

# SANITARY SEWER PLANS FOR MURDOCK AVENUE BRIDGE OVER THE WICHITA DRAINAGE CANAL

## GENERAL NOTES

1. 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.
2. ALL CONCRETE SHALL BE STANDARD CITY OF WICHITA PAVING MIX, UNLESS OTHERWISE NOTED ON THESE PLANS OR IN THE SPECIFICATIONS.
3. UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY IDENTIFY A UTILITY TO BE ADJUSTED BY ITS OWNER DURING CONSTRUCTION. EXISTING UTILITIES AND THEIR LOCATIONS, 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 CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
4. CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF FORTY-EIGHT (48) HOURS TO UTILITY COMPANIES BEFORE STARTING ANY EXCAVATION AS FOLLOWS:
 

KANSAS ONE-CALL	1-800-344-7233 OR 687-2470 (LOCAL WICHITA)
MULTIMEDIA CABLEVISION	262-0661
KGE (GAS)	832-3121
KGE (ELECTRIC)	264-1411
SOUTHWESTERN BELL TELEPHONE COMPANY	1-800-734-7590 OR (268-2245)
CITY OF WICHITA WATER & SEWER	268-4908
CITY OF WICHITA STORM WATER UTILITY	268-4498
PEOPLES NATURAL GAS	942-8811
USD 259	833-4209 OR 833-2000
5. THE UTILITIES (WATER, GAS, STORM, TELEPHONE, ELECTRIC, ETC.) AS LOCATED ON THE PLANS ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING TRENCHING OPERATIONS TO AVOID DAMAGING THESE LINES. THE CONTRACTOR SHOULD COORDINATE ANY TRENCHING OPERATIONS THROUGH KANSAS ONE-CALL TO AVOID ANY DAMAGE TO THE LINES. IF ANY LINES ARE DAMAGED THEY SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
6. POSITIVE DRAINAGE SHALL BE PROVIDED FOR ALL AREAS ON OR NEAR SPOIL AREA. NATURAL DRAINAGE WAYS SHALL BE MAINTAINED.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUOUS FLOW OF SEWAGE THROUGH CONSTRUCTION. COST OF MAINTAINING FLOW OF SEWER THROUGH CONSTRUCTION SHALL BE CONSIDERED SUBSIDIARY TO THE OTHER ITEMS OF WORK.
8. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON 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. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS DEPARTMENT OF AGRICULTURE, DIVISION OF WATER RESOURCES PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. ARMY, CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.
9. ALL ADJACENT BUILDINGS, STRUCTURES, PARKING LOTS, DRIVES, STREET PAVEMENT, AND APPURTENANCES OTHER THAN SHOWN ON THESE PLANS FOR REPLACEMENT SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. ITEMS DAMAGED BEYOND CONSTRUCTION LIMITS SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY.
10. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL PIPE LENGTHS PRIOR TO ORDERING MATERIAL.

THE CITY OF WICHITA  
SEDGWICK COUNTY, KANSAS

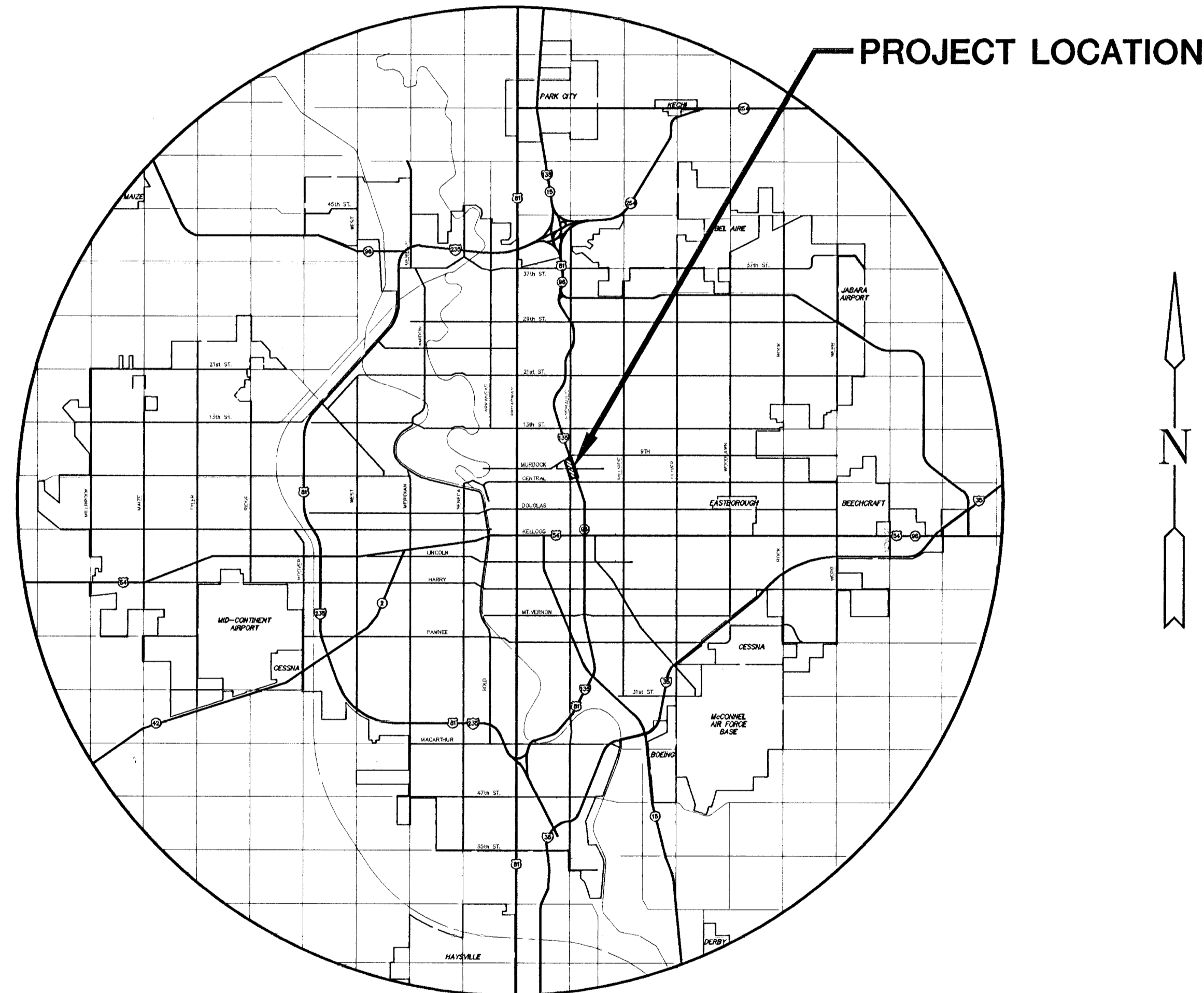
PROJECT NO. 468-82999

MICHAEL E. LINDEBAK, CITY ENGINEER

INDEX CODE  
620262

## INDEX TO DRAWINGS

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3	PLAN & PROFILE LINE 1 (NEW CONSTRUCTION)
4	MANHOLE DETAILS
5	MANHOLE MH 1-1 DETAILS



LOCATION MAP

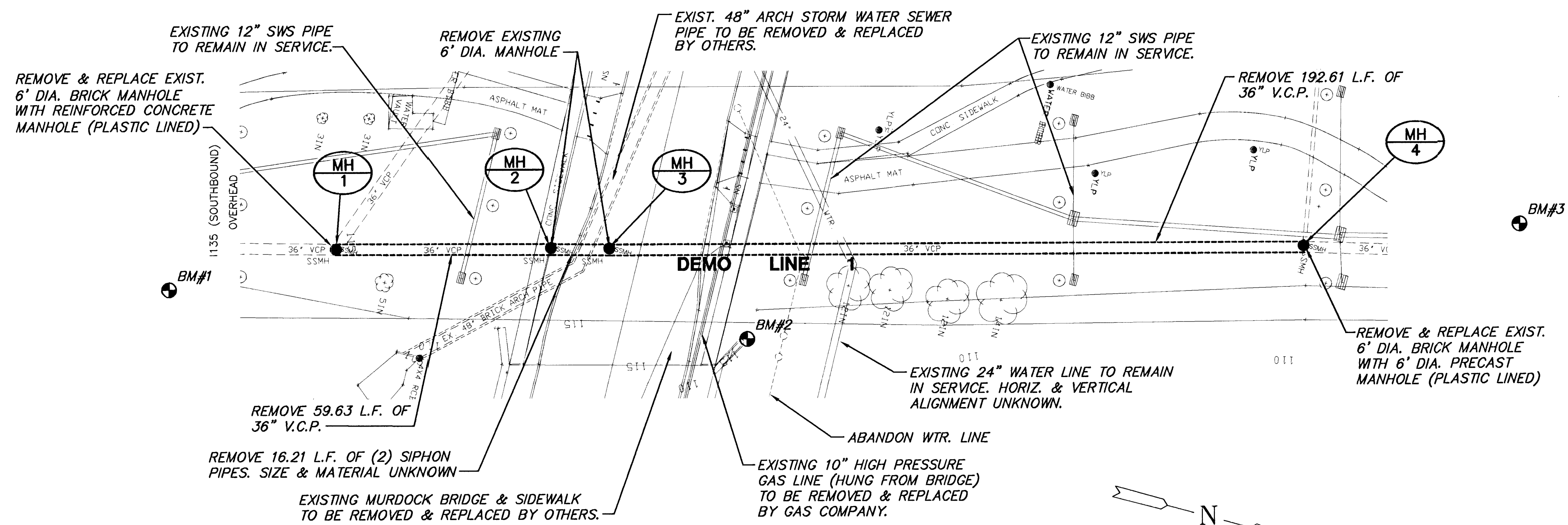
## BENCHMARKS

- BM #1** "□" CUT ON THE NORTHWEST CORNER OF THE WEST ABUTMENT OF THE BURLINGTON NORTHERN BRIDGE. C.O.W. ELEV. = 114.98
- BM #2** "□" CUT ON THE NORTH END OF NORTHWEST WINGWALL OF THE MURDOCK BRIDGE. C.O.W. ELEV. = 115.84
- BM #3** "□" CUT ON THE NORTHEAST CORNER OF AN OVERHEAD DRAIN BOX, AT THE 8TH COLUMN SOUTH OF 9TH STREET NORTH, STA. 57+20, RIGHT BANK. C.O.W. ELEV. = 113.61



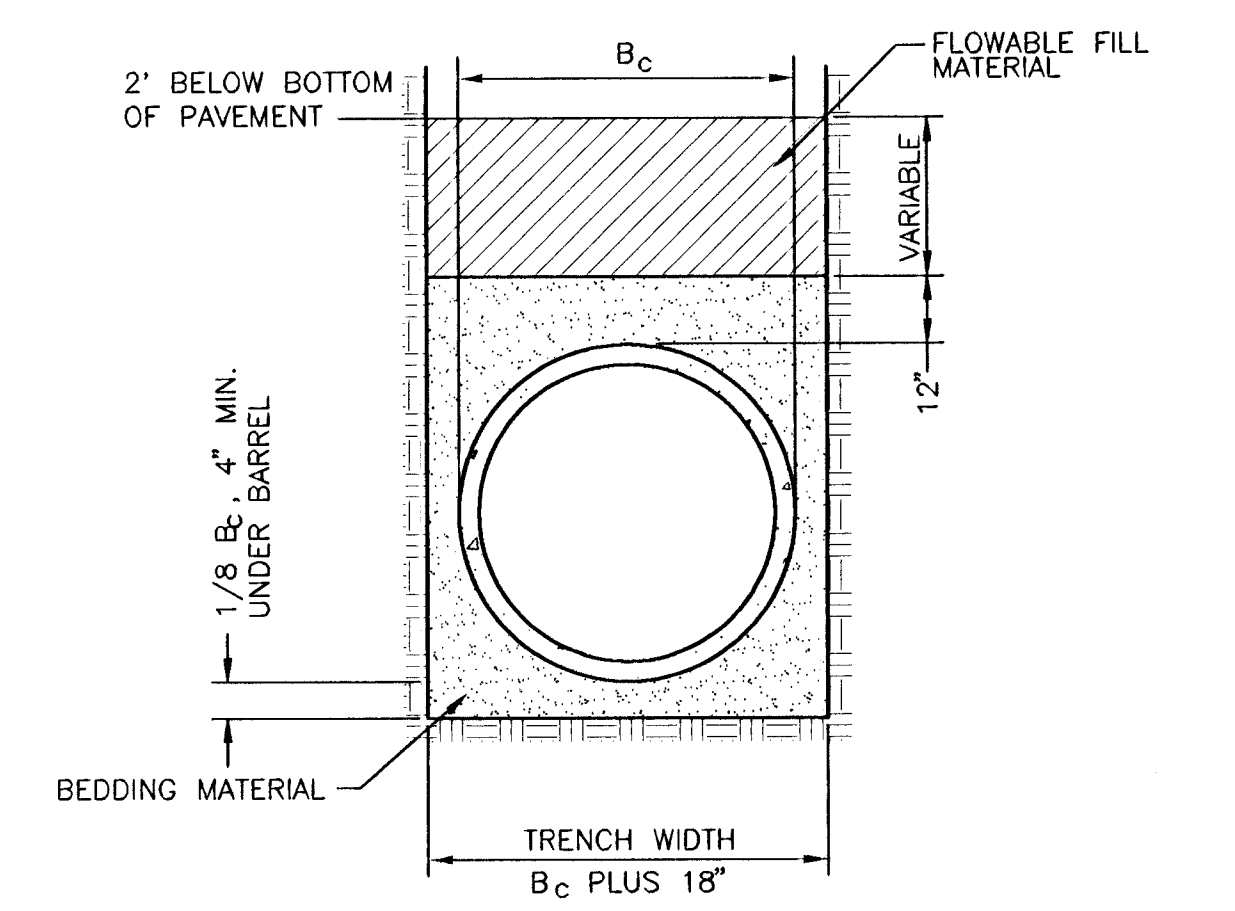
<p><b>MID-KANSAS ENGINEERING CONSULTANTS, INC.</b> 411 N. WEBB ROAD WICHITA, KS. 67206 316-684-9600</p>	<b>MURDOCK AVENUE BRIDGE OVER THE WICHITA DRAINAGE CANAL</b> PROJECT NAME <b>WICHITA DRAINAGE CANAL PLAN SANITARY SEWER PLANS</b> SHEET TITLE		
	RCB DESIGN BY:	BDM DRAWN BY:	RCB/GJA CHECKED BY:
	MARCH, 1999 DATE	97042-113 JOB NO.	1 / 5 SHEET / OF

**MURDOCK AVENUE BRIDGE  
SANITARY SEWER SIPHON  
LINE 1 PLANS**



**DEMOLITION PLAN LINE 1**

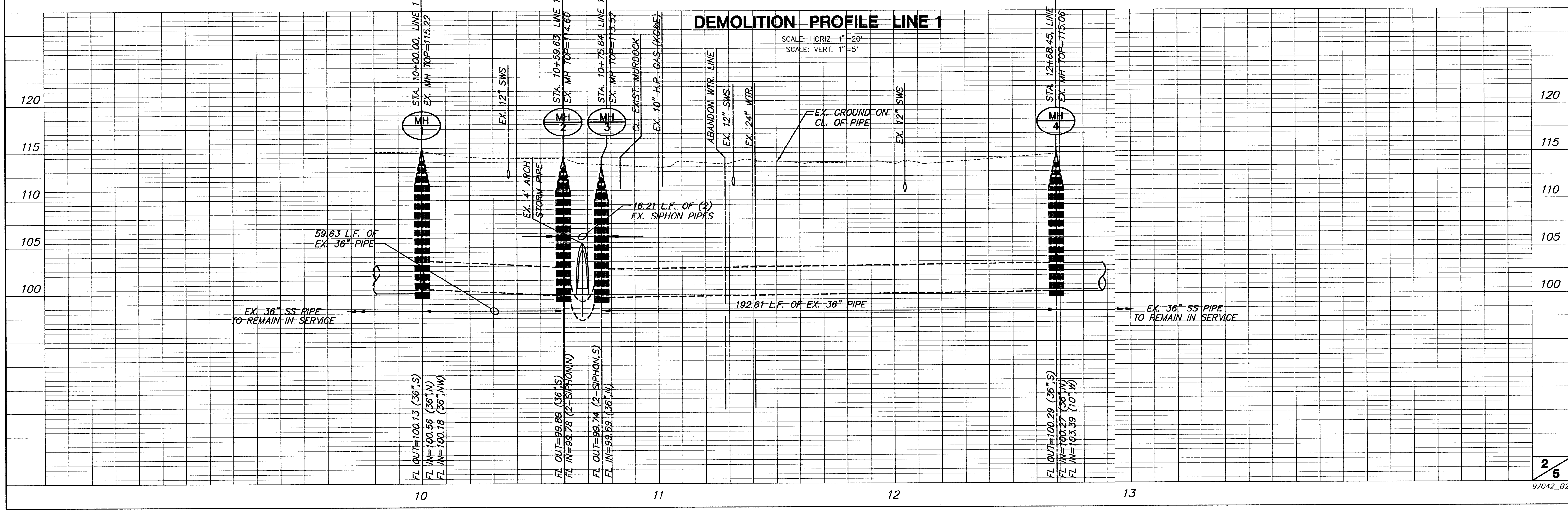
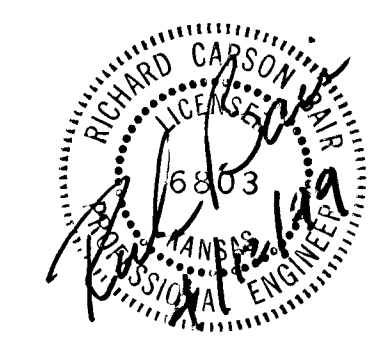
SCALE: 1"=20'



**FLOWABLE FILL DETAIL**

NO SCALE

- NOTE:**
1. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS.
  2. CONTRACTOR TO USE CAUTION LOCATING EXISTING PIPING & TO NOTIFY ENGINEER OF ANY CONFLICTS AFTER EXISTING PIPES HAVE BEEN UNCOVERED
  3. KG&E GAS COMPANY IS RESPONSIBLE FOR RELOCATING 10" H.P. GAS LINE.



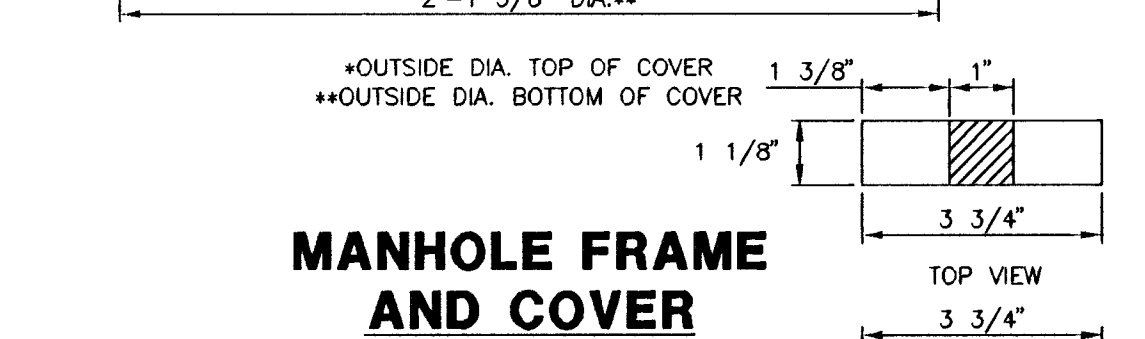
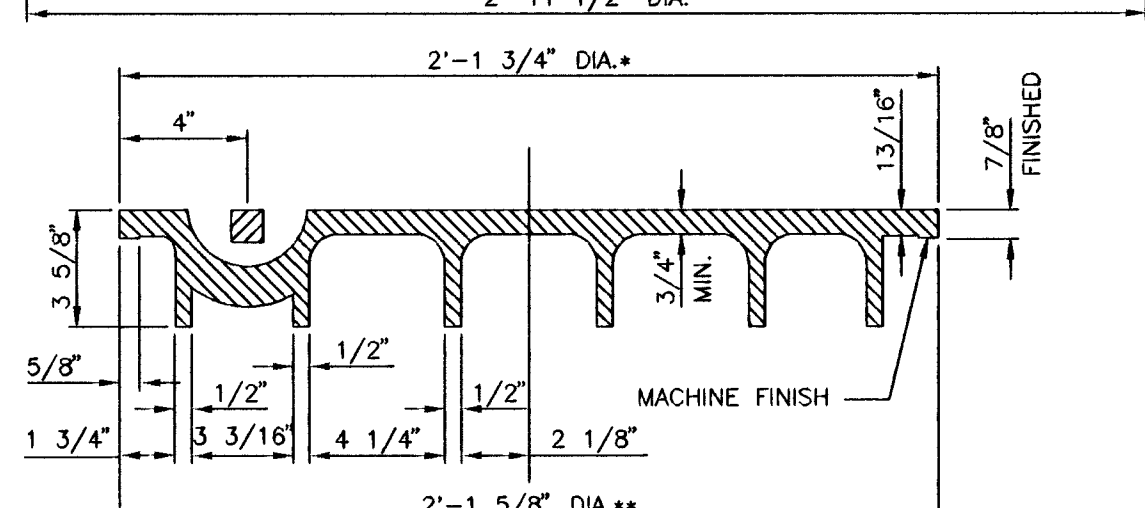
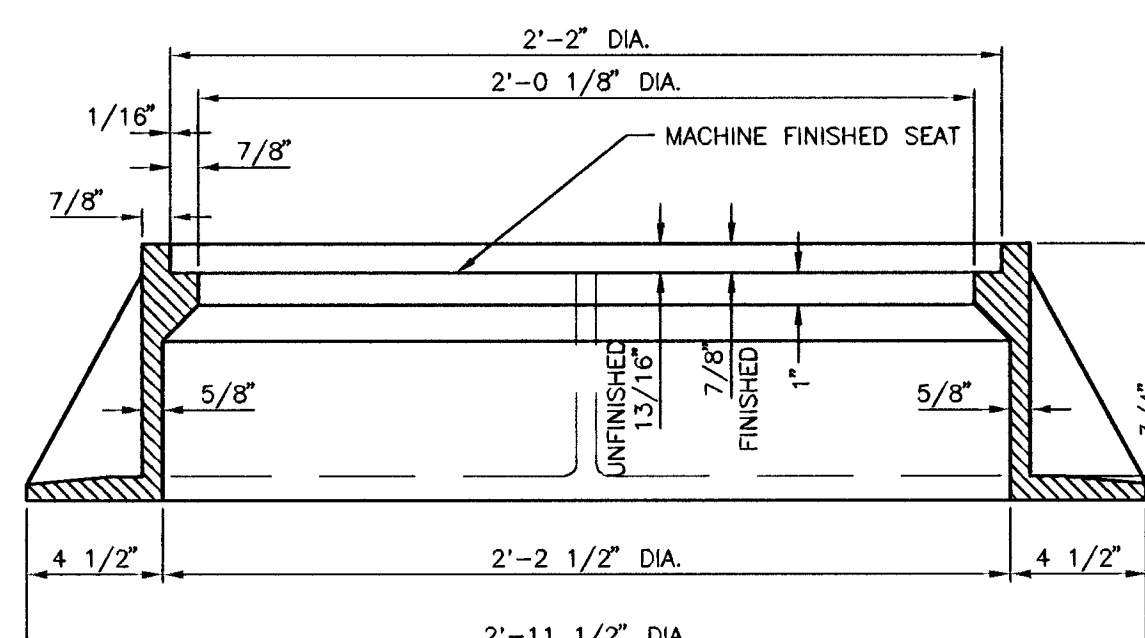
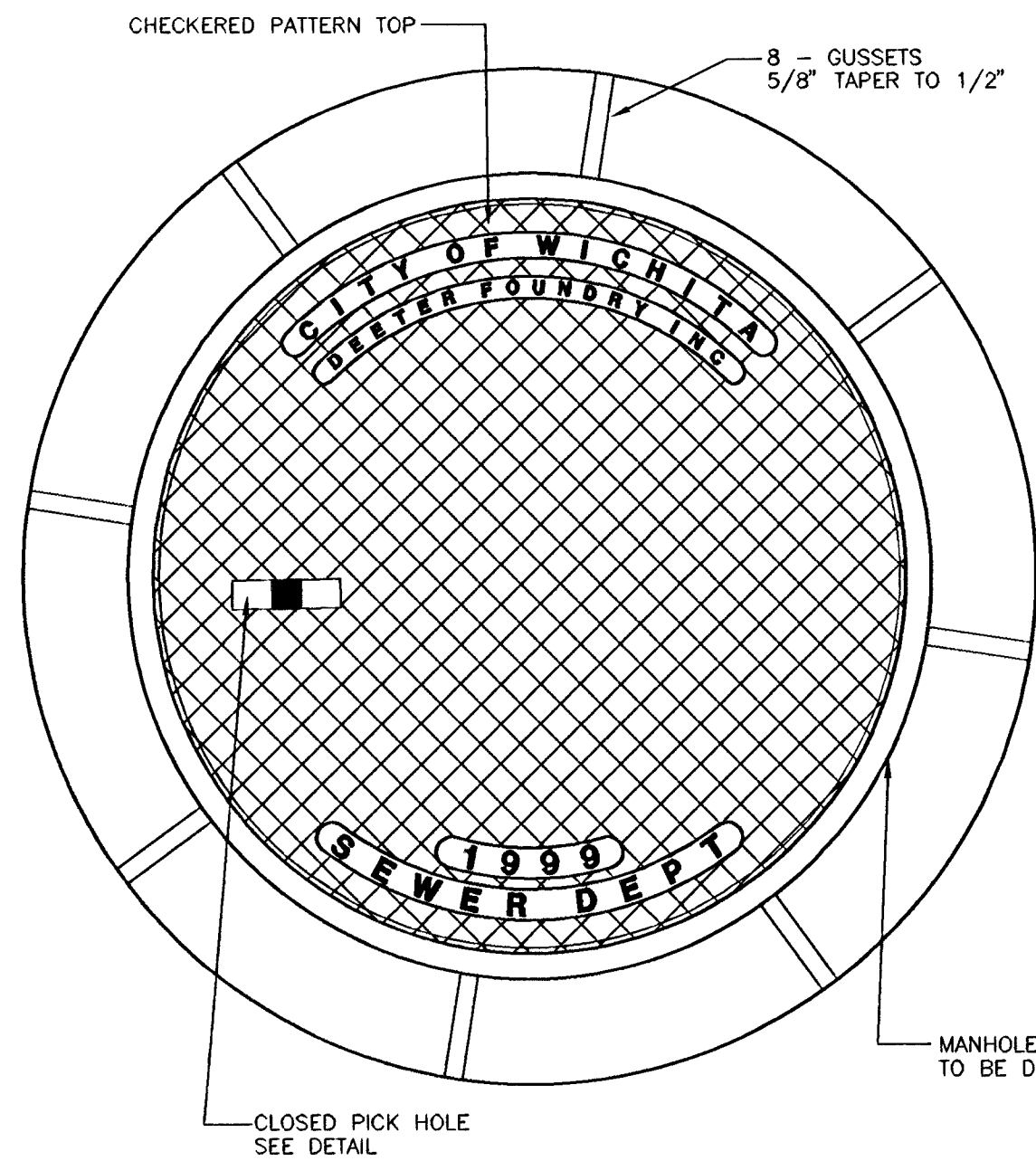
**DEMOLITION PROFILE LINE 1**

SCALE: HORIZ. 1"=20'  
SCALE: VERT. 1"=5'



# SEWER APPURTENANCES DETAILS

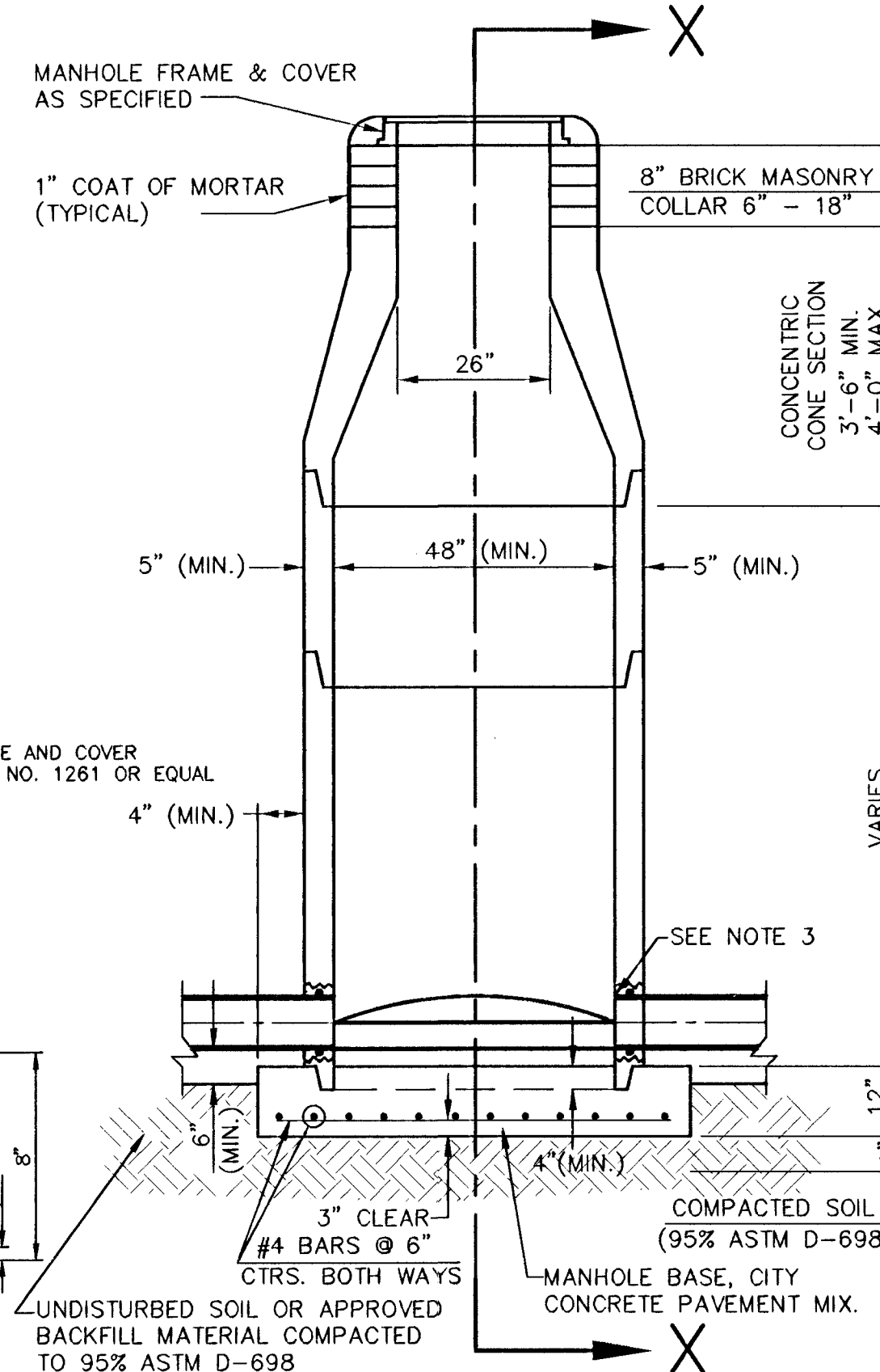
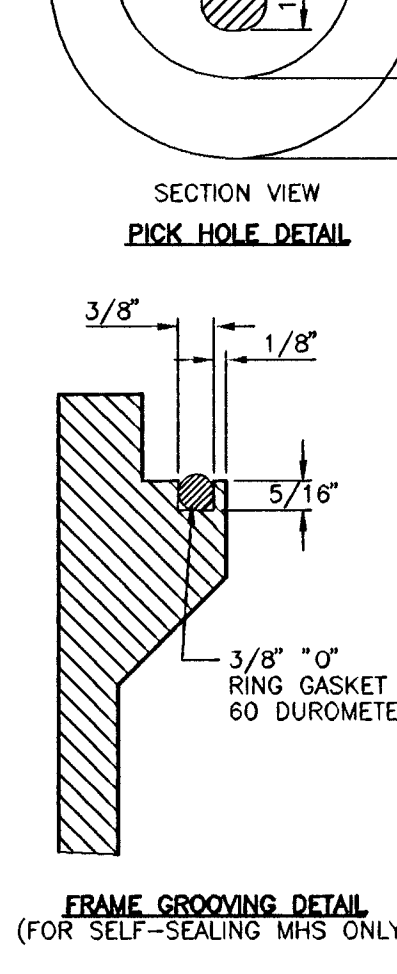
ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA



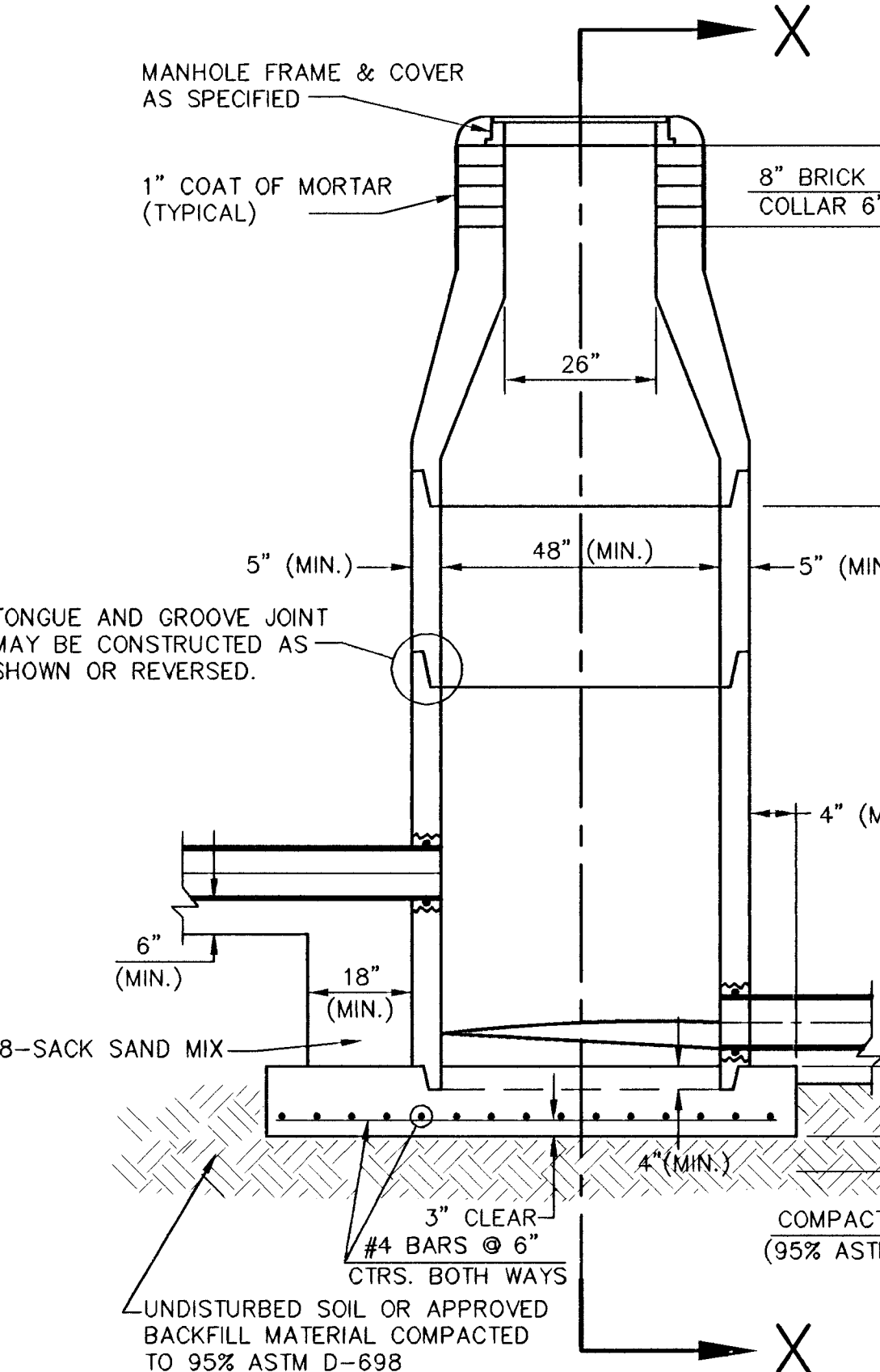
## MANHOLE FRAME AND COVER

(TOTAL WEIGHT = 430 LBS.)

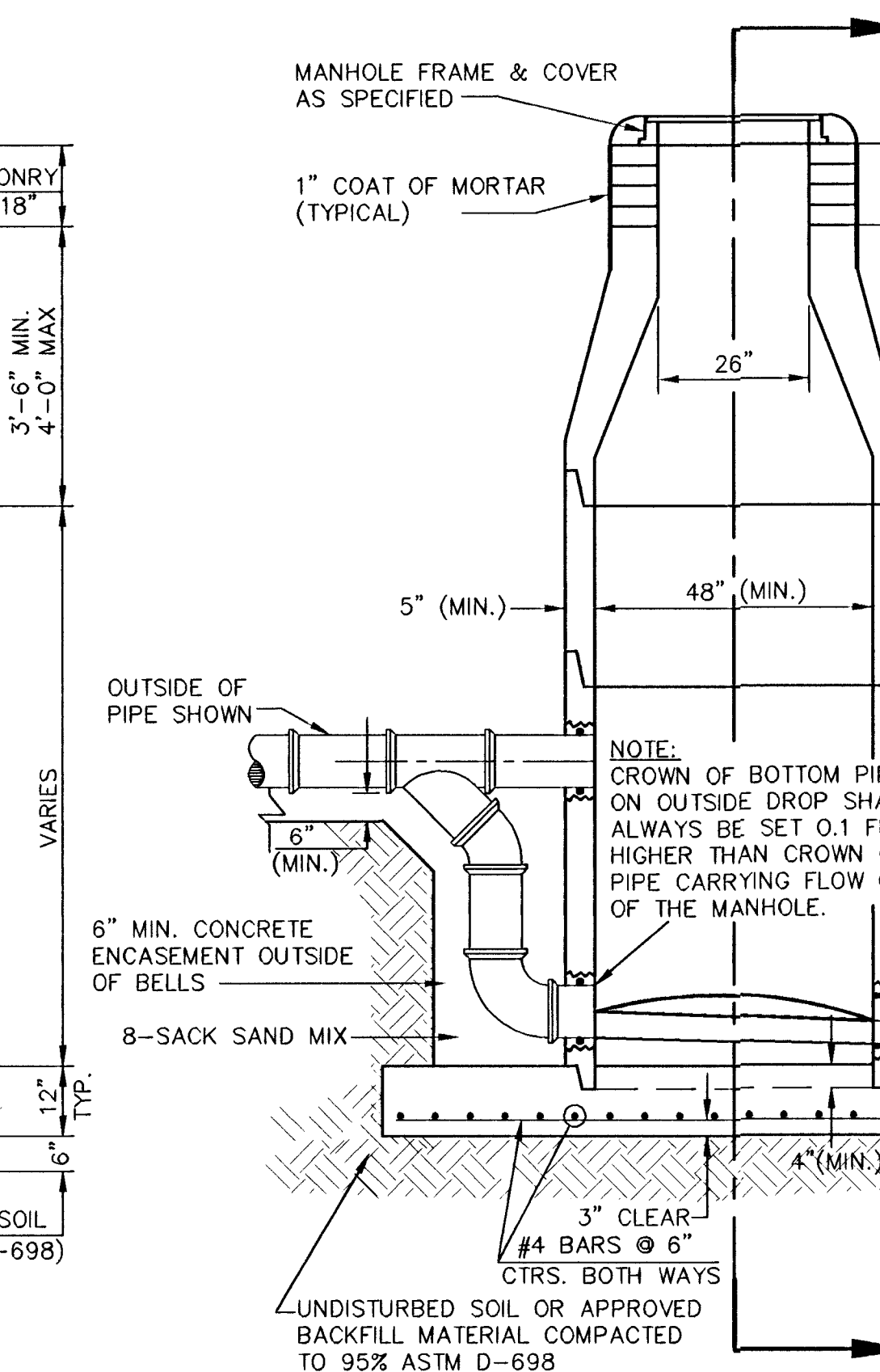
- MANHOLE FRAME AND COVER NOTES**
- CAST IRON MANHOLE FRAME AND COVER SHALL CONFORM TO ASTM A-48, CLASS 30, OR BETTER.
  - THE FRAMES AND COVERS SHALL BE OF A NONROCKING TYPE OR WITH MACHINED BEARING SURFACES SO FITTING PARTS WILL NOT RATTLE OR ROCK UNDER TRAFFIC.
  - MANHOLE CASTINGS SHALL BE DEETER FOUNDRY INC. NO. 1261 OR APPROVED EQUAL UNLESS OTHERWISE SPECIFIED IN THE SPECIAL CONDITIONS. (MINIMUM WT.-430 LBS.) ALL MANHOLE CASTINGS, REGARDLESS OF TYPE, SHALL BE CONSIDERED SUBSIDIARY TO THE UNIT PRICES BID FOR THE VARIOUS MANHOLE TYPES.
  - GRIND ALL BURRS SMOOTH, CLEAN THOROUGHLY, THEN APPLY SHOP COAT OF ASPHALT BASE PAINT.
  - THE MANUFACTURER SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO MANUFACTURE. THE ENGINEER SHALL RETAIN THE RIGHT TO REJECT CASTINGS NOT CONFORMING TO THE SPECIFICATIONS OR THE APPROVED SHOP DRAWINGS.
  - WHERE SELF-SEALING MANHOLE FRAMES ARE SPECIFIED ON THE PLANS, THE MANHOLE FRAME SHALL BE FURNISHED WITH AN APPROVED "O" RING GASKET GROOVED INTO THE BEARING SURFACE OF THE MANHOLE FRAME (PER DETAIL). THE "O" RING GASKET SHALL NOT BE INSTALLED IN THE MANHOLE FRAME UNTIL AFTER FINAL INSPECTION AND ACCEPTANCE OF THE PROJECT BY THE ENGINEER. THE CONTRACTOR SHALL SUPPLY TO THE OWNER ONE (1) REPLACEMENT "O" RING GASKET FOR EACH SELF-SEALING MANHOLE SPECIFIED.



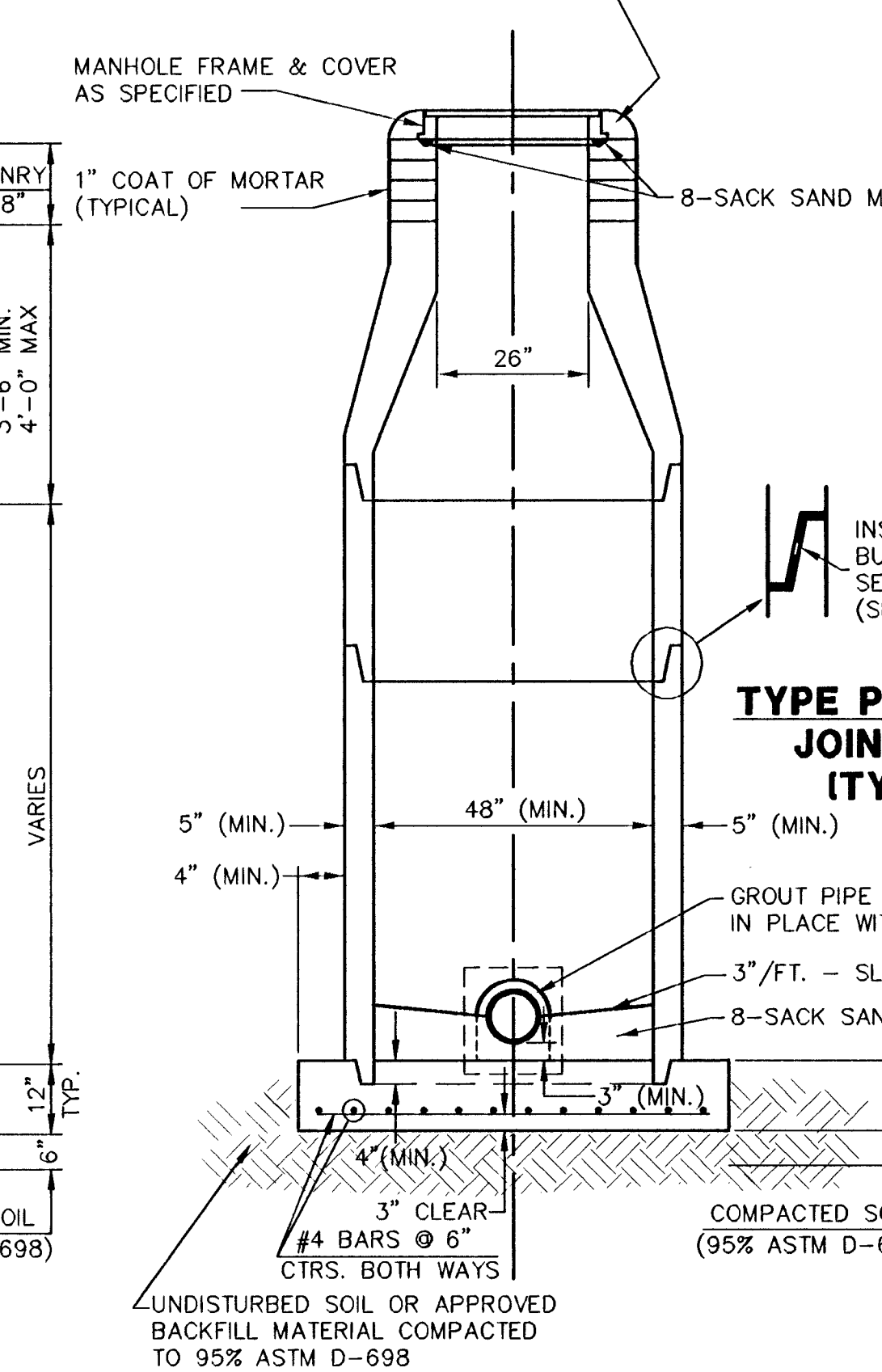
**TYPE P STANDARD MANHOLE**



**TYPE P INSIDE DROP MANHOLE**



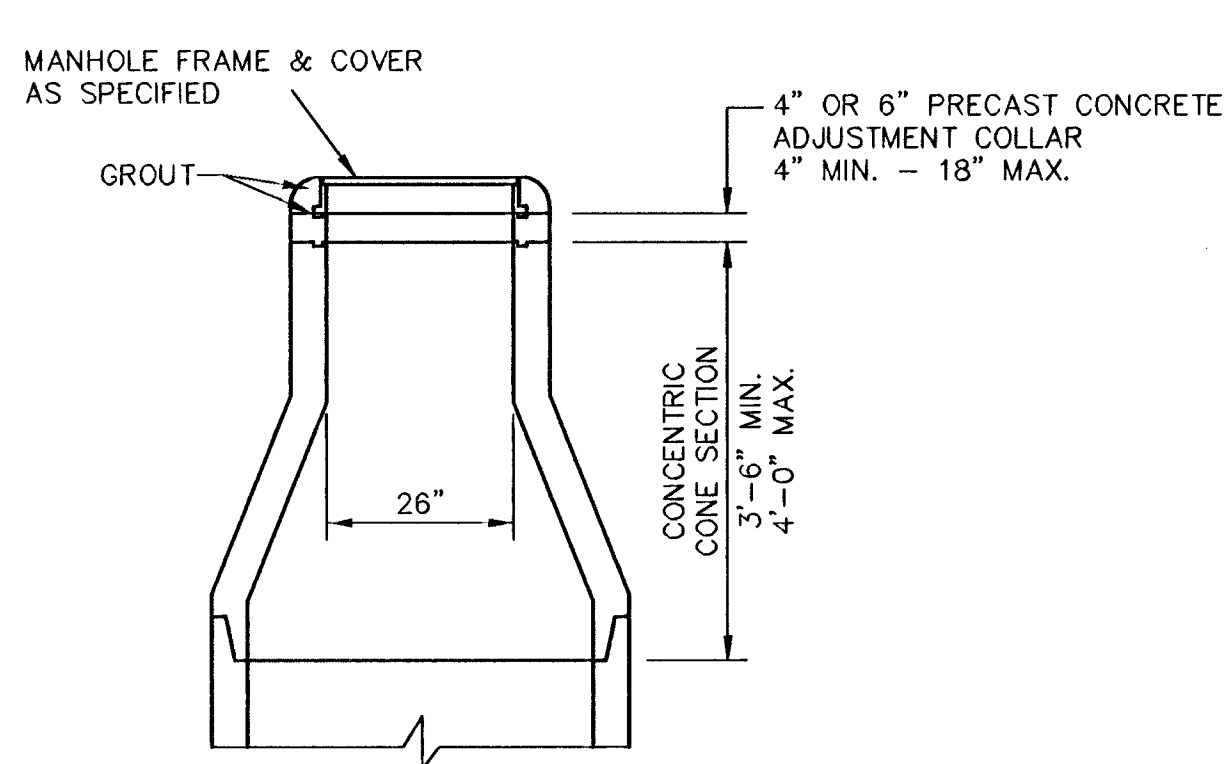
**TYPE P OUTSIDE DROP MANHOLE**



**SECTION X (TYPICAL)**

## 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 TMEC SERIES 66 HI-BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.)
- EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINUS 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 AND EXTERIOR SURFACES 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 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. 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 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 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 2' FOR INFLOWING PIPES. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- 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.



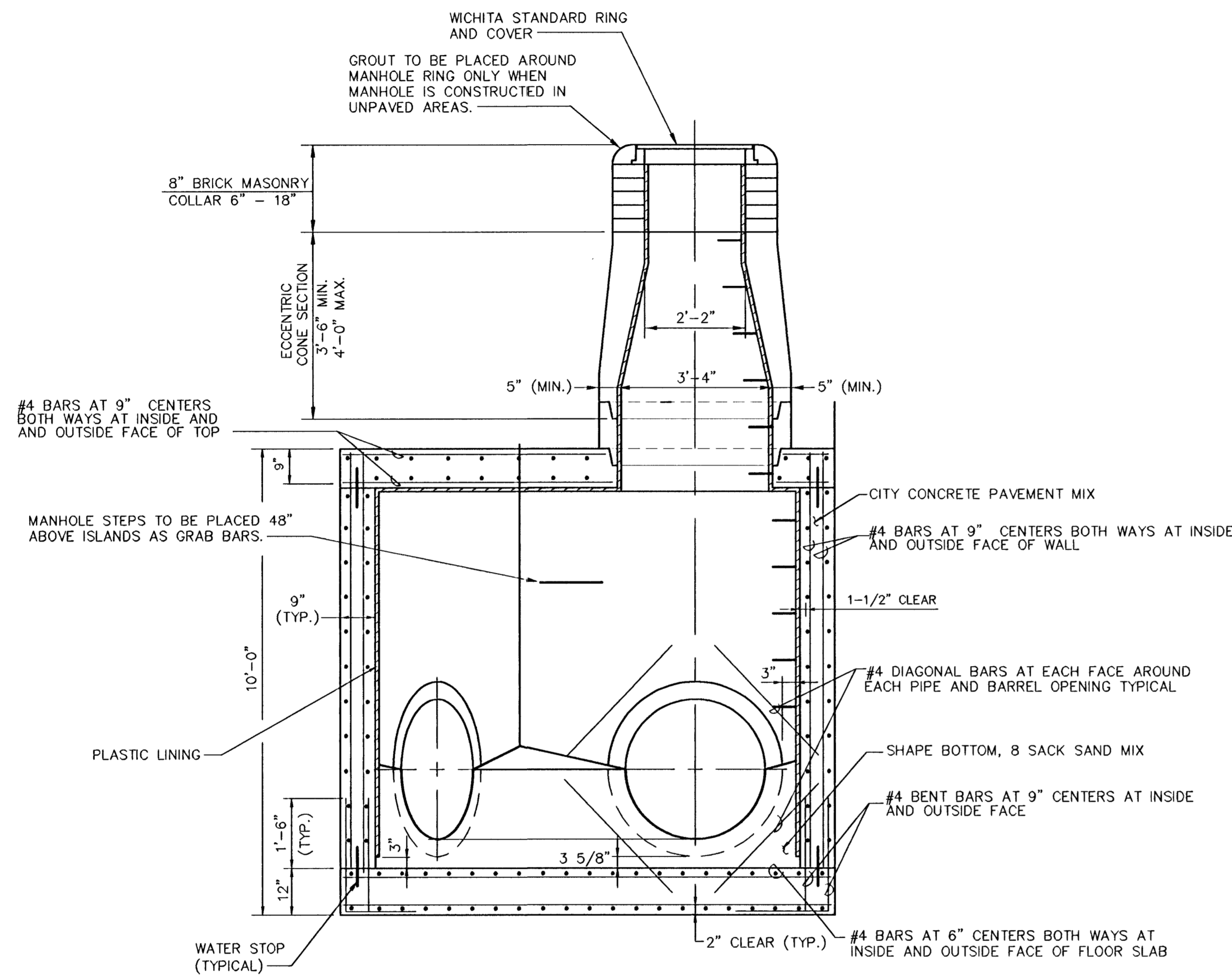
**ALTERNATE CONSTRUCTION IN UNPAVED AREAS**

REVISED: 6-12-86

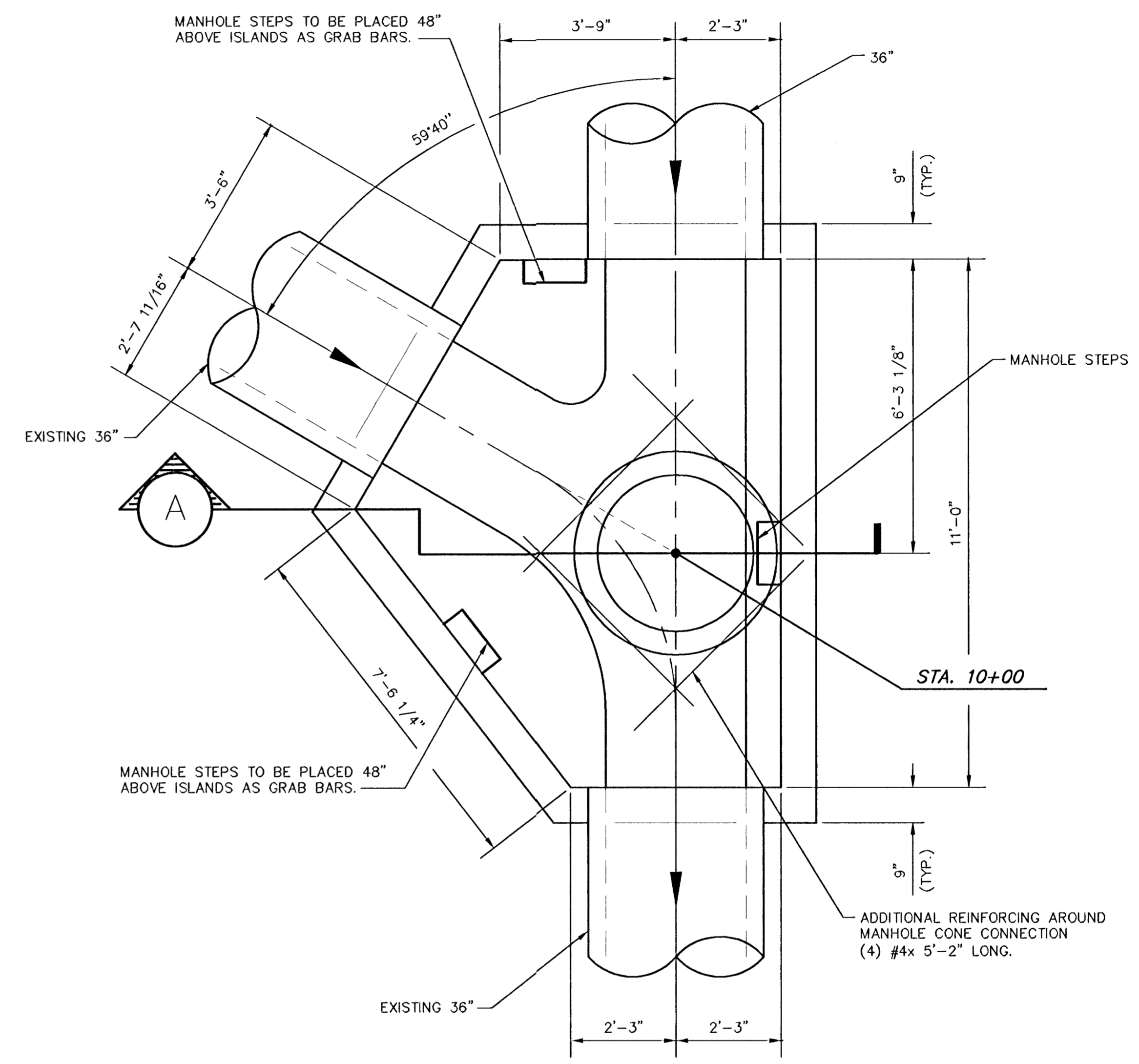
## MANHOLE DETAILS

CITY OF WICHITA, KANSAS			
Design C.O.W.	Checked by	Checked by	
Drawn by	Date	Date MAR. 1999	Job No. 97042_BD





**A SECTION**



**TOP SLAB PLAN**

**REINFORCED CONCRETE MANHOLE**  
NO SCALE

	<b>MURDOCK AVENUE BRIDGE OVER THE WICHITA DRAINAGE CANAL</b> PROJECT NAME <b>WICHITA DRAINAGE CANAL PLAN</b> <b>MANHOLE MH 1-1 DETAILS</b> SHEET TITLE		
	RCB DESIGN BY:	BDM DRAWN BY:	KJS/WJW CHECKED BY:
MARCH, 1999 DATE	97042-113 JOB NO.	5 / 5 SHEET/OF	

MID-KANSAS ENGINEERING CONSULTANTS, INC.  
 411 N. WEBB ROAD  
 WICHITA, KS. 67206  
 316-684-9600

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