STORM SEWER NO. 440
GRAF - GOLDSTON ADDITION

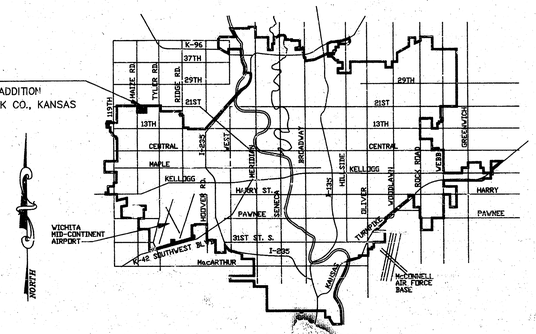
PROJECT NO. 468-82256

CITY OF WICHITA, KANSAS
MICHAEL E. LINDEBAK, P.E., CITY ENGINEER

INDEX CODE: 750406
APRIL, 1993

PROJECT SITE

GRAF – GOLDSTON ADDITION
IN WICHITA, SEDGWICK CO., KANSAS



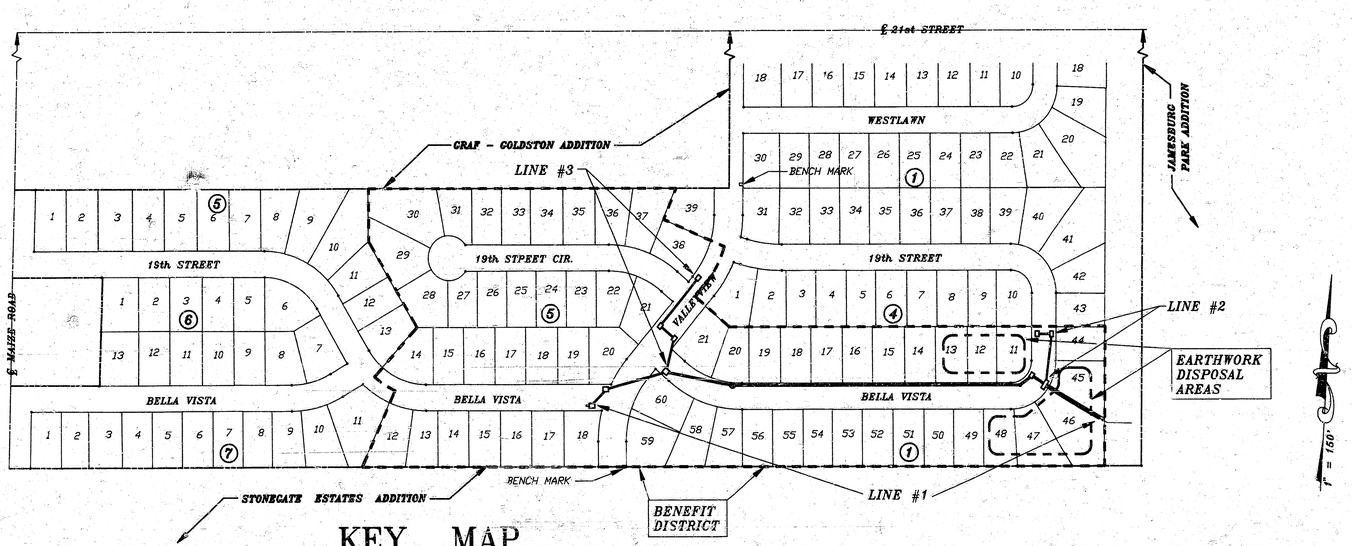
VICINITY MAP

PROJECT SURVEY CONTROL

VERTICAL DATUM: CITY OF WICHITA DATUM

BENCH MARK: CHISELED □ " ON TOP OF CURB AT NORTHWEST COR. LOT 31, BLOCK L, GRAF-GOLDSTON ADDITION ELEV. = 157.96

BENCH MARK: CHISELED □ " ON TOP OF CURB AT SOUTHWEST COR. LOT 59, BLOCK L, GRAF-GOLDSTON ADDITION ELEV. = 158.16



KEY MAP

INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
1.	TITLE SHEET
2.	PLAT
3.	PLAN & PROFILE – LINE #1
4.	PLAN & PROFILE – LINE #1
5.	PLAN & PROFILE – LINE #1
6.	PLAN & PROFILE – LINES #2 & #3
7.	STD.TYPE 1A CURB INLET DETAILS
8.	SPECIAL CURB INLET DETAILS
9.	STD.TYPE 'B' MANHOLE DETAIL

GENERAL NOTES

1. UNLESS SHOWN OR STATED OTHERWISE ON THESE DRAWINGS, MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF WICHITA SPECIFICATIONS.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO REESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE REESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.

3. UNDERGROUND UTILITY SERVICE LINES, UTILITY POLES, ETCETERA 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 PLAN LOCATIONS SHOWN ARE NOT GUARANTEED AND ADDITIONAL EXISTING UTILITIES MAY ALSO BE ENCOUNTERED.

4. CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF FORTY-EIGHT (48) HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:

KANSAS ONE-CALL 1-800-344-7233 OR 687-2470 (LOCAL WICHITA)

THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

CABLEVISION	262-4270 OR 263-2061
K. P. & L. GAS SERVICE COMPANY	263-7511
KANSAS GAS & ELECTRIC	264-1141
ARKLA GAS COMPANY	942-8350 OR 263-8161
SOUTHWESTERN BELL TELEPHONE COMPANY	1-571-2611
CITY OF WICHITA WATER DEPARTMENT	268-4908
CITY OF WICHITA SEWER MAINTENANCE	268-4071

5. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES 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.

6. EXCESS EXCAVATION FROM THE CONSTRUCTION SHALL BE STOCK PILED IN AREAS DESIGNATED AS "EARTHWORK DISPOSAL AREAS" ON THE KEY MAP. EARTHWORK SHALL BE PILED NO HIGHER THAN TWO (2) FEET IN HEIGHT. GRADE STOCK PILES WITH GENTLE SIDE SLOPES AND IN A WELL DRAINED NEAT CONDITION. STOCK PILES THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED.

7. THE TOPS OF INLETS AND MANHOLES AS NOTED ON THE PLANS MAY VARY SO AS TO MEET PROPOSED TOP OF CURB ELEVATIONS OR PAVEMENT ELEVATIONS. THE FIELD ENGINEER SHALL LOCATE INLETS AND MANHOLES WITH REFERENCE TO PROPOSED PAVING PLANS OF THE PERTINENT STREETS. INLET DEPRESSIONS NEED TO BE TIED TO CURB, GUTTER, AND PAVING.

Booked
12/21/93
MCG

ROBERT D. PARKER
No. 6213
STATE OF KANSAS
PROFESSIONAL ENGINEER

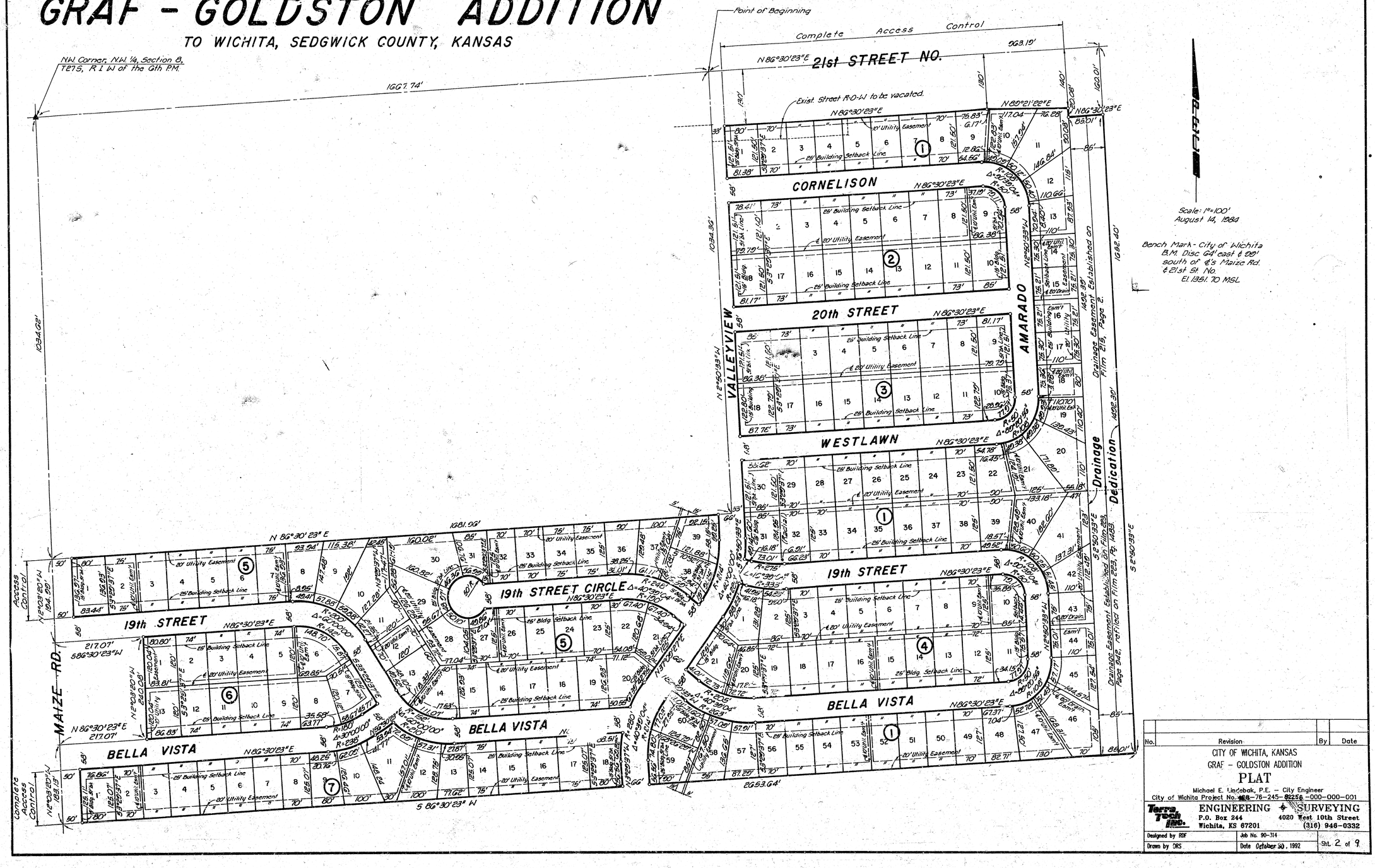
GRAF – GOLDSTON ADDITION
STORM WATER SEWER PLANS

Terra Tech INC.
ENGINEERING ✦ SURVEYING
608 N. West Street Suite #292
Wichita, KS 67203 (316) 946-0370

Designed by RDP	Job No. 90-314	Sht. 1 of 9
Drawn by DRS	Date April 3, 1993	

GRAF - GOLDSTON ADDITION

TO WICHITA, SEDGWICK COUNTY, KANSAS



Scale: 1"=100'
August 14, 1992

Bench Mark - City of Wichita
B.M. Disc Set east & 22' south of ℄'s Maize Rd. & 21st St. No.
El. 1361.70 MSL

No.	Revision	By	Date

CITY OF WICHITA, KANSAS
GRAF - GOLDSTON ADDITION
PLAT

Michael E. Lindebak, P.E. - City Engineer
City of Wichita Project No. 468-76-245-02256-000-000-001

Terra Tech Inc. ENGINEERING ✦ SURVEYING
P.O. Box 244 Wichita, KS 67201
4020 West 10th Street (316) 946-0332

Designed by RDF	Job No. 90-314	Sht. 2 of 9
Drawn by DRS	Date October 30, 1992	

SCALE
PLAN 1" = 20'
PROFILE 1" = 20' HORZ.
1" = 5' VERT.
20 0 20 40
5 0

BELLA VISTA
Proposed Curb
4+00 MATCH LINE
5.00'
Existing Drainage Ditch
Sta. 0+00.00, Line #1 Remove 8" Brick Wall & 30" CMP and Connect to Existing 4'x6' RCBC Storm Sewer
Inlet # 1-1
Sta. 1+45.09 Line 1
Const. Special Curb Inlet
L=11'-4", W=4'-4"
See Sheets 3 & 8 for Details
Inlet Top=153.13
St. Sta. 39+44.68(Bella Vista)
15.11' Rt. (℄ to Front Ext.Wall)
Line 1-36" RCP
21.22'
144°31'21"
110°34'41"
Line 1
29"x45" HERCP
177°01'33"
Line 1-4'x6' RCBC
Manhole # 1-3
Sta. 2+16.45 Line 1
Const. Std. Type "S" Manhole
Inside Dia.= 5'-0"
See Sheets 3 & 9 for Details
M.H. Top = 153.73
St. Sta. 38+96.49 Bella Vista
20.05' Lt.(℄ to Center M.H.)
Inlet # 1-2
Sta. 1+80.38 Line 1
Const. Std. Type 1-A Curb Inlet
L=6'-4", W=5'-4"
See Sheets 3 & 7 for Details
Inlet Top = 153.13
St. Sta. 39+44.68 (Bella Vista)
15.78' Lt. (℄ to Front Ext. Wall)
Sta. 1+42.71 – Line 1 = Sta. 0+00.00 – Line 2
Line 2-21" RCP
CAUTION: STA 0+02.47 10" SANITARY SEWER ℄ =144.87
CAUTION: Existing 8" Water Main
46
47
48
49
11
12
13
45

Sta. 1+42.71 – Line 1 = Sta. 0+00.00 – Line 2
Back of Curb
4.33'
Sta. 1+45.09 Line 1 = Center of Inlet
2.17'
11.33'
Line 1 4'x6' RCBC
2.38'
0.61'
Line 1 29"x45" HERCP
14.50'
Existing 8" Water Line
℄ Street
Line 2 21" RCP

Inlet # 1-1 Detail
Scale = 1" = 5'

Back of Curb
Sta. 1+80.38 Line 1
1.28'
Line 1-36" RCP
Center of Inlet
Line 1 29"x45" HERCP
6.33'
14.50'
℄ Street
2.23'
6.33'

Inlet # 1-2 Detail
Scale = 1" = 5'

Back of Curb
℄ Street
14.50'
3.55'
Line 1-36" RCP
Sta. 2+16.45 Line 1 = Center of Manhole
Line 1-36" RCP

Manhole # 1-3 Detail
Scale = 1" = 5'

Back of Curb
℄ Street
Line 2-15" RCP
14.50'
1.00'
2.48'
4.33'
Line 2-21" RCP
6.33'
Sta. 1+14.36 Line 2

Inlet # 2-1 Detail
Scale = 1" = 5'

Back of Curb
6.33'
Sta. 1+50.02 Line 2
4.33'
2.17'
1.00'
Line 2-15" RCP
14.50'

Inlet # 2-2 Detail
Scale = 1" = 5'

LINE #1 – Sta. 0+00.00 to 4+00.00

Start 4'X6' RCBC Storm Sewer
Inlet # 1-1
Inlet # 1-2
Manhole # 1-3
of M. Top = 153.73
See Sheet #4 for Continuation of Line #1
Proposed Ground
Bella Vista
Install 31 L.F. of Flowable Fill
Existing Ground
Exist. 10" San. Sewer ℄ =144.87
21" RCP – Line #2 Flow Line In = 148.32
Existing 8" Water Line Top of Pipe = 146.15
Install 145.09 L.F. 4'X 6' RCBC @ 0.05%
35.29 L.F. 29"x45" HERCP @ 0.30%
36.07 L.F. 36" RCP @ 0.30%
671.88 L.F. 36" @ 0.30%
E Out=142.76 Match Existing
E =147.79
E Out=147.81 (4'x6' RCBC)
E In=147.96 (29"x45" HERCP)
E =148.13
E Out=147.97 (29"x45" HERCP)
E In=148.07 (36" RCP)
E =148.53
E Out=148.15 (36" RCP)
E In=148.28 (36" RCP)
E =148.85
+00
+02.47
+65.09
+80.38
+16.45
0+00
1+00
2+00
3+00
4+00
160
155
150
145
140

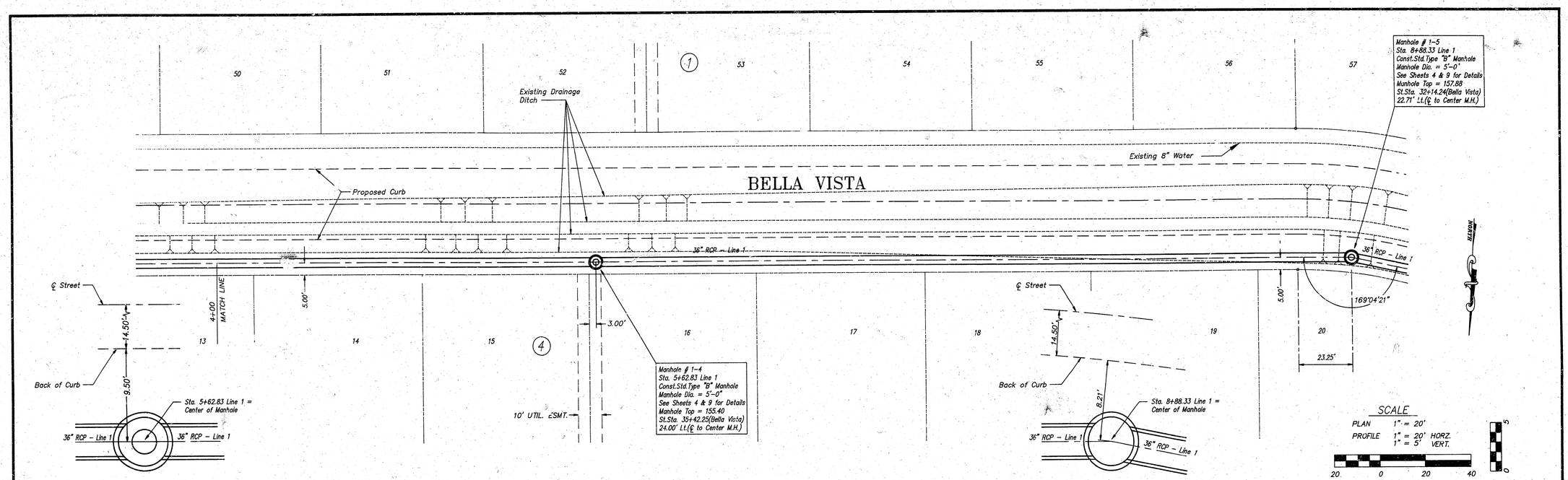
STORM SEWER NO. 440
GRAF - GOLDSTON ADDITION
CITY OF WICHITA, KANSAS
1
LINE
Michael E. Lindebak, P.E. – City Engineer
City of Wichita Project No. 468-82256

Revision | By | Date

ENGINEERING ✦ SURVEYING
608 N. West Street
Wichita, KS 67203
(316) 946-0370

Designed by MEF
Drawn by BKS
Job No. 50-284
Date April 3, 1993

No. Sht. 3 of 9



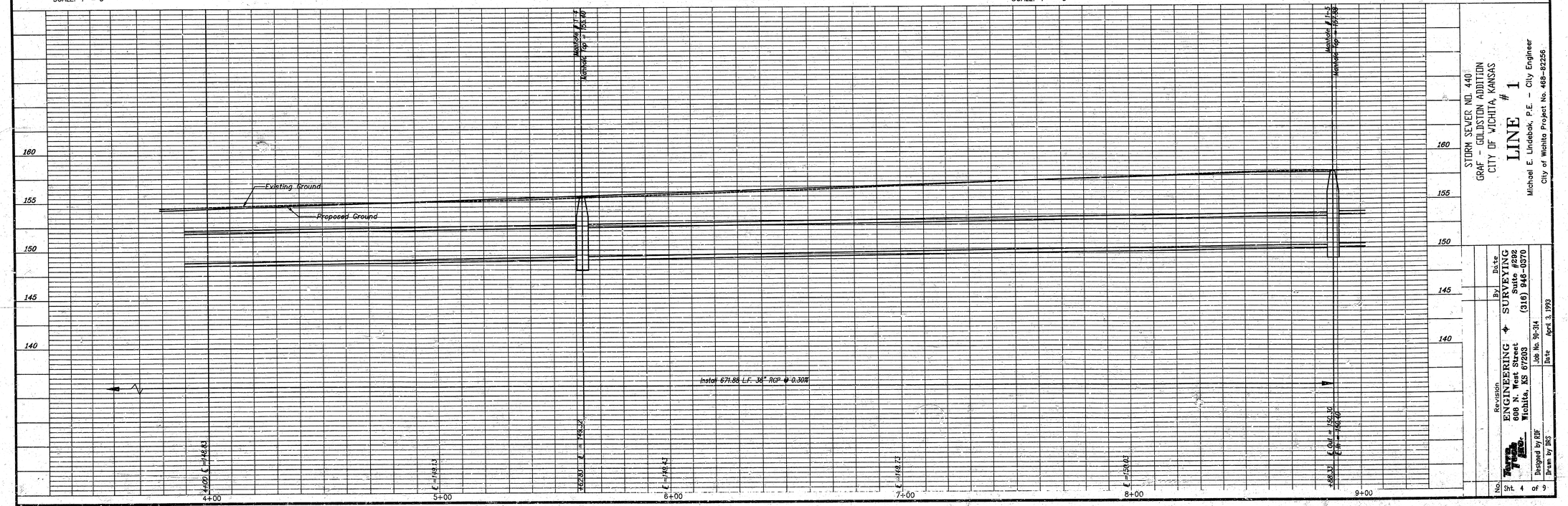
Manhole #1-4 Detail

SCALE: 1" = 5'

LINE #1 Sta. 4+00.00 to 8+88.33

Manhole #1-5 Detail

SCALE: 1" = 5'



STORM SEWER NO. 440
GRAF - GOLDSTON ADDITION
CITY OF WICHITA, KANSAS

LINE #1

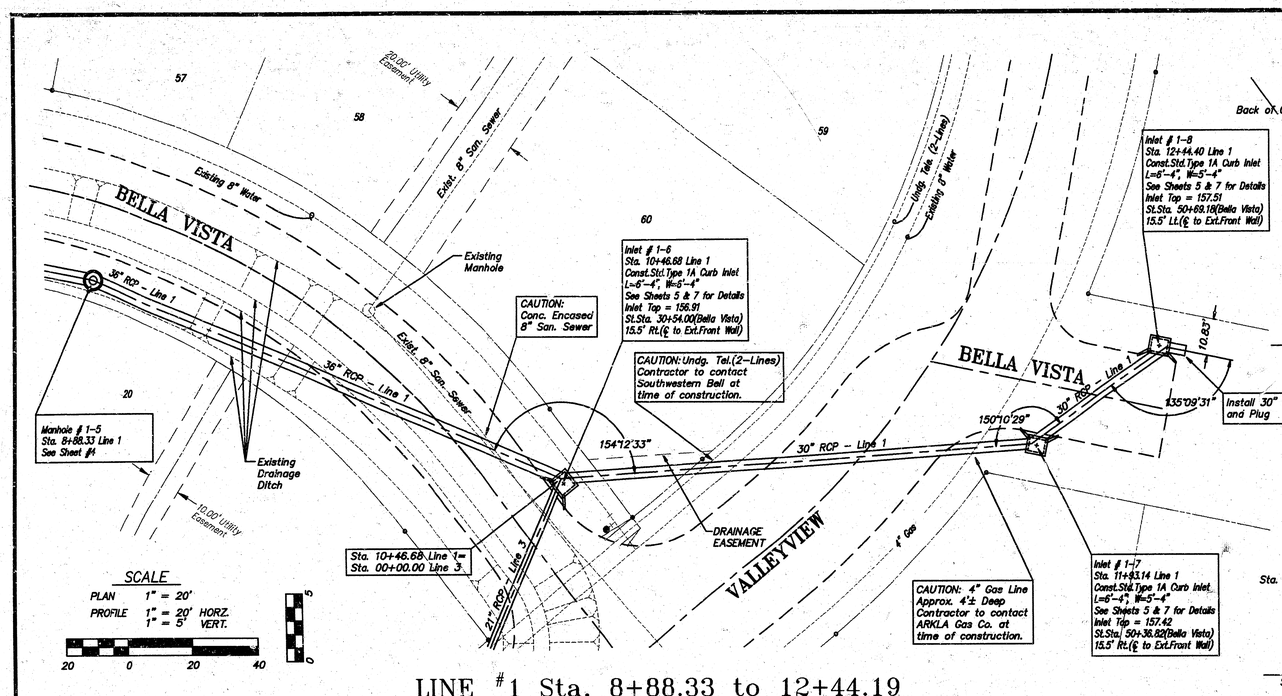
Michael E. Lindebak, P.E. - City Engineer
City of Wichita Project No. 468-82256

No.	Revision	By	Date

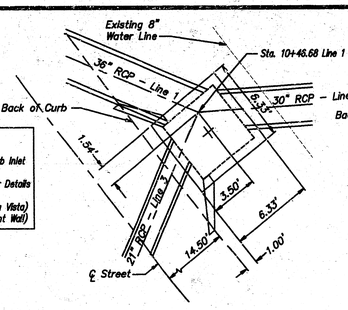
ENGINEERING ✦ SURVEYING
608 N. West Street Suite #202
Wichita, KS 67203 (316) 946-0370

Designed by KBF
Drawn by DKS
Job No. 96-314
Date April 3, 1993

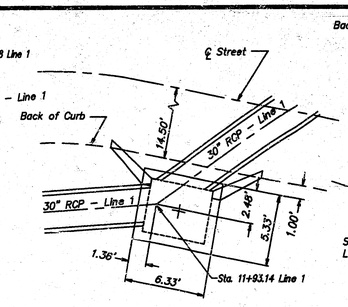
Sht. 4 of 9



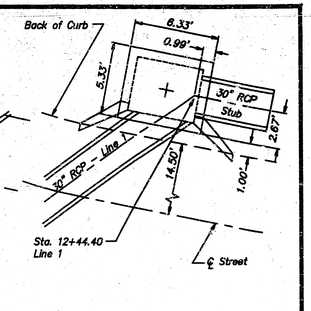
LINE #1 Sta. 8+88.33 to 12+44.19



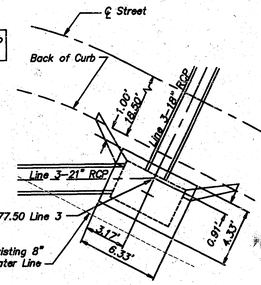
Inlet # 1-6 Detail
SCALE: 1" = 5'



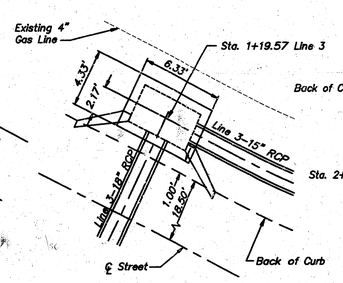
Inlet # 1-7 Detail
SCALE: 1" = 5'



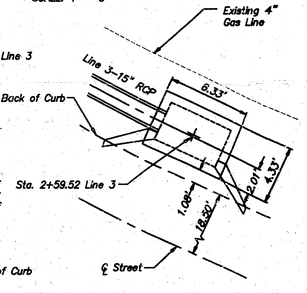
Inlet # 1-8 Detail
SCALE: 1" = 5'



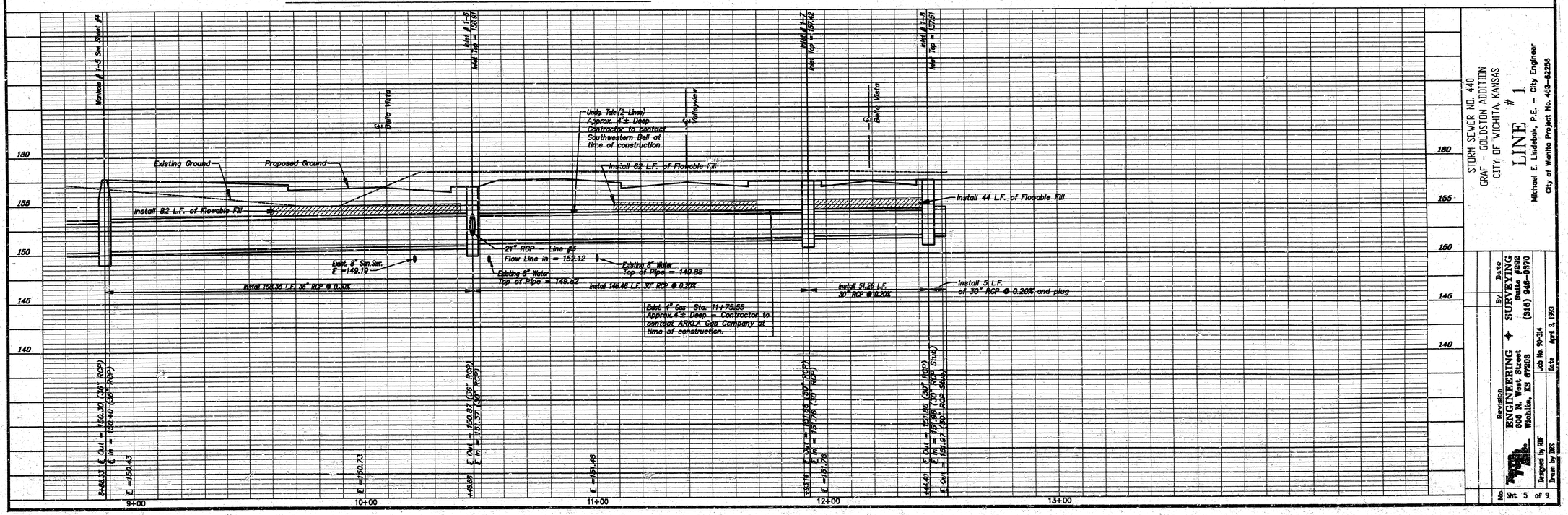
Inlet # 3-1 Detail
SCALE: 1" = 5'



Inlet # 3-2 Detail
SCALE: 1" = 5'



Inlet # 3-3 Detail
SCALE: 1" = 5'



STORM SEWER NO. 440
GRAF - GOLDSTON ADDITION
CITY OF WICHITA, KANSAS

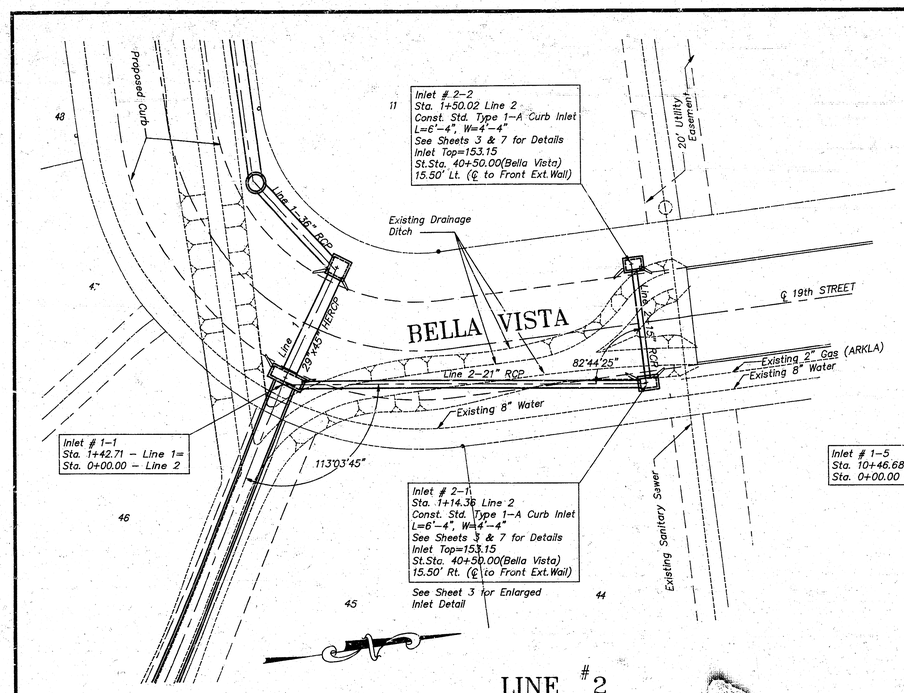
LINE #1

Michael E. Lindebak, P.E. – City Engineer
City of Wichita Project No. 463-82258

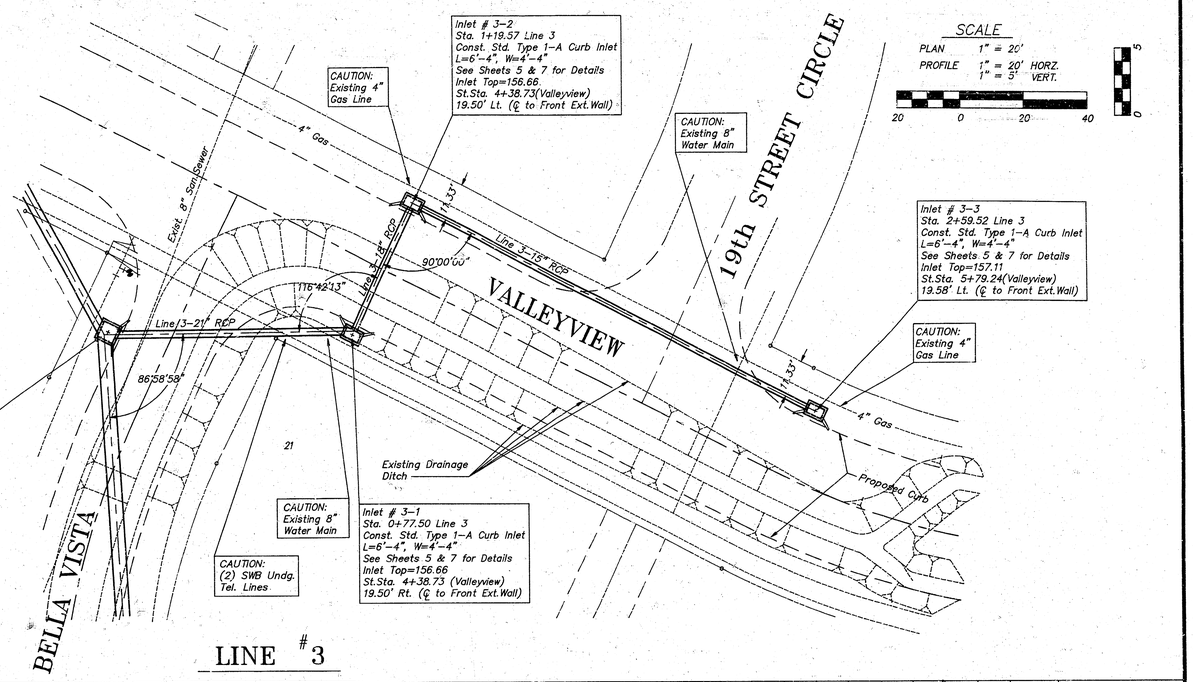
ENGINEERING + SURVEYING
600 N. West Street Suite #202
Wichita, KS 67203 (316) 946-0870

Job No. 96-214
Date April 3, 1998
Designed by MEF
Drawn by BKS
Sht. 5 of 9

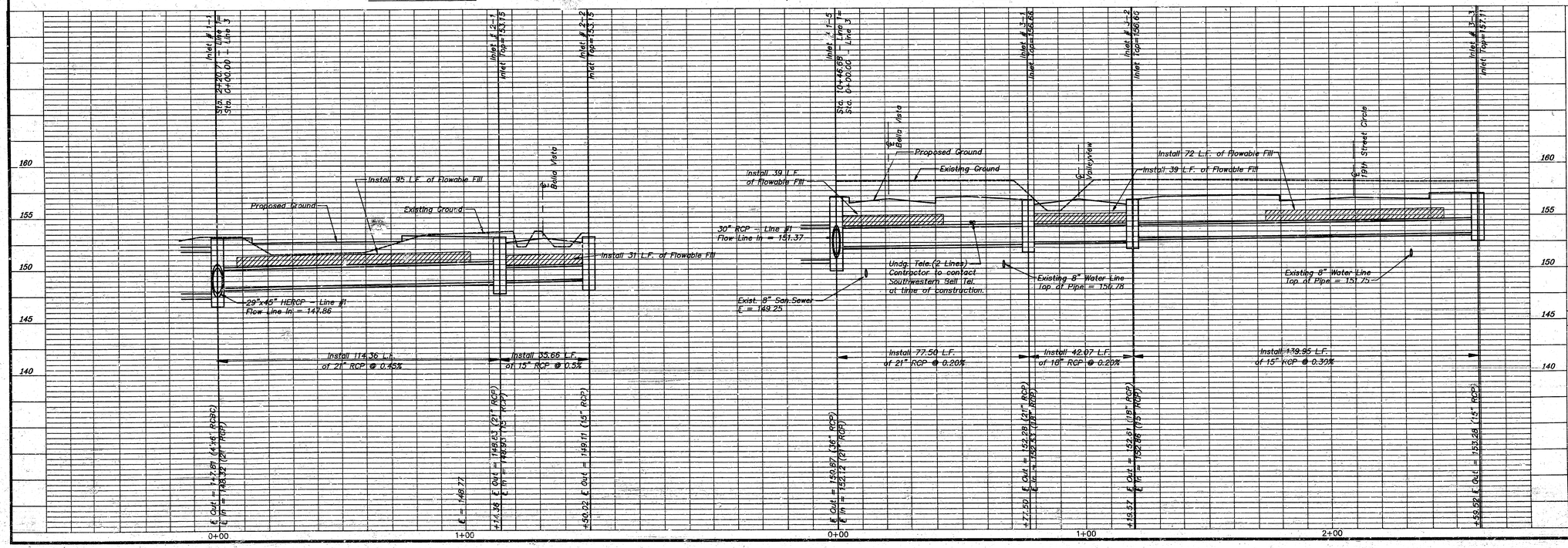
No. Revision By Date



LINE # 2



LINE # 3



STORM SEWER NO. 440
GRAF - GOLDSTON ADDITION
CITY OF WICHITA, KANSAS

LINES #2 AND #3

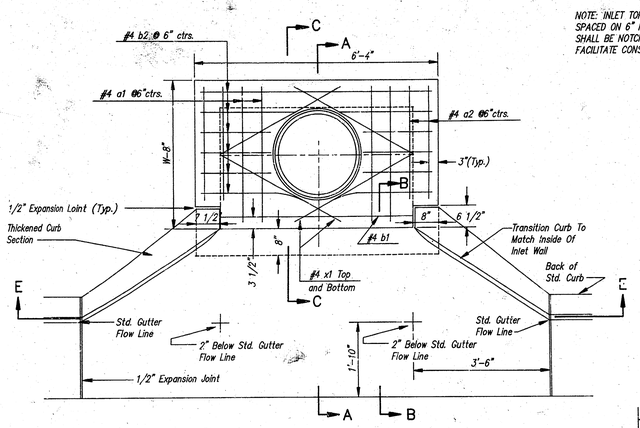
Michael E. Lindebak, P.E. – City Engineer
City of Wichita Project No. 468–82256

No.	Revision	By	Date

ENGINEERING & SURVEYING
608 N. West Street Suite #292
Wichita, KS 67203 (316) 946-0370

Designed by RDF | Job No. 92-314
Drawn by DRS | Date April 3, 1993

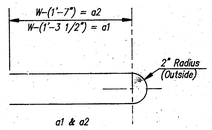
Sht. 6 of 9



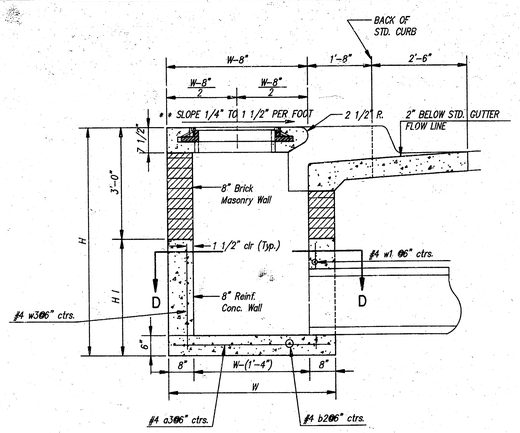
NOTE: EXPANSION JOINT ONLY IN CURB AREA WITH CONCRETE PAVEMENT

PLAN

NOTE: INLET TOP REINFORCING SHALL BE SPACED ON 6" MAX CENTERS. INLET LIDS SHALL BE NOTCHED OUT AS INDICATED TO FACILITATE CONSTRUCTION OF CURB.

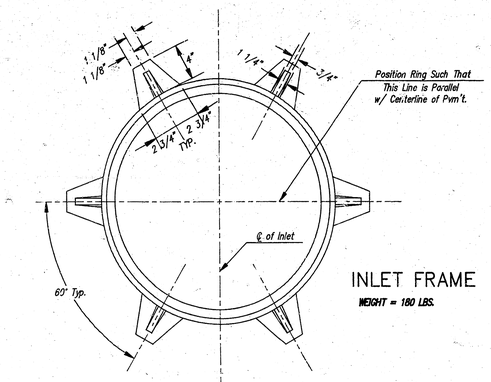


BENDING DIAGRAM



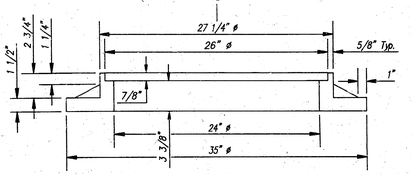
SECTION A–A

NOTE: CONCRETE TOPS TO BE INSTALLED ON THIN MORTOR CUSHION TO INSURE FULL SUPPORT ALONG BRICK WALLS. CONCRETE TOPS MAY BE CAST IN PLACE OR PRECAST. CONCRETE USED FOR INLET CONSTRUCTION SHALL BE CONCRETE PAVEMENT MIX WITH AIR ENTRAINMENT.



INLET FRAME

WEIGHT = 180 LBS.



SEE CITY OF WICHITA STANDARD MANHOLE FRAME AND COVER DETAIL SHEET FOR COVER DETAILS TO BE USED WITH INLET FRAME.

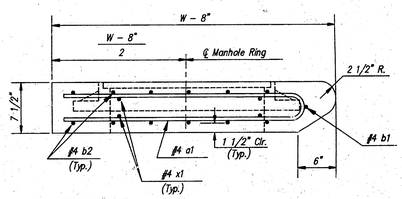
NOTE: CONTRACTOR SHALL HAVE THE OPTION OF CONSTRUCTING 8" BRICK MASONRY WALLS BETWEEN THE CONCRETE INLET BASE AND TOP SLAB SET WHEN W = 6'4" AND H = 7'0" OR LESS.

ADDITIONAL CURB AND GUTTER CONSTRUCTION NECESSARY TO CONNECT SET-BACK INLET TO PAVEMENT WILL BE PAID FOR AT THE UNIT PRICE BID FOR EACH INLET HOOKUP.

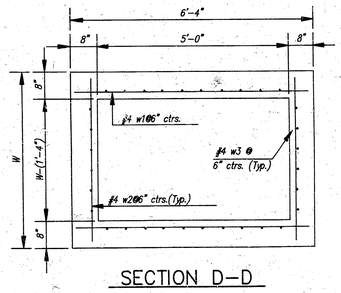
INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.

THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.

* * NOTE: Slope of Inlet Tops to match Sidewalk or Parking Slopes within Limits indicated.



SECTION C–C



SECTION D–D

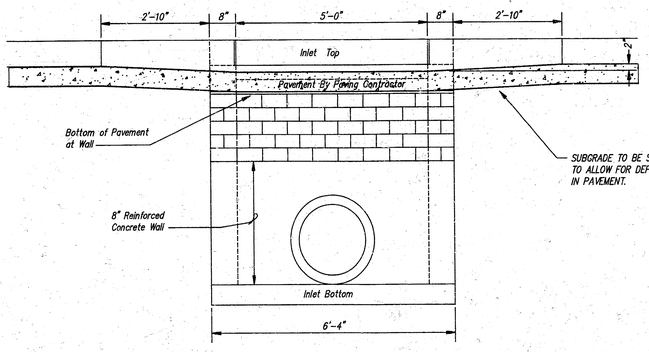
STANDARD CURB INLET PRECAST TOPS				
W	PRE-CAST TOP SIZE		PIPE SIZE	CU. YD. CONC.
4'-4"	3'-8"	6'-4" 7 1/2"	21" & SMALLER	0.38±
5'-4"	4'-8"	6'-4" 7 1/2"	24" & 30"	0.51±
6'-4"	5'-8"	6'-4" 7 1/2"	36" & 42"	0.64±
7'-4"	6'-8"	6'-4" 7 1/2"	48" & 54"	0.77±
8'-4"	7'-8"	6'-4" 7 1/2"	60" & 66"	0.90±

PRECAST SLAB AND FLOOR REINFORCING											
		W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
* a1	#4	6	6'-7"	6	8'-7"	6	10'-7"	6	12'-7"	6	14'-7"
a2	#4	4	6'-0"	4	8'-0"	4	10'-0"	4	12'-0"	4	14'-0"
a3	#4	13	4'-1"	13	5'-1"	13	6'-1"	13	7'-1	13	8'-1"
b1	#4	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"
* b2	#4	23	6'-1"	29	6'-1"	35	6'-1"	41	6'-1"	47	6'-1"
x1	#4	8	3'-10"	8	4'-2"	8	4'-6"	8	4'-10"	8	5'-2"
WALL REINFORCING											
		W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
w1	#4	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"
w2	#4	①	4'-1"	①	5'-1"	①	6'-1"	①	7'-1"	①	8'-1"
w3	#4	32	②	36	②	40	②	44	②	48	②

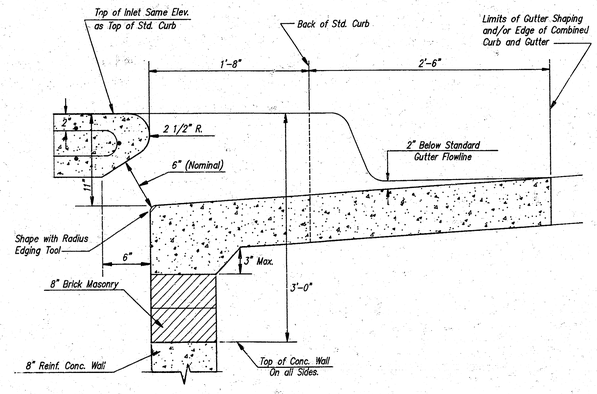
* Field Bend or Cut Reinforcing as Required for Clearance.

① 4 (Hi - 12") (Hi - 21") Rounded down to nearest 0.5'

② Hi - 3"



SECTION E–E



SECTION B–B

Revised – Feb. 16, 1989

CITY OF WICHITA STANDARD TYPE 1A

CURB INLET DETAILS

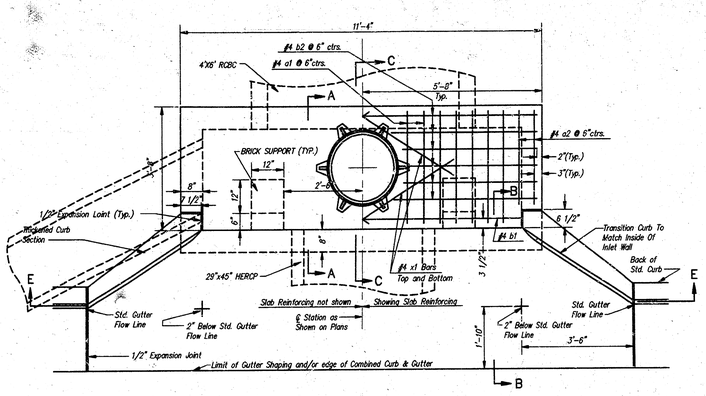
INLET OPENING = 6" x 5'-0"

Terra Tech Inc. ENGINEERING ✦ SURVEYING
808 N. West Street Suite #292
Wichita, KS 67203 (316) 946-0370

Job No. 90-314

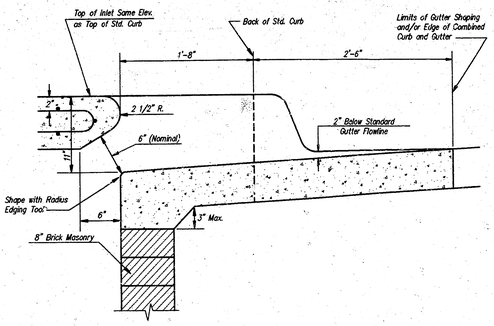
Date April 3, 1993

Sht. 7 of 9



NOTE: EXPANSION JOINT ONLY IN CURB AREA WITH CONCRETE PAVEMENT

PLAN

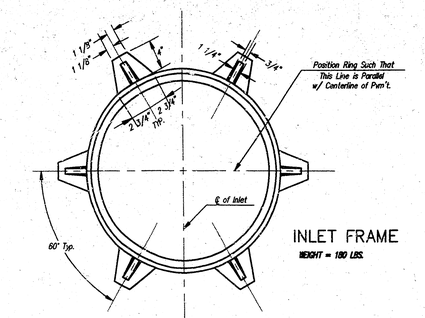


SECTION B–B

NOTE: ADDITIONAL CURB AND GUTTER CONSTRUCTION NECESSARY TO CONNECT SET-BACK INLET TO PAVEMENT WILL BE PAID FOR AT THE UNIT PRICE BID FOR EACH INLET HOOKUP.

INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.

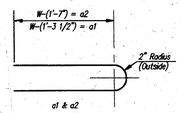
THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.



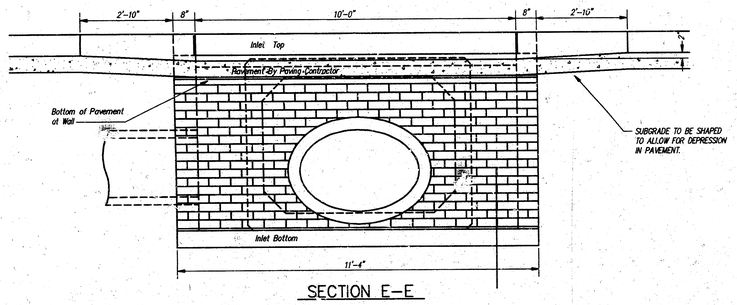
INLET FRAME

WEIGHT = 180 LBS.

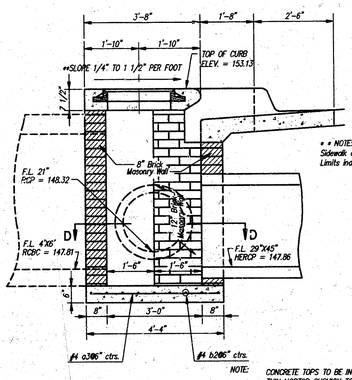
SEE CITY OF WICHITA STANDARD MANHOLE FRAME AND COVER DETAIL SHEET FOR COVER DETAILS TO BE USED WITH INLET FRAME.



BENDING DIAGRAM



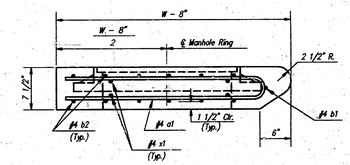
SECTION E–E



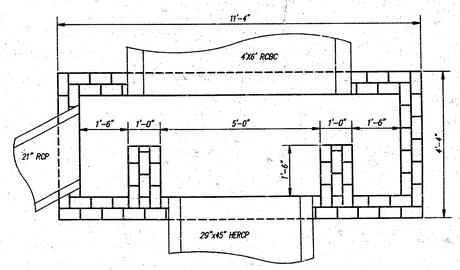
* NOTE: Slope of Inlet Tops to match Sidewalk or Parking Slopes within Limits Indicated.

NOTE: CONCRETE TOPS TO BE INSTALLED ON THIN MORTOR CUSHION TO INSURE FULL SUPPORT ALONG BRICK WALLS. CONCRETE TOPS MAY BE CAST IN PLACE OR PRECAST. CONCRETE USED FOR INLET CONSTRUCTION SHALL BE CONCRETE PAVEMENT MIX WITH AIR ENTRAINMENT.

SECTION C–C



SECTION A–A

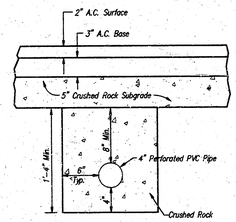


SECTION D–D

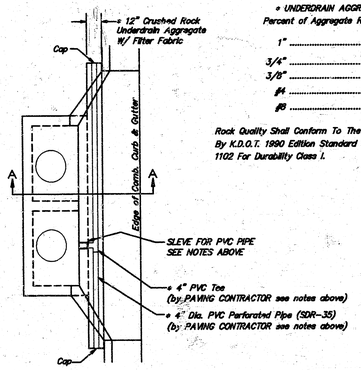
PRECAST SLAB AND FLOOR REINFORCING			
		W = 4'-4"	
MARK	SIZE	NO.	LENGTH
* a1	#4	13	6'-2"
a2	#4	4	5'-0"
a3	#4	23	4'-1"
b1	#4	1	9'-9"
* b2	#4	23	11'-1"
x1	#4	16	3'-10"

* Field Bend or Cut Reinforcing as Required for Clearance.

STANDARD CURB INLET PRECAST TOPS			
W	PRE-CAST TOP SIZE		CU. YD. CONC.
4'-4"	3'-8" 11'-4"	7 1/2"	0.83±



SECTION A–A



PLAN

* UNDERDRAIN AGGREGATE

Percent of Aggregate Retained

1" 0
3/4" .....0 to 10
3/8" .....45 to 80
#4 .....90 to 100
#8 .....95 to 100

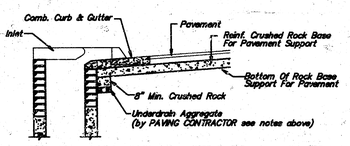
Rock Quality Shall Conform To The Requirements Specified By K.D.O.T. 1990 Edition Standard Specification Subsection 1102 For Durability Class 1.

NOTE: The 4" PVC Perforated Pipe shall be installed by the paving contractor at all sump locations.

The Storm Sewer contractor shall install sleeves through inlet wall.

Cost of Inlet Sleeve to be Incidental to the Inlet cost.

Inlet Type May Vary From That Shown.



(Min. 16 Perforations Per Lin. Ft. @ 1/4" Dia.) Perforations To Be on Bottom Half

SECTION A–A

PAVEMENT UNDERDRAIN DETAIL

NOT TO SCALE

SPECIAL CURB INLET DETAILS

INLET OPENING = 6" x 10'-0"

AND

PAVEMENT UNDERDRAIN DETAILS

TERRA TECH, INC.
ENGINEERING ✦ SURVEYING
608 N. West Street Suite #292
Wichita, KS 67203 (316) 946-0370

Job No. 90-314 Sht. 8 of 9

Date April 3, 1993

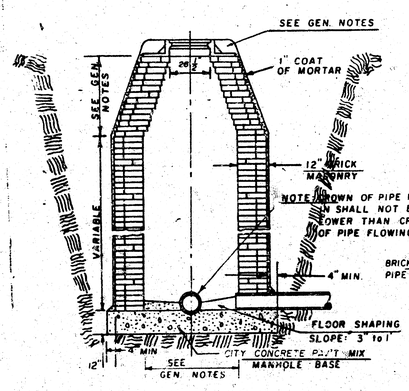
REVISED MAY 1971
REVISED JAN. 1982

SEWER APPURTENANCES DETAILS

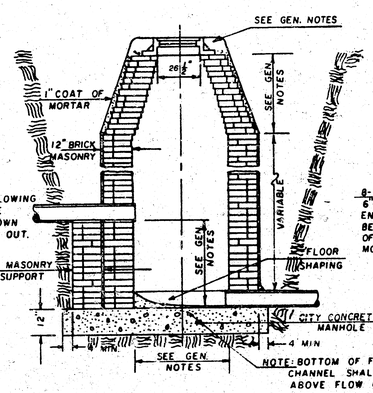
ADOPTED AS STANDARD DESIGN
BY

City of Wichita, Kansas

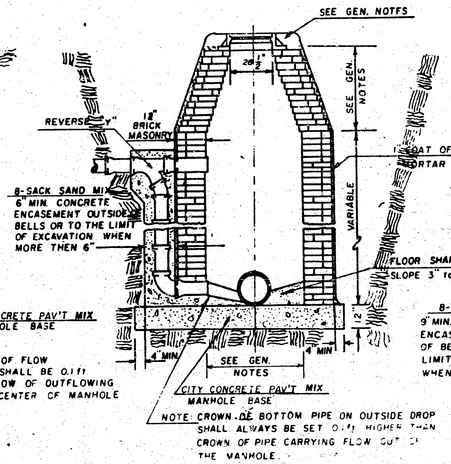
TYPE "B" MANHOLE



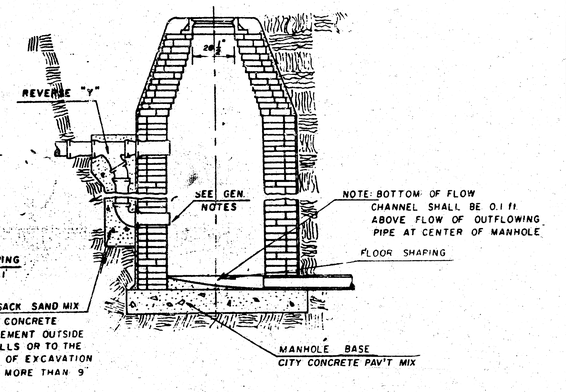
TYPE "B" INSIDE DROP MANHOLE



TYPE "B" OUTSIDE DROP MANHOLE



DETAIL OF OUTSIDE DROP
CONSTRUCTED ON EXISTING MANHOLE



GENERAL NOTES

1. 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. TYPE "B" MANHOLES CAN BE USED ON SEWERS HAVING DEPTHS GREATER THAN 16' OR WHEN THE MANHOLE IS LOCATED IN PUBLIC STREET PAVEMENT. 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'. 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 BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED 6" 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.

3. 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. THE VERTICAL DROP FROM THE LOWER PIPE ON SUCH OUTSIDE DROP CONNECTIONS SHALL NOT EXCEED 4' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES SIZED LARGER THAN 12", EXCEPT THE CROWN OF THE LOWER PIPE SHALL NEVER BE SET BELOW THE CROWN OF ANY LARGER OUTFLOWING PIPE. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.

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 SEAT 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 FREE FALL DROP INSIDE MANHOLES SHALL NOT EXCEED 2'.**

   THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.

8. STANDARD MANHOLES TYPE "B" AND STANDARD INSIDE DROP MANHOLES TYPE "B" SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES TYPE "B" 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 Project No. 468-82256
NOTE NO. 7 REVISED JAN 1991

SHEET 9 OF 9

18-2-1-10