SHEET NO.	TOTAL SHEETS
1	12

CITY OF WICHITA, KANSAS

MICHAEL E. LINDEBAK, P.E., CITY ENGINEER

FLOODWATER DETENTION RESERVOIR NO. 16

OAK KNOLL INDUSTRIAL PARK ADDITION

CITY OF WICHITA PROJECT NO. 468-76-245-81144-000-000-001

INDEX OF SHEETS

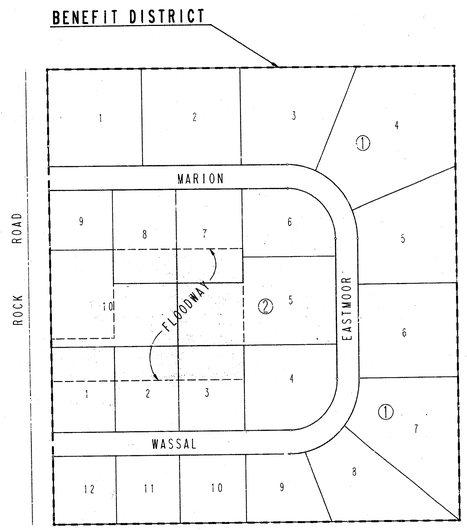
1. TITLE SHEET
2. PLAT
3. DETENTION RESERVOIR GRADING PLAN AND TYPICAL SECTION
4. OUTLET PIPES - PLAN/PROFILE
5. R.C. BOX MODIFICATIONS
6. HEADWALL DETAILS
7. REINFORCED CONCRETE MANHOLE DETAILS
8. FRAME & COVER DETAILS
9. OVERALL GRADING PLAN
10-12. CROSS-SECTIONS

PROJECT SURVEY CONTROL

VERTICAL DATUM:	CITY OF WICHITA DATUM
DATUM BENCH MARK:	CHIS. "O" ON BACK OF CURB RETURN ON EACH SIDE ROCK ROAD AND SOUTH SIDE WASSALL. EL. = 189.00
BENCH MARK #7:	STEEL "T" POST ROCK ROAD STA 22+45, 64' RIGHT, APPROX. 100' SOUTH CENTERLINE MARION FL. = 195.34
BENCH MARK #9:	STEEL "T" POST ROCK ROAD STA 26+62, 65' RIGHT BY 7' CHAIN LINK FENCE CORNER. EL. = 199.42

EARTHWORK SUMMARY

EXCAVATION - CROSS-SECTIONS	38,380 C.Y.
10%	3,838 C.Y.
TOTAL	42,218 C.Y.
COMPACTED FILL - CROSS SECTIONS	1,737 C.Y.
10%	174 C.Y.
TOTAL	1,911 C.Y.



SCALE: 1" = 280'

GENERAL NOTES

UTILITY SERVICE LINES, POLES, VALVE BOXES, METERS, AND ETC. ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO OR DURING 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 VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE PLAN LOCATIONS SHOWN ARE NOT GUARANTEED. ADDITIONAL EXISTING UTILITIES MAY ALSO BE ENCOUNTERED. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.

CONTRACTOR SHALL SATISFY HIMSELF OF SUB-SURFACE CONDITIONS PRIOR TO CONSTRUCTION.

RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND RUBBLE WHICH MAY BE ENCOUNTERED DURING EXCAVATION OPERATIONS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR OFF-SITE.

PROPERTIES WITHIN THE PROJECT BENEFIT DISTRICT SHALL HAVE FIRST RIGHT FOR THE EXCESS EXCAVATED MATERIAL (SEE SHEET NO. 9).

TREES AND SHRUBS IN PUBLIC RIGHT-OF-WAY OR EASEMENTS WHICH ARE IN DIRECT CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR WITH THE ENGINEER'S APPROVAL. TREES AND SHRUBS WHICH ARE NOT IN CONFLICT WITH THE CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.

THE CONTRACTOR SHALL SEED, FERTILIZE, AND MULCH ALL AREAS WITHIN THE PLATTED FLOODWAY ABOVE THE STATIC POOL ELEVATION. THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER ACRE FOR "SEEDING, FERTILIZING AND MULCHING". SAID PRICE 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 IS 1.7 ACRES.

ALL RIPRAP FOR THIS PROJECT SHALL BE NATURAL STONE. GROUTING OF STONE RIPRAP SHALL NOT BE PERFORMED. NEITHER THE BROKEN CONCRETE, FABRIC ENVELOPES, NOR PRE-MIXED DRY PACKAGED CONCRETE BAG ALTERNATES WILL BE ALLOWED.

THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH THE SANITARY SEWER CONTRACTOR REGARDING THE SANITARY SEWER CROSSING AT CHANNEL STA. 0+46+. 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.

CHARLES S. BROWN LICENSED 7581 KANSAS PROFESSIONAL ENGINEER

AS BUILT PLANS
12-18-86
GREENE-
S/C-Summer '88

MAY, 1986

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

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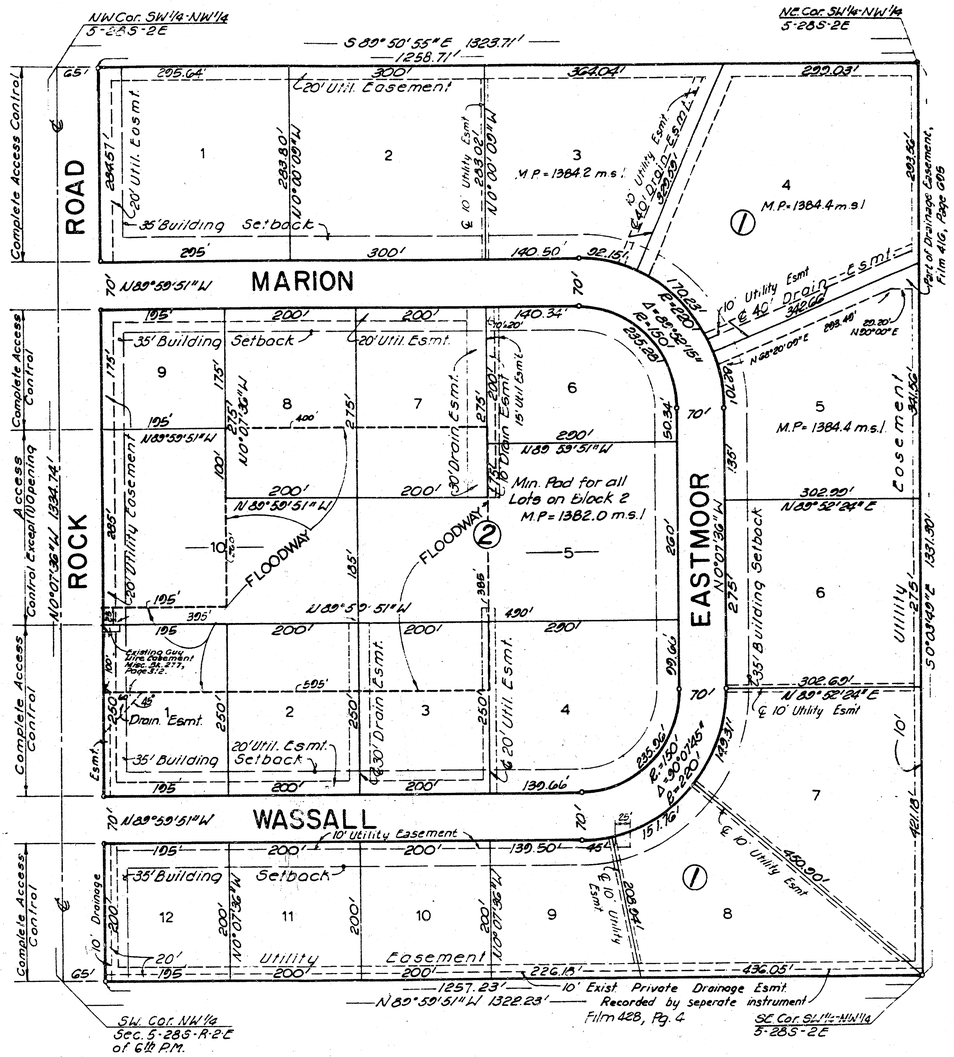
SHEET NO.	TOTAL SHEETS
2	12



PLAT

Proj. No. 468 76 245 81144 000 000 001

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

2/12

Designed by		Checked by	
Drawn by		Date May, 1986	Job No. 86117-1

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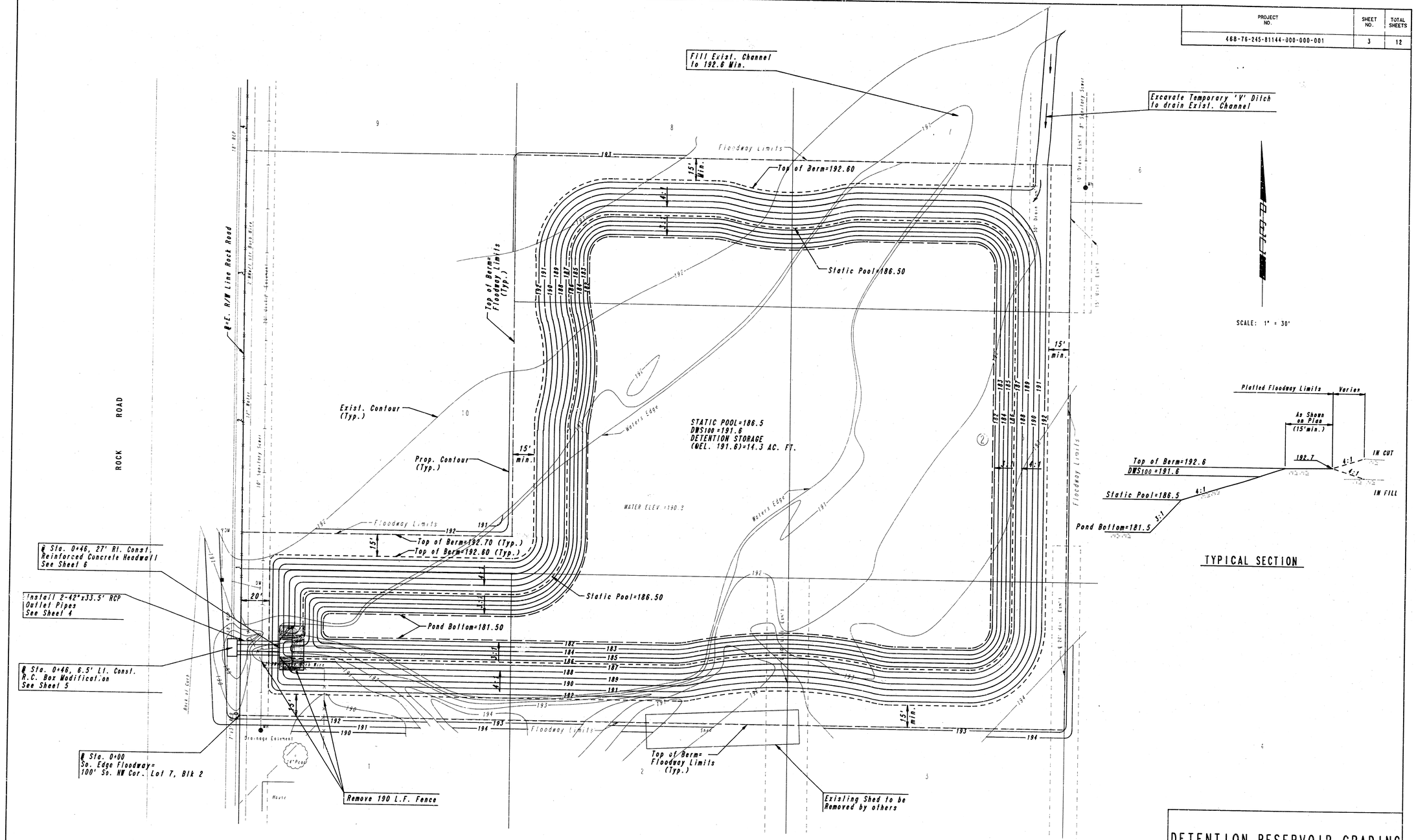
PROJECT NO.	SHEET NO.	TOTAL SHEETS
468-76-245-81144-000-000-001	3	12



TYPICAL SECTION

DETENTION RESERVOIR GRADING PLAN & TYPICAL SECTION

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

Designed by	CSB	Checked by	
Drawn by	DEP	Date	Job No. 86117-1

3/12 3

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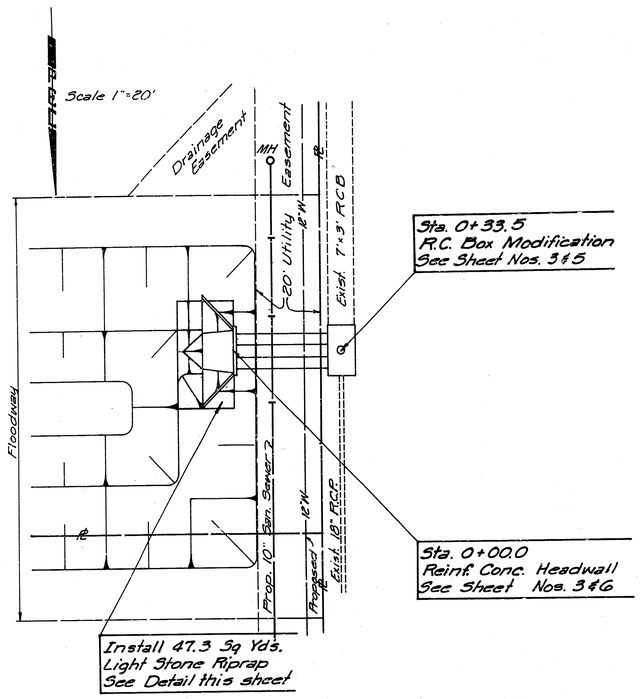
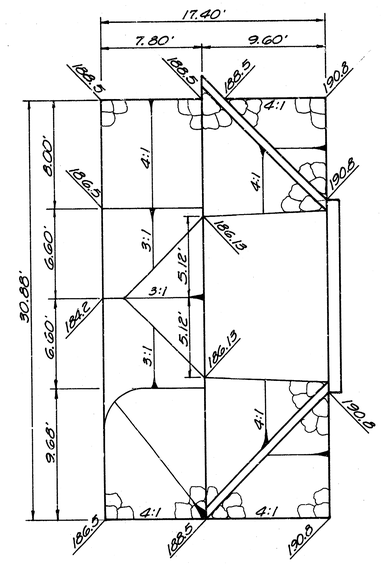
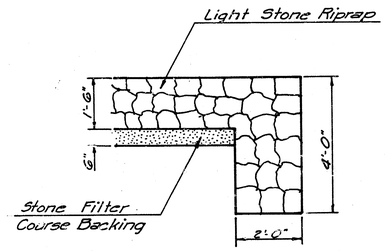


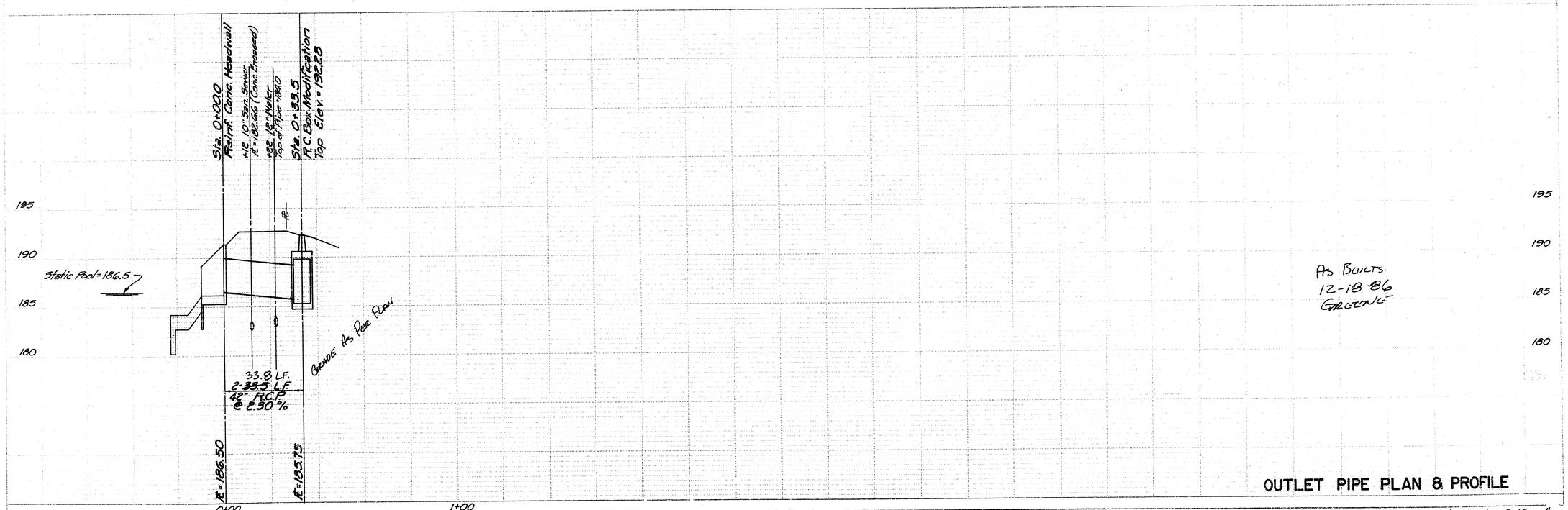


RIPRAP DETAIL



TYPICAL SECTION THRU TOEWALL

Note: Toewalls shall be installed along all edges of stone riprap.



As Builts
12-18-86
Gregonis

OUTLET PIPE PLAN & PROFILE

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PROJECT NO.	SHEET NO.	TOTAL SHEETS
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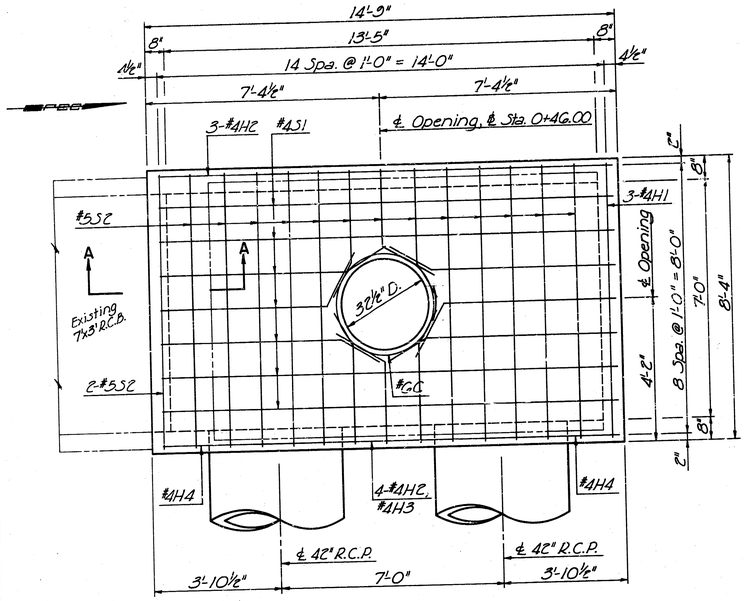
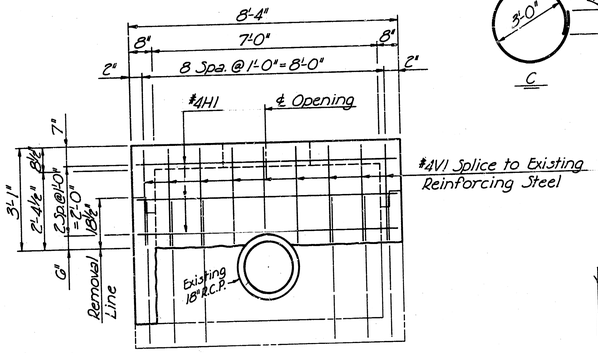
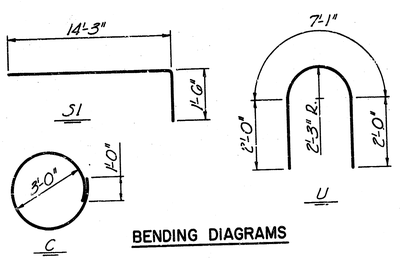


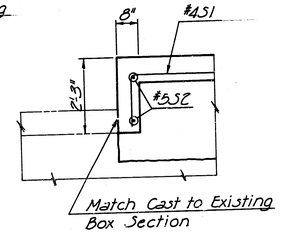
PLAN



NORTH ELEVATION



BENDING DIAGRAMS



SECTION A-A

REINFORCING STEEL							
STRAIGHT BARS				BENT BARS			
Mark	No.	Size	Length	Mark	No.	Size	Length
H1	3	#4	8'-1"	S1	7	#5	15'-9"
H2	7	#4	14'-6"	U	2	#6	11'-1"
H3	1	#4	2'-6"	C	1	#6	10'-6"
H4	2	#4	1'-6"				
S2	14	#4	8'-1"				
V1	29	#4	2'-11"				

≠ SUMMARY OF QUANTITIES		
Item	Quantity	Unit
Class AAA Concrete (AE)	5.5	Cu.Yds.
Reinforcing Steel	385	Lbs.
Cast Iron	420	Lbs.

≠ For Information Only

GENERAL NOTES

CLASS AAA CONCRETE (AE) SHALL BE USED THROUGHOUT. BEVEL ALL EXPOSED EDGES WITH A 3/4" TRIANGULAR MOLDING OR WITH AN APPROVED EDGING TOOL.

REINFORCING STEEL SHALL BE A MINIMUM GRADE 40, ASTM A615. ALL DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO THE CENTERLINE OF BARS UNLESS OTHERWISE NOTED. REINFORCING STEEL SHALL BE BENT AND/OR CUT TO CLEAR THE PIPE OPENINGS. ALL CLEARANCES ARE 1-1/2" UNLESS OTHERWISE NOTED.

DEDUCTIONS IN CONCRETE QUANTITIES HAVE BEEN MADE FOR PIPE OPENINGS.

THE INLET INVERT SHALL BE SHAPED WITH UNREINFORCED CLASS A CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLETS AND THE OUTLET BOX.

ALL DIMENSIONS HAVE BEEN TAKEN FROM OLD PLANS AND MUST BE CHECKED IN THE FIELD FOR COMPLIANCE TO PLANS PRIOR TO CONSTRUCTION.

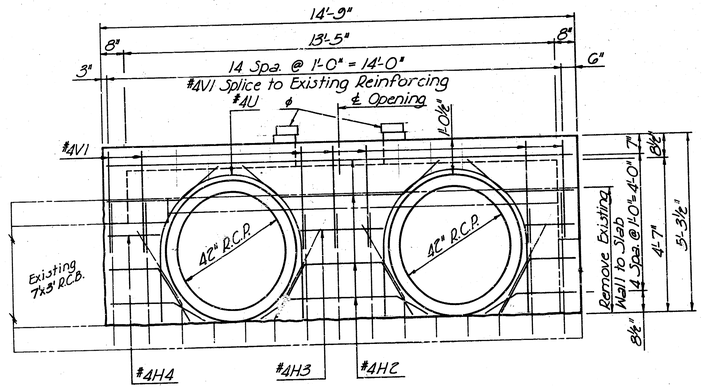
SEE CITY OF WICHITA STANDARD MANHOLE FRAME AND COVER DETAIL SHEET.

THE EXISTING PIPE GRATE SHALL BE SALVAGED BY THE CONTRACTOR AND PLACED ON THE RIGHT OF WAY TO BE REMOVED BY SEDGWICK COUNTY FORCES.

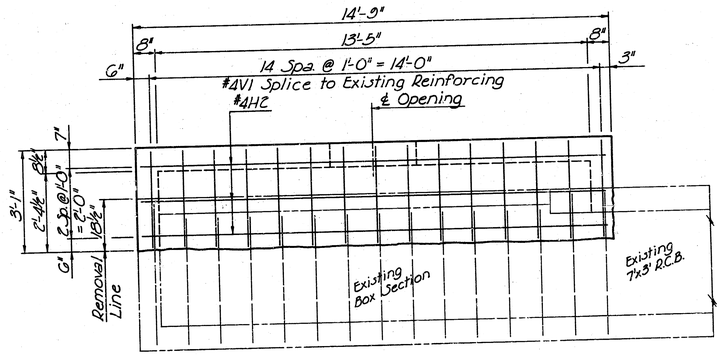
EXISTING CONCRETE SHALL BE REMOVED TO THE LINES SHOWN. ALL CONCRETE SURFACES OF THE EXISTING STRUCTURE TO WHICH NEW CONCRETE IS TO BE PLACED SHALL BE PAINTED WITH EITHER A CEMENT-GROUT MIX OR AN EPOXY BONDING AGENT. ALL EXISTING REINFORCING STEEL EXPOSED BY THE REMOVAL OF THE EXISTING CONCRETE IS TO BE THOROUGHLY CLEANED AND THEN INCORPORATED INTO THE NEW STRUCTURE.

ALL MATERIALS REMOVED EXCEPT FOR THOSE TO BE SALVAGED SHALL BE DISPOSED OF AT SITES SELECTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

THE "R.C.BOX MODIFICATION" SHALL BE PAID FOR AT THE UNIT PRICE BID PER EACH IN PLACE INCLUDING CONCRETE, REINFORCING STEEL, CAST IRON, EXCAVATION AND ALL OTHER MISCELLANEOUS MATERIALS, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK, INCLUDING THE COMPLETE MANHOLE BRICK STACK. QUANTITIES SHOWN ARE FOR INFORMATION ONLY.



EAST ELEVATION



WEST ELEVATION

℄ Construct Brick Stack as detailed on Sheet No. 7.

R.C. BOX MODIFICATION

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

5/12

Designed by	R.D.F.	Checked by	R.A.S.	
Drawn by	W.L.L.	Date	May 1986	Job No. 86117-1

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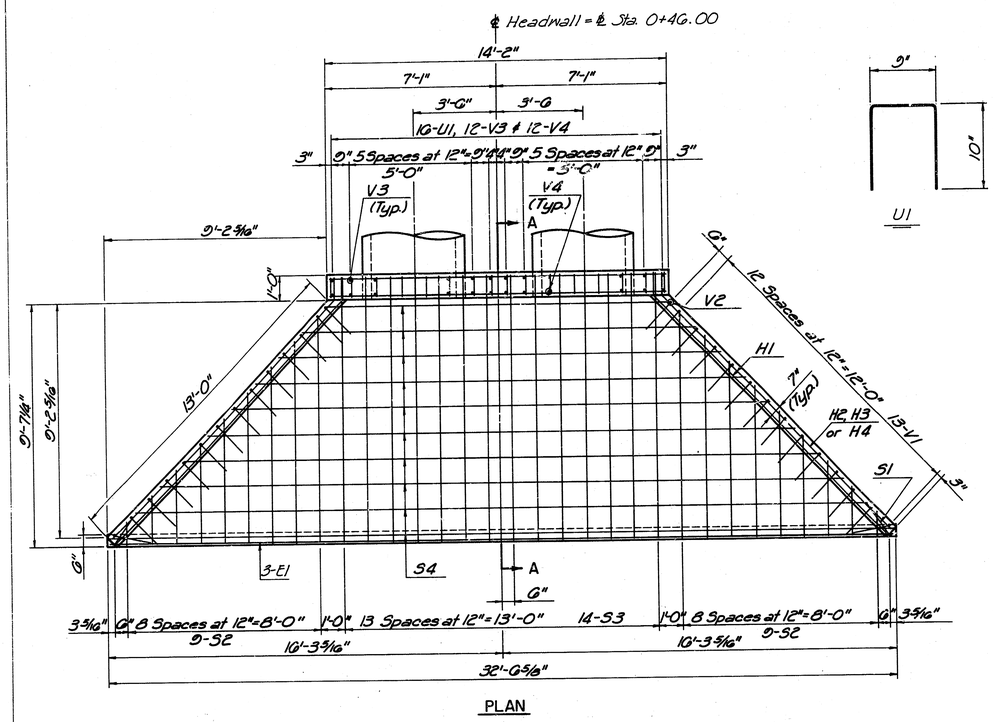
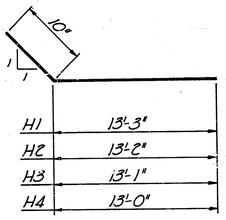
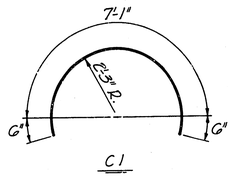
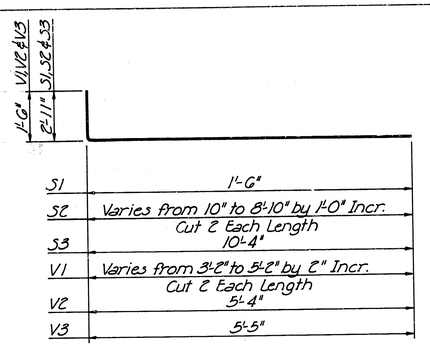
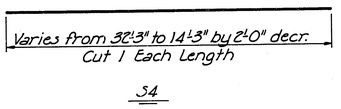
PROJECT NO.	SHEET NO.	TOTAL SHEETS
468-76-245-81144-000-000-001	6	12











BENDING DIAGRAMS

All dimensions are out to out of bars

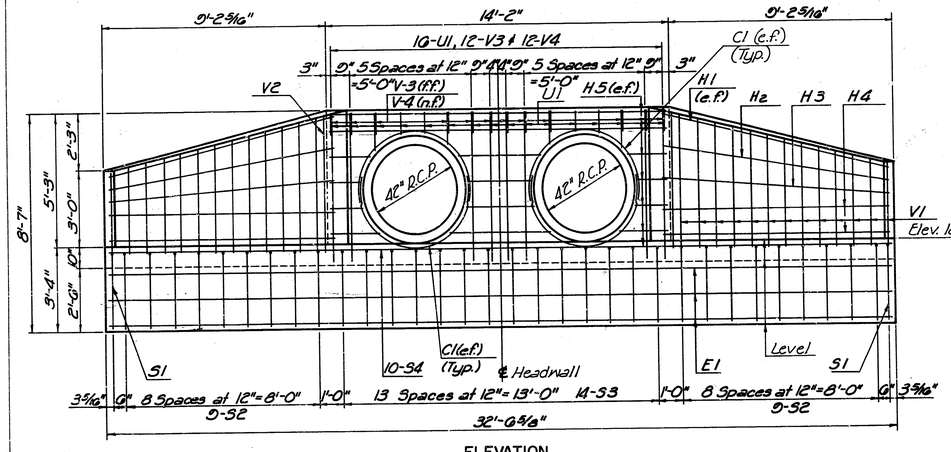
REINFORCING STEEL

STRAIGHT BARS				BENT BARS			
Mark	No.	Size	Length	Mark	No.	Size	Length
E1	3	#4	32'-3"	C1	8	#6	3'-1"
S4	10	#4	*	H1	4	#4	14'-1"
				H2	2	#4	14'-0"
H5	14	#4	13'-11"	H3	2	#4	13'-11"
				H4	4	#4	13'-10"
V4	12	#4	5'-10"				
				S1	2	#4	4'-5"
				S2	18	#4	*
				S3	14	#4	13'-3"
				U1	16	#4	2'-5"
				V1	26	#5	*
				V2	2	#5	6'-10"
				V3	12	#4	6'-11"
*See Bending Diagrams							

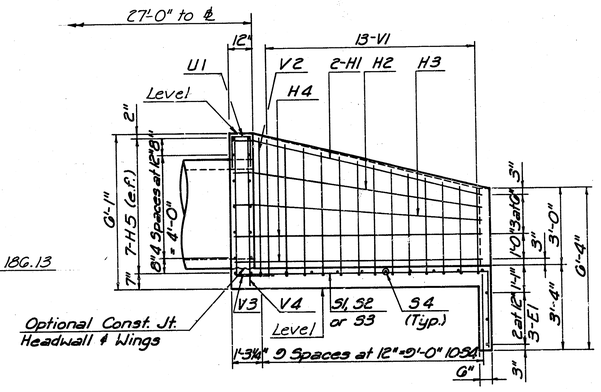
≠ SUMMARY OF QUANTITIES

Item	Quantity	Unit
Class AAA Concrete (AE)	13.2	Cu.Yds.
Reinforcing Steel	1080	Lbs.

≠ For Information Only



Note: n.f., f.f. and e.f. denote near face, far face and each face respectively. Cut and/or bend H5, V3 and V4 bars to clear pipe openings.



SECTION A-A

CONCRETE HEADWALL NOTES

CONCRETE: BEVEL ALL EXPOSED EDGES WITH A 3/4 INCH TRIANGULAR MOLDING OR FINISH WITH AN APPROVED EDGING TOOL. CLASS AAA CONCRETE (AE) SHALL BE USED THROUGHOUT. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I. THE CONCRETE COVER FOR ALL REINFORCING STEEL SHALL BE A MINIMUM OF 1-1/2" UNLESS OTHERWISE NOTED.

REINFORCING STEEL: ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BAR UNLESS OTHERWISE NOTED. REINFORCING STEEL SHALL BE BENT AND/OR CUT TO CLEAR THE PIPE OPENINGS. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A615 GRADE 40 AS A MINIMUM REQUIREMENT.

DEDUCTIONS IN CONCRETE QUANTITIES HAVE BEEN MADE FOR PIPE OPENINGS.

THE CONCRETE HEADWALL SHALL BE PAID FOR AT THE UNIT PRICE BID PER EACH IN PLACE INCLUDING CONCRETE, REINFORCING STEEL, EXCAVATION AND ALL OTHER MISCELLANEOUS MATERIALS, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. QUANTITIES SHOWN ARE FOR INFORMATION ONLY.

HEADWALL DETAILS

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

Designed by	P.D.F.	Checked by	R.A.S.	
Drawn by	GDR	Date	May 1980	Job No. 80117-1

6/12
6

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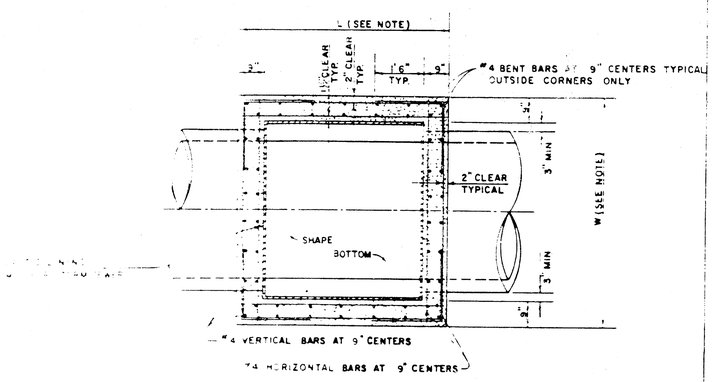
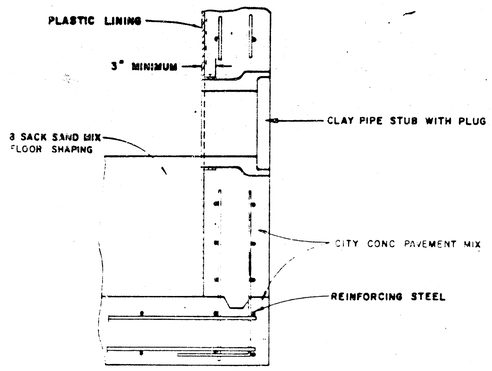
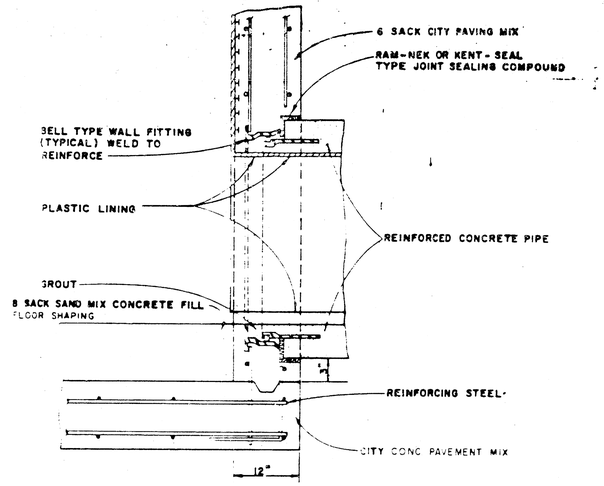


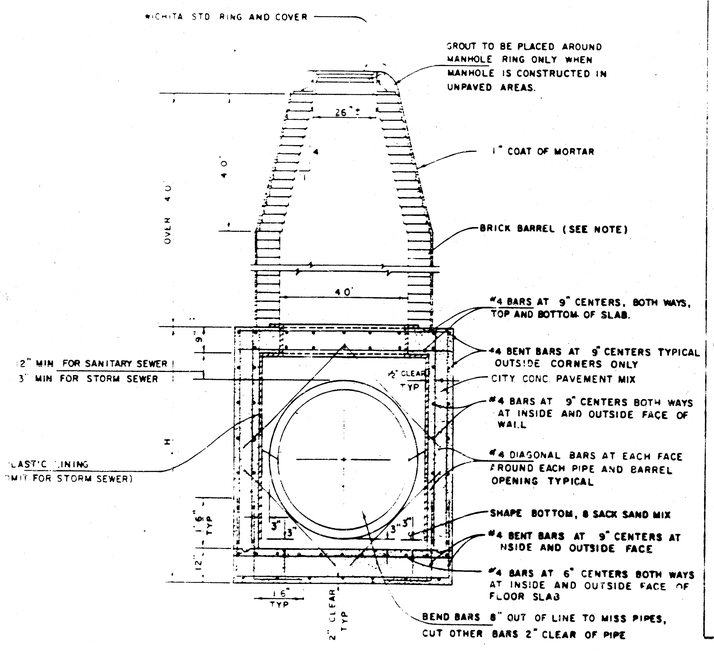
TOP VIEW



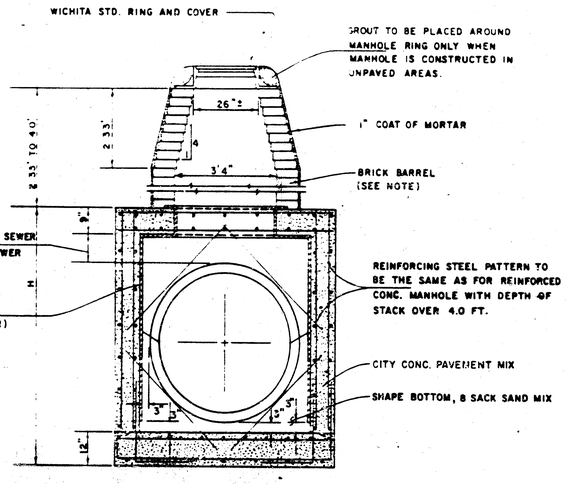
V.C.P. CONNECTION DETAIL
SANITARY SEWER ONLY



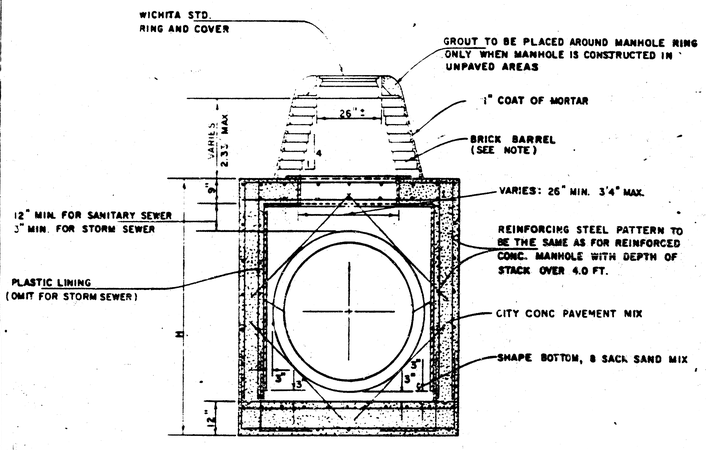
R.C.P. CONNECTION DETAIL
SANITARY SEWER ONLY



REINFORCED CONCRETE MANHOLE
DEPTH OF STACK: OVER 4.0'
SCALE 1" = 2'



REINFORCED CONCRETE MANHOLE
DEPTH OF STACK: 2.33' TO 4.0'
SCALE 1" = 2'



REINFORCED CONCRETE MANHOLE
DEPTH OF STACK: 0' TO 2.33'
SCALE 1" = 2'

NOTE :
BRICK BARRELS LESS THEN 16' DEEP SHALL HAVE 8" WALLS EXCEPT WHEN LOCATED WITHIN PUBLIC STREET OR ALLEY PAVEMENT THEN THE WALL SHALL BE 12" BRICK BARRELS MORE THEN 16' DEEP SHALL HAVE 12" WALLS. THE "L" AND "W" DIMENSIONS SHALL BE A MINIMUM OF 5'6" FOR BRICK BARRELS WITH 8" WALLS AND 6'2" FOR BRICK BARRELS WITH 12" WALLS WHEN THE BRICK BARRELS ARE OVER 4 FT IN HEIGHT.

Proj. No. 468 76 845 81144 000 000 001

STANDARD DETAILS
REINFORCED CONCRETE MANHOLES
CITY OF WICHITA

FEBRUARY 1984 — Sheet No. 7 of 12

7/12

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MANHOLE FRAME AND COVER DETAIL

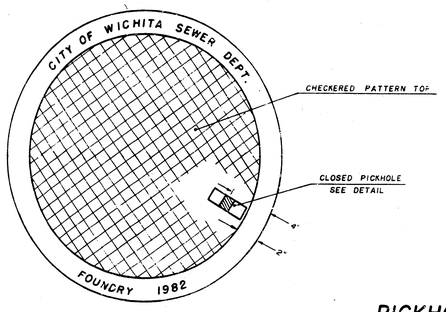
ADOPTED AS STANDARD DESIGN

BY

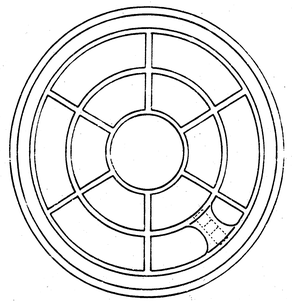
City of Wichita, Kansas

MANHOLE COVER

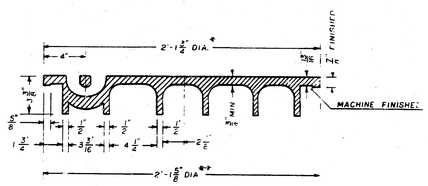
Weight: 180 Lbs.



TOP VIEW



BOTTOM VIEW

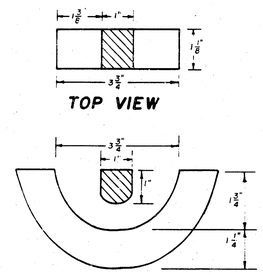


SECTION VIEW

* OUTSIDE DIA TOP OF COVER

** OUTSIDE DIA BOTTOM OF COVER

PICKHOLE DETAIL

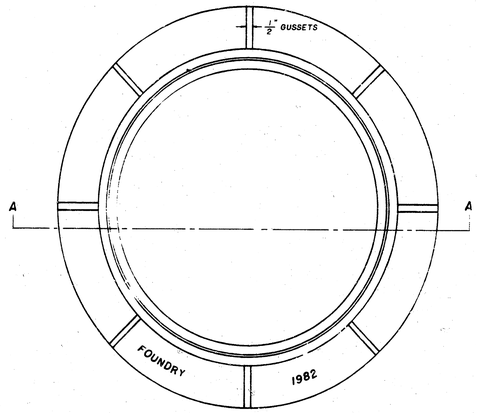


TOP VIEW

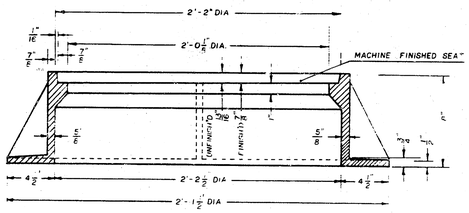
SECTION VIEW

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.

J.L. DEC. 1981

8/12

Proj. No. 468 TG 285 81144 000 000 001

Sheet No. 8 of 12

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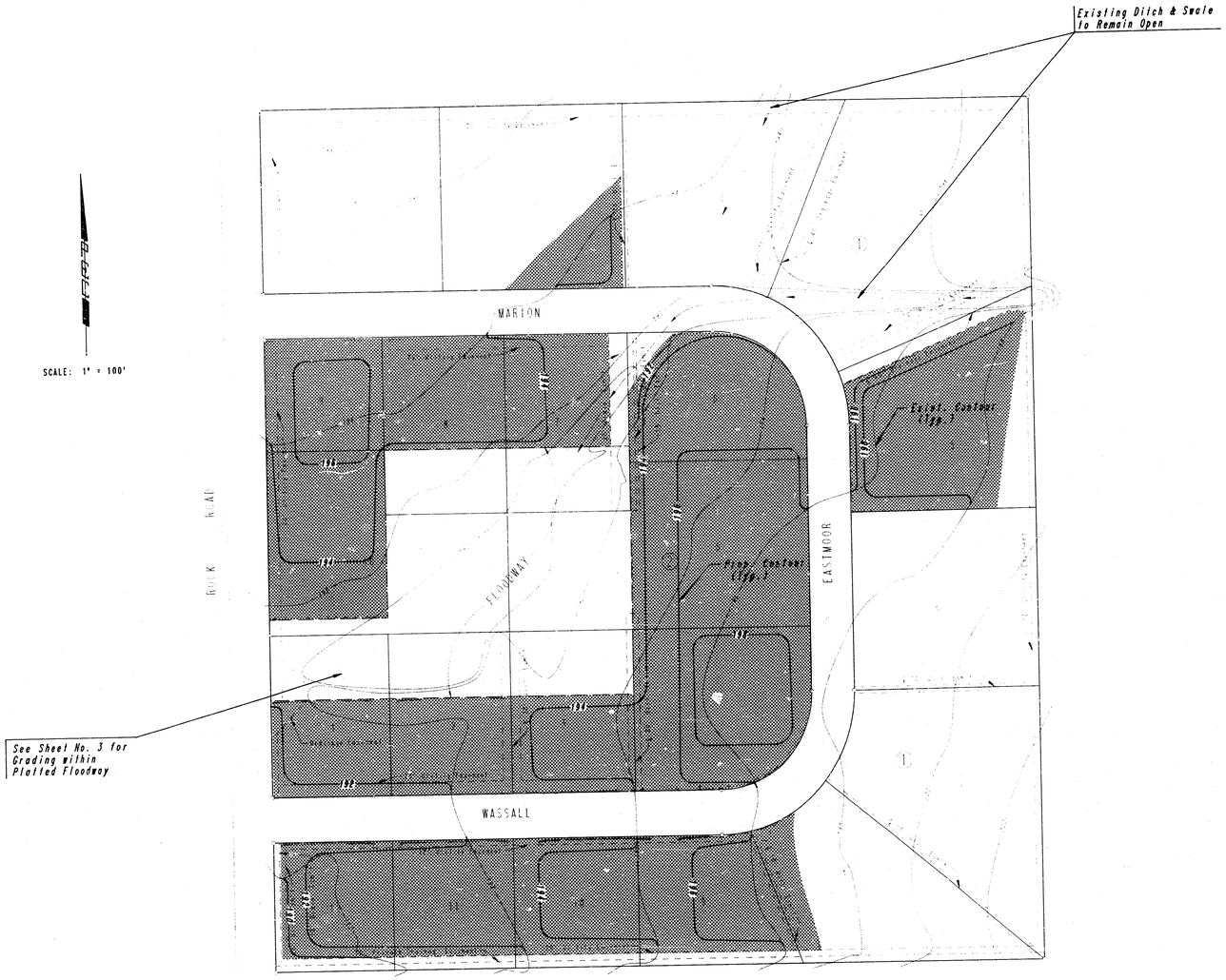
PROJECT NO.	SHEET NO.	TOTAL SHEETS
468-76-245-81144-000-000-001	9	12



SCALE: 1" = 100'

NOTES

1. OWNER SHALL HAVE FIRST RIGHT TO EXCESS MATERIAL EXCAVATED FROM THE DETENTION POND.
2. EXCESS EXCAVATED MATERIAL SHALL BE WASTED WITHIN THE SHADED AREAS SHOWN HEREON TO THE PROPOSED CONTOURS SHOWN. ANY ADDITIONAL EXCESS MATERIAL, OVER AND ABOVE THAT NEEDED FOR THE FILL AREAS SHOWN, SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR.
3. ALL STAKING, INSPECTION, TESTING, AND APPROVAL OF THE DISPOSAL OF EXCESS MATERIAL ON PRIVATE PROPERTY, AS SHOWN HEREON, SHALL BE THE SOLE RESPONSIBILITY OF THE LANDOWNER. CONTACT MR. RANDALL VOTH, AMERICAN LAND DEVELOPMENT COMPANY, INC., PH. NO. 264-3210.
4. NO FILL SHALL BE PLACED ON STREET RIGHTS-OF-WAY.
5. BLADE FILL AREAS SMOOTH AND GRADE TO DRAIN.
6. CONTOUR INTERVAL = 2'.

EARTHWORK SUMMARY

EXCAVATION - CROSS-SECTIONS	38,380 C.Y.	
10%	3,838 C.Y.	
TOTAL	42,218 C.Y.	
COMPACTED FILL - CROSS SECTIONS	1,737 C.Y.	
10%	174 C.Y.	
TOTAL	1,911 C.Y.	
WITH 20% SHRINKAGE FACTOR, EXCESS MATERIAL =		39,925 C.Y.
ESTIMATED FILL REQUIRED ON-SITE (SHADED AREAS) =		32,510 C.Y.
ESTIMATED DISPOSAL OFF-SITE =		7,415 C.Y.

OVERALL GRADING PLAN
(FOR INFORMATION ONLY)

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

9/12

Designed by	CSB	Checked by	
Drawn by	DEP	Date MAY, 1986	Job No. 86117-1

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Floodwater Detention Reservoir #16

Proj. No. 468 TG 245 81144 000 000 001

40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 540 560 580 600

195
0+55
190
185
180

36x9.2
240x5.7
C=1639.2 CY.
CF=147 CY.
120x9.8
90x11.3
C=4210
CF=147
+20
C=2356.6 CY.
F= 99.3 CY.

195
0+45
190
185
180

C=2821
CF=109

195
0+35
190
185
180

91x2.8
76x1.8
68x3.5
130x4.7
C=1723.6
F=121.0
C=1373
CF=118
+35
C=1220.9 CY.
F= 302.7 CY

195
0+00
190

C=330
CF=514
C=160
F=346

TOTAL EARTH QUANTITIES:
C= 39,449.8 CY.
CF= 1,623.6 CY.

185

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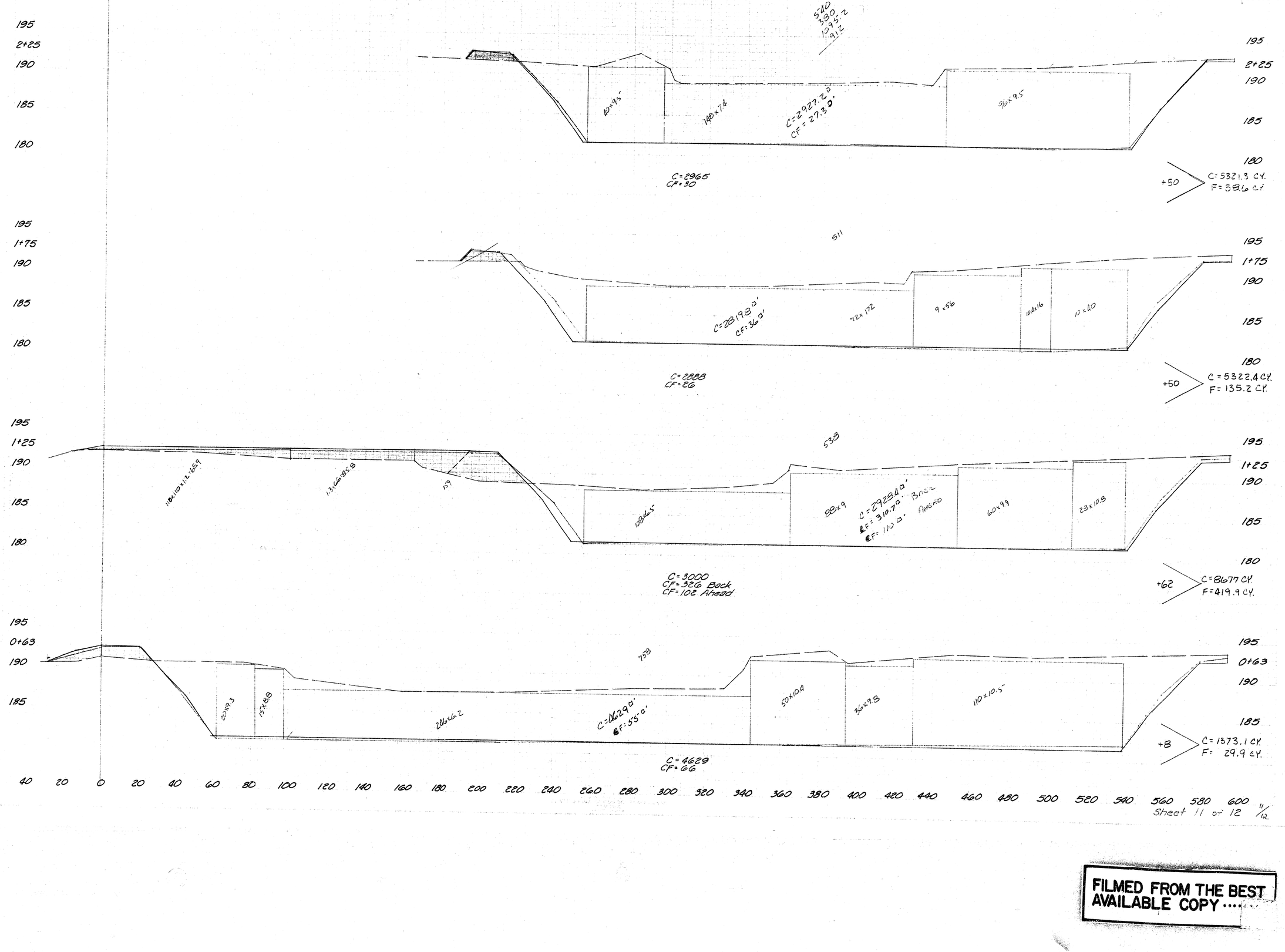

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Floodwater Detention Reservoir #16

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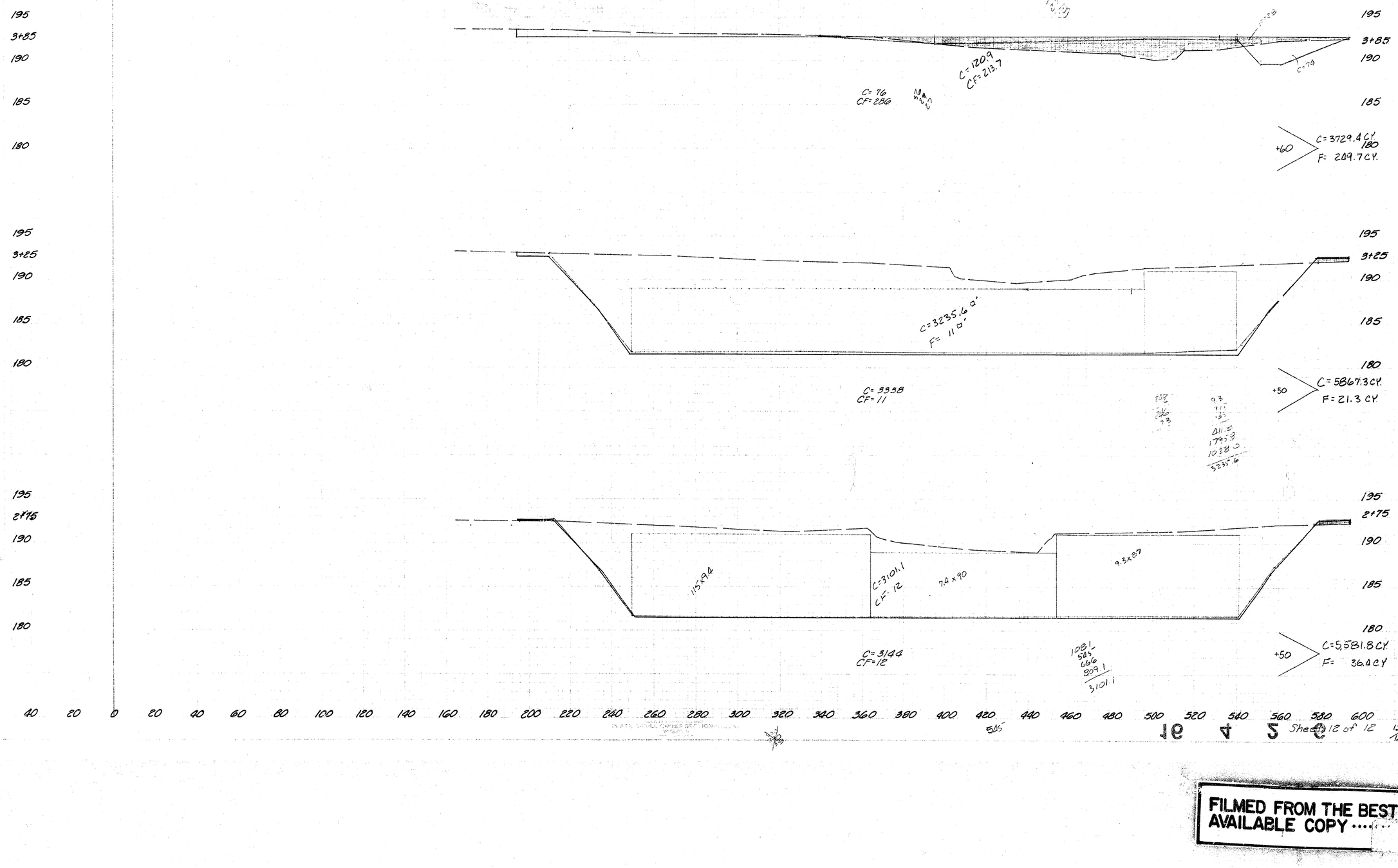

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