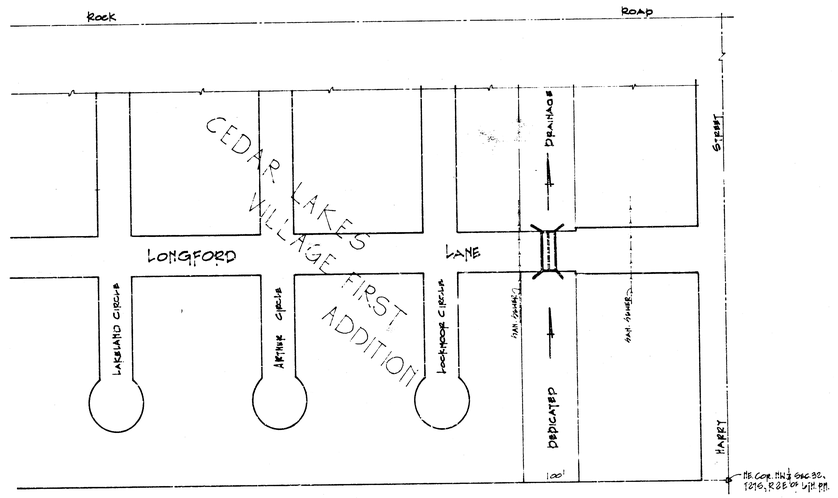
2-10'x 5' REINFORCED CONC. BOX CULVERT
IN CONNECTION WITH PAVING LONGFORD LANE-LOT 28-BLK.
5- CEDAR LAKES VILLAGE FIRST ADDN. TO SL.
HARRY ST.

R.W.LINN
Project No.

City Engineer
DAKC 573051



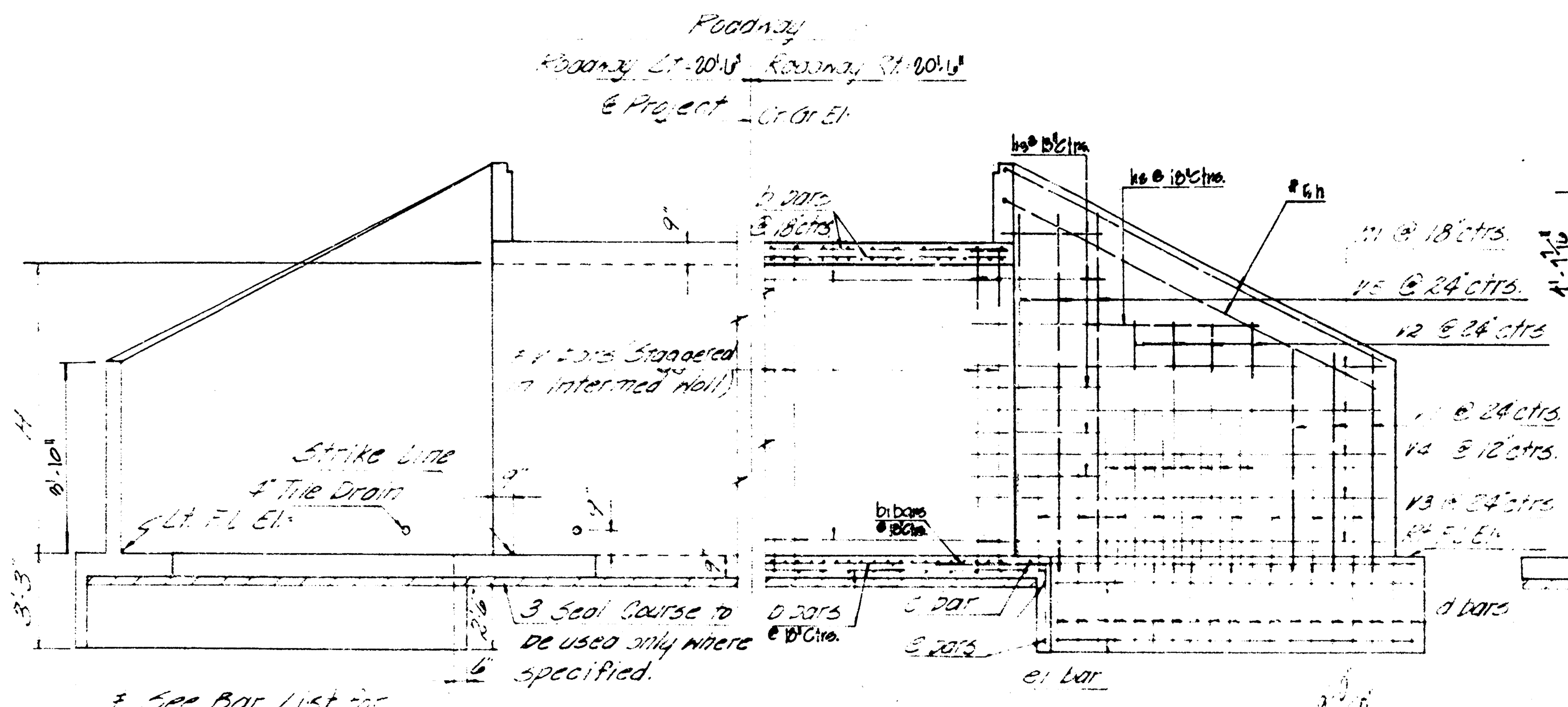
N

Sept. 1973

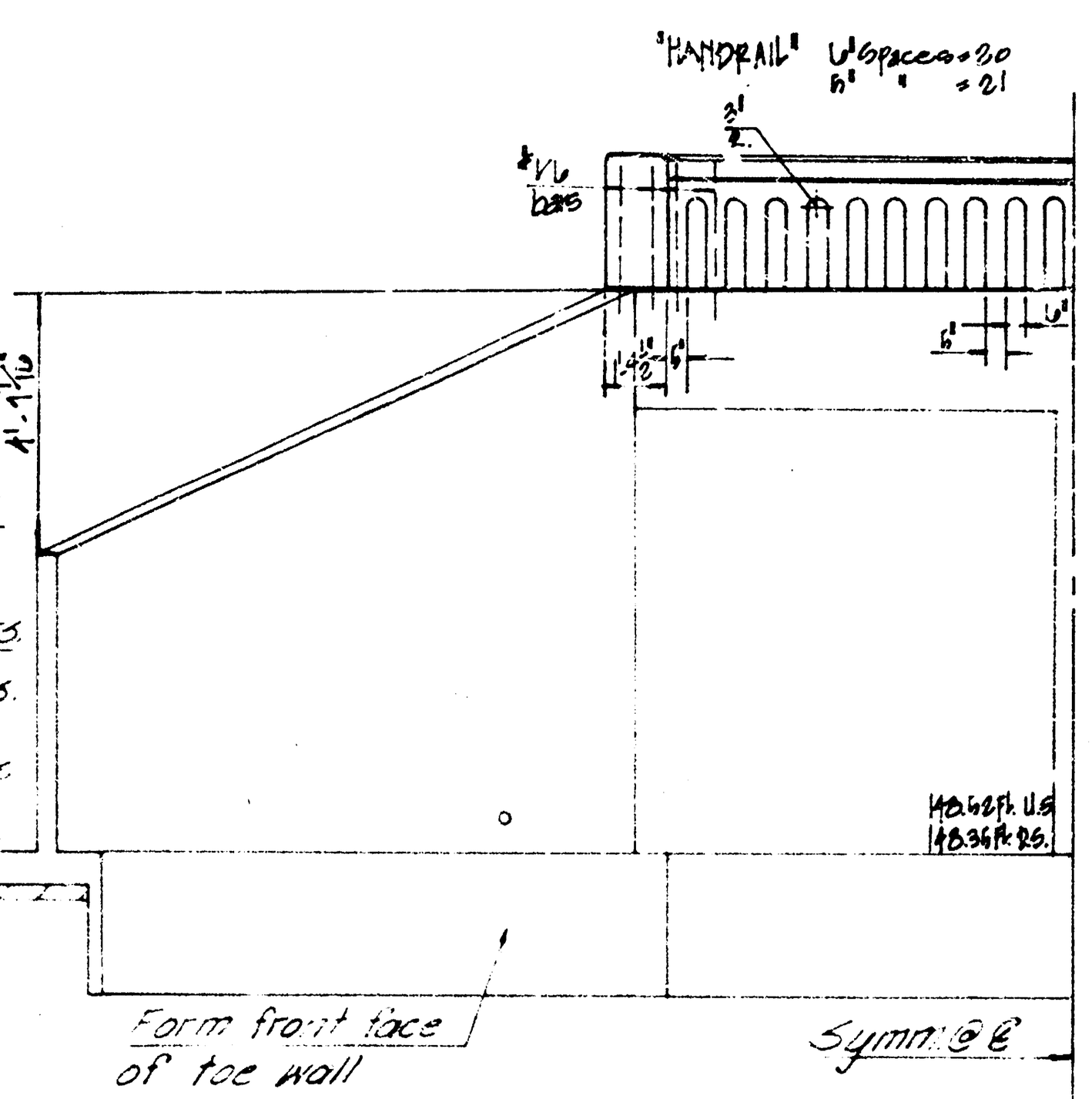
Roadway

Roadway Lt-20'0" Roadway Rt-20'0"

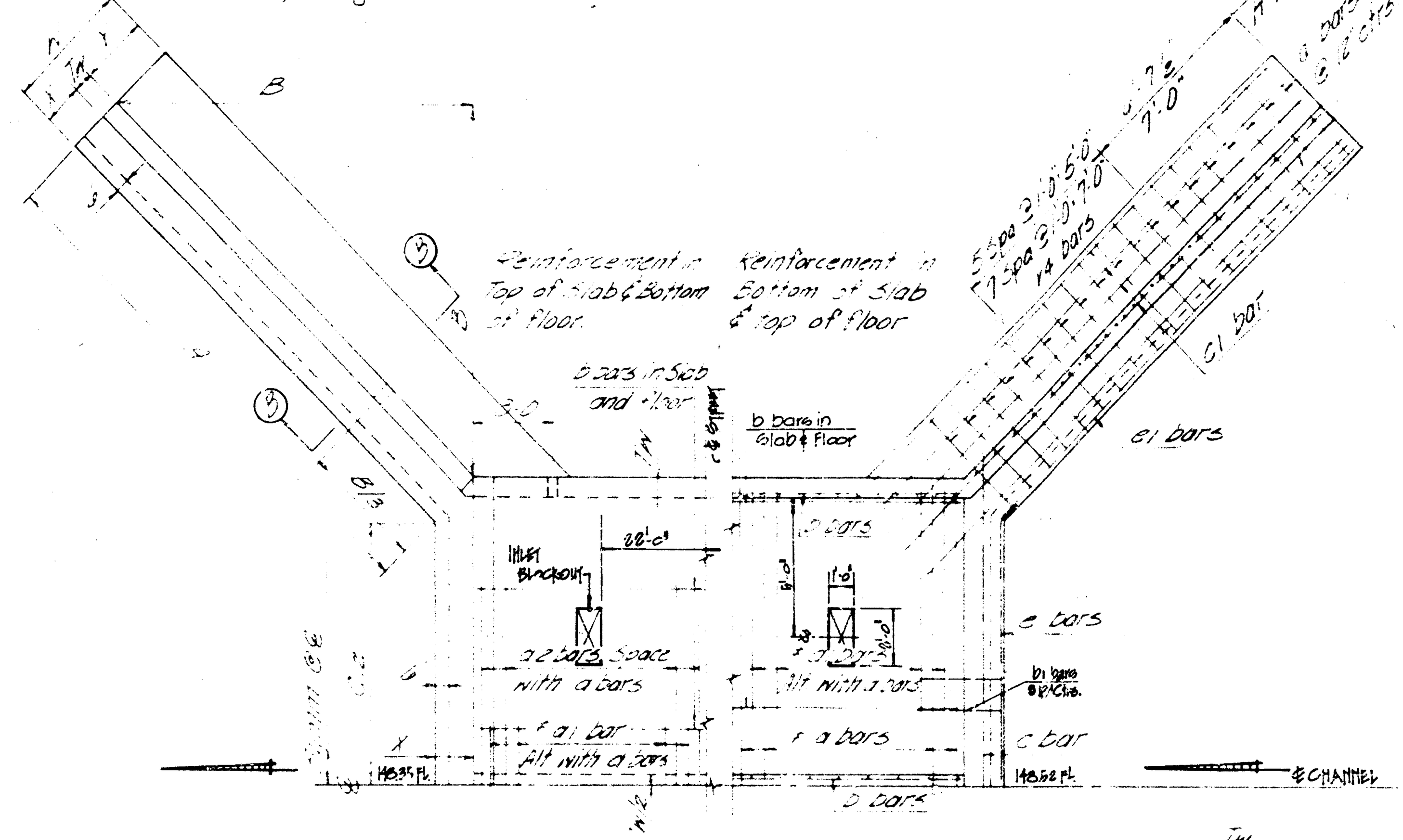
℄ Project Cr Gr El



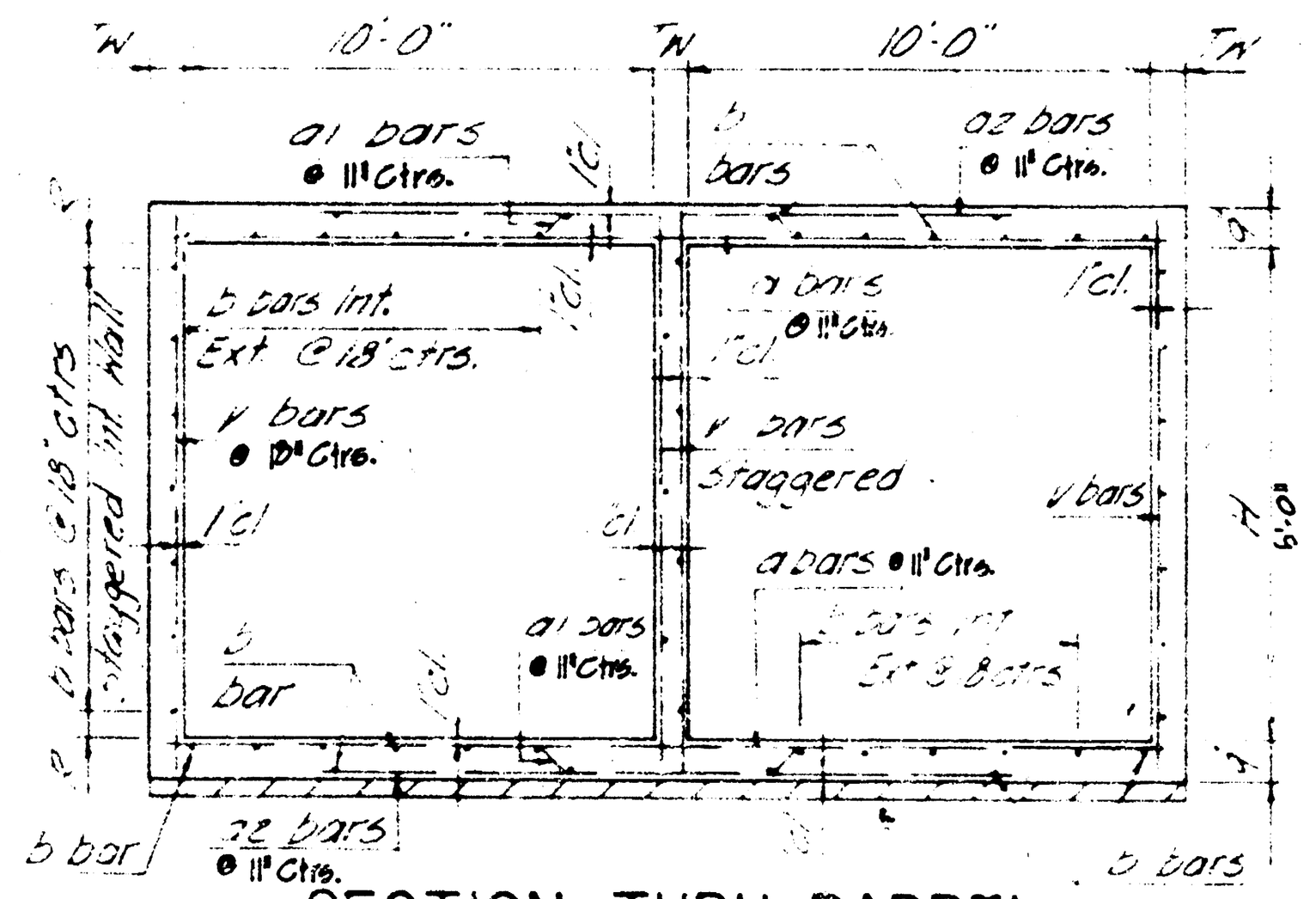
ELEVATION AND SECTION



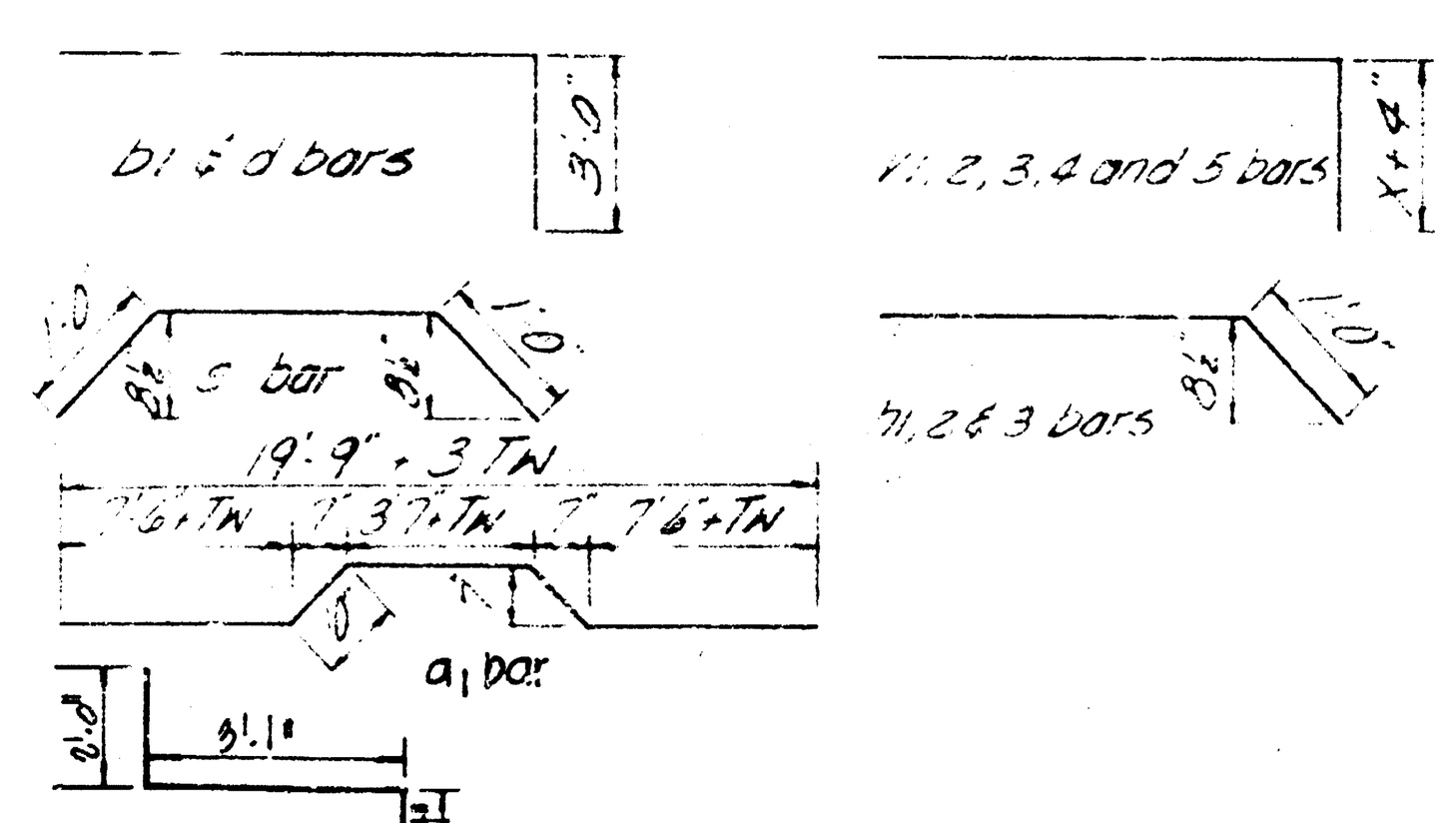
HALF END ELEVATION



HALF PLAN AND SECTION

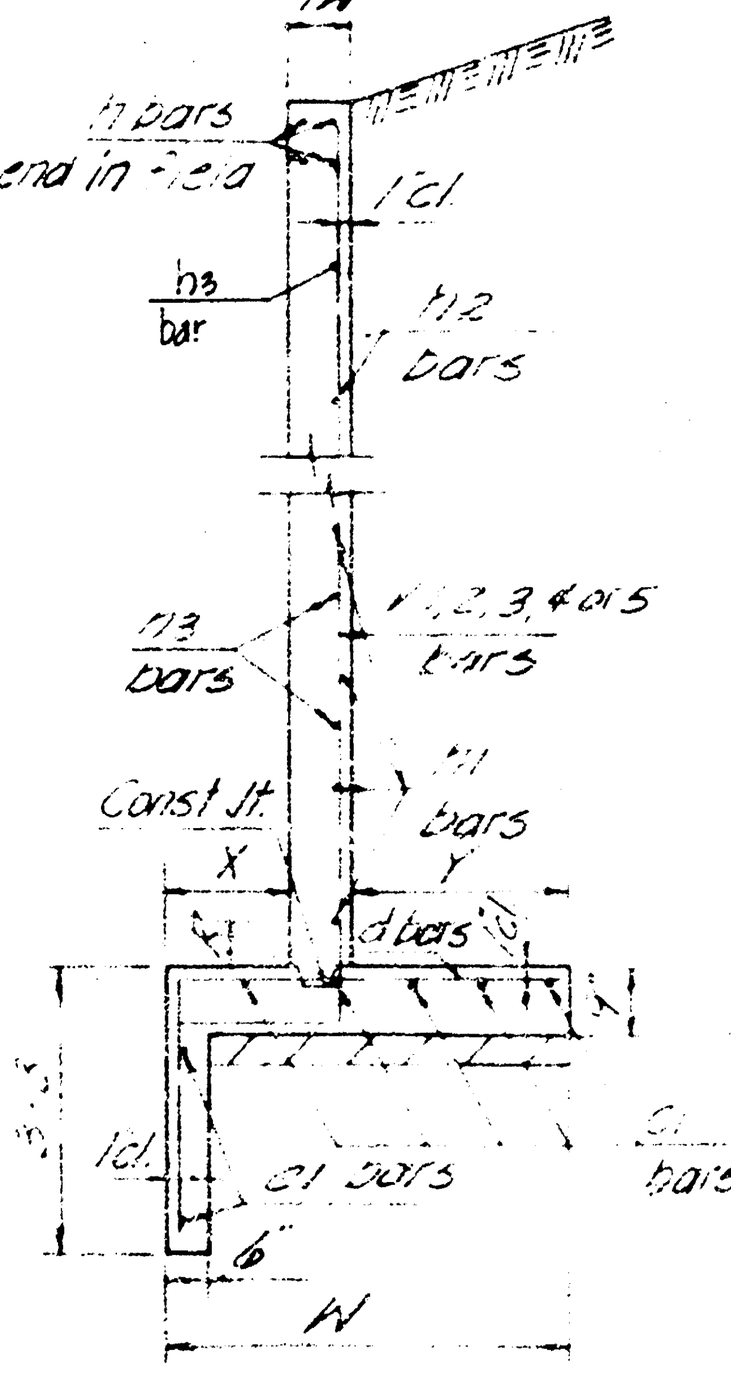


SECTION THRU BARREL

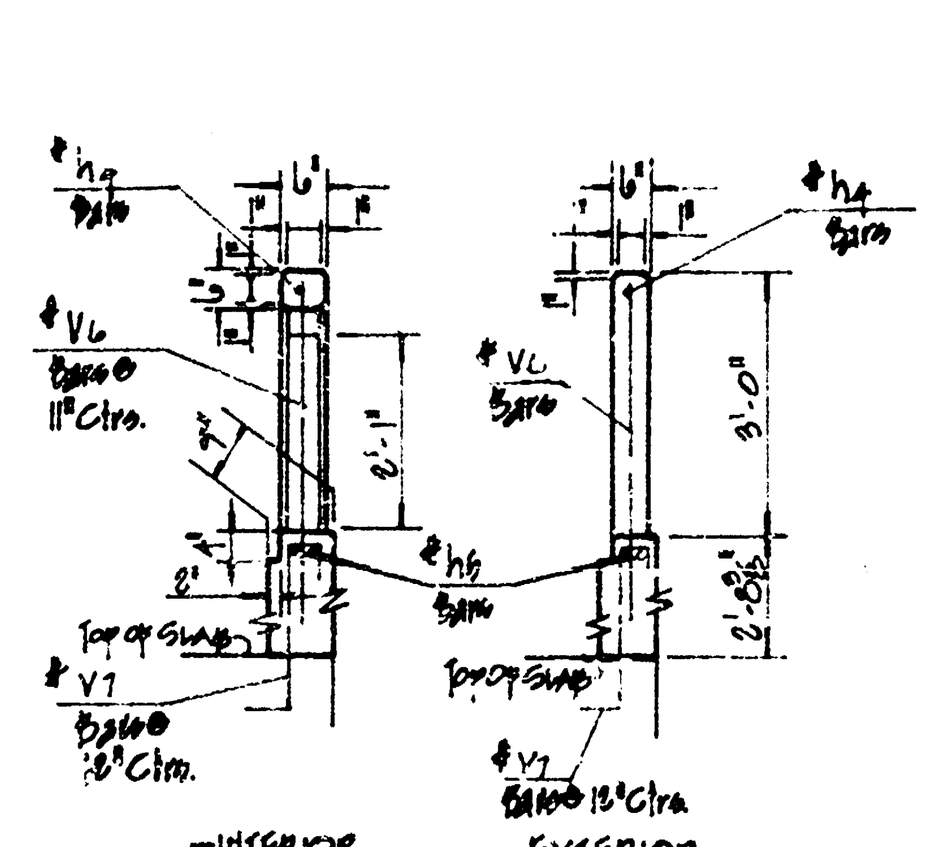


BENDING DIAGRAMS

All dimensions are out to out of bars.



SECT. B-B



HUBGUARD & HANDRAIL DETAIL

GENERAL NOTE

LOADING H20-44 AASHO Specifications 1961 Edition

UNIT STRESSES f'c-3,000 p.s.i., fc-1200 p.s.i.; fs-20,000 p.s.i.

1. CLASS A-AE CONCRETE - SHALL BE USED THROUGHOUT CULVERT CONSTRUCTION. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. SPECIFICATIONS.
2. EARTHWORK - ALL EARTHWORK SHALL BE CONSIDERED AS "COMMON EXCAVATION" EXCEPT FOR TOE WALL-TOE WALL EXCAVATION SHALL BE INCLUDED IN LUMP SUM BID OF R.C.B.C. ALL MATERIALS SUITABLE FOR BACKFILL TO REMAIN ON PROJECT.
3. BACKFILL - SHALL BE COMPACTED TO THE TOP OF NEW R.C.B.C. ALL BACKFILL AND EXCAVATION TO EXTEND TO (2') BEYOND SIDE WALLS OF BOX AND WINGWALLS. PAVING CONTRACTOR TO MAKE FILLS ABOVE TOP OF R.C.B.C. CONTRACTOR TO MAKE COMPACTED FILLS FROM MATERIALS EXCAVATED FROM PAVING CONSTRUCTION. BOTH OF THE INTERESTED CONTRACTORS TO COORDINATE THEIR WORK WITH EACH OTHER. BACKFILL OF WINGWALLS TO BE PNUEMATIC HAND TAMPED OR EQUAL AS DIRECTED BY FIELD ENGINEER. THIS WORK TO BE CONSIDERED AS PART OF C.Y. COMPACTED FILL.
4. WEEP HOLES - COARSE AGGREGATE SHALL BE DEPOSITED BEHIND EACH "WEEP HOLE" TO OCCUPY A SPACE EXTENDING (15") IN ALL DIRECTIONS ABOVE WEEP HOLE FLOW LINE. THIS WORK NOT TO BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED A PART OF THE EXCAVATION.
5. SEAL COURSE - CONSISTING OF (3") CLASS A CONCRETE SHALL BE CONSTRUCTED ONLY WHERE SPECIFIED ON PLANS OR BY THE ENGINEER. NO REINFORCING STEEL SHALL BE PLACED UNTIL SEAL COURSE HAS GAINED SUFFICIENT STRENGTH TO PERMIT WORKING UPON IT WITHOUT INJURY. THIS ITEM SHALL BE PAID FOR BY PLAN QUANTITY IF USED.
6. BIDDING OF CULVERT - THE CULVERT SHALL BE BID AS A "LUMP SUM BID" EXCEPT FOR THE FOLLOWING ITEMS: C.Y. COMMON EXCAVATION, C.Y. COMPACTED FILL, CLASS (A) CONCRETE. THE ITEMS IN THE "SUMMARY OF QUANTITIES" & "BAR SCHEDULE" ARE FOR ESTIMATING PURPOSES ONLY. THE CONTRACTOR TO SATISFY HIMSELF TO THE QUANTITIES AND THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. THE CONTRACTOR WILL HAVE FULL RESPONSIBILITY FOR PROVIDING ALL MATERIALS SHOWN ON THE DETAILED PLANS NECESSARY TO COMPLETE THIS PROJECT.

Note: Wing quantities shown include all quantities outside the neat lines of the barrel except seal courses, floating aprons, handrail post, and deduction for rounding at the upstream end of slab.

PUB ROAD DIV NO	STATE	PROJECT NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	KANSAS		196		

LIST OF BARS AND DIMENSIONS

Note: Maximum fill for this design is 4 ft.

2-10 x 5 x 10'

Apron Steel — Seal Course C.Y. — Wing Concrete C.Y.

Apron Concrete — Apron Seal Course C.Y.

Letter	A	B	C	E	H	R	TW	W	X	Y
Dimension	10'3	7'3	9'3⅜	1'4½	5'0	3	3	2'9	5	1'3

Bar	a	a1	a2	b	b1	b2	c	c1	d	e	f	g	h	h1	h2	h3	p	v	v1	v2	v3	v6	v1	h4	h6
Number	154	162	154	106	16		2	12	44	4	3	4	16	12	4	30		140	2	2	30	46	22	2	4
Size	#5	#5	#5	#4	#4	#4	#4	#4	#4	#4	#4	#5	#5	#4	#4	#4	#4	#4	#4	#4	#4	#4	#6	#4	#4
Length	21'3	21'9	4'9	30'0	6'6	—	24'0	12'3	5'6	21'7	10'3	2'3	17'9	11'6	16'6	5'5	—	3	5'10	8'6	4'0	4'6	5'4	21'3	21'3

Wing Concrete: Bar a, a1 — Space 11", 11", 18"

2-10 x 6'

Apron Steel 73 Lbs — Seal Course C.Y. — Wing Concrete [illegible] C.Y.

Apron Concrete 5.347 C.Y. — Apron Seal Course C.Y.

Letter	A	B	C	E	H	R	TW	W	X	Y
Dimension	20'0	8'5⅝	19'3⅜	1'5¼	6'0	9	6½	3'0	1'0	1'5½

Bar	a	a1	a2	b	b1	b2	c	c1	d	e	e1	g	h	h1	h2	h3	p	v	v1	v2	v3
Number					20	12	2	12	48	4	8	4	16	2	4		16		12	2	24
Size	#5	#5	#5	#4	#4	#4	#4	#4	#4	#4	#4	#5	#5	#4	#4		#4	#4	#4	#4	#4
Length	21'4	21'10	4'9				24'0	14'0	5'9	21'7	12'0	21'4	3'9	3'3	9'0		2'8	7'3	3'2	7'5	3'8

Wing: Bar a, a1, v — Space 11", 11", 18"

2-10 x 7'

Apron Steel 84 Lbs — Seal Course C.Y. — Wing Concrete [illegible] C.Y.

Apron Concrete [illegible]203 C.Y. — Apron Seal Course C.Y.

Letter	A	B	C	E	H	R	TW	W	X	Y
Dimension	13'9	9'8⅝	9'3¾	1'6	7'0	6	7	3'5	1'0	1'10

Bar	a	a1	a2	b	b1	b2	c	c1	d	e	e1	g	h	h1	h2	h3	p	v	v1	v2	v3
Number					20	12	2	12	56	4	8	4	16	6	4		6		12	16	28
Size	#5	#5	#5	#4	#4	#4	#4	#4	#4	#4	#4	#5	#5	#4	#4		#4	#4	#4	#4	#4
Length	21'6	22'0	4'9				24'0	16'3	6'2	21'7	3'9	21'6	5'6	5'1	8'0		3'8	8'3	6'8	8'1	3'11

Wing: Bar a, a1, v — Space 11", 11", 5"

2-10 x 8'

Apron Steel 96 Lbs — Seal Course C.Y. — Wing Concrete 24.672 C.Y.

Apron Concrete 7.542 C.Y. — Apron Seal Course C.Y.

Letter	A	B	C	E	H	R	TW	W	X	Y
Dimension	15'6	21'1½	19'3⅜	1'6¾	8'0	3	7½	3'10	1'2	2'0½

Bar	a	a1	a2	b	b1	b2	c	c1	d	e	e1	g	h	h1	h2	h3	p	v	v1	v2	v3
Number					20	12	2	12	64	4	[illegible]	[illegible]	[illegible]	6	4		[illegible]		[illegible]	6	32
Size	#5	#5	#5	#4	#4	#4	#4	#4	#4	#4	#4	#5	#5	#4	#4		#4	#4	#4	#4	#4
Length	21'7	22'1	4'9				24'0	20'8	6'7	21'6	15'6	21'7	17'3	6'0	3'		2'8	9'3	7'4	9'2	4'2

Wing: Bar a, a1, v — Space [illegible], 11", 12"

2-10 x 9'

Apron Steel 108 Lbs. — Seal Course C.Y. — Wing Concrete 39.[illegible] C.Y.

Apron Concrete 7.958 C.Y. — Apron Seal Course C.Y.

Letter	A	B	C	E	H	R	TW	W	X	Y
Dimension	17'3	22'2⅜	[illegible]	[illegible]	[illegible]	9	8	4'3	1'3	2'4

Bar	a	a1	a2	b	b1	b2	c	c1	d	e	e1	g	h	h1	h2	h3	p	v	v1	v2	v3	v4	v5
Number					20	12	[illegible]	6	[illegible]	[illegible]	[illegible]	4	16	[illegible]	[illegible]	20	16		[illegible]	2		4	
Size	#5	#5	#5	#4	#4	#4	#4	#4	#4	#4	#4	#5	#5	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
Length	[illegible]	22'3	4'9				24'0	20'6	7'0	21'5	[illegible]	21'9	19'7	[illegible]	[illegible]	[illegible]	2'8	6'3	8'2	[illegible]	[illegible]	[illegible]	[illegible]

Wing: Bar a, a1, v — Space 11", 11", 12"

2-10 x 10'

Apron Steel [illegible]20 Lbs — Seal Course C.Y. — Wing Concrete 53.[illegible] C.Y.

Apron Concrete 8.844 C.Y. — Apron Seal Course C.Y.

Letter	A	B	C	E	H	R	TW	W	X	Y
Dimension	19'3	23'5⅜	18'[illegible]	[illegible]	10'0	6	8	4'9	1'6	2'6½

Bar	a	a1	a2	b	b1	b2	c	c1	d	e	e1	g	h	h1	h2	h3	p	v	v1	v2	v3	v4	v5
Number					20	12	2	20	76	4	8	4	[illegible]	20	[illegible]	2	6		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Size	#5	#5	#5	#4	#4	#4	#4	#4	#5	#4	#4	#5	#5	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
Length	2[illegible]	22'4	14'[illegible]				24'0	22'6	7'6	21'3	9'0	21'10	[illegible]	[illegible]	[illegible]	[illegible]	2'8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Wing: Bar a, a1, v — Space [illegible]

2-10 x '

Apron Steel Lbs — Seal Course C.Y. — Wing Concrete

Apron Concrete C.Y. — Apron Seal Course C.Y.

Letter	A	B	C	E	H	R	TW	W	X	Y
Dimension										

Bar	a	a1	a2	b	b1	b2	c	c1	d	e	e1	g	h	h1	h2	h3	p	v	v1	v2	v3	v4	v5
Number					20	12	2			4	8	4	6				6						
Size	#5	#5	#5	#4	#4	#4	#4	#4		#4	#4	#5	#5	#4	#4	#4	#4	#4	#4	#4	#4		#4
Length			4'9				24'0										2'8						

Wing: Bar a, a1, v — Space 11", 11"

Drainage Area

Waterway Required (Talbot C.) Sq. Ft.

Waterway Required (Dun) Sq. Ft.

Waterway Provided (Below) Sq. Ft.

Total Waterway Provided Sq. Ft.

Discharge Q50

SUMMARY OF QUANTITIES

Common Excavation	160.8	Cu. Yds.
Class A-AE Concrete	117.63	Cu. Yds.
Reinforcing Steel	9316	Lbs.
Conc. Handrail	43.0	Lin. Ft.
Compacted Fill	236.6	Cu. Yds.
Class (A) Concrete (Seal Course)	16.11	Cu. Yds.

NO	DATE	REVISIONS	BY	APP'D
3				
2				
1				

STATE HIGHWAY COMMISSION OF KANSAS 2/3

STD. DOUBLE 10' SPAN CONC. BOX

SHEET NO. OF — SCALE — APP'D — DESIGNED — DETAILED — QUANTITIES — TRACED — DESIGN CK — DETAIL CK — QUAN. CK — TRACE CK