CONSTRUCTION PLANS FOR

MAIN 24 WAR INDUSTRIES SEWER

NEAR WEBB ROAD, FROM CENTRAL TO 29TH. STREET NORTH

PROJECT NO.

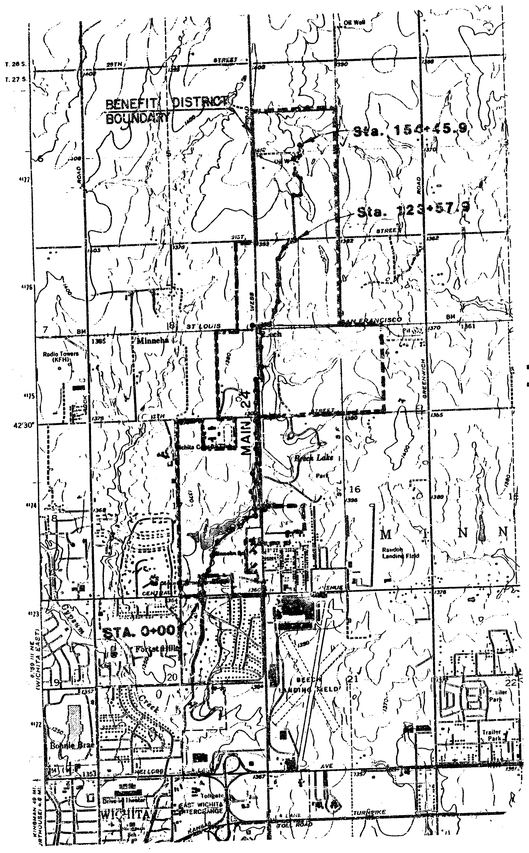
468·76·245·81477·000·000·001

CITY OF WICHITA, KANSAS

MICHAEL E. LINDEBAK, CITY ENGINEER

AUGUST, 1986

PHASE 2: STA. 123+57.9 - STA. 154+45.9



KEY MAP

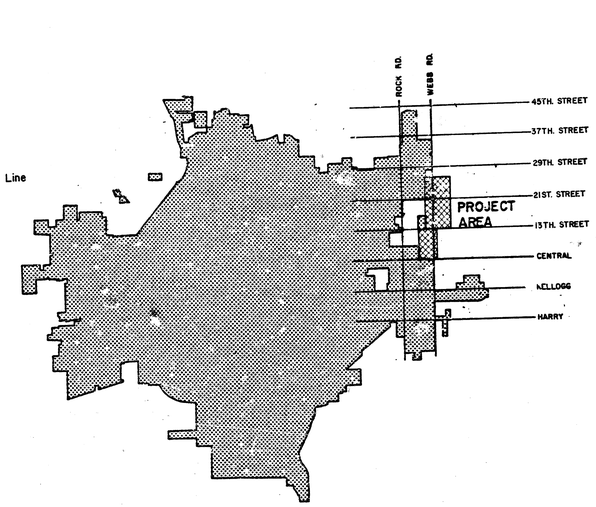
N

Scale: 1"= 2000'

LEGEND

= Benefit District

= Sanitary Sewer Line



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LOCATION MAP

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AS BUILT
7-22-87
RAL

ELTON C. HOSTETLER
NO. 5532
REGISTERED PROFESSIONAL ENGINEER

MAIN 24 WAR INDUSTRIES SEWER CONSTRUCTION PLANS

Design: DCH
Drawn by: DLM
Checked by:
Date: AUG. 1986
Job no.

MID-KANSAS ENGINEERING CONSULTANTS PA
3500 NORTH ROCK ROAD
BUILDING #800
WICHITA, KANSAS 67226
682-6561

Sheet 1 of 9

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.

2. INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA AND LOCAL TRAFFIC GENERATED WITHIN THE PROJECT AREA ARE TO BE CARRIED THROUGH CONSTRUCTION ON EXISTING ROADWAYS AT ALL TIMES. VEHICULAR ACCESS TO ALL DWELLINGS IN THE PROJECT AREA SHALL BE PROVIDED AT ALL TIMES. THE CONTRACTOR SHALL ERECT WARNING SIGNS, FLASHING LIGHTS, AND BARRICADES IN COMPLIANCE WITH THE STANDARD SPECIFICATIONS.

3. THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHTS AND WEEKENDS TO LESS THAN 50 FEET.

4. THE CONTRACTOR WILL BE REQUIRED TO NOTIFY EACH OF THE FOLLOWING UTILITY COMPANIES PRIOR TO THE BEGINNING OF CONSTRUCTION AND SHOULD REQUEST THAT ANY EXISTING LINES BE FLAGGED:

FARMLAND INDUSTRIES PIPELINE P.O. BOX 268 WINFIELD, KS 67156 JIM NEIGHBORS 316-221-2107	KANSAS ONE-CALL (FOR EXACT LOCATION OF ALL UNDERGROUND UTILITIES) 1-800-344-7233 OR 687-2470 (local Wichita)

5. THE CONTRACTOR MUST ALSO NOTIFY FARMLAND INDUSTRIES PIPELINE 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION WORK IN THE AREA OF THEIR PIPELINE.

6. 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. 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.

7. THE CONTRACTOR SHALL RESTORE ALL SURFACES, DITCHES, CHANNELS, BANK STABILIZATION SWALES, ROAD SHOULDERS, PAVEMENT ENTRANCES, AND BANKS TO THEIR ORIGINAL SLOPES AND GRADES. WHERE EXISTING ENTRANCE PIPE, DRAINAGE PIPE, DRIVES, SIGNS, FENCES, ETC., CONFLICT WITH THE PROPOSED WORK HEREIN THEY SHALL BE REMOVED AND REPLACED OR RESET IN LIKE KIND. ALL OF THE ABOVE INCLUDING TREES AND OTHER LANDSCAPING, WHERE NOTED SHALL BE CONSIDERED SUBSIDIARY TO THE PRICE BID FOR SITE RESTORATION.

8. INDIVIDUAL TREES 3" DIAMETER OR LESS ARE NOT SHOWN. THESE TREES INCLUDING BRUSHWOOD, SAPLINGS AND UNDERGROWTH, MAY BE CLEARED AND REMOVED AS REQUIRED FOR CONSTRUCTION, UNLESS OTHERWISE NOTED.

   DENSE TIMBER AND WOODED GROWTH ARE NATIVE AND VOLUNTEER, UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL AVOID REMOVAL OR TRIMMING OF ANY TREES 3" DIAMETER AND LARGER TRUNK WHERE POSSIBLE. WHERE THE CONTRACTOR BELIEVES THAT REMOVAL OR TRIMMING IS UNAVOIDABLE, HE SHALL COORDINATE SUCH WORK WITH THE ENGINEER. COSTS FOR TRIMMING, REMOVAL AND DISPOSAL SHALL BE CONSIDERED SUBSIDIARY TO THE PRICE BID FOR SITE PREPARATION.

   TREE REMOVAL SHALL BE CONFINED GENERALLY TO THE PERMANENT EASEMENT. THE TEMPORARY EASEMENT AND THE PROPERTY BEYOND MAY BE USED FOR CONSTRUCTION PURPOSES IN AN EFFORT TO PROVIDE MORE WORKING ROOM AROUND EXISTING TREES. TREE REMOVAL OR TRIMMING ON THE TEMPORARY EASEMENT OR BEYOND SHOULD RESULT IN SAVING OTHER MORE DESIRABLE TREES IN OR NEAR THE CONSTRUCTION PROJECT.

9. POSITIVE DRAINAGE SHALL BE PROVIDED FOR ALL AREAS ON OR NEAR SPOIL AREAS. NATURAL DRAINAGE WAYS SHALL BE MAINTAINED.

10. THE CONTRACTOR SHALL REMOVE FENCES AS NECESSARY ADJACENT TO THE CONSTRUCTION. THE FENCE ALONG THE SOUTH SIDE OF 21ST STREET SHALL BE RESET IN LIKE KIND. COSTS FOR REMOVAL, RESETTING OR DISPOSAL SHALL BE CONSIDERED SUBSIDIARY TO SITE PREPARATION.

11. 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 OR A LICENSED PROFESSIONAL ENGINEER IN ACCORDANCE WITH STATE LAWS.

12. ALL ELEVATIONS SHOWN ARE CITY OF WICHITA DATUM.
    CITY DATUM = USGS MSL -1187.4

13. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF PROPERTY DIRECTLY AFFECTED BY THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF 10 DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.

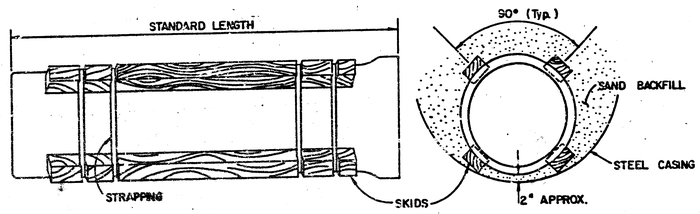
14. ALTERNATE FOR TYPE "D" MANHOLE INTERIOR LINING: IN LIEU OF T-LOCK LINER REQUIRED BY CITY OF WICHITA SPECIFICATIONS AND DRAWINGS, TNEMEC SERIES 66 EPOXOLINE, OR APPROVED EQUAL, MAY BE USED.

    SURFACE PREPARATION: SURFACES TO BE PAINTED SHALL BE DRY AND FREE OF DIRT, DUST, SAND, GRIT, MUD/OIL, GREASE, RUST, OR OTHER OBJECTIONABLE SUBSTANCES. CLEANING AND PAINTING OPERATIONS WILL BE PERFORMED IN A MANNER WHICH WILL PREVENT DUST OR OTHER CONTAMINANTS FROM GETTING ON FRESHLY PAINTED SURFACES. OIL AND GREASE SHALL BE COMPLETELY REMOVED BY USE OF SOLVENTS OR DETERGENTS BEFORE MECHANICAL CLEANING IS STARTED.

    SURFACES SHALL BE FREE OF CRACKS, PITS, PROJECTIONS, OR OTHER IMPERFECTIONS WHICH WOULD PREVENT THE FORMATION OF A SMOOTH, UNBROKEN PAINT FILM. THE SURFACE SHALL THEN BE CLEANED IN ACCORDANCE WITH SPECIFICATION SSPC-SP7 (BRUSH-OFF BLAST CLEANING.)

    INSTALLATION: APPLY ONE INTERMEDIATE AND ONE FINAL COATINGS OF EPOXY PAINT. PAINT PREPARATION & APPLICATION SHALL BE AS RECOMMENDED BY THE MANUFACTURER. PAINT FILM WITH SAGS, CHECKS, BLISTERS, AND OTHER IMPERFECTIONS SHALL BE REMOVED AND THE SURFACE REPAINTED. THICKNESS SHALL BE 9.0 - 10.5 WET MILS AND 4.0 - 6.0 DRY MILS PER COAT.

15. A PORTION OF EXCESS EXCAVATED MATERIAL SHALL BE MOUNDED AROUND MANHOLES WHICH EXTEND MORE THAN ONE (1) FOOT ABOVE THE EXISTING GROUND. SUCH MOUNDS SHALL BE CONSTRUCTED WITH A SIX (6) FOOT DIAMETER FLAT TOP WITH 4 TO 1 SIDE SLOPES DOWN TO THE ORIGINAL GROUND. THE ELEVATION OF THE FLAT TOP OF THE MOUND SHALL BE 0.4 FOOT BELOW THE TOP OF THE MANHOLE.



STEEL ENCASEMENT DETAIL

REVISION 12-2-86

MAIN 24

GENERAL NOTES AND DETAILS

Design
Drawn by
Checked by
Date
Job no.

MID-KANSAS ENGINEERING CONSULTANTS PA
3500 NORTH ROCK ROAD
BUILDING #800
WICHITA, KANSAS 67226
682-6561

Sheet 2 of 9

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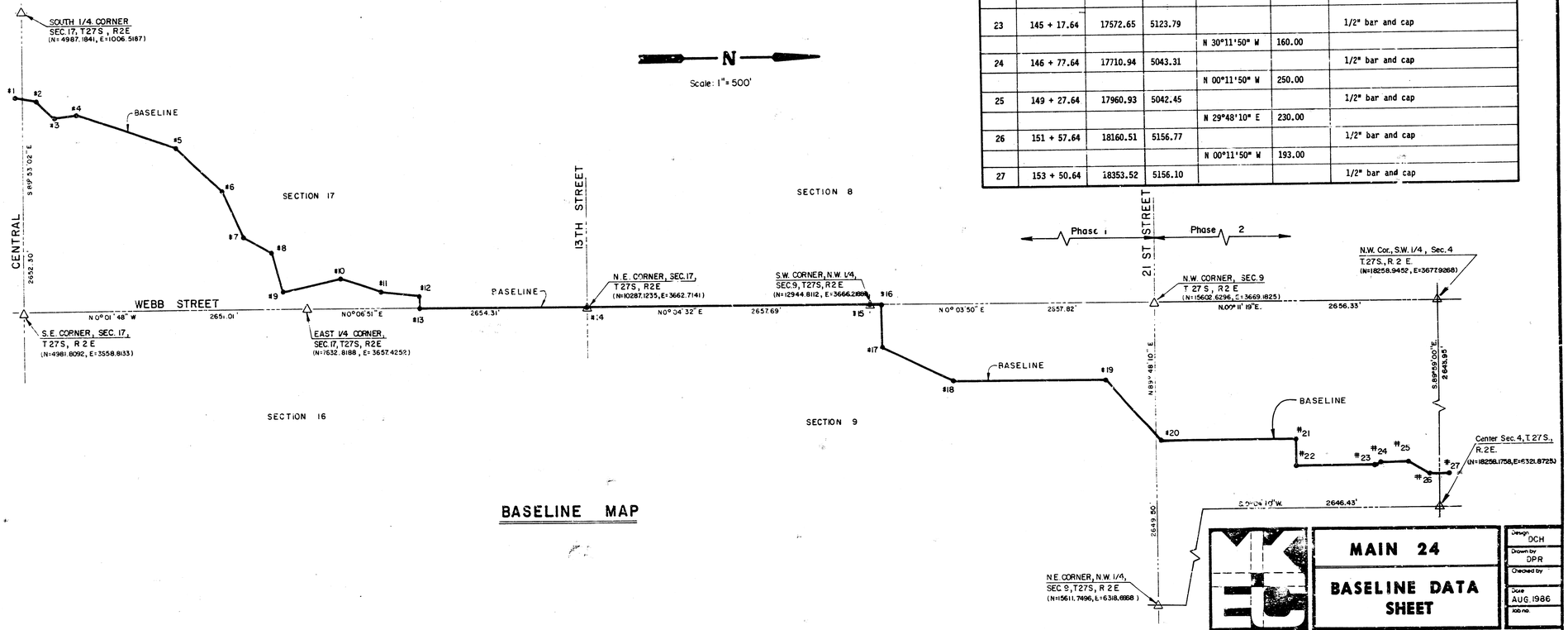
BASE LINE DATA

BASE LINE COORDINATE SYSTEM IS BASED ON THE COORDINATES OF N 1000.00 AND E 1000.00 BEING LOCATED AT THE SOUTHWEST CORNER, NORTHWEST QUARTER, SOUTHEAST QUARTER, SECTION 20, TOWNSHIP 27 SOUTH, RANGE 2 EAST, AND ALSO THE WEST LINE OF SAID QUARTER BEING AN ASSUMED BEARING OF N 0° 00' 00" E.

P.I. NO.	BASELINE STATION	COORDINATES NORTH	COORDINATES EAST	BEARING	DISTANCE (FT.)	REFERENCE TIES
1	0+00.00	4924.88	1762.46			½" Bar & Cap 20.8' N. to S. edge of sidewalk 6.0' E. to W. edge of asphalt 80.3' S.E. to 6ud in 20" elm
				N 10° 28' 34" E	195.02	
2	1+95.02	5116.65	1797.92			½" Bar & Cap
				N 40° 05' 15" E	231.29	
3	4+26.31	5293.60	1946.86			½" Bar & Cap
				N 06° 27' 57" E	206.37	
4	6+32.68	5498.66	1923.62			½" Bar & Cap
				N 18° 00' 28" E	966.27	
5	15+98.95	6417.60	2222.34			½" Bar & Cap
				N 41° 58' 36" E	574.99	
6	21+73.94	6845.06	2606.91			½" Bar & Cap
				N 64° 29' 57" E	458.97	
7	26+32.91	7042.66	3021.17			½" Bar & Cap
				N 28° 10' 55" E	288.92	

P.I. NO.	BASELINE STATION	COORDINATES NORTH	COORDINATES EAST	BEARING	DISTANCE (FT.)	REFERENCE TIES
8	29+21.83	7297.33	3157.62			½" Bar & Cap
				N 73° 27' 06" E	302.82	
9	32+84.65	7400.67	3505.41			½" Bar & Cap
				N 11° 55' 01" W	568.58	
10	38+53.23	7957.00	3388.00			½" Bar & Cap
				N 18° 04' 20" E	399.72	
11	42+52.95	8337.00	3512.00			½" Bar & Cap
				N 06° 28' 39" E	363.44	
12	46+16.39	8698.12	3553.00			½" Bar & Cap
				S 89° 53' 09" E	106.55	
13	47+22.94	8697.91	3659.55			Nail & Disc in CL Webb Rd. Nail & Disc in PP 41.29' ENE SW cor.RCB 174.4' SE cor.RCB 174.6'
				N 00° 06' 51" E	1589.22	
14	63+12.16	10287.12	3662.71			5/8" bar at NE cor.Sec.17,T27S,R2E Nail & Disc in brace pole, 74.6'S.E. Nail & Disc in PP 84.65'N.E. 3 nails in PP 45.5'N.W.
				N 00° 04' 32" E	2657.69	

P.I. NO.	BASELINE STATION	COORDINATES NORTH	COORDINATES EAST	BEARING	DISTANCE (FT.)	REFERENCE TIES
15	89+69.85	12944.81	3666.22			½" pipe at SW cor. NW¼, Sec.9,T27S,R2E in CL Webb Rd. ⁄ CL RR 37.5' S SW cor.RCB 47.4' NW SE cor.RCB 47.4' NE
				N 00° 03' 50" E	115.00	
16	90+84.85	13059.81	3666.35			Nail & Disc in CL Webb Rd. CL RR 152.50' S NE cor. RCB 67.8' SSE NW cor. RCB 67.8' SSW
				N 89° 54' 05" E	378.22	
17	94+63.07	13060.46	4044.57			½" Bar & Cap
				N 24° 03' 50" E	741.94	
18	102+05.01	13737.92	4347.10			½" Bar & Cap
				N 00° 03' 50" E	1422.13	
19	116+27.14	15160.05	4348.68			½" Bar & Cap
				N 47° 33' 51" E	733.90	
20	123+61.12	15655.32	4890.38			5/8" Bar & Cap, CL Fence posts w/nail & disc in top:13.9'SE; 8.3'S; & 41.2' WSW
				N 00°11'50" W	1276.52	
21	136 + 37.64	16931.83	4885.99			1/2" bar and cap
				N 89°48'10" E	240.00	
22	138 + 77.64	16932.65	5125.99			40 d nail in small stump
				N 00°11'50" W	640.00	
23	145 + 17.64	17572.65	5123.79			1/2" bar and cap
				N 30°11'50" W	160.00	
24	146 + 77.64	17710.94	5043.31			1/2" bar and cap
				N 00°11'50" W	250.00	
25	149 + 27.64	17960.93	5042.45			1/2" bar and cap
				N 29°48'10" E	230.00	
26	151 + 57.64	18160.51	5156.77			1/2" bar and cap
				N 00°11'50" W	193.00	
27	153 + 50.64	18353.52	5156.10			1/2" bar and cap



BASELINE MAP

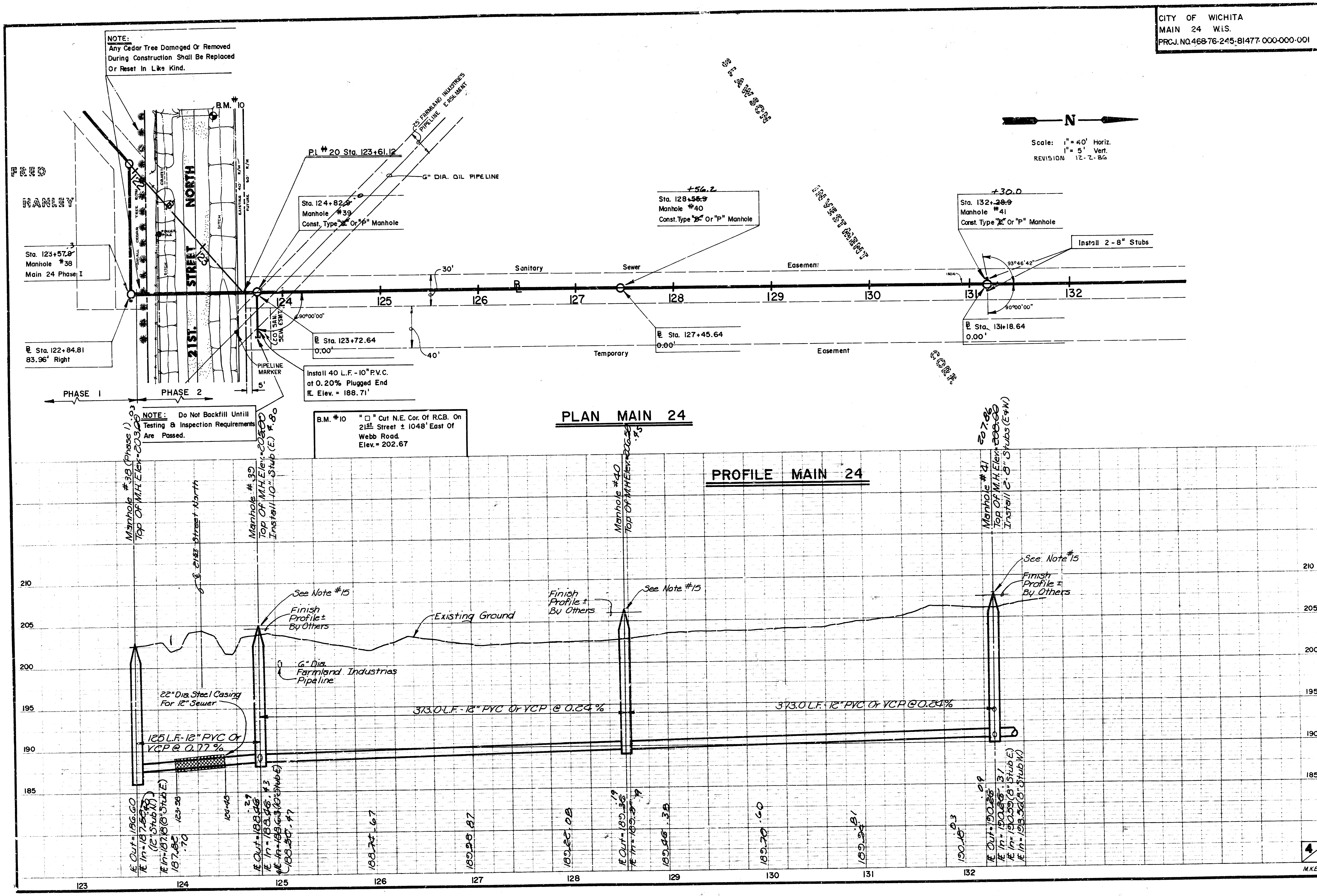
MAIN 24

BASELINE DATA SHEET

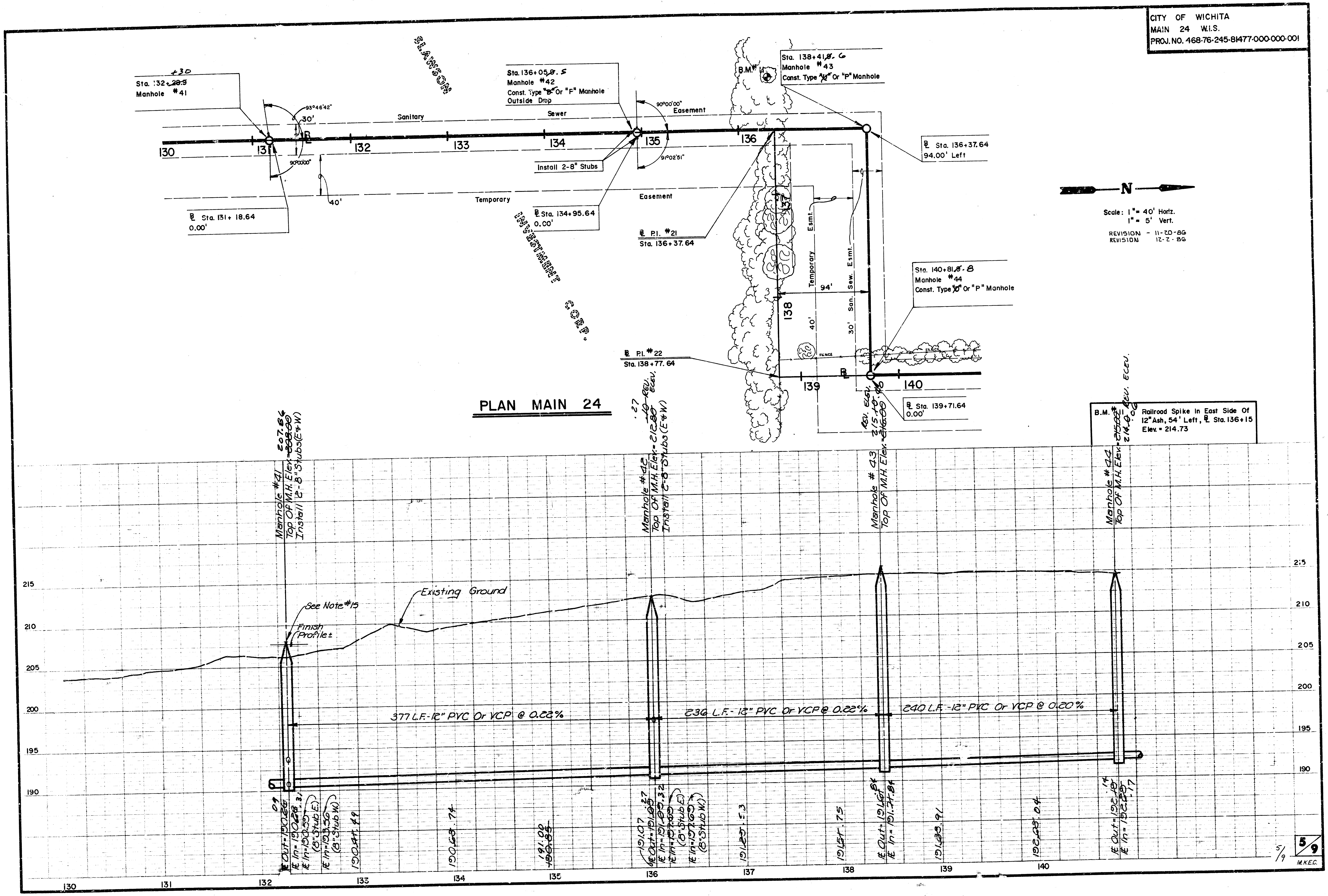
Design: DCH
Drawn by: DPR
Checked by:
Date: AUG. 1986
Job no.

MID-KANSAS ENGINEERING CONSULTANTS PA
3500 NORTH ROCK ROAD
BUILDING #800
WICHITA, KANSAS 67226
682-6561

Sheet 3 of 9



CITY OF WICHITA
MAIN 24 W.I.S.
PROJ. NO. 468-76-245-81477-000-000-001
NOTE: Any Cedar Tree Damaged Or Removed During Construction Shall Be Replaced Or Reset In Like Kind.
B.M. #10
25' FARMLAND INDUSTRIES PIPELINE EASEMENT
P.I. #20 Sta. 123+61.12
6" DIA. OIL PIPELINE
FRED HANLEY
21ST. STREET NORTH
Sta. 123+57.9 Manhole #38 Main 24 Phase I
Sta. 124+82.9 Manhole #39 Const. Type "E" Or "P" Manhole
Sta. 128+56.2 Manhole #40 Const. Type "E" Or "P" Manhole
Sta. 132+30.0 Manhole #41 Const. Type "E" Or "P" Manhole
Install 2 - 8" Stubs
93°46'42"
90°00'00"
30' Sanitary Sewer Easement
40' Temporary Easement
℄ Sta. 122+84.81 83.96' Right
℄ Sta. 123+72.64 0.00'
℄ Sta. 127+45.64 0.00'
℄ Sta. 131+18.64 0.00'
PIPELINE MARKER
Install 40 L.F. - 10" P.V.C. at 0.20% Plugged End ℄ Elev. = 188.71'
PHASE 1
PHASE 2
5'
NOTE: Do Not Backfill Untill Testing & Inspection Requirements Are Passed.
B.M. #10 "□" Cut N.E. Cor. Of R.C.B. On 21st. Street ± 1048' East Of Webb Road. Elev. = 202.67
N
Scale: 1" = 40' Horiz. 1" = 5' Vert.
REVISION 12-2-86
PLAN MAIN 24
PROFILE MAIN 24
Manhole #38 (Phase I) Top Of M.H. Elev. = 203.03
℄ 21st Street North
Manhole #39 Top Of M.H. Elev. = 205.80 Install 10" Stub (E)
Manhole #40 Top Of M.H. Elev. = 206.45
Manhole #41 Top Of M.H. Elev. = 207.86 Install 2-8" Stubs (E+W)
See Note #15
Finish Profile ± By Others
Existing Ground
6" Dia. Farmland Industries Pipeline
22" Dia. Steel Casing For 12" Sewer
125 L.F. - 12" PVC Or VCP @ 0.77 %
373.0 L.F. - 12" PVC Or VCP @ 0.24 %
373.0 L.F. - 12" PVC Or VCP @ 0.24 %
℄ Out = 186.60
℄ In = 187.50 (12" Stub W.)
℄ In = 187.18 (8" Stub E.)
187.70
188.29
℄ In = 188.43
℄ In = 188.63 (10" Stub E.)
188.47
188.67
188.87
189.08
℄ Out = 189.19
189.38
189.60
189.81
190.03
℄ Out = 190.09
℄ In = 190.31
℄ In = 190.59 (8" Stub E.)
℄ In = 193.56 (8" Stub W.)
210 205 200 195 190 185
123 124 125 126 127 128 129 130 131 132
4/9
M.K.E.


CITY OF WICHITA
MAIN 24 W.I.S.
PROJ. NO. 468-76-245-81477-000-000-001
Sta. 132+30
Manhole #41
Sta. 136+05.5
Manhole #42
Const. Type "B" Or "F" Manhole
Outside Drop
Sta. 138+41.6
Manhole #43
Const. Type "P" Manhole
B.M.
Sanitary
Sewer
Easement
Temporary
Easement
Install 2-8" Stubs
℄ Sta. 131+18.64
0.00'
℄ Sta. 134+95.64
0.00'
℄ P.I. #21
Sta. 136+37.64
℄ Sta. 136+37.64
94.00' Left
Sta. 140+81.8
Manhole #44
Const. Type "P" Manhole
℄ P.I. #22
Sta. 138+77.64
℄ Sta. 139+71.64
0.00'
Temporary Esmt.
Sew. Esmt.
94'
40'
30'
FENCE
N
Scale: 1" = 40' Horiz.
1" = 5' Vert.
REVISION - 11-20-86
REVISION 12-2-86
SLAWSON
INVESTMENT CORP.
PLAN MAIN 24
B.M. Railroad Spike In East Side Of 12" Ash, 54' Left, ℄ Sta. 136+15
Elev. = 214.73
Manhole #41
Top Of M.H. Elev. = 207.86
Install 2-8" Stubs (E+W)
Manhole #42
Top Of M.H. Elev. = 212.80
Install 2-8" Stubs (E+W)
Manhole #43
Top Of M.H. Elev. = 215.10
Manhole #44
Top Of M.H. Elev. = 214.60
Existing Ground
See Note #15
Finish Profile ±
377 L.F. - 12" PVC Or VCP @ 0.22%
236 L.F. - 12" PVC Or VCP @ 0.22%
240 L.F. - 12" PVC Or VCP @ 0.20%
℄ Out = 190.09
℄ In = 190.31 (8" Stub E)
℄ In = 190.56 (8" Stub W)
190.49
190.74
191.00
℄ Out = 191.07
℄ In = 191.27
℄ In = 191.32 (8" Stub E)
℄ In = 191.57 (8" Stub W)
191.53
191.75
℄ Out = 191.84
℄ In = 191.84
191.91
192.04
℄ Out = 192.14
℄ In = 192.17
130
131
132
133
134
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136
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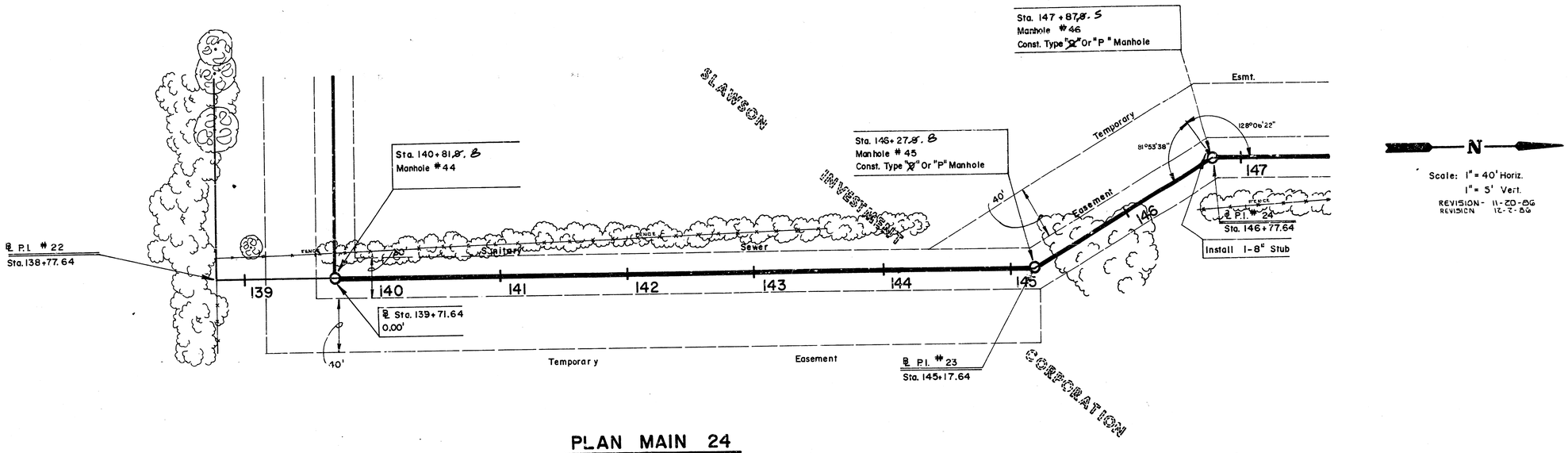
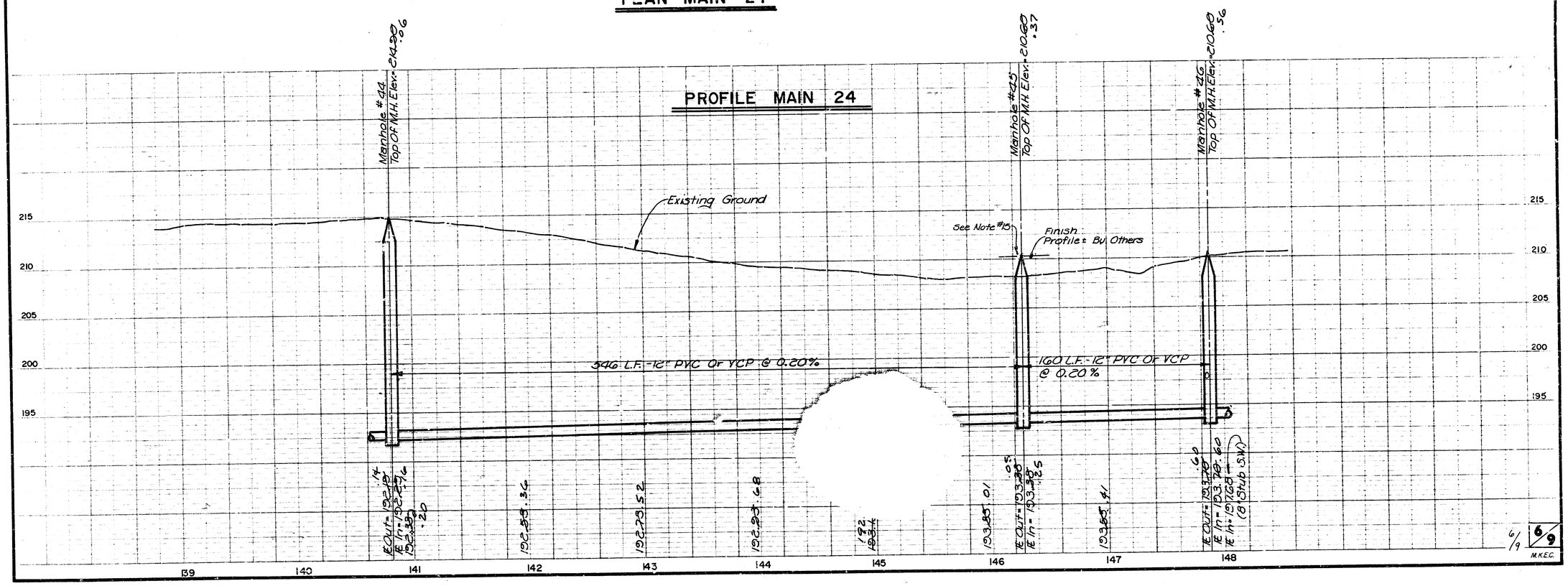
215
5/9
M.K.E.C.

CITY OF WICHITA
MAIN 24 W.I.S.
PROJ. NO. 468-76-245-81477-000-000-001



PLAN MAIN 24



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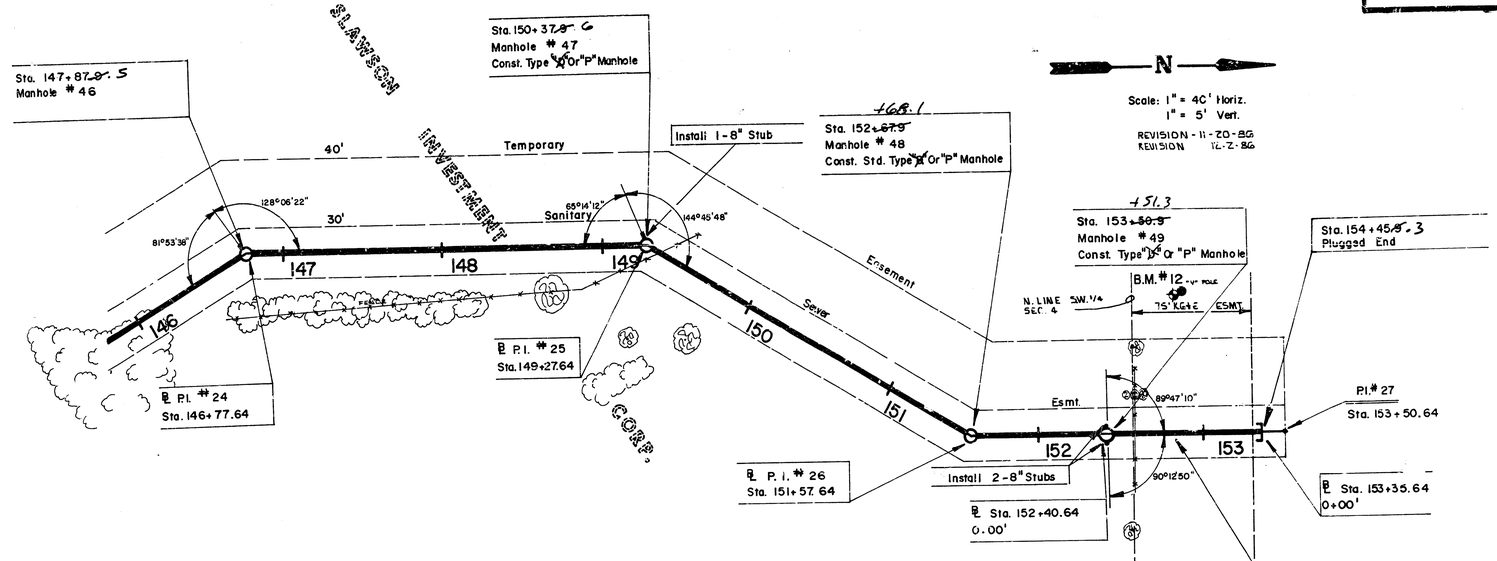
M.K.E.C.

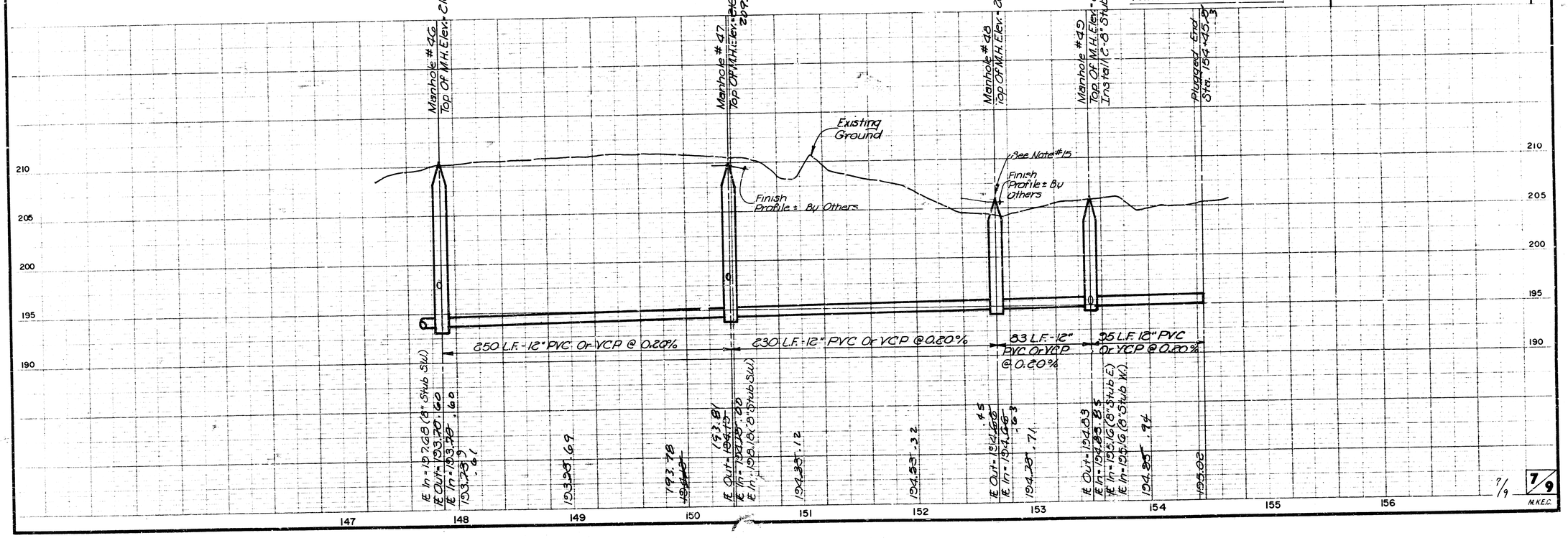
CITY OF WICHITA
MAIN 24 W.I.S.
PROJ.NO.468-76-245-81477-000-000-001



PLAN MAIN 24

NOTE:
Do Not Backfill Until Testing & Inspection Requirements Are Passed.

B.M. # 12 Spike Step In S.E., Face Of "Y" Pole, 82' Left, Sta. 152+70
Elev. = 207.88



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7/9

M.K.E.C.

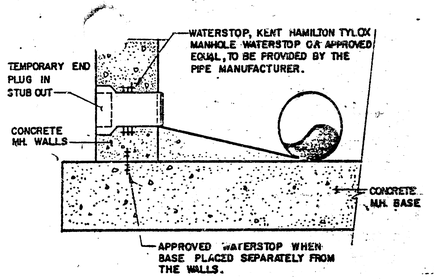
SEWER APPURTENANCES DETAILS

ADOPTED AS STANDARD DESIGN BY

CITY OF WICHITA, KANSAS

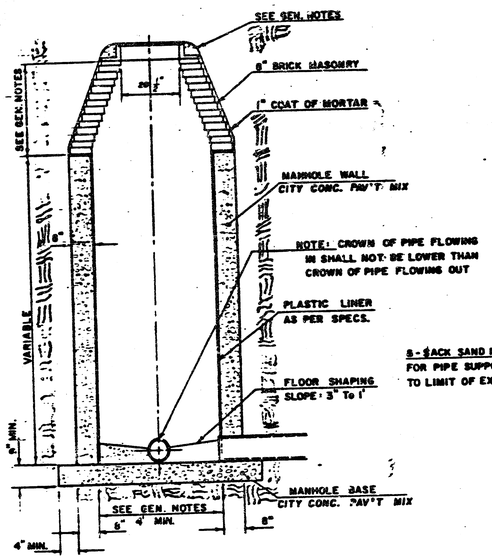
NOTE: PIPE STUB OUT AND WATERSTOP INTEGRAL WITH MANHOLE WALL

INSTALL WATERSTOP IN THE SAME MANNER AT ALL PIPE TO MANHOLE CONNECTIONS

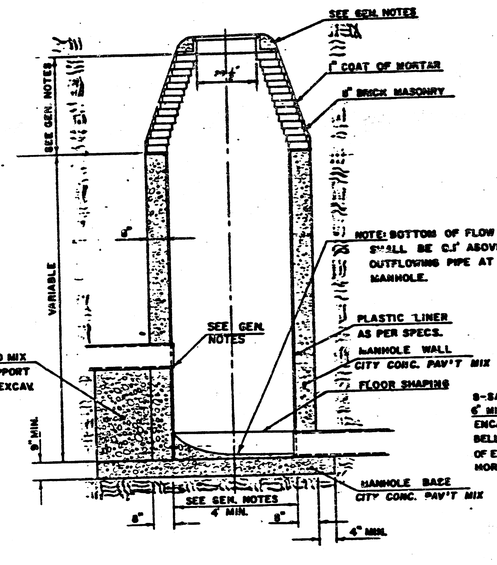


WATER STOP DETAIL

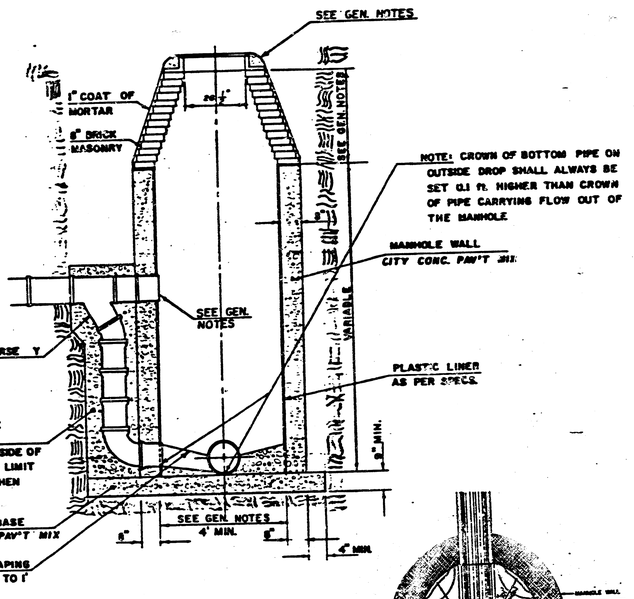
TYPE "D" MANHOLE

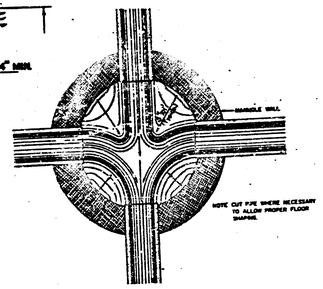


TYPE "D" INSIDE DROP MANHOLE



TYPE "D" OUTSIDE DROP MANHOLE





TYPICAL MANHOLE FLOOR SHAPING

GENERAL NOTES

1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 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. PLASTIC LINING INSIDE THE MANHOLE SHALL CONFORM TO THE REQUIREMENTS SPECIFIED IN THE STANDARD SPECIFICATIONS FOR PLASTIC LINING FOR REINFORCED CONCRETE PIPE FOR SANITARY SEWER CONSTRUCTION. ALL INSIDE SURFACES OF THE MANHOLE WALL WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE PROTECTED BY THE PLASTIC LINING. TYPE "D" MANHOLES MAY BE USED ON PIPE SIZES 10" 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.

2. 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.

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 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.

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 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 MEET 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 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.

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.

6. 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.

CITY OF WICHITA, KANSAS
WAR INDUSTRIAL SEWER EXTENSION
PROJECT NO.
468-76-245-81477-000-000-001

MANHOLE "D" DETAIL

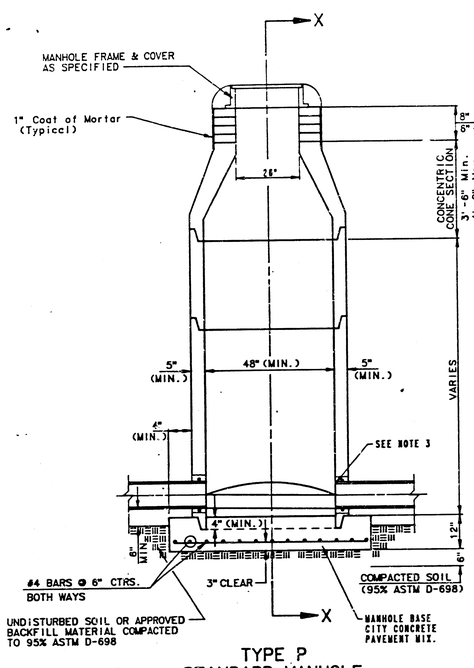
Design	
Drawn by	
Checked by	
Date	
Job no.	

MID-KANSAS ENGINEERING CONSULTANTS PA
3500 N. ROCK ROAD
BUILDING 800
WICHITA, KANSAS 67206
682-6561

Sheet 8
8/99

SEWER APPURTENANCES DETAILS

ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA



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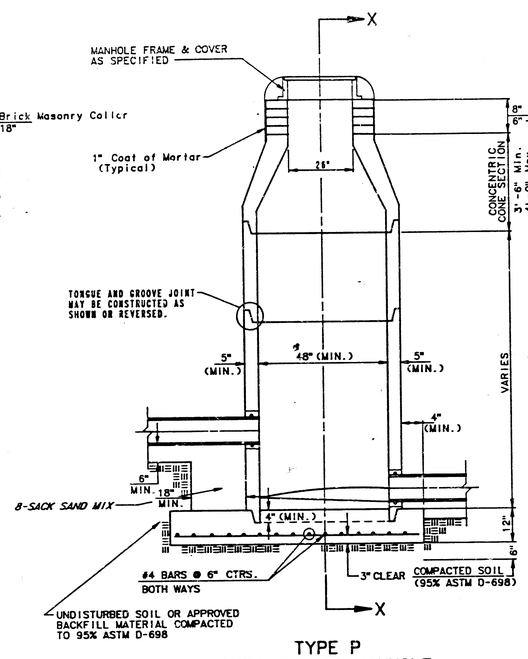
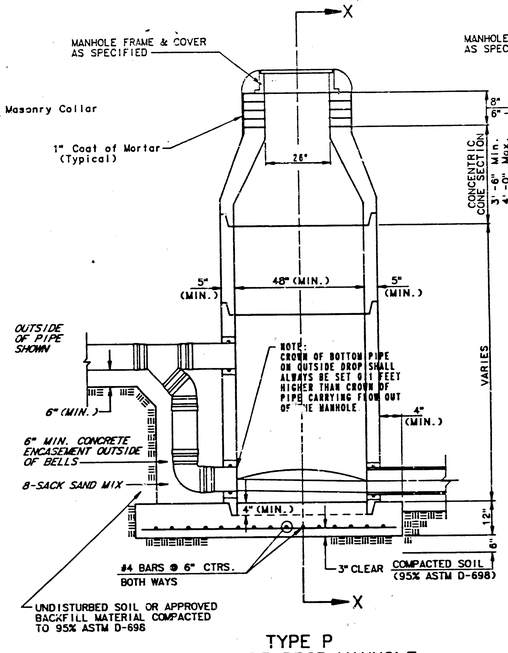
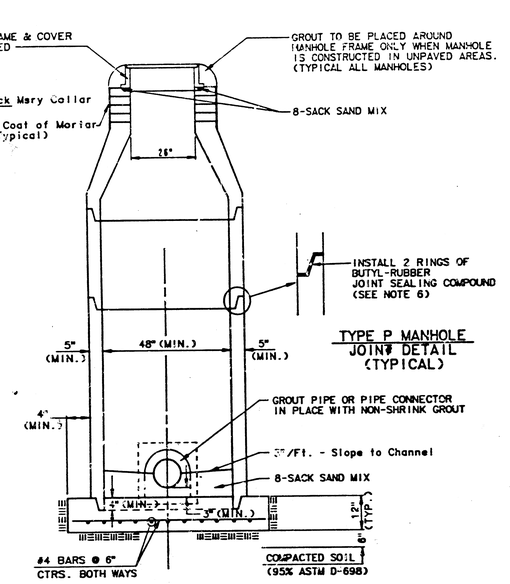
STANDARD MANHOLE



TYPE P
INSIDE DROP MANHOLE



TYPE P
OUTSIDE DROP MANHOLE



SECTION X
(TYPICAL)

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 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.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS THEMEC SERIES-66 HI-BUILD EPOXOLINE, 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 6 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.
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 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.
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 MEET 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 8" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.

CITY OF WICHITA, KANSAS
WAR INDUSTRIAL SEWER EXTENSION
PROJECT NO.
468-76-245-81477-000-000-001

MANHOLE "P" DETAIL

Design
Drawn by
Checked by
Date
Job No.

MID-KANSAS ENGINEERING CONSULTANTS PA
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