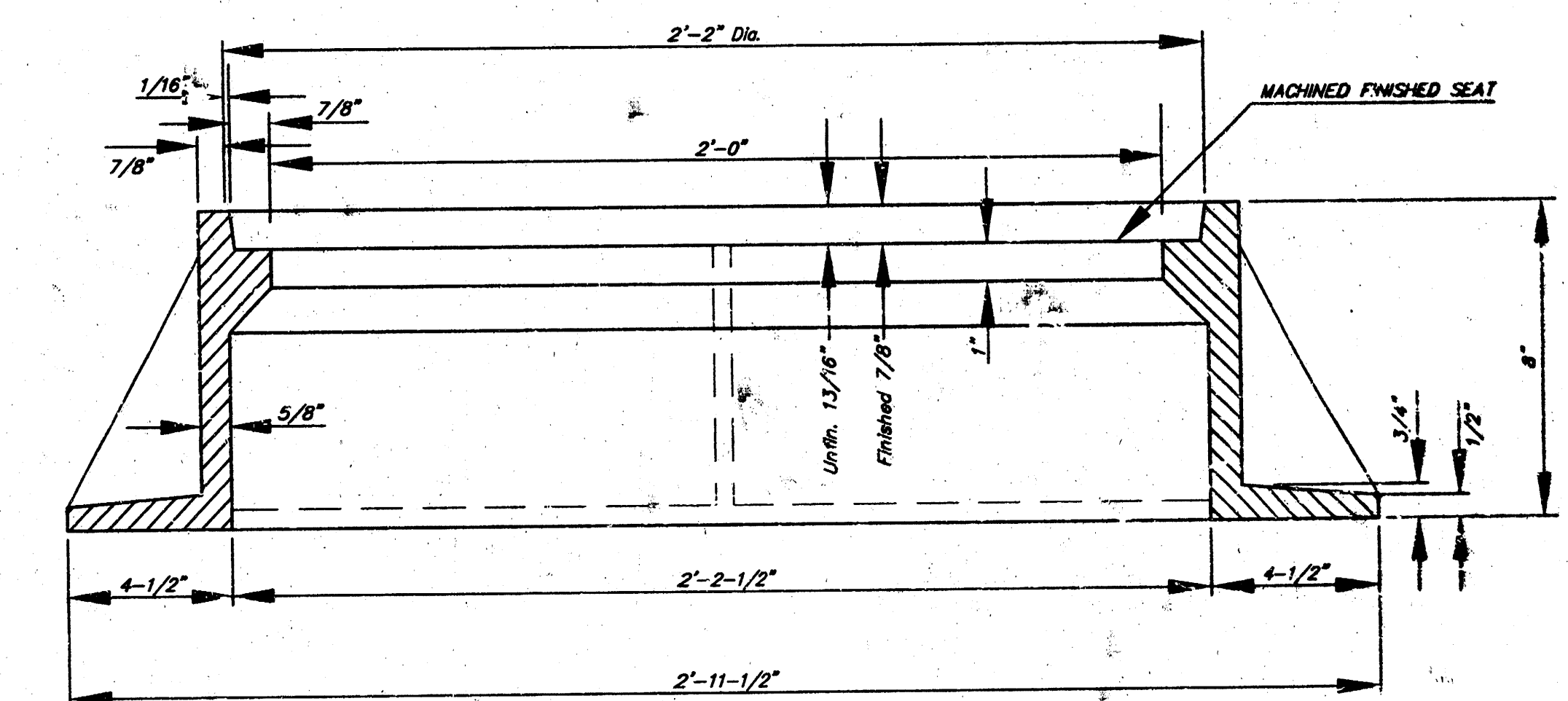
TOP VIEW

### GENERAL NOTES

- 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.
- MANHOLE CASTINGS SHALL WEIGH A MINIMUM OF 180 POUNDS ON THE SOLID COVER AND 240 POUNDS ON THE MANHOLE RING. THIS IS A TOTAL OF 420 POUNDS ON A RING AND COVER SET. CASTINGS WEIGHING LESS THAN THE MINIMUM SPECIFICATIONS WILL NOT BE ACCEPTED.
- 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.
- 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 SEATING SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.
- 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 INCH 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.



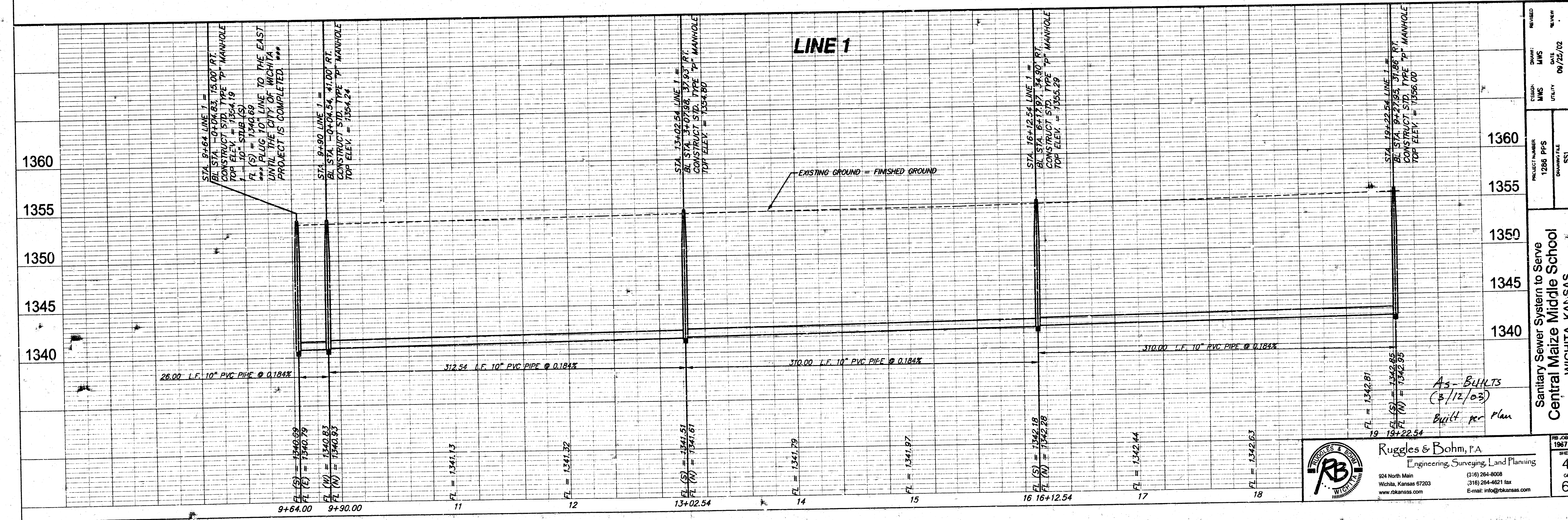
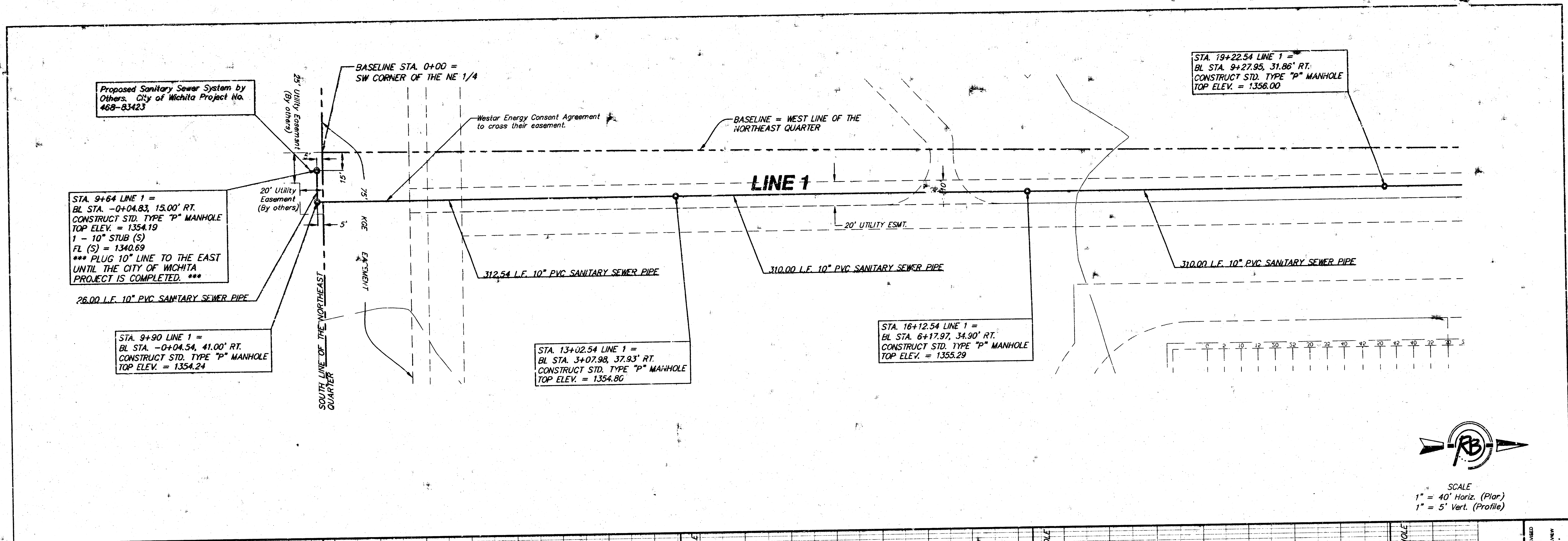
SECTION A-A  
MUD RING



SECTION A-A

As-Built (3/12/03) Built per Plan

|                                                                                                                                                                                 |  |                                                                                                                       |  |                                 |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------|--|---------------------------------|--|
| <b>THE CITY OF WICHITA</b><br><br>CITY ENGINEER'S OFFICE<br>CITY HALL - SEVENTH FLOOR<br>455 NORTH MAIN STREET<br>WICHITA, KANSAS 67202<br>(316) 268-4500<br>(316) 268-4114 FAX |  | <b>MANHOLE FRAME AND COVER</b><br>M. E. LINDEBAK P.E. - CITY ENGINEER<br>PROJECT NUMBER<br>1286 PPS<br>DATE<br>MAR 96 |  | OCA #<br>607861<br>SHEET 3 OF 6 |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------|--|---------------------------------|--|

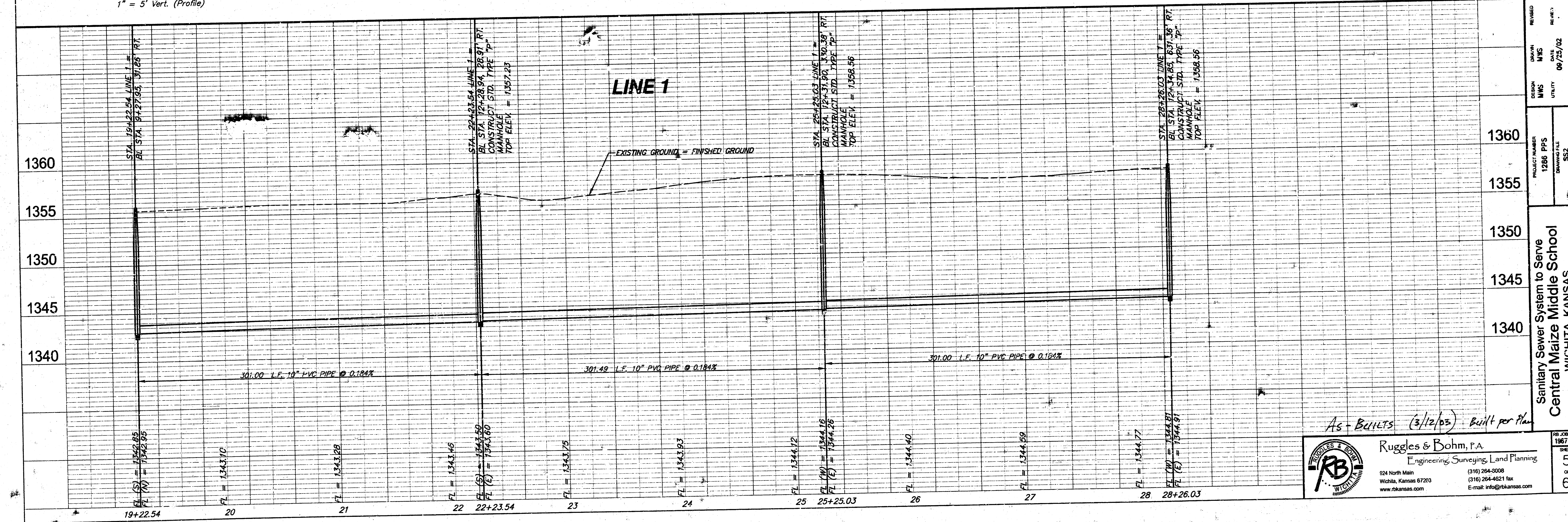
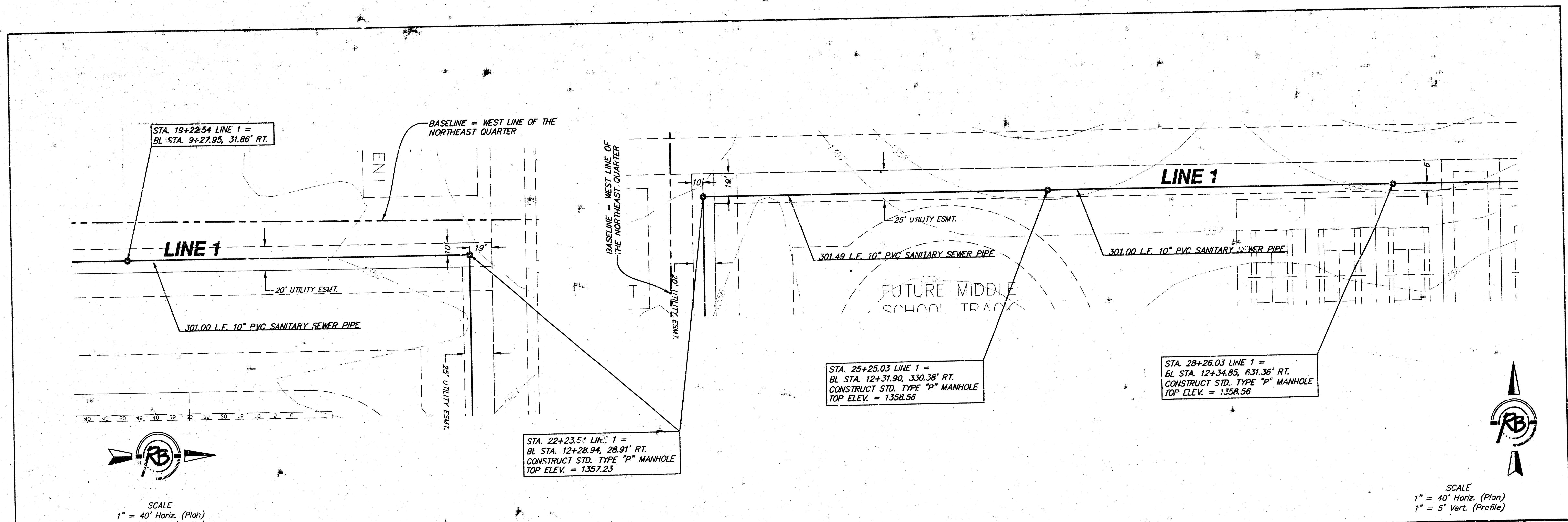


SCALE  
1" = 40' Horiz. (Plan)  
1" = 5' Vert. (Profile)

As-BUILT  
(5/12/03)  
Built per Plan

**Ruggles & Bohm, P.A.**  
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E-mail: info@rbkansas.com

|                |                                                                            |         |          |
|----------------|----------------------------------------------------------------------------|---------|----------|
| PROJECT NUMBER | 1288 PFS                                                                   | DATE    | 09/25/02 |
| DESIGN         | MWS                                                                        | UTILITY |          |
| DRAWN          | MWS                                                                        |         |          |
| CHECKED        | MWS                                                                        |         |          |
| APPROVED       | MWS                                                                        |         |          |
| PROJECT NAME   | Sanitary Sewer System to Serve Central Maize Middle School WICHITA, KANSAS |         |          |
| SHEET          | 4                                                                          | OF      | 4        |



**AS-BUILTS (3/12/03) Built per Plan**

**Ruggles & Bohm, P.A.**  
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 824 North Main  
 Wichita, Kansas 67203  
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 E-mail: info@rbkansas.com

**PROJECT NUMBER**  
 1288 PPS  
 1288 PPS  
 1288 PPS  
 1288 PPS

**Sanitary Sewer System to Serve  
 Central Maize Middle School  
 WICHITA, KANSAS**

**DATE**  
 09/25/02

**SHEET**  
 1967 E

BASELINE = WEST LINE OF THE  
NORTHEAST QUARTER

STA. 28+26.03 LINE 1 =  
BL STA. 12+34.85, 631.36' RT.

LINE 1

25' UTILITY ESMT.

302.40 L.F. 10" PVC SANITARY SEWER PIPE

STA. 33+74.48 LINE 1 =  
BL STA. 14+83.85, 933.89' LT.  
CONSTRUCT STD. TYPE "P" MANHOLE  
TOP ELEV. = 1357.23  
1 - 4" STUB (W)  
FL = 1346.50

STA. 31+28.44 LINE 1 =  
BL STA. 12+37.81, 933.75' RT.  
CONSTRUCT STD. TYPE "P" MANHOLE  
TOP ELEV. = 1356.10

246.04 L.F. 10" PVC SANITARY SEWER PIPE

LINE 1

20' UTILITY ESMT.

246.04 L.F. 10" PVC SANITARY SEWER PIPE

STA. 36+20.52 LINE 1 =  
BL STA. 17+29.89, 934.02' RT.  
CONNECT TO EXISTING MANHOLE.  
REMOVE EXISTING 8" STUB (S) AND  
INSTALL NEW 10" PIPE AND A-LOK.  
NEW FL OUT (S) = 1346.58

REMOVE PLUGS AFTER LINE IS  
COMPLETED. MOVE PLUGS TO  
FIRST MANHOLE AND INSTALL PER  
NOTE.

Plug 8" Pipe (E) and 8" Opening (S)

STA. 0+00 LINE A  
N = 21717.16, E = 18322.76  
CONST. STD. TYPE "P" MANHOLE  
FL IN 8" (E): 1346.63  
TOP ELEV. = 1358.63

257.51 L.F. 8" PVC PIPE

STA. 2+57.51 LINE A  
N = 21717.16, E = 18580.27  
CONST. STD. TYPE "P" MANHOLE  
FL OUT 8" (W): 1347.45  
FL IN 6" (E): 1351.94  
FL IN 6" OUTSIDE DROP (E): 1347.62  
FL IN 6" (S): 1347.62  
TOP ELEV. = 1361.27

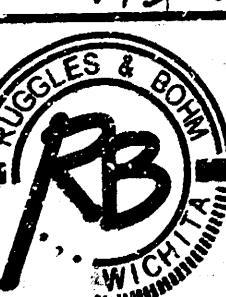
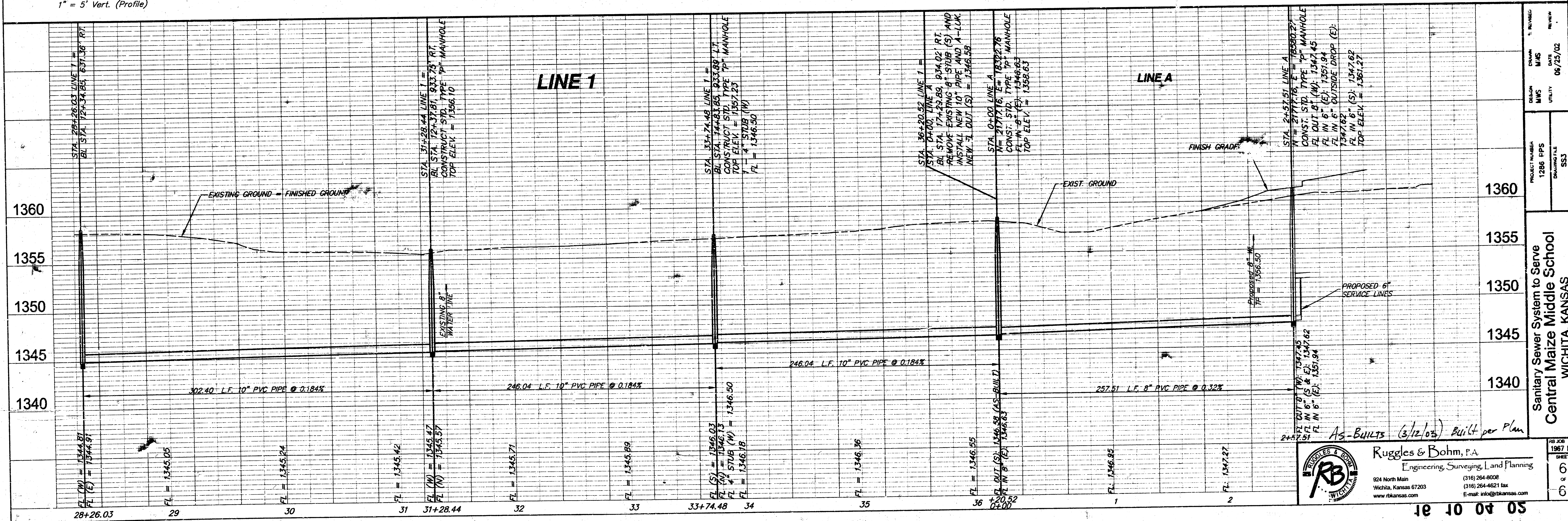
Plug 8" Pipe (W) and 6" Pipe (S & E)

Note:  
Line A was completed first.  
This portion of sewer was  
installed before the asphalt  
pavement was installed.  
Contractor then completed  
rest of line. This is why the  
manhole at Sta. 36+20.52,  
Line 1 = Sta. 0+00, Line A

SCALE  
1" = 40' Horiz. (Plan)  
1" = 5' Vert. (Profile)



SCALE  
1" = 40' Horiz. (Plan)  
1" = 5' Vert. (Profile)



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E-mail: info@rbkansas.com

PROJECT NUMBER  
1286 EPS  
DRAWING FILE  
SS3  
DATE  
06/25/02  
SHEET  
1 OF 1

Sanitary Sewer System to Serve  
Central Maize Middle School  
WICHITA, KANSAS

50 40 30 20 10 0