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

STORM WATER SEWER NO. 332

TALLGRASS EAST ADDITION

CITY OF WICHITA PROJECT NO. 468-76-245-81661-000-000-001

INDEX OF SHEETS

PROJECT SURVEY CONTROL

VERTICAL DATUM:	CITY OF WICHITA DATUM
DATUM BENCH MARK:	C.O.W. DISC 44' SOUTH AND 48' EAST OF ℄ WEBB RD. AND 21ST STREET NORTH. ELEV.=205.24
BENCH MARK NO. 1:	CHISCLED "D" N.E. CORNER HEADWALL R.C.B. APPROX. 1050' EAST OF WEBB ROAD ON 21ST STREET NORTH. ELEV.=202.55
BENCH MARK NO. 2:	CHISELED "D" TOP OF CURB AT EAST END OF ℄ MEDIAN ISLAND AT PLUMTHICKET CIRCLE AND WEBB ROAD. ELEV.=228.75
BENCH MARK NO. 3:	C.O.W. DISC 32' NORTH AND 28' EAST OF W. 1/4 COR. SEC. 4, T27S, R2E AT WEBB ROAD AND 25TH STREET NORTH. ELEV.=225.05
BENCH MARK NO. 4:	R.R. SPIKE IN N.E. FACE 12" OSAGE ORANGE APPROX. 150' LT. CLUBHOUSE DRIVE STA. 4+00. ELEV.=229.92
BENCH MARK NO. 5:	R.R. SPIKE IN EAST FACE 10" ASH APPROX. 90' RT. CLUBHOUSE DRIVE STA. 13+80. ELEV.=214.54
BENCH MARK NO. 6:	STEP-NAIL IN SOUTH FACE LAMINATED H.L.P. APPROX. 275'± EAST AND 30' NORTH OF N.E. CORNER OF LOT 36, BLOCK 1. ELEV.=207.69

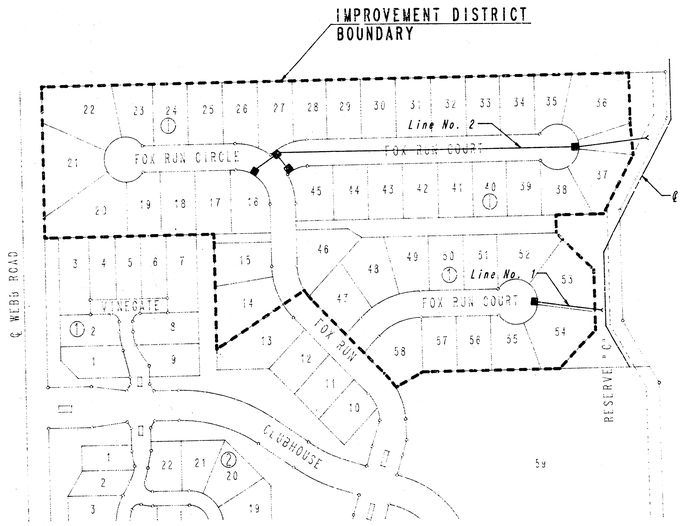
EARTHWORK

EXCAVATION

X-SECTIONS	2,410 CU. YDS.
10%	241 CU. YDS.
TOTAL	2,651 CU. YDS.

COMPACTED FILL

X-SECTIONS	281 CU. YDS.
10%	28 CU. YDS.
TOTAL	309 CU. YDS.



SCALE: 1" = 150'

GENERAL NOTES

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. 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.

THE CONTRACTOR SHALL FERTILIZE, SEED AND MULCH THE DRAINAGE DITCH WITHIN RESERVE "C" AND ADJACENT DRAINAGE EASEMENT AS DIRECTED BY THE ENGINEER. THIS WORK SHALL BE PAID FOR AT THE UNIT PRICES BID FOR "FERTILIZING AND SEEDING" AND "MULCHING". SAID PRICES SHALL BE CONSIDERED FULL COMPENSATION FOR ALL MATERIALS, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH C.O.W. STANDARD SPECIFICATIONS. THE APPROXIMATE QUANTITY FOR THIS WORK 1.1 ACRE.

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 OR A LICENSED PROFESSIONAL ENGINEER IN ACCORDANCE WITH STATE LAWS.

AS BUILTS
1/88
MCG

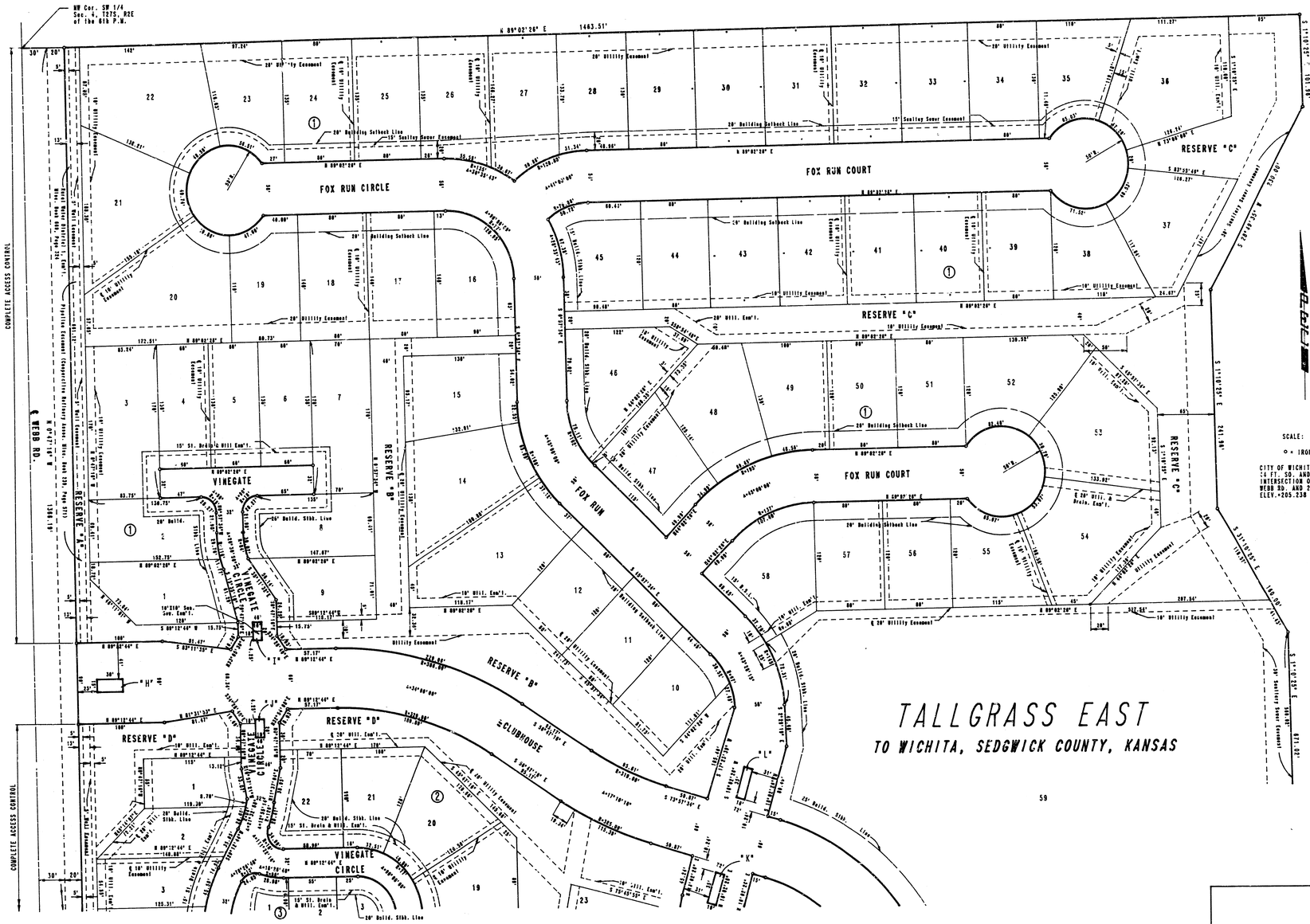
JUNE, 1987

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

CHARLES S. BROWN LICENSED 7581 KANSAS PROFESSIONAL ENGINEER

1/13

PROJECT NO.	SHEET NO.	TOTAL SHEETS
468-76-245-81661-000-000-001	2	13



PLAT

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
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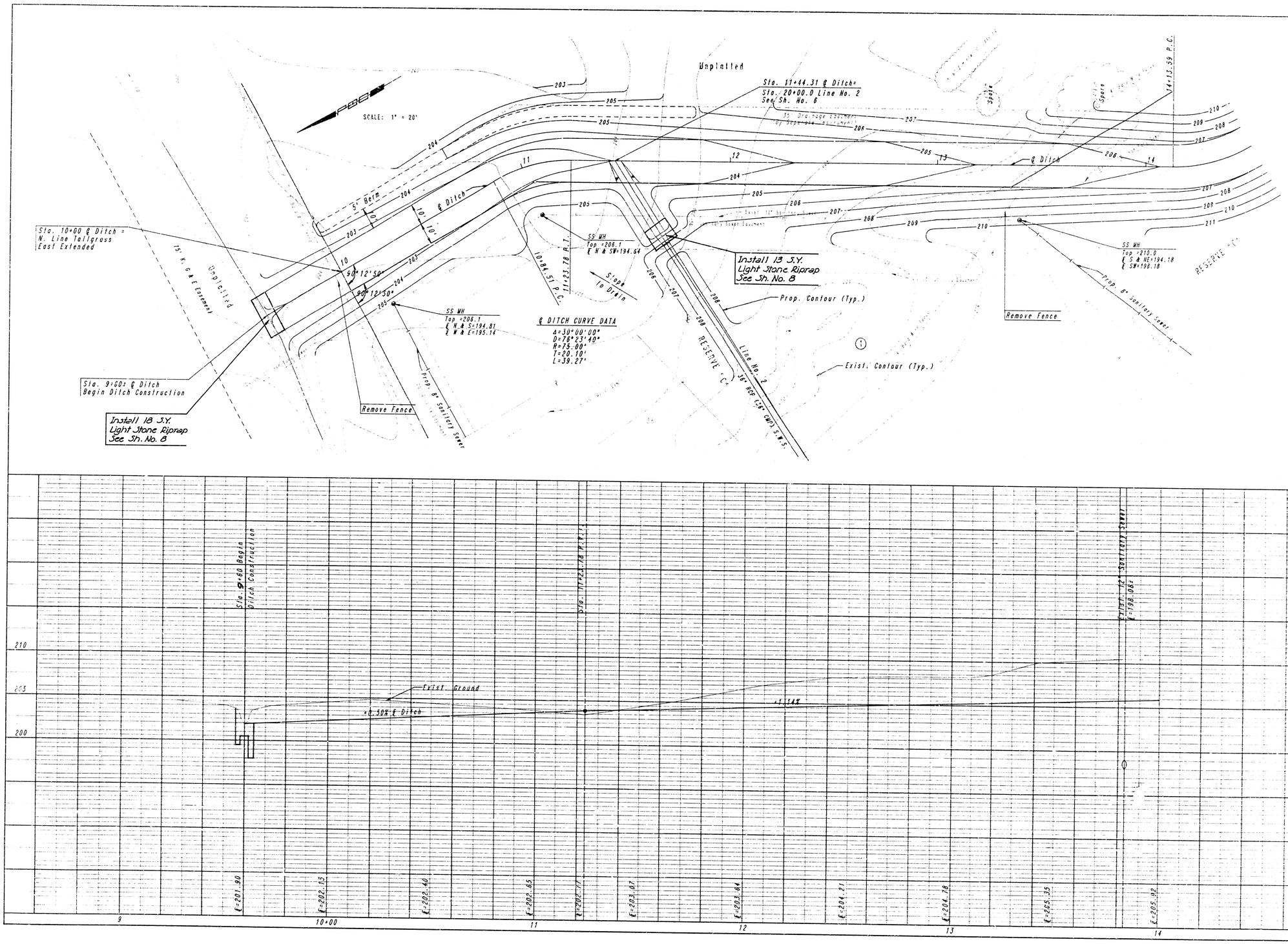
WICHITA, KANSAS

2/13

Designed by		Checked by	
Drawn by	DEP	Date MAR., 1987	Job No. 86476-5

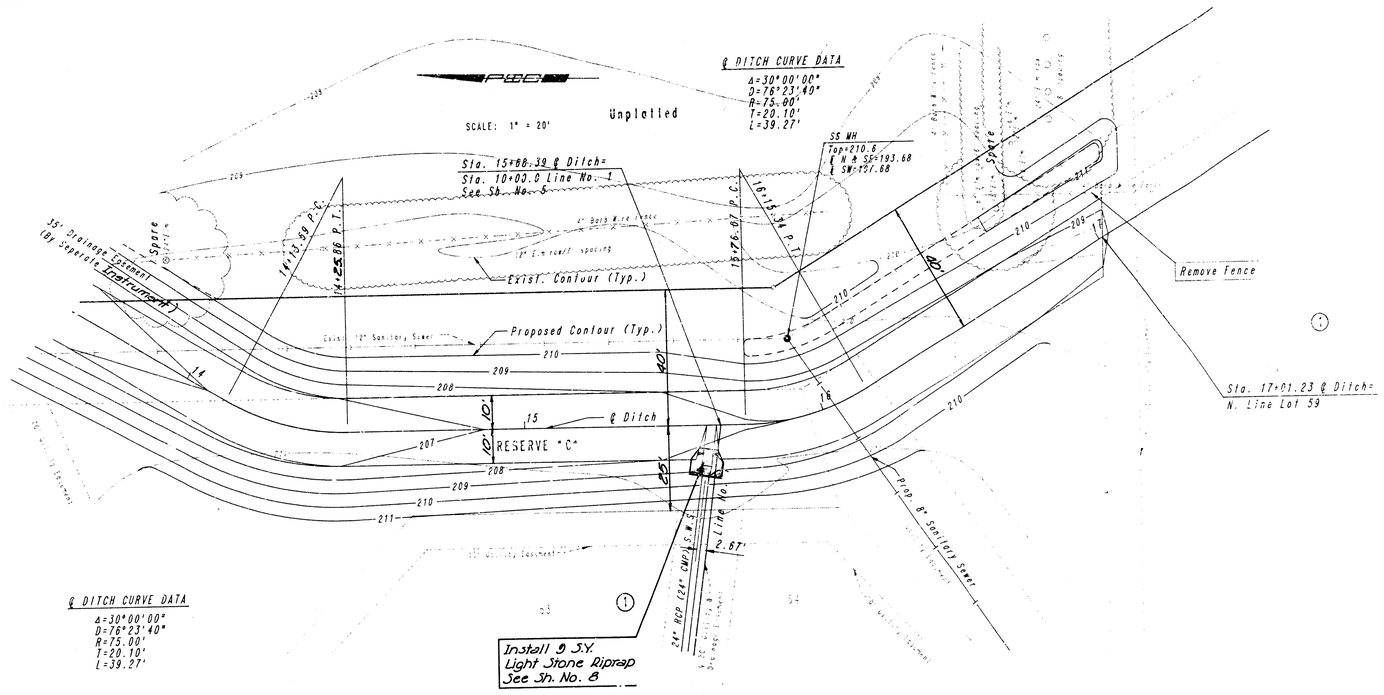


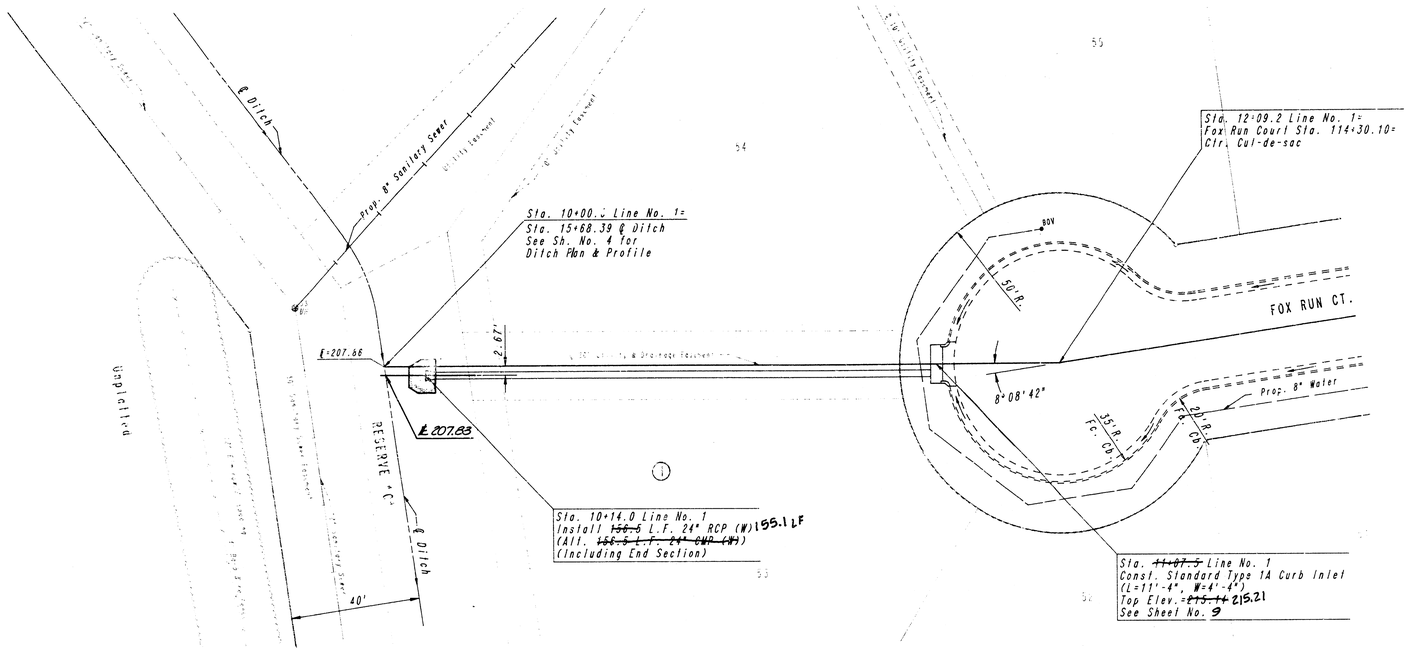
CITY OF WICHITA, KANSAS
STORM WATER SEWER NO. 332
DITCH IMPROVEMENTS
STA. 9+60 TO STA. 14+13.59
C.O.W. Proj. No. 446 76-24, 446 76-25, 446 76-26

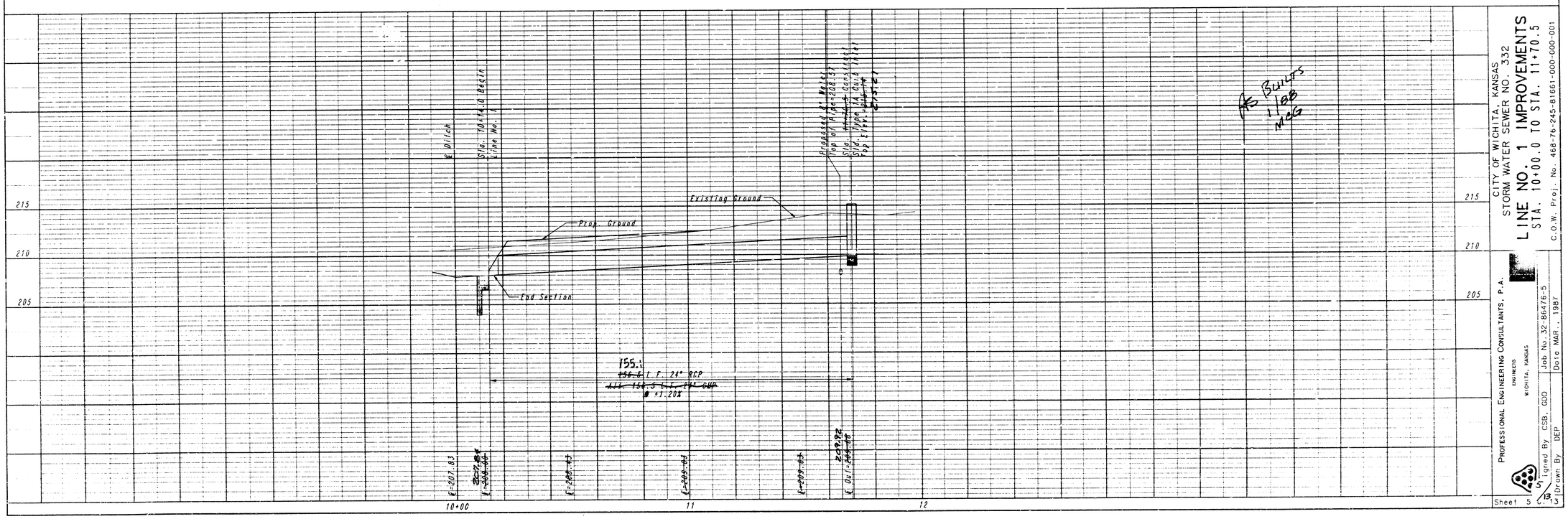
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS
Designed By CSB, GDD
Drawn by DLP
Job No. 32-80476-5
Date MAR., 1987

Sheet 3 of 13

3/13







CITY OF WICHITA, KANSAS
STORM WATER SEWER NO. 332
LINE NO. 1 IMPROVEMENTS
STA. 10+00.0 TO STA. 11+70.5
C.O.W. Proj. No. 468-76-245-81661-000-000-001

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
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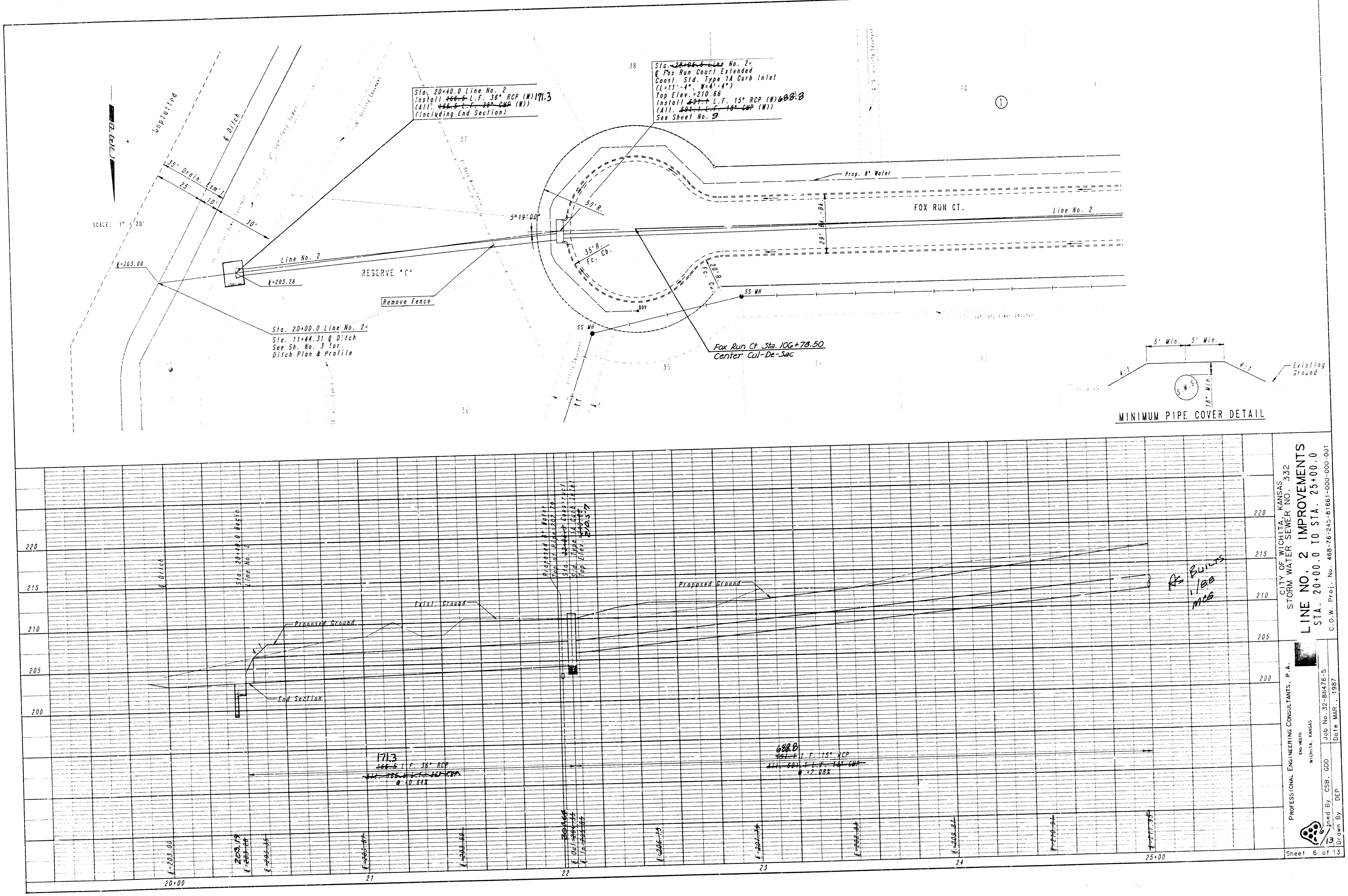
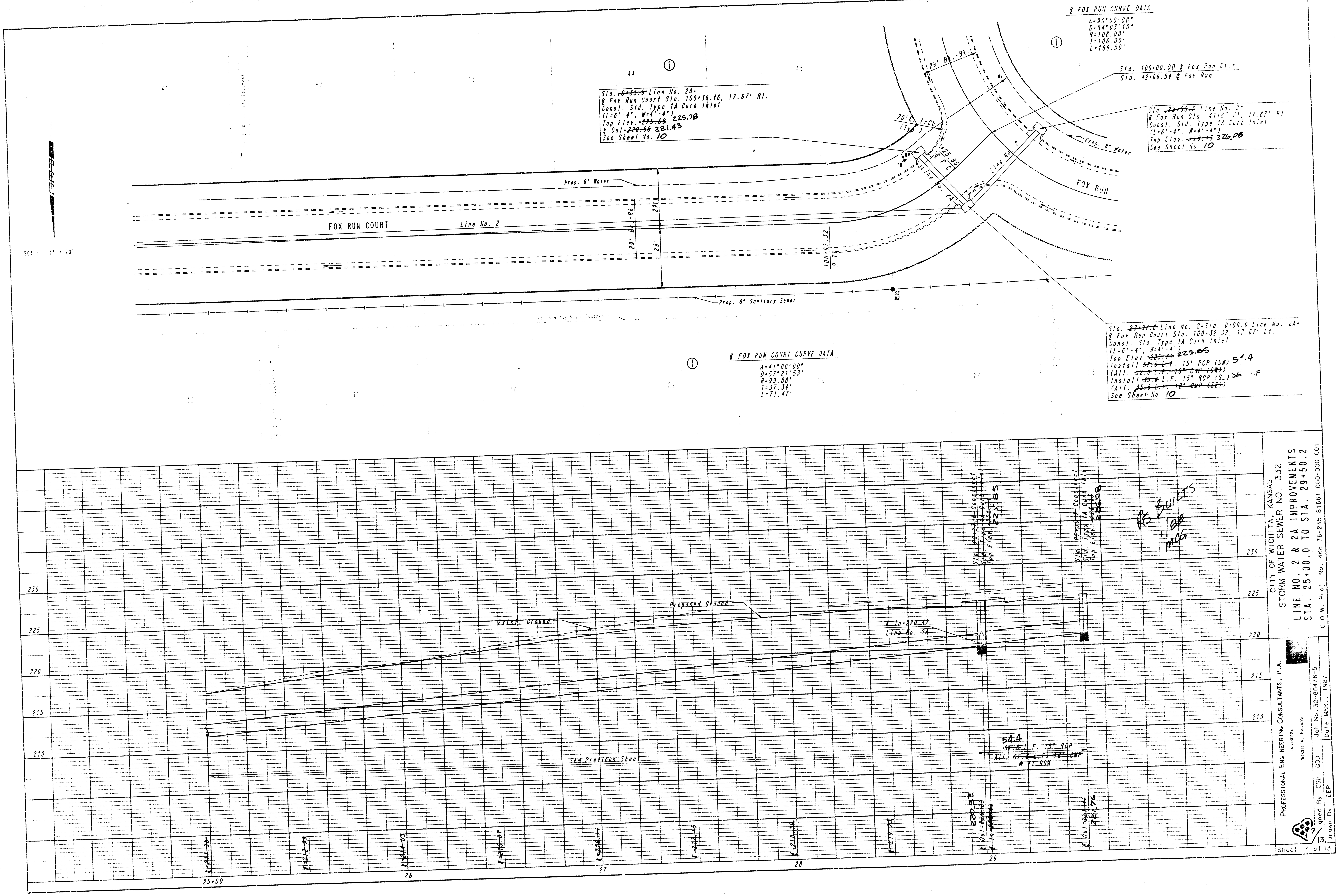
WICHITA, KANSAS

Designed By CSB GDD
Drawn By DEP
Job No. 32-86476-5
Date MAR., 1987

Sheet 5 of 13





PROJECT NO.	SHEET NO.	TOTAL SHEETS
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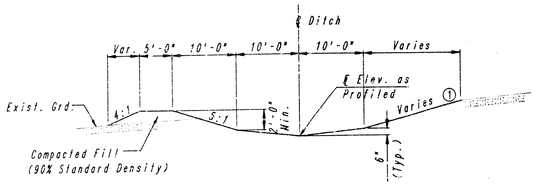
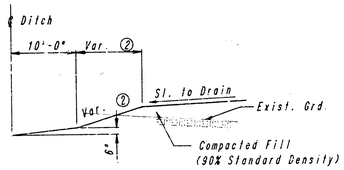


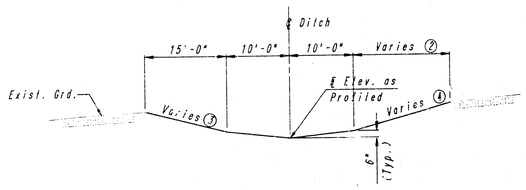
TYPICAL DITCH SECTION

Sta. 10+00 Lt. to Sta. 11+84 Lt.
Sta. 10+00 Rt. to Sta. 10+84 Rt.
Sta. 15+76 Lt. to Sta. 17+12± Lt.
Sta. 15+76 Rt. to Sta. 16+95± Rt.



TYPICAL DITCH SECTION

Sta. 10+84 Rt. to Sta. 11+84 Rt.



TYPICAL DITCH SECTION

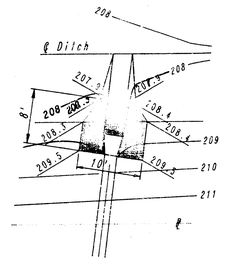
Sta. 9+60 to Sta. 10+00
Sta. 11+84 to Sta. 15+76

① 5:1 Sta. 10+00 to Sta. 10+84 Varies from 4:1 at Sta. 15+76 to 6:1 at Sta. 16+15. 6:1 from Sta. 16+15 to Sta. 15+95±.

② See Plan Sheet and Cross Sections.

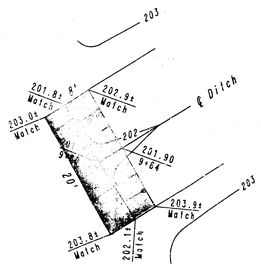
③ 5:1 from Sta. 9+60 to Sta. 10+00. 4:1 from Sta. 13+52± to Sta. 14+53±.

④ 5:1 from Sta. 9+60 to Sta. 10+00. 4:1 from Sta. 13+00 to Sta. 15+76.



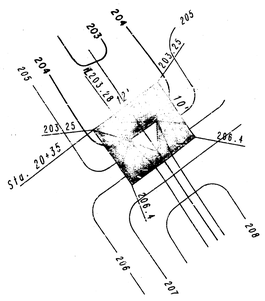
RIPRAP DETAIL 1"=10'

STA. 10+09



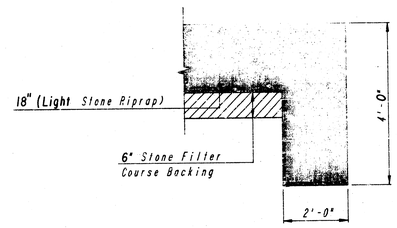
RIPRAP DETAIL 1"=10'

DITCH



RIPRAP DETAIL 1"=10'

LINE NO. 2
STA. 20+35



TYPICAL SECTION THRU TOEWALL

NO SCALE

NOTES

1. ALL RIPRAP FOR THIS PROJECT SHALL BE NATURAL STONE. GROUTING OR RIPRAP SHALL NOT BE PERFORMED. NEITHER TE BROKEN CONCRETE, THE FABRIC ENVELOPE, NOR THE PREMIXED DRY PACKAGED CONCRETE BAG ALTERNATES WILL BE ALLOWED.
2. TOEWALLS SHALL BE INSTALLED ALONG ALL UNPROTECTED EDGES OF STONE RIPRAP.

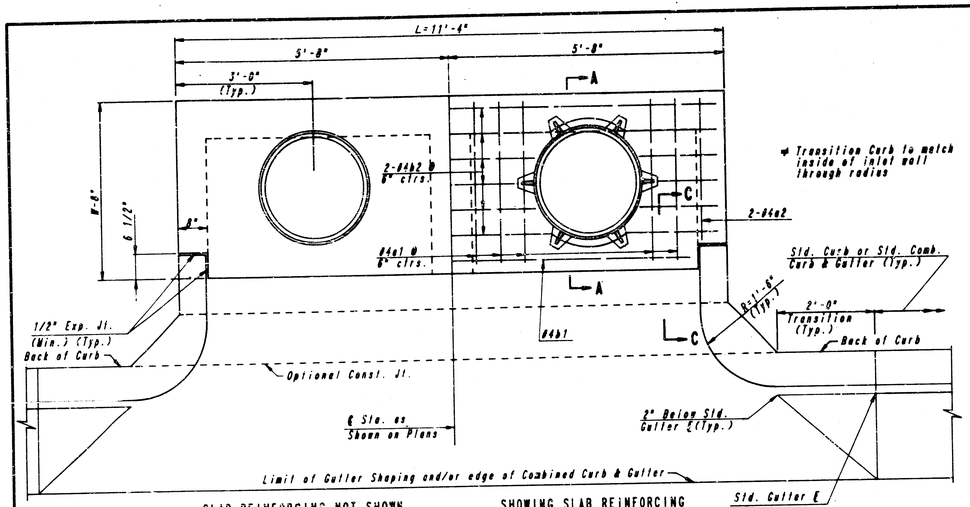
TYPICAL DITCH SECTIONS AND RIPRAP DETAILS

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

8/13

Designed by	CSB, GDD	Checked by	
Drawn by	DEP	Date MAR., 1987	Job No. 86476-5

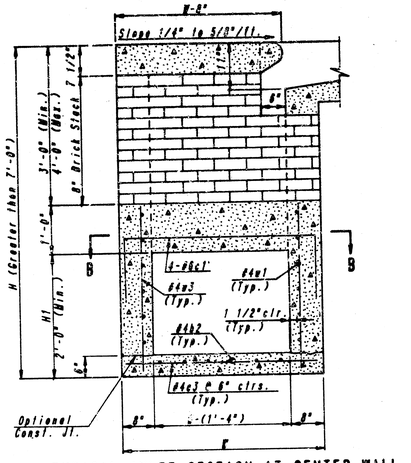
PROJECT NO.	SHEET NO.	TOTAL SHEETS
468 76 245 51661 000 000001	9	13



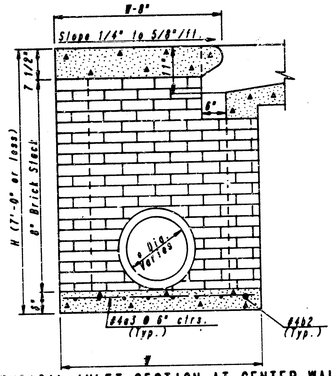
SLAB REINFORCING NOT SHOWN

PLAN

SHOWING SLAB REINFORCING

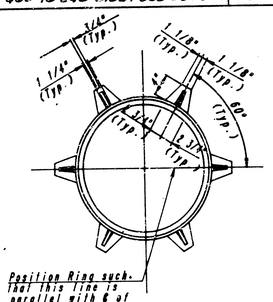


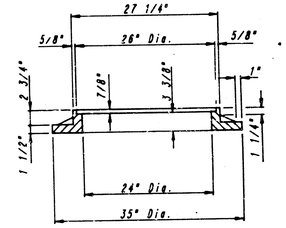
TYPICAL INLET SECTION AT CENTER WALL
(REINFORCED CONCRETE WALLS)



TYPICAL INLET SECTION AT CENTER WALL
(MASONRY WALLS).

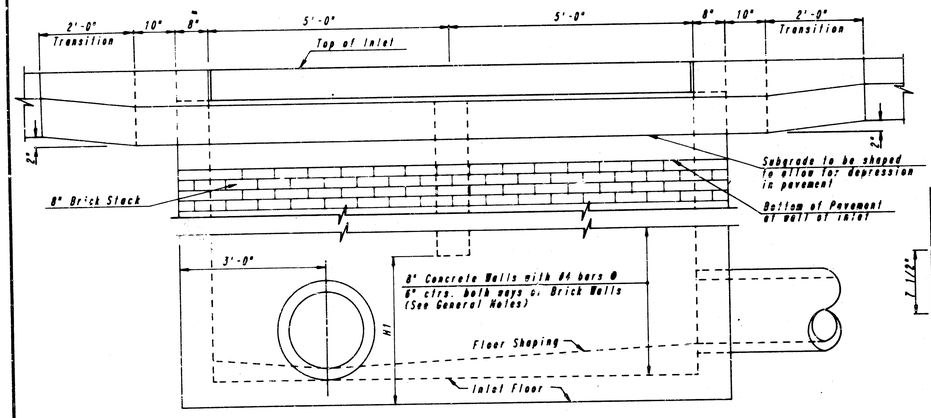
* A center wall opening shall be provided by means of a section of reinforced concrete pipe. The minimum diameter used shall be that of the outlet pipe.



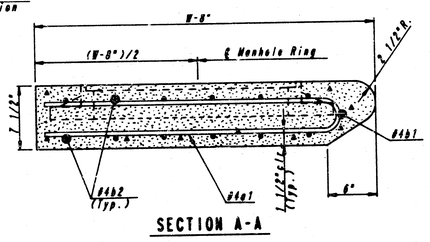


CAST IRON INLET FRAME
Wt.=180 lbs.

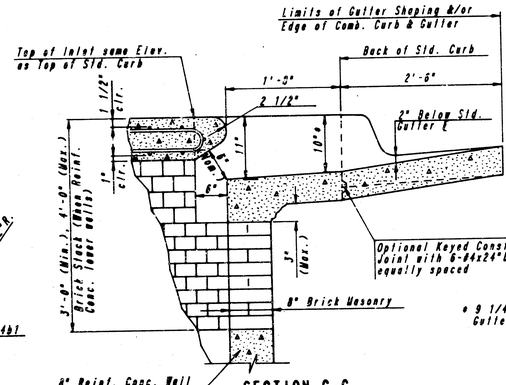
See City of Wichita Standard Manhole Frame and Cover Detail Sheet for Cover Details to be used with Inlet Frame.



ELEVATION

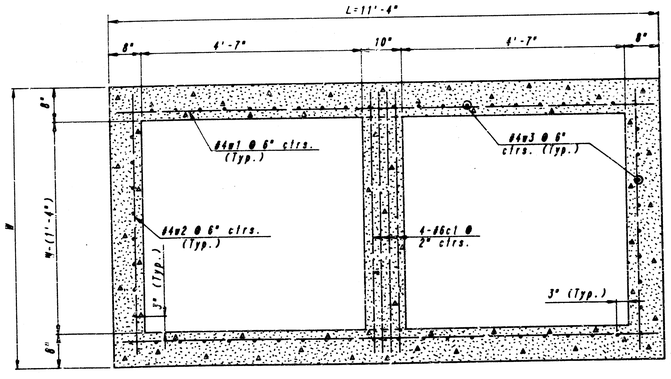


SECTION A-A



SECTION C-C

* 9 1/4" for Combined Curb & Gutter (Type I)



SECTION B-B

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
c1	#4	13	6'-7 1/4"*	13	8'-7 1/4"*	13	10'-7 1/4"*	13	12'-7 1/4"*	13	14'-7-1/4"*
a2	#4	2	8'-0"	2	8'-0"	2	10'-0"	2	12'-0"	2	14'-0"
a3	#4	20	4'-1"	20	5'-1"	20	6'-1"	20	7'-1"	20	8'-1"
b1	#4	1	9'-8"	1	9'-8"	1	9'-8"	1	9'-8"	1	9'-8"
⌀b2	#4	18	11'-1"	24	11'-1"	30	11'-1"	36	11'-1"	42	11'-1"

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
c1	#6	4	6'-1"	4	7'-1"	4	8'-1"	4	9'-1"	4	10'-1"
a1	#4	①	11'-1"	①	11'-1"	①	11'-1"	①	11'-1"	①	11'-1"
a2	#4	①	4'-1"	①	5'-1"	①	6'-1"	①	7'-1"	①	8'-1"
a3	#4	②	③	②	③	②	③	①	③	②	③

* Field bend or cut Reinforcing as required for clearance

① 4(H1-6")+4 (H1-6") Rounded down to nearest 0.5'

② 40+4(W - 16") ③ H1-(9")

GENERAL NOTES

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT 8" BRICK MASONRY WALLS BETWEEN THE CONCRETE INLET BASE AND TOP OF THIS INLET WHEN W=4'-4" OR LESS AND H=7'-0" OR LESS. WHEN W IS GREATER THAN 8'-4" AND H IS LESS THAN 7'-0", THE OUTSIDE WALLS BELOW THE BRICK STACK SHALL BE REINFORCED CONCRETE CONSTRUCTION AND THE CENTER WALL SHALL BE OF MASONRY CONSTRUCTION AS SHOWN FOR THE MASONRY WALL OPTION.

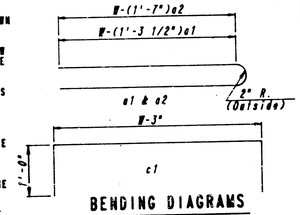
INLET INVERT SHALL BE SHAPED WITH A SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF-CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.

CONCRETE SHALL BE CITY OF WICHITA STANDARD PAVING MIX. ALL EXPOSED EDGES SHALL BE FINISHED WITH AN EDGING TOOL. INLET TOPS ARE TO BE PLACED ON A THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK WALLS. CONCRETE TOPS MAY BE PRECAST OR CAST IN PLACE. INLET TOPS SHALL BE NOTCHED OUT AS INDICATED TO FACILITATE CONSTRUCTION OF CURB.

UNLESS OTHERWISE NOTED, ALL BARS ARE #4 OR 6" MAX. CENTERS AND SHALL HAVE A MINIMUM CLEARANCE OF 1-1/2". BARS SHALL BE FIELD BENT OR CUT TO CLEAR MANHOLE RINGS AND PIPE OPENINGS.

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

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



BENDING DIAGRAMS

CITY OF WICHITA, KANSAS

DETAIL STANDARD TYPE IA CURB INLET

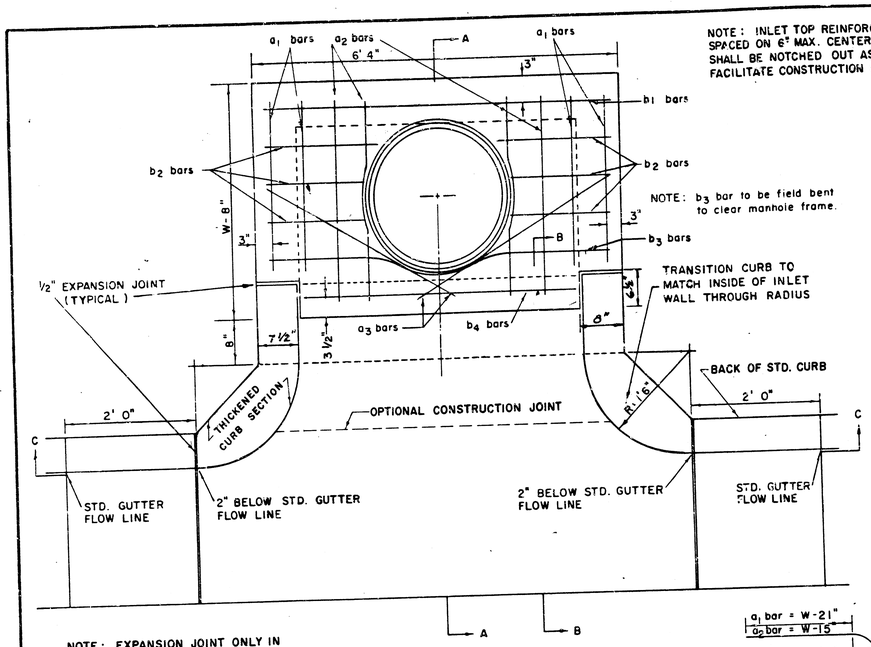
INLET OPENING = 8"X10'-8" (L=11'-4")

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

Designed by		Checked by		9/13
Drawn by		Date	Job No.	

Original

9



NOTE: EXPANSION JOINT ONLY IN CURB AREA WITH CONC. 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.

NOTE: b_3 bar to be field bent to clear manhole frame.

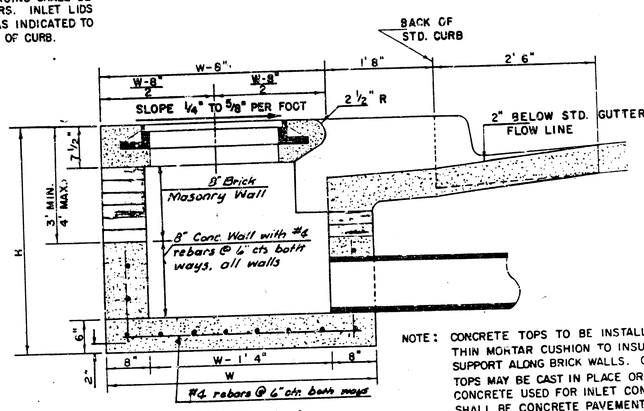
BENDING DIAGRAM

STEEL SCHEDULE

BAR	a_1	a_2	a_3*	b_1 W=4'4"	b_1 W=5'4"	b_1 W=6'4"	b_1 W=7'4"	b_1 W=8'4"	b_2	b_3	b_4	WT. LBS.
NUMBER	4	4	2	1	3	5	7	9	6	1	1	
SIZE	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#6	
LENGTH W=4'4"	5'7"	6'7"	4'0"	6' 1"	–	–	–	–	1' 9"	6'2"	4'8"	60±
LENGTH W=5'4"	7'7"	8'7"	5'0"	–	6' 1"	–	–	–	1' 9"	6'2"	4'8"	81 ±
LENGTH W=6'4"	9'7"	10'7"	6'0"	–	–	6' 1"	–	–	1' 9"	6'2"	4'8"	101±
LENGTH W=7'4"	11'7"	12'7"	7'0"	–	–	–	6'1"	–	1' 9"	6'2"	4'8"	121±
LENGTH W=8'4"	13'7"	14'7"	8'0"	–	–	–	–	6' 1"	1' 9"	6'2"	4'8"	141±

* NOTE: a_3 BARS TO BE PLACED APPROX. 2" BELOW TOP OF INLET COVER

STANDARD CURB INLET PRECAST TOPS			
W	PRE-CAST TOP SIZE	PIPE SIZE	CU. YD. CONC.
4' 4"	3'8"x 6'4" x7 1/2"	21" & SMALLER	0.38 ±
5' 4"	4'8"x 6'4" x7 1/2"	24" & 30"	0.51 ±
6' 4"	5'8"x 6'4" x7 1/2"	36" & 42"	0.64 ±
7' 4"	6'8"x 6'4" x7 1/2"	48" & 54"	0.77 ±
8' 4"	7'8"x 6'4" x7 1/2"	60" & 66"	0.90 ±



SECTION A-A

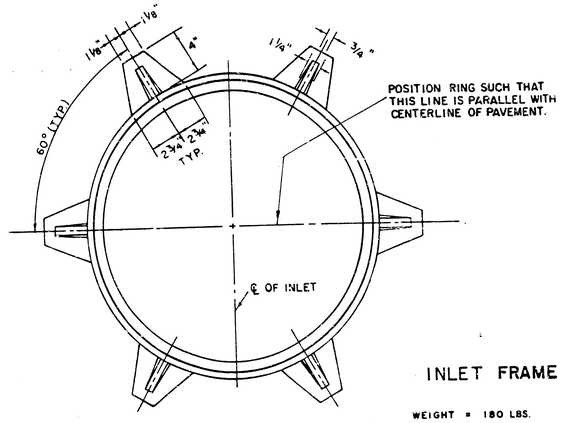
NOTE: CONCRETE TOPS TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK WALLS. CONCRETE TOPS MAY BE CAST IN PLACE OR PRECAST. CONCRETE USED FOR INLET CONSTRUCTION SHALL BE CONCRETE PAVEMENT MIX.

NOTE: CONTRACTOR SHALL HAVE THE OPTION OF CONSTRUCTING 8" BRICK MASONRY WALLS BETWEEN THE CONCRETE INLET BASE AND TOP ON THIS INLET 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.

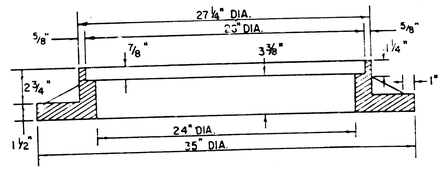
INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.

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

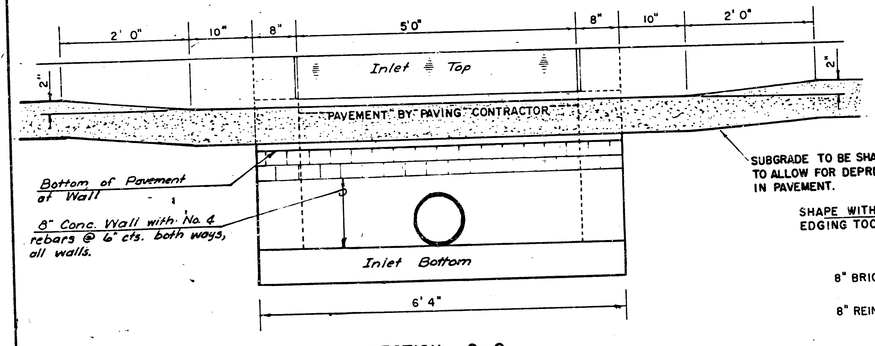


INLET FRAME

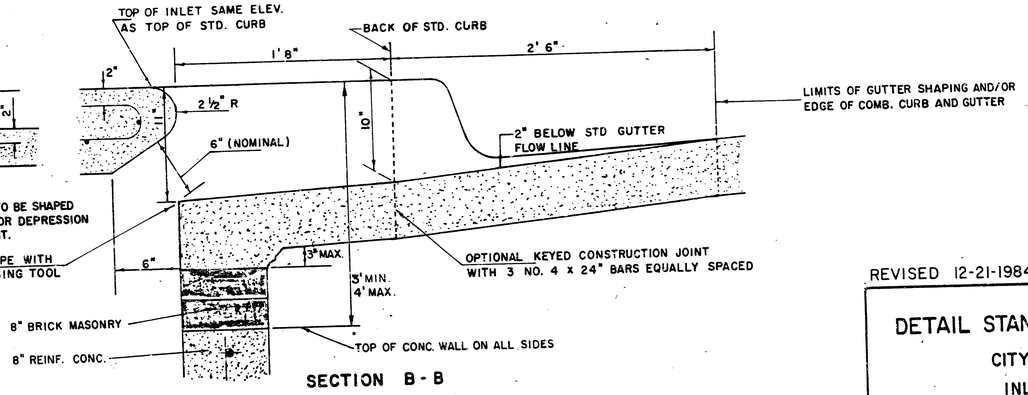
WEIGHT = 180 LBS.



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



SECTION C - C



SECTION B - B

REVISED 12-21-1984 Proj. No. 468 76 245 81661 000 000 001

DETAIL STANDARD TYPE 1A CURB INLET

CITY OF WICHITA, KANSAS

INLET OPENING = 6" x 5' 0"

JUNE 1984 Sheet No. 10/13 of 13

MANHOLE FRAME AND COVER DETAIL

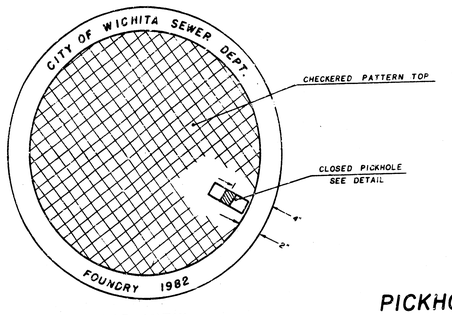
ADOPTED AS STANDARD DESIGN

BY

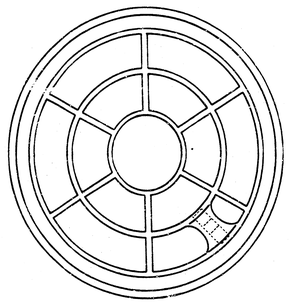
City of Wichita, Kansas

MANHOLE COVER

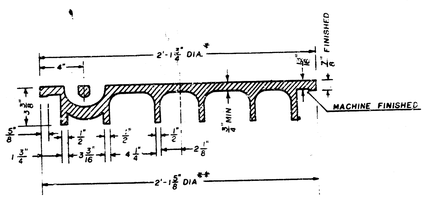
Weight: 180 Lbs.



TOP VIEW



BOTTOM VIEW

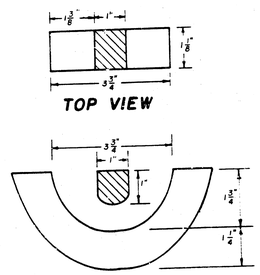


SECTION VIEW

* OUTSIDE DIA. TOP OF COVER

** OUTSIDE DIA. BOTTOM OF COVER

PICKHOLE DETAIL

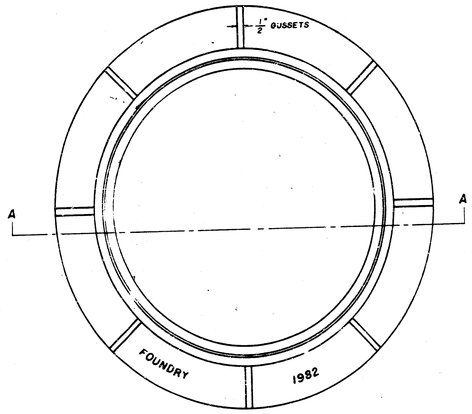


TOP VIEW

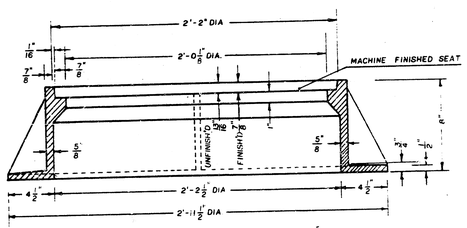
SECTION VIEW

MANHOLE FRAME

Weight: 240 Lbs.



TOP VIEW



SECTION A-A

GENERAL NOTES

1. MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.

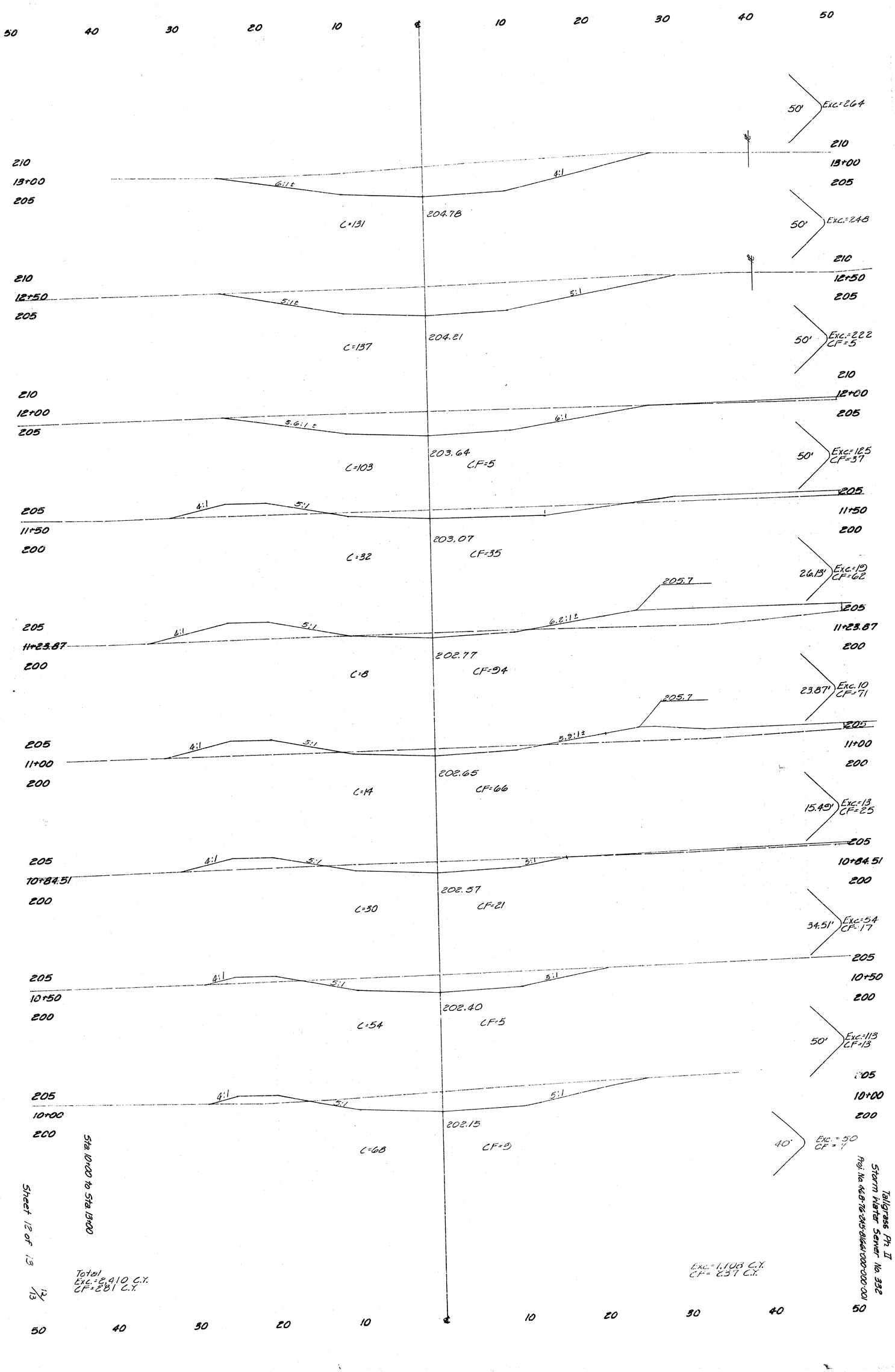
2. MANHOLE CASTINGS SHALL BE COATED WITH AN ASPHALT PAINT RESULTING IN A SMOOTH, TOUGH AND TENACIOUS COATING WHICH IS NOT BRITTLE OR TACKY.

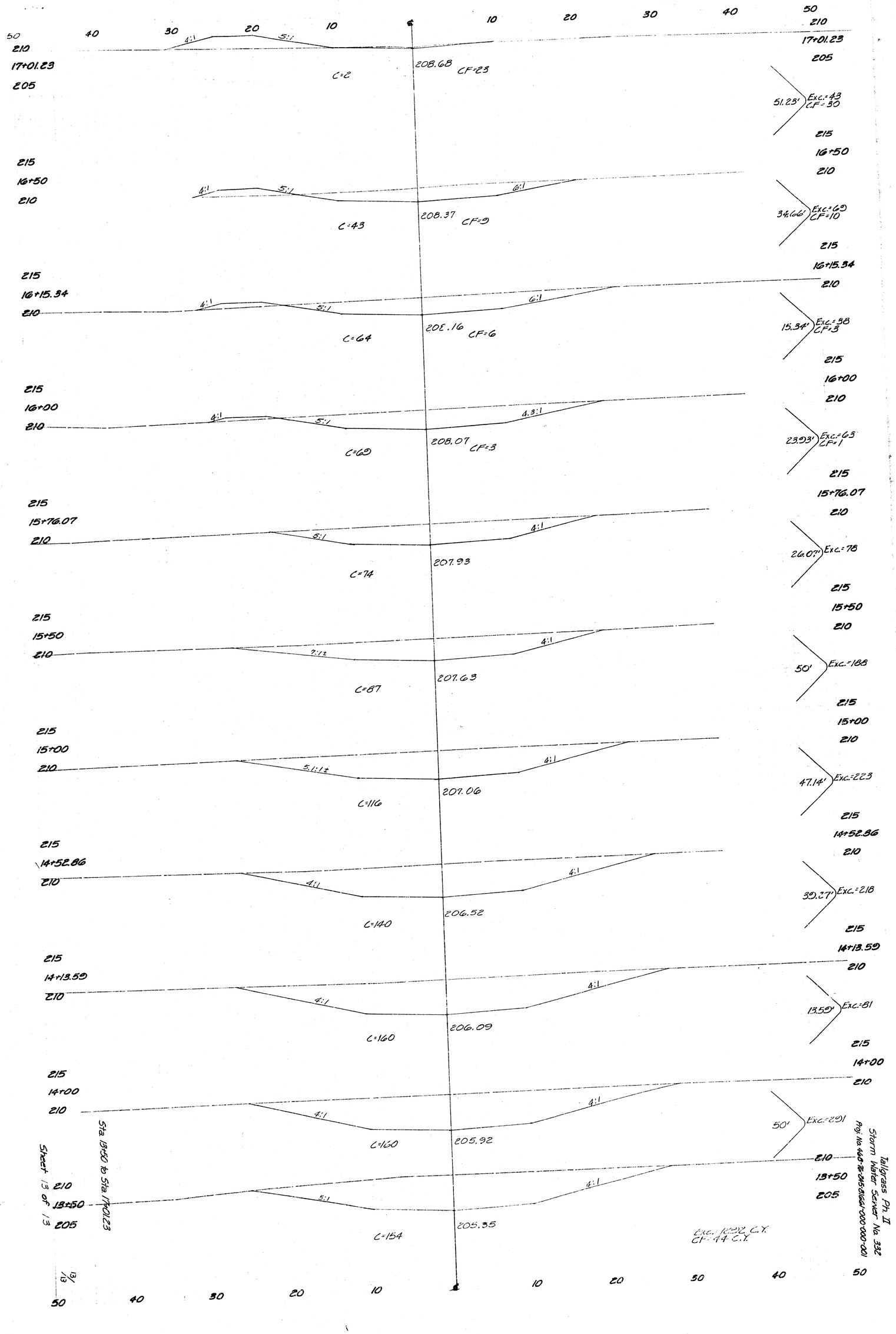
3. MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.

4. THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH THAT THESE SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.

5. THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1" IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE ABBREVIATED. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN A CHECKERED PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.

JNL DEC. 1981


50 40 30 20 10 ℄ 10 20 30 40 50
50' Exc.=264
210
13+00
205
6:1±
4:1
C=131
204.78
50' Exc.=248
210
12+50
205
5:1±
5:1
C=137
204.21
50' Exc.=222 CF=5
210
12+00
205
5.6:1±
6:1
C=103
203.64
CF=5
50' Exc.=125 CF=37
205
11+50
200
4:1
5:1
C=32
203.07
CF=35
26.13' Exc.=10 CF=62
205.7
205
11+23.87
200
4:1
5:1
6.2:1±
C=8
202.77
CF=94
23.87' Exc.=10 CF=71
205.7
205
11+00
200
4:1
5:1
5.2:1±
C=14
202.65
CF=66
15.49' Exc.=13 CF=25
205
10+84.51
200
4:1
5:1
5:1
C=30
202.57
CF=21
34.51' Exc.=54 CF=17
205
10+50
200
4:1
5:1
5:1
C=54
202.40
CF=5
50' Exc.=113 CF=13
205
10+00
200
4:1
5:1
5:1
C=68
202.15
CF=9
40' Exc.=50 CF=7
Sta 10+00 to Sta 13+00
Total
Exc.=2,410 C.Y.
CF=281 C.Y.
Exc.=1,108 C.Y.
CF=237 C.Y.
Tallgrass Ph II
Storm Water Sewer No. 332
Proj. No. 466-76-345-8666-000-000-001
Sheet 12 of 13
12/13


50 40 30 20 10 ℄ 10 20 30 40 50
210
17+01.23
205
4:1
5:1
C=2
208.68
CF=23
51.23'
Exc.=43
CF=30
215
16+50
210
4:1
5:1
6:1
C=43
208.37
CF=9
34.66'
Exc.=60
CF=10
215
16+15.34
210
4:1
5:1
6:1
C=64
208.16
CF=6
15.34'
Exc.=38
CF=3
215
16+00
210
4:1
5:1
4.3:1
C=69
208.07
CF=3
23.93'
Exc.=65
CF=1
215
15+76.07
210
5:1
4:1
C=74
207.93
26.07'
Exc.=78
215
15+50
210
5:1
4:1
C=87
207.63
50'
Exc.=188
215
15+00
210
5.1:1
4:1
C=116
207.06
47.14'
Exc.=223
215
14+52.86
210
4:1
4:1
C=140
206.52
39.27'
Exc.=218
215
14+13.59
210
4:1
4:1
C=160
206.09
13.59'
Exc.=81
215
14+00
210
4:1
4:1
C=160
205.92
50'
Exc.=291
Sta 13+50 to Sta 17+01.23
210
13+50
205
5:1
4:1
C=154
205.35
Exc.: 1632 C.Y.
Fl.=44 C.Y.
Tallgrass Ph II
Storm Water Sewer No. 332
Proj. No. 460-18-245-8166-000-000-001
Sheet 13 of 13
13/13