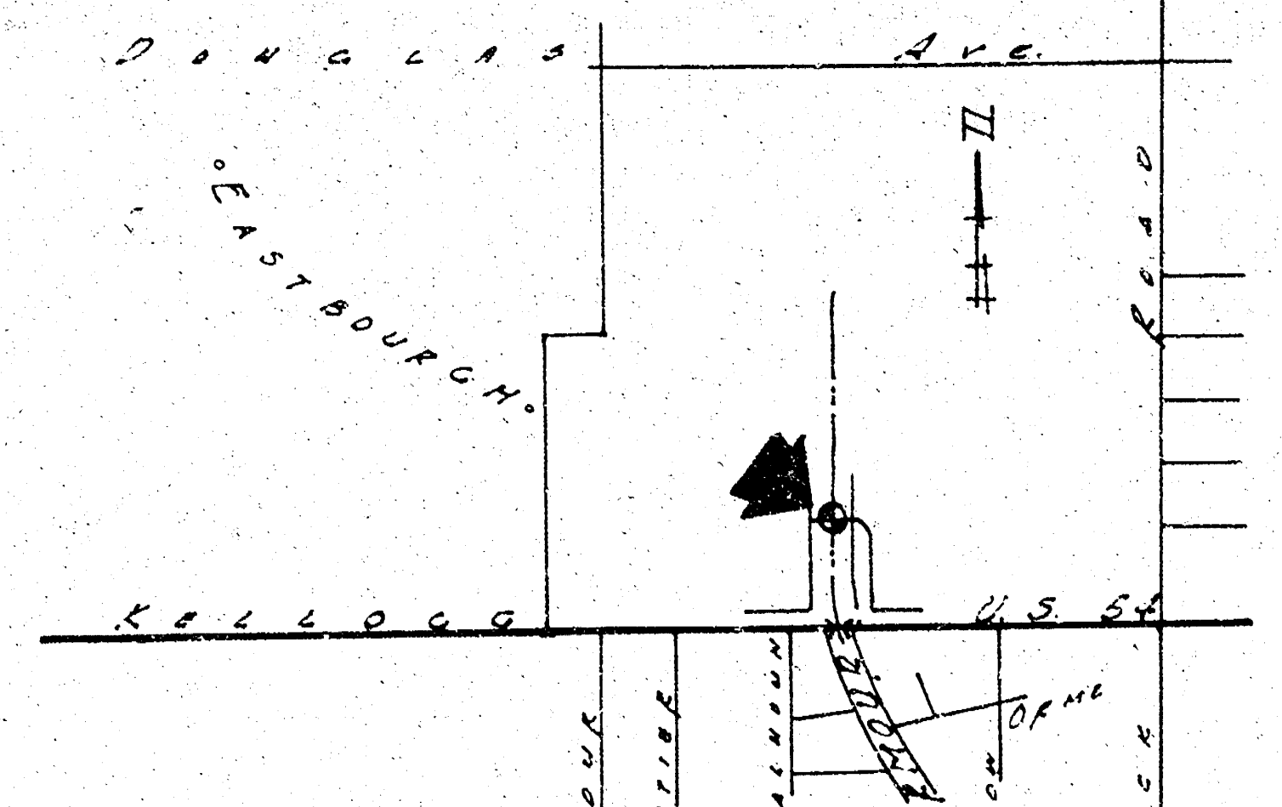
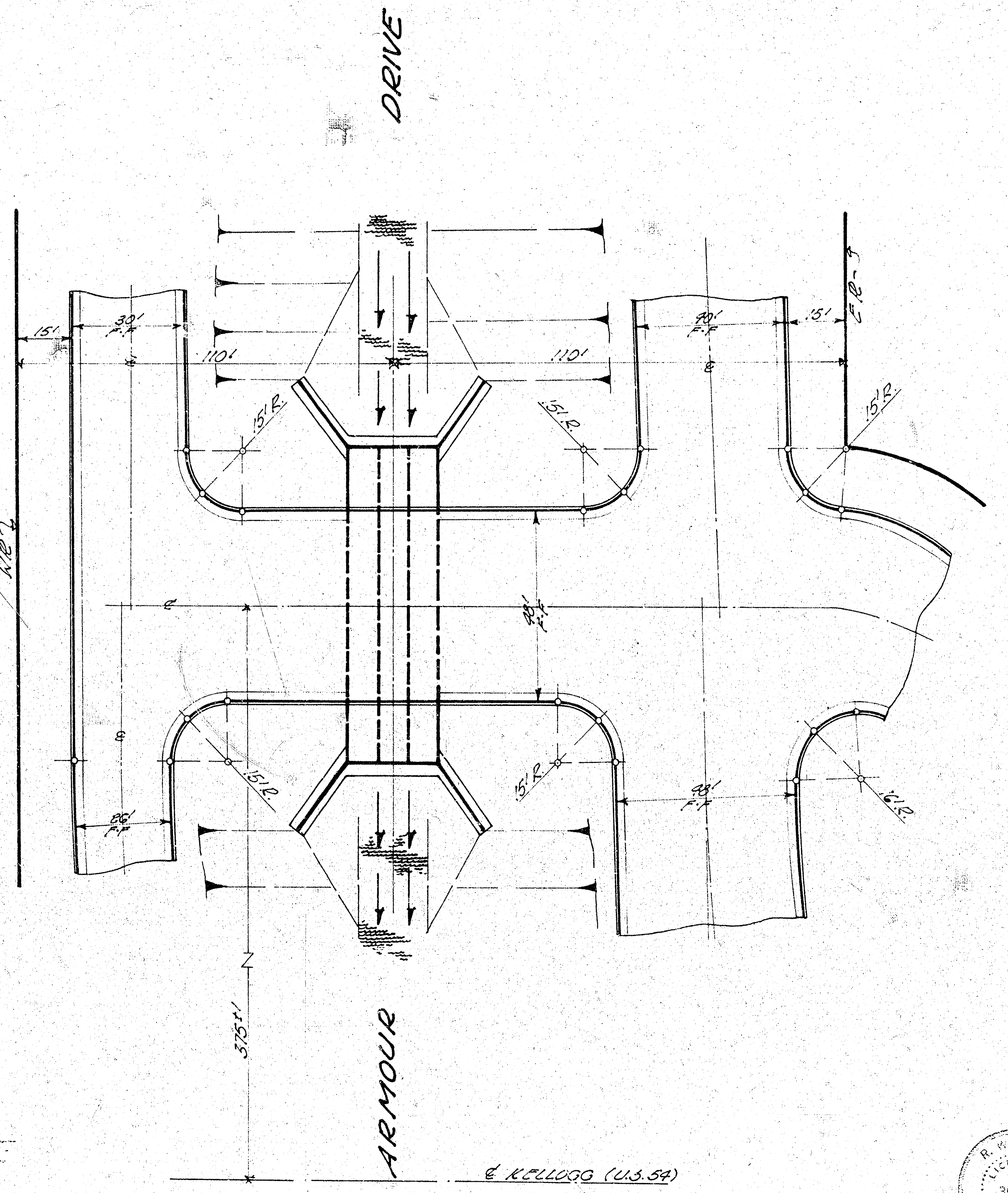
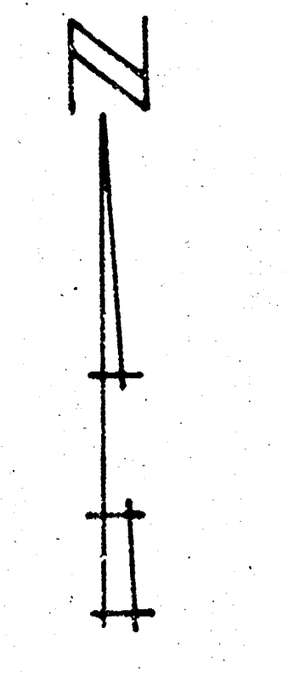
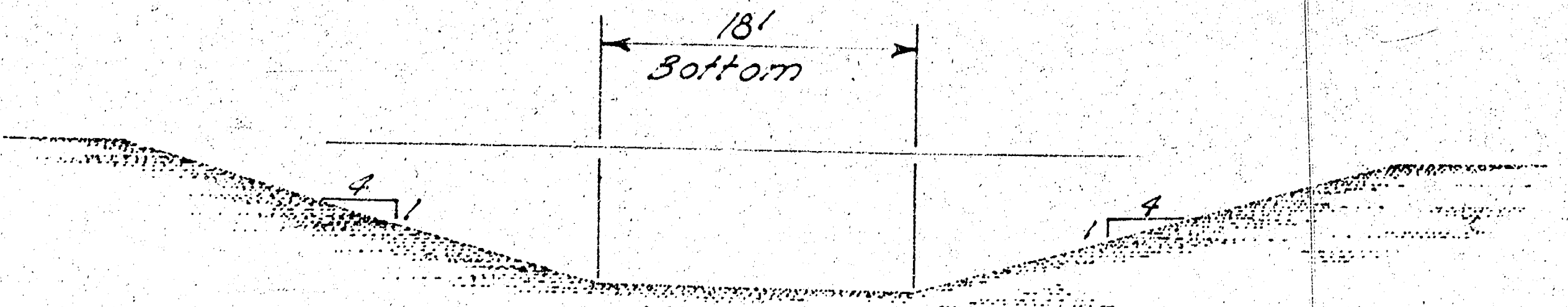

DOUGLAS AVE.
EASTBOURGH
KELLOGG
U.S. 54
ROAD
GOVERNEOUR
WITTIER
CALHOUN
ARMOUR
ORME
LONGFELLOW
ROCK
N

•LOCATION MAP•
No Scale


DRIVE
ARMOUR
15'
30' F.F.
110'
110'
15' R.
15' R.
90' F.F.
15'
15' R.
98' F.F.
86' F.F.
15' R.
15' R.
98' F.F.
16' R.
375'±
℄ KELLOGG (U.S. 54)



Scale: 1" = 20'


18'
Bottom
4
1
1
4

•EXISTING CHANNEL SECTION•

R. W. LINN 3684

B. E. SMITH 436

LOCATION MAP

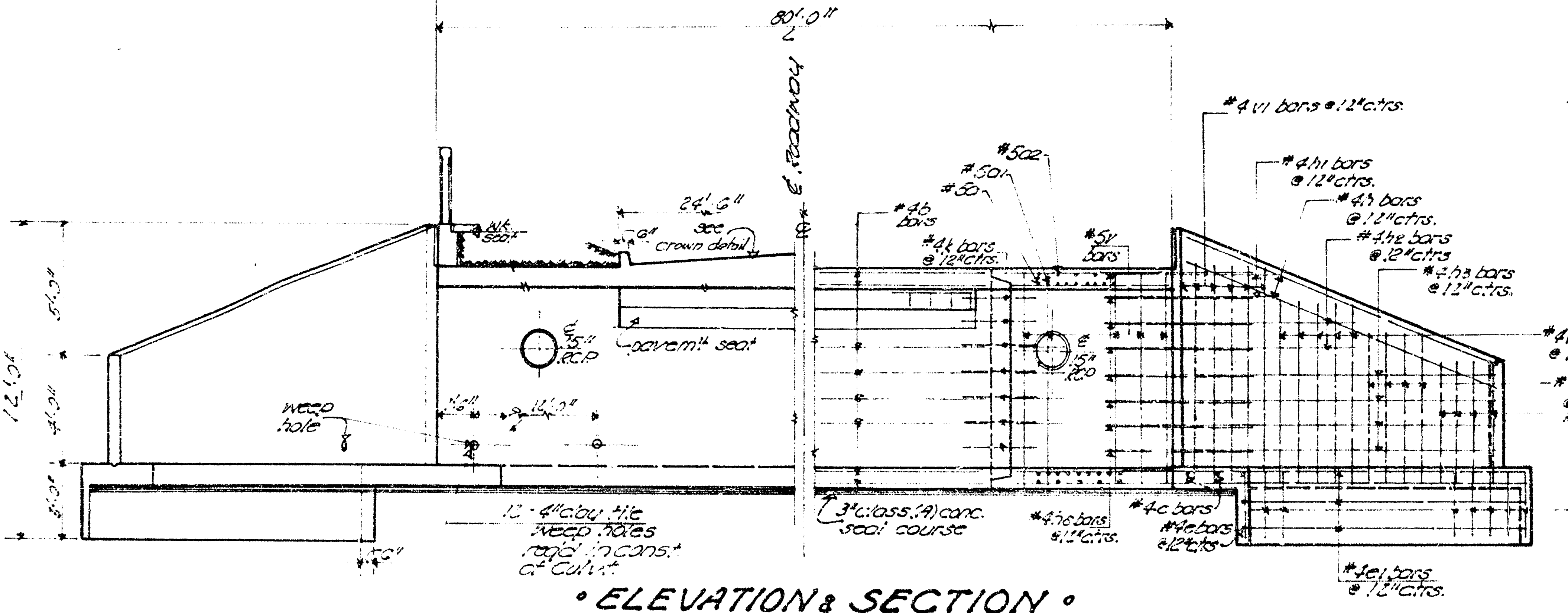
•3 - 7'x 7'x 80' REINF. CONC. BOX CULVERT•

.Armour Drive• NL. U.S. Hiway 54 to 500' S. NL. Rockwood So. 3rd Addition.

City of Wichita, Kansas

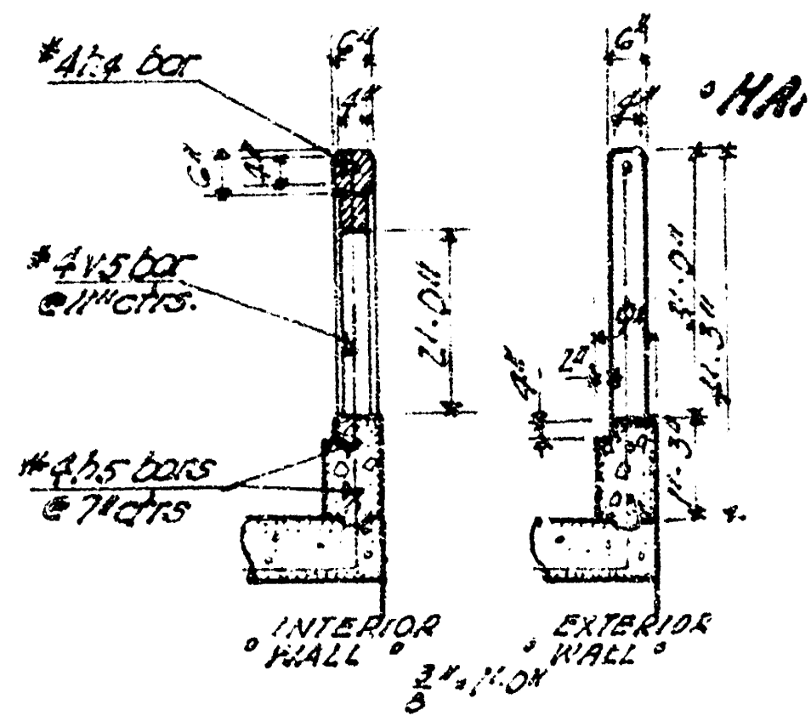
B.E. Smith City Engineer

Date• July 1967 $\frac{1}{5}$ Proj. No. C16-79

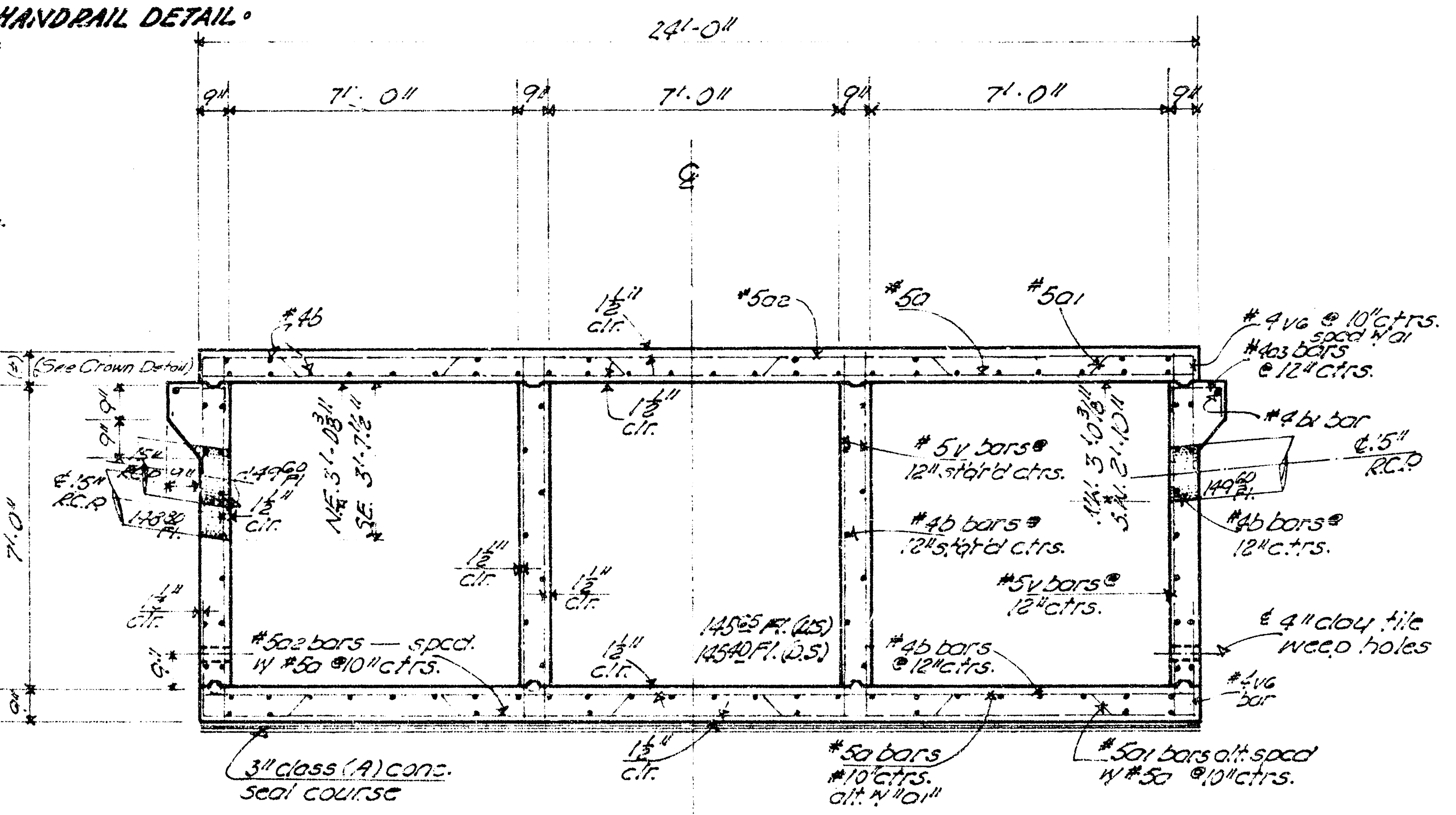

80'-0"
℄ Roadway
24'-6"
see crown detail
6"
wk. seat
pavem't seat
℄ 15" R.C.P.
weep hole
1'-6"
12'-0"
12'-0"
5'-0"
4'-0"
3'-0"
12 - 4" clay tile weep holes req'd in cons.t of Culv.t
6"
#4b bars
#5a2
#5a1
#5a
#4k bars @ 12"ctrs.
#5v bars
℄ 15" R.C.P.
3" class (A) conc. seal course
#4h6 bars @ 12"ctrs.
#4c bars
#4e bars @ 12"ctrs
#4vi bars @ 12"ctrs.
#4h1 bars @ 12"ctrs.
#4h bars @ 12"ctrs.
#4h2 bars @ 12"ctrs
#4h3 bars @ 12"ctrs.
#4v2 bars @ 12"ctrs.
#4v3 bars @ 12"ctrs.
#4v4 bars @ 12"ctrs.
#4d bars @ 12"ctrs.
#4e1 bars @ 12"ctrs.

• ELEVATION & SECTION •

scale: 1/4" = 1'-0"

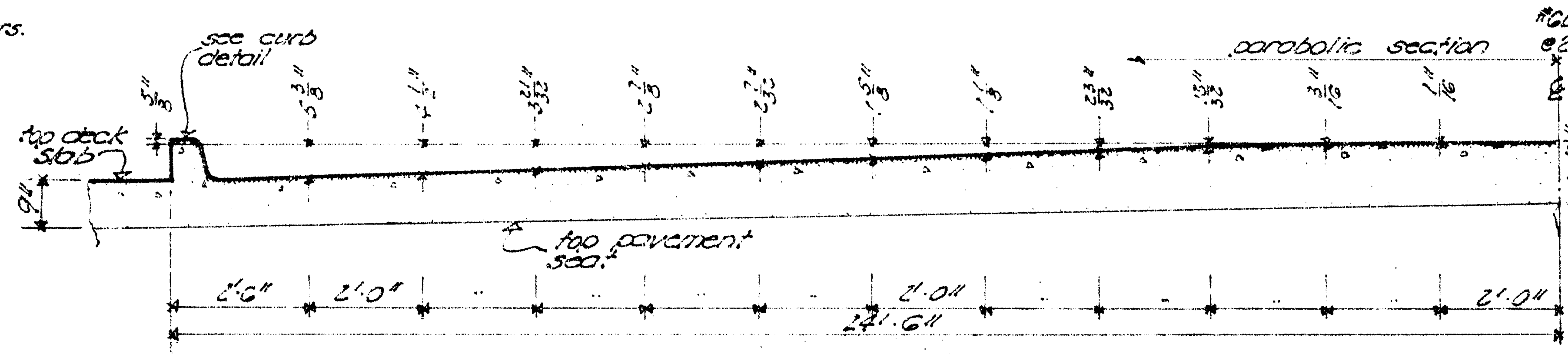

#4h4 bar
#4v5 bar @ 11"ctrs.
#4h5 bars @ 7"ctrs
6"
4"
2'-0"
3'-0"
1'-3"
1'-3"
INTERIOR WALL
EXTERIOR WALL
3/8" = 1'-0"

• HANDRAIL DETAIL •

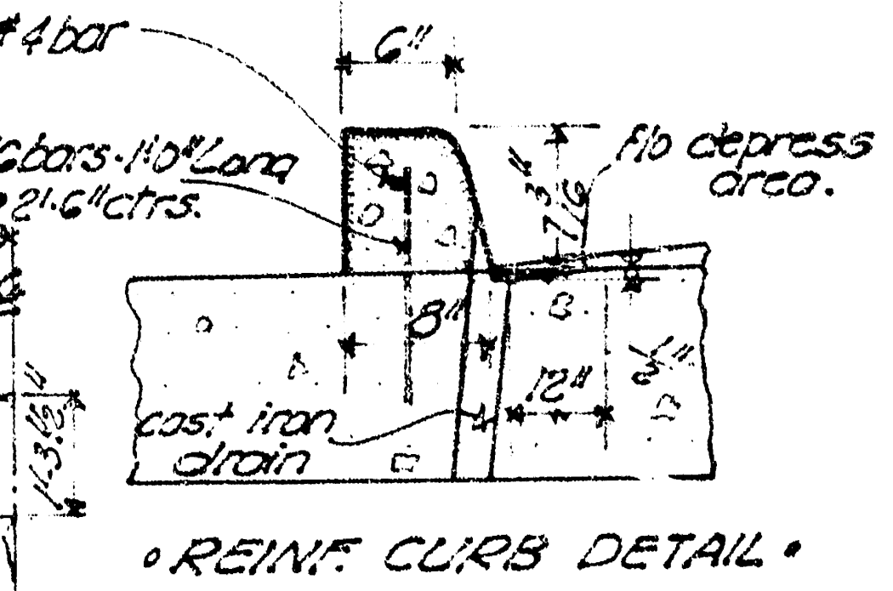

24'-0"
9"
7'-0"
9"
7'-0"
9"
7'-0"
9"
℄
(*) (See Crown Detail)
#4b
1 1/2" c.lr.
#5a2
#5a
#5a1
#4v6 @ 10"ctrs. spcd w/ a1
#4a3 bars @ 12"ctrs.
#4b1 bar
℄ 15" R.C.P.
149.60 F.l.
℄ 15" R.C.P.
148.80 F.l.
149.60 F.l.
9"
9"
15"
1 1/2" c.lr.
N.E. 3'-0 3/8"
S.E. 3'-7 1/2"
1'-0 3/8"
2'-10"
#5v bars @ 12" stag'd ctrs.
#4b bars @ 12" stag'd ctrs.
#4b bars @ 12"ctrs.
#5v bars @ 12"ctrs.
℄ 4" clay tile weep holes
#4v6 bar
7'-0"
9"
9"
1 1/2" c.lr.
145.65 F.l. (U.S.)
145.40 F.l. (D.S.)
#5a2 bars — spcd. w/ #5a @ 10"ctrs.
#4b bars @ 12"ctrs.
3" class (A) conc. seal course
#5a bars @ 10"ctrs. alt. w/ "a1"
#5a1 bars alt. spcd w/ #5a @ 10"ctrs.

• SECTION-AA •

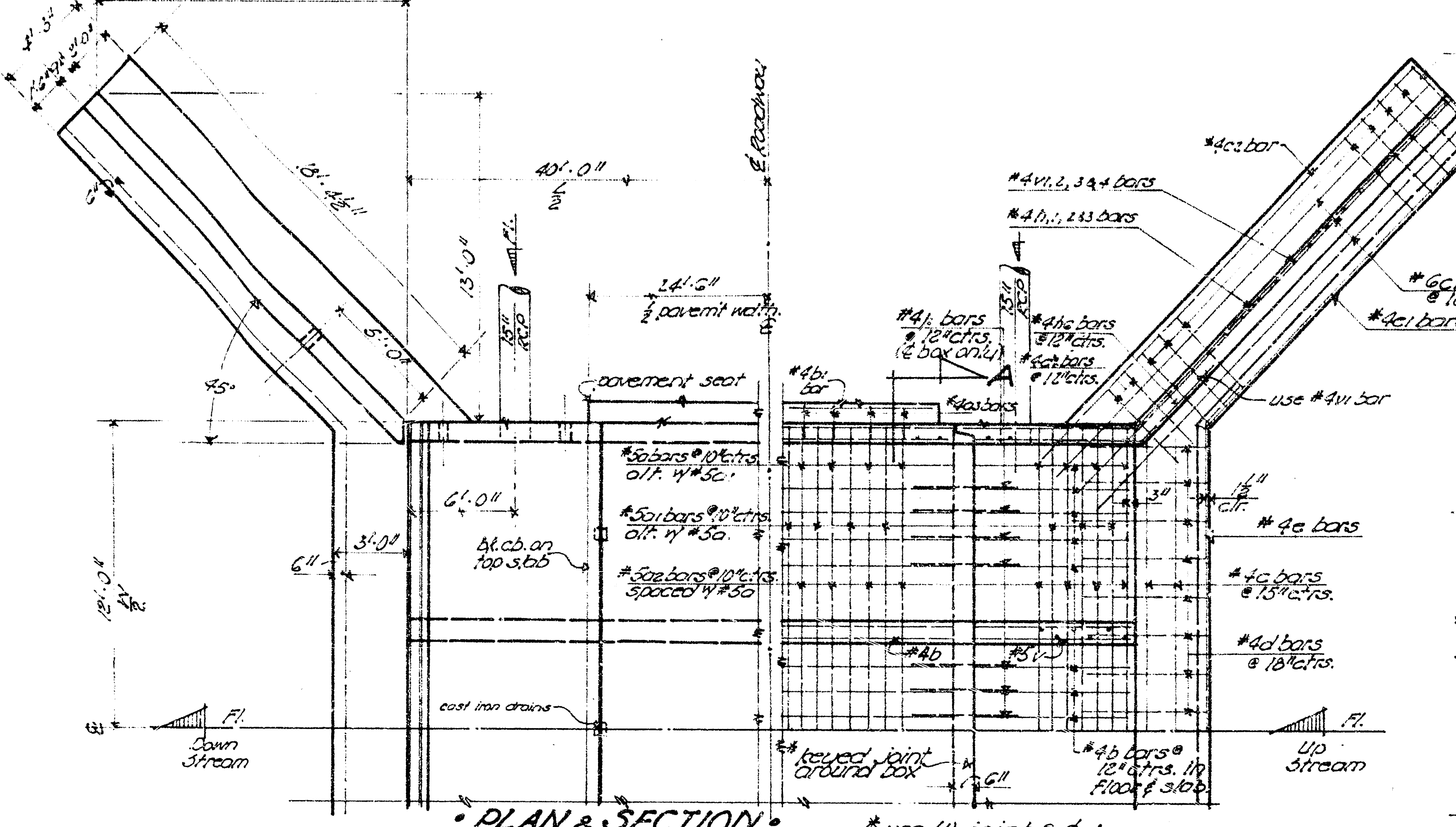
NOTE: Bevel all exposed edges with 3/4" triangular moulding. scale: 3/8" = 1'-0"
(*) thickness variable 9" to 1'-3 1/2"


see curb detail
top deck slab
parabolic section
5 3/8"
5 3/8"
4 1/2"
3 21/32"
2 7/8"
2 7/32"
1 5/8"
1 1/8"
23/32"
13/32"
3/16"
1/16"
9"
1'-3 1/2"
top pavement seat
2'-6"
2'-0"
2'-0"
2'-0"
24'-6"

• TYPICAL SLAB CROWN DETAIL •


24'-6" to ℄
#4 bar
6"
#6 bars - 1'-0" Long @ 21'-6" ctrs.
F.l. depress area.
8"
12"
cast iron drain

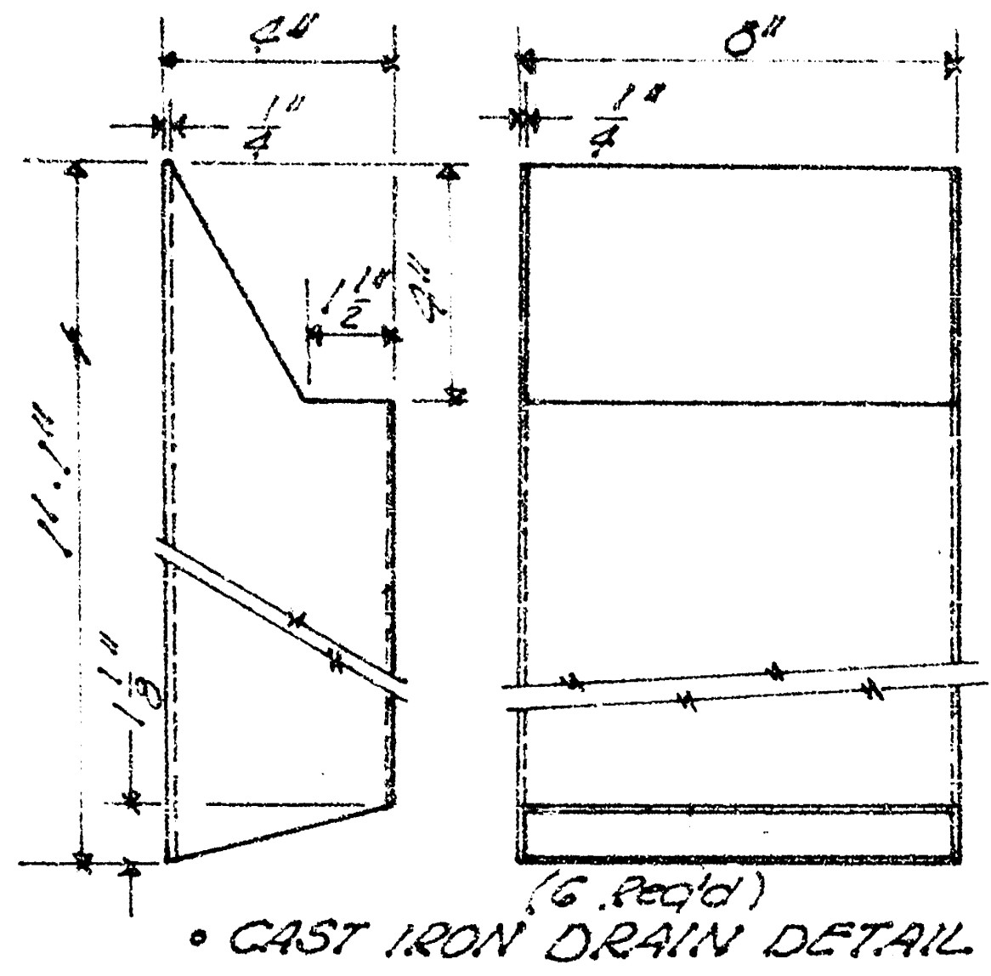
• REINF. CURB DETAIL •


13'-0"
4'-3"
18'-4 1/2"
5'-0"
45°
6"
40'-0"
13'-0"
℄ Roadway
F.l.
15" R.C.P.
24'-6"
1/2 pavem't width
pavement seat
6'-0"
3'-0"
6"
12'-0 1/4"
bl. cb. on top slab
cast iron drains
F.l. Down Stream
#5a bars @ 10"ctrs. alt. w/ #5a1
#5a1 bars @ 10"ctrs. alt. w/ #5a
#5a2 bars @ 10"ctrs. spaced w/ #5a
#4b1 bar
#4l1 bars @ 12"ctrs. (℄ box only)
A
#4a3 bars
15" R.C.P.
#4h6 bars @ 12"ctrs.
#4c2 bars @ 12"ctrs.
#4vi, 2, 3 & 4 bars
#4h, 1, 2 & 3 bars
#4c2 bar
#6c1 bars @ 12"ctrs.
#4c1 bars
use #4vi bar
#4di bars @ 12"ctrs.
3"
1 1/2" c.lr.
#4e bars
#4c bars @ 15"ctrs.
#4d bars @ 18"ctrs.
#4b
#5v
#4b bars @ 12"ctrs. in Floor & slab
keyed joint around box
6"
F.l. Up Stream

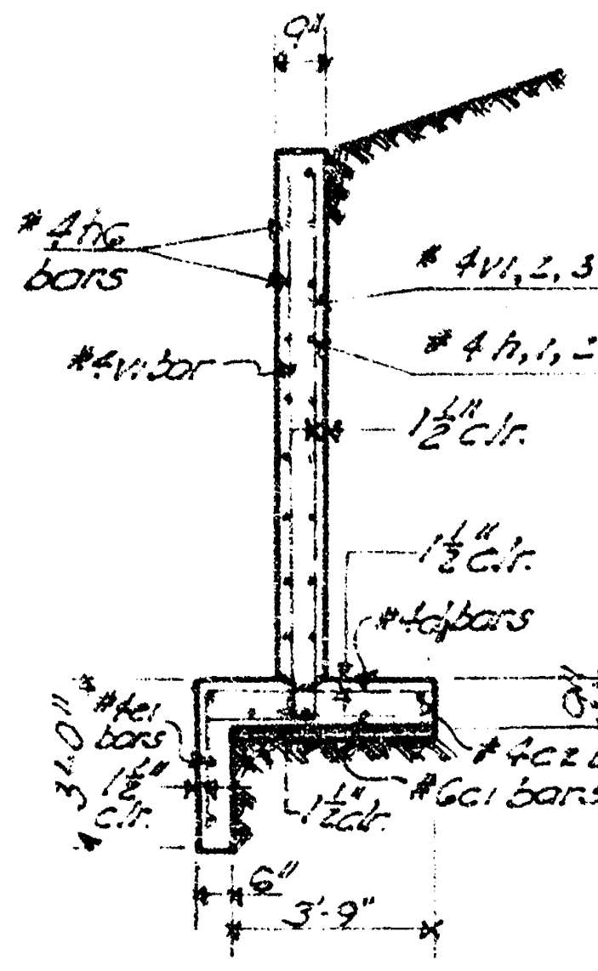
• PLAN & SECTION •

scale: 1/4" = 1'-0"

*use (1) joint @ ℄ box.


4"
1/4"
8"
1/4"
1 1/2"
4"
1'-1"
1 1/8"
(6 Req'd)

• CAST IRON DRAIN DETAIL •

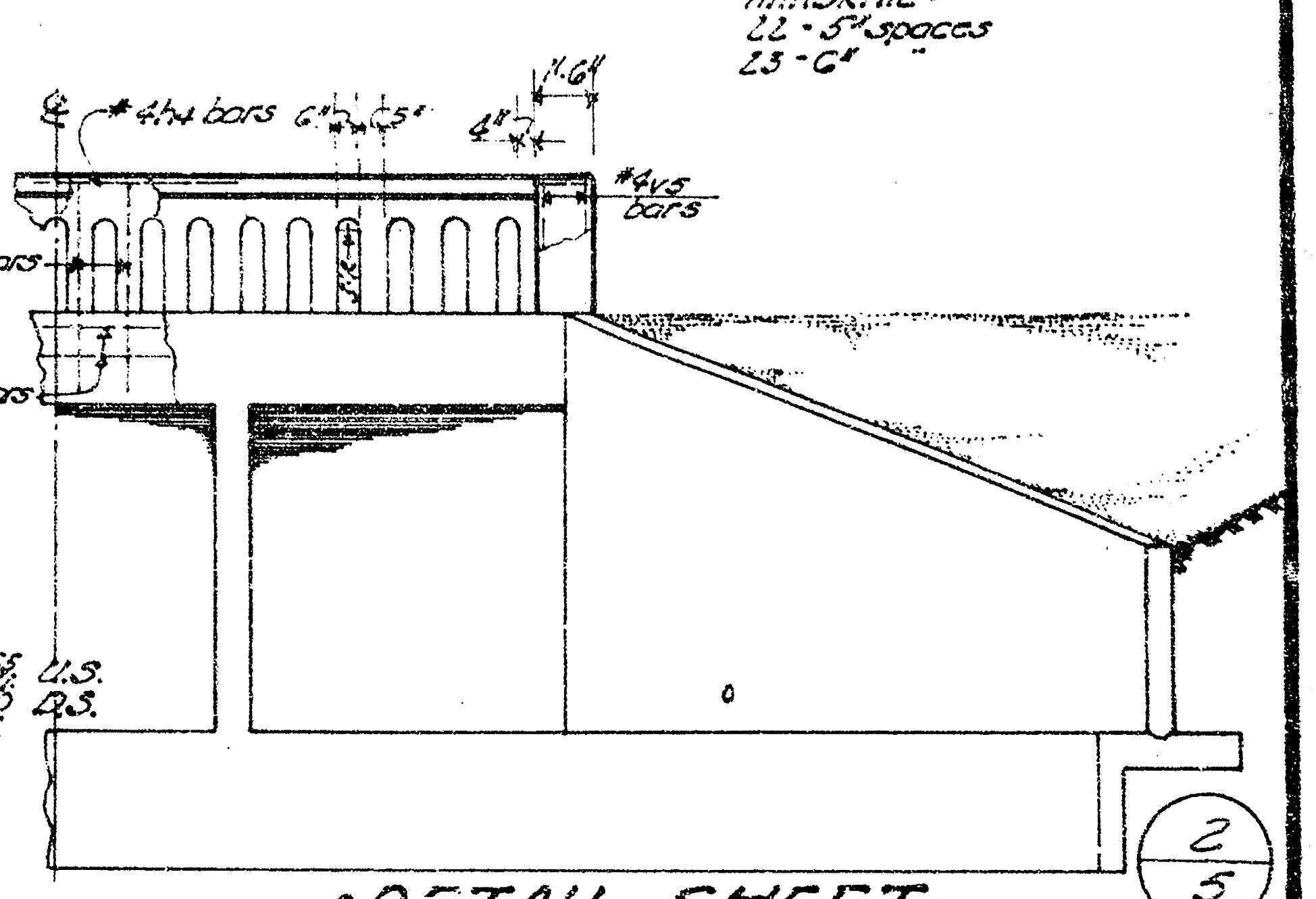

9"
#4h6 bars
#4vi bar
#4vi, 2, 3 & 4 bars
#4h, 1, 2 & 3 bars
1 1/2" c.lr.
1 1/2" c.lr.
#4d bars
#4e1 bars
3'-0"
1 1/2" c.lr.
1 1/2" c.lr.
#4c2 bar
#6c1 bars
6"
3'-9"

• SECTION THRU WING •

scale: 1/4" = 1'-0"

• HALF-END SECTION •

scale 1/4" = 1'-0"


• HANDRAIL •
22 - 5" spaces
23 - 6" "
℄
#4h4 bars
6"
5"
4"
1'-6"
#4v5 bars
#4i5 bars
#4h5 bars
145.65 F.l. U.S.
145.40 F.l. D.S.

• DETAIL SHEET •

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2/5

BAR SCHEDULE

bar	size	length	number	location	shape	spacing	weight
a	#5	25'-9"	192	box	—	10"	4756.08
a1	#5	25'-0"	190	"	~	"	4954.25
a2	#5	23'-9"	192	"	—	10"	4755.08
a3	#4	21-5"	96	"	⊓	12"	160.32
b	#4	39'-3"	200	"	—	12"	5243.80
b1	#4	23'-9"	4	"	—	--	63.46
c	#4	23'-0"	4	apron	—	15"	61.46
c1	#6	22'-0"	12	"	—	12"	396.53
c2	#4	22'-0"	4	"	—	--	58.78
d	#4	7'-6"	32	"	⌐	12"	160.32
d1	#4	6'-6"	68	"	⌐	"	295.26
d2	#4	4'-0"	8	"	—	"	21.38
e	#4	28'-0"	6	"	⌒	"	112.22
e1	#4	16'-0"	12	"	—	"	128.26
h	#4	19'-2"	8	wingwall	—	"	102.43
h1	#4	8'-6"	3	"	⌟	"	45.42
h2	#4	12'-9"	8	"	⌟	"	68.14
h3	#4	20'-3"	16	"	⌟	12"	216.43
h4	#4	23'-9"	2	handrail	—	-	31.73
h5	#4	23'-9"	4	hubguard	⌟	7"	63.46
h6	#4	7'-0"	32	wingwall	⌟	12"	149.63
k	#4	3'-0"	76	box	—	"	152.30
v	#5	8'-11"	320	"	⌟	"	2976.04
v1	#4	10'-3"	24	wingwall	⌟	"	164.33
v2	#4	8'-5"	20	"	⌟	"	112.45
v3	#4	7'-9"	16	"	⌟	12"	82.83
v4	#4	6'-5"	16	"	⌟	12"	68.58
v5	#4	6'-5"	96	hubguard	⌟	11"	411.49
v6	#4	3'-0"	380	box	—	10"	761.52
Reinforcement in conc. curb							30.04

BILL OF MATERIALS

item	quantity	unit	
class A-AE Concrete	213.80	C.Y.	Lump Sum Bid
reinforcing steel	26,605	LBs	
concrete handrail	48	L.F.	
hand excavation	5	C.Y.	
2x5 brick inlets	10	ea.	Bid Items
15" reinf. concrete pipe	410	L.F.	
common excavation	420	C.Y.	
compacted fill	350	C.Y.	
class A concrete	21.42	C.Y.	

◦ GENERAL NOTES ◦

◦ CLASS A-AE Concrete ◦ shall be used throughout this project. All reinforcing steel shall conform to A.S.T.M. specifications.

◦ EARTHWORK ◦ all earthwork shall be considered as "Common Excavation" except for the toewall. Toewall Excavation shall be included in "Lump Sum Bid."

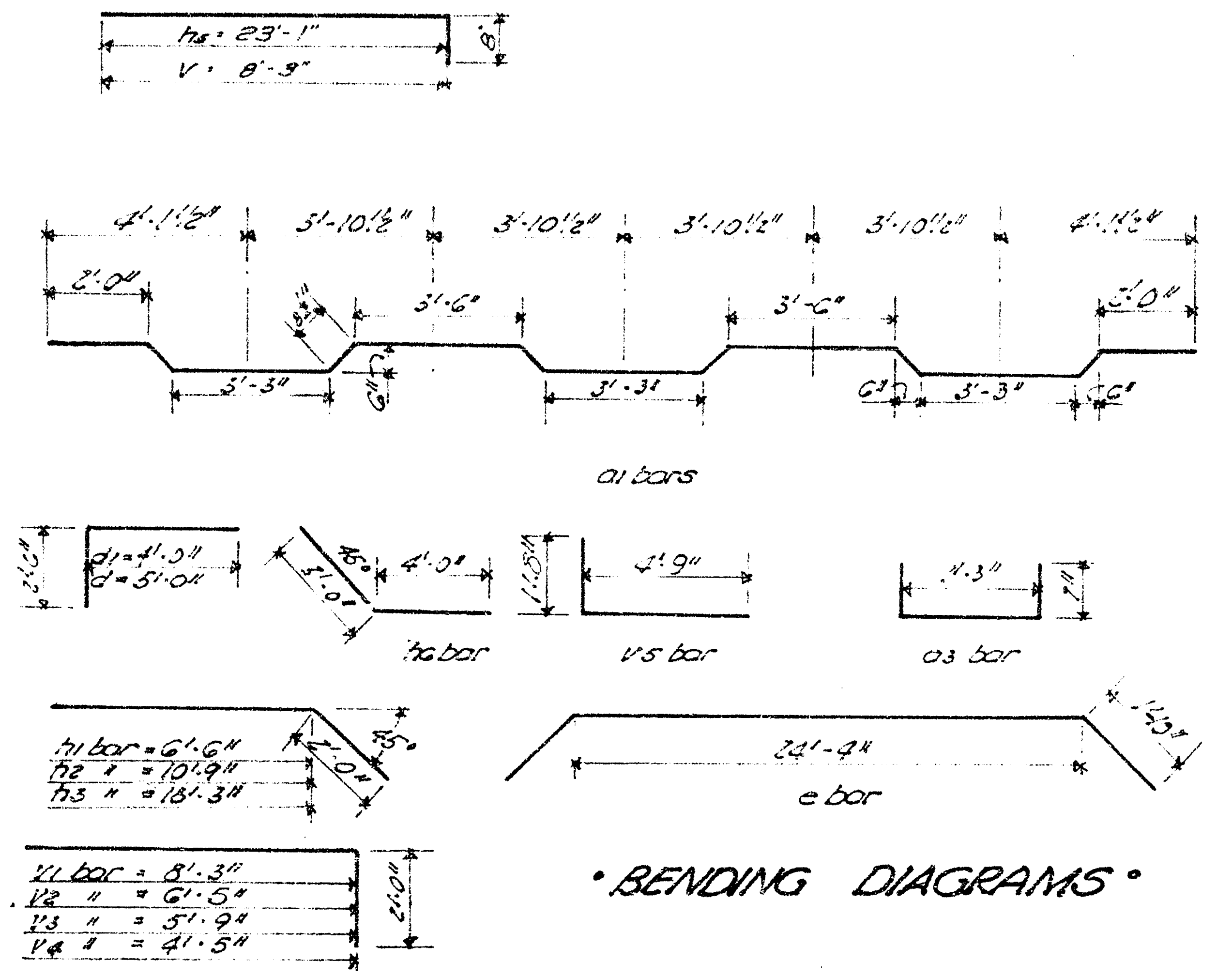
◦ BACKFILL ◦ shall be compacted to the bottom of new pavement grade. All backfill and excavation to extend to (2') beyond sides of box & wingwalls.

◦ WEEP HOLES ◦ Coarse aggregate shall be deposited behind each weephole to occupy a space extending (15") in all directions above weep-hole flo-line. This work shall not be paid for directly, but shall be considered a part of the excavation work.

◦ SEAL COURSE ◦ A seal course consisting of (3") Class A concrete shall be constructed only where specified on the plans or by the Engineer. No reinforcing shall be placed until the seal course has gained sufficient strength to permit working upon it without injury.

◦ BIDDING OF CULVERT ◦ the culvert shall be bid as a "Lump Sum Bid" except for the following items: Cu.yds. common excavation, cu.yds. compacted fill, class A concrete, L.ft. 15" R.C.P., 2x5 brick inlets.

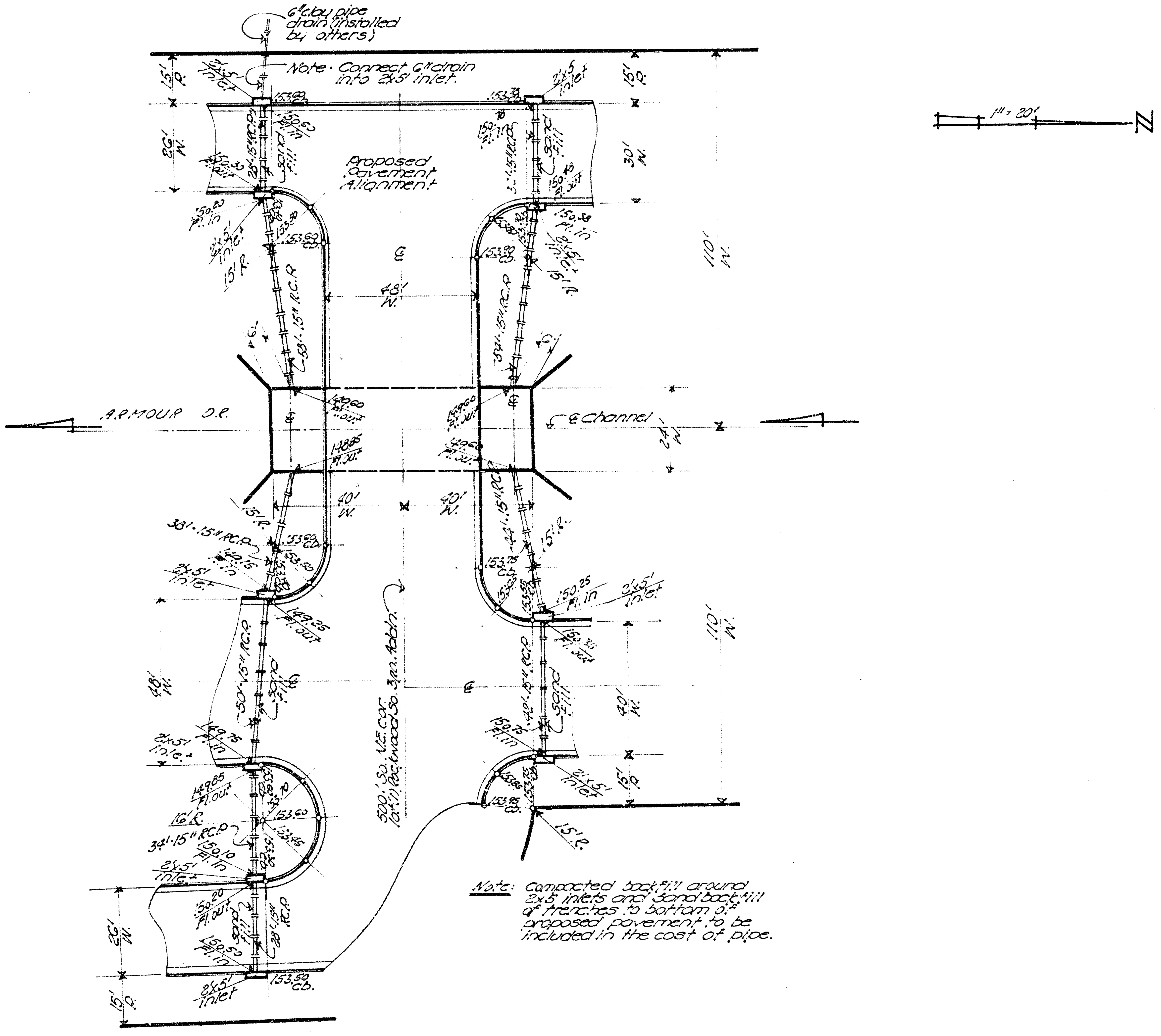
The quantities shown in the "BILL OF MATERIALS" or items which are included in the "LUMP SUM BID" of the culvert are for "INFORMATION PURPOSES ONLY". The Contractor must satisfy himself to the "quantities" and the Engineer assumes no responsibility for their accuracy. The Contractor will have the full responsibility for providing all materials shown on the detailed plans necessary to complete this project.



• BENDING DIAGRAMS •

C16-79

3
5


6" clay pipe drain (installed by others)
Note · Connect 6" drain into 2x5' inlet.
15' P.
26' W.
2'x5' inlet
153.60 Cb.
150.63 Fl. in
28'-15" R.C.P.
sand fill
150.30 Fl. out
Proposed Pavement Alignment
150.20 Fl. in
2'x5' inlet
15' R.
153.50
153.60 Cb.
58'-15" R.C.P.
6'
48' W.
℄
153.70
150.76 Fl. in
32'-15" R.C.P.
150.48 Fl. out
30' W.
150.38 Fl. in
153.90 Cb.
2'x5' inlet
19'-15" R.C.P.
54'-15" R.C.P.
110' W.
1" = 20'
N
ARMOUR DR.
149.60 Fl. out
148.85 Fl. out
℄ Channel
24' W.
40' W.
15' R.
38'-15" R.C.P.
150.15 Fl. in
2'x5' inlet
153.60 Cb.
153.50
149.25 Fl. out
44'-15" R.C.P.
153.75 Cb.
153.55 Cb.
150.25 Fl. in
2'x5' inlet
150.35 Fl. out
48' W.
50'-15" R.C.P.
sand fill
500' So. N.E. Cor. Lot 11 Lockwood So. 3rd. Addn.
42'-15" R.C.P.
150.75 Fl. in
2'x5' inlet
149.75 Fl. in
149.85 Fl. out
16' R.
153.60
153.45
34'-15" R.C.P.
150.10 Fl. in
153.85
153.95 Cb.
15' R.
150.20 Fl. out
28'-15" R.C.P.
150.50 Fl. in
26' W.
15' P.
2'x5' inlet
153.50 Cb.

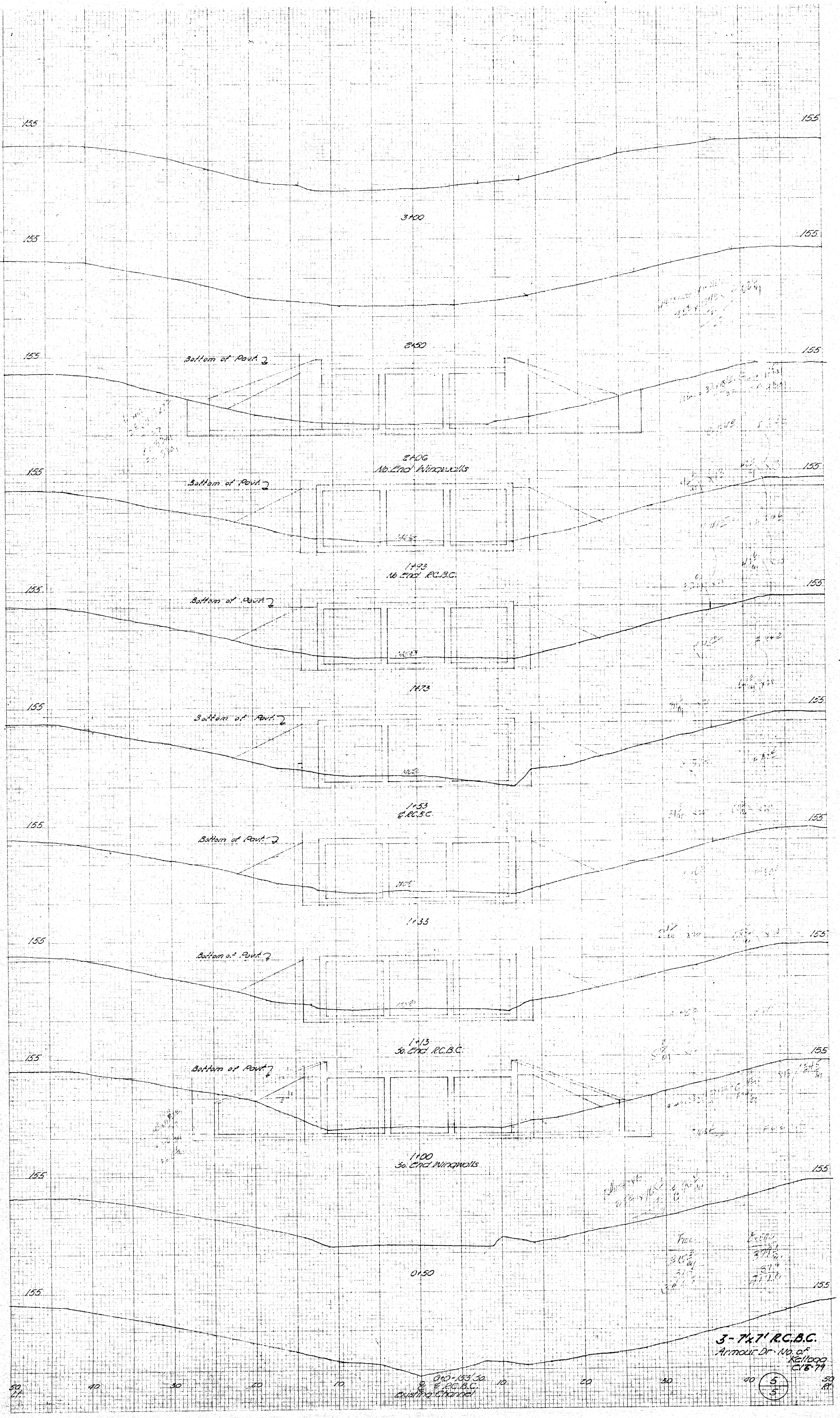
Note: Compacted backfill around 2x5 inlets and sand backfill of trenches to bottom of proposed pavement to be included in the cost of pipe.

4/5

•INCIDENTAL DRAINAGE•

in connection with 3-7x7x80, R.C.B.C.

CIG-79


155
3+00
155
2+50
Bottom of Pavt.
155
2+06
No. End Wingwalls
Bottom of Pavt.
155
1+93
No. End R.C.B.C.
Bottom of Pavt.
155
1+73
Bottom of Pavt.
155
1+53
℄ R.C.B.C.
Bottom of Pavt.
155
1+35
Bottom of Pavt.
155
1+13
So. End R.C.B.C.
Bottom of Pavt.
155
1+00
So. End Wingwalls
155
0+50
155
50 Lt.
40
30
20
10
0
10
20
30
40
50 Rt.
0+0 = 153.5o.
℄ R.C.B.C.
Existing Channel

3-7'x7' R.C.B.C.
Armour Dr. No. of Kellogg
C-18-79

5/5

KEUFFEL & ESSER CO. MADE IN U.S.A.
K+E STANDARD CROSS SECTION