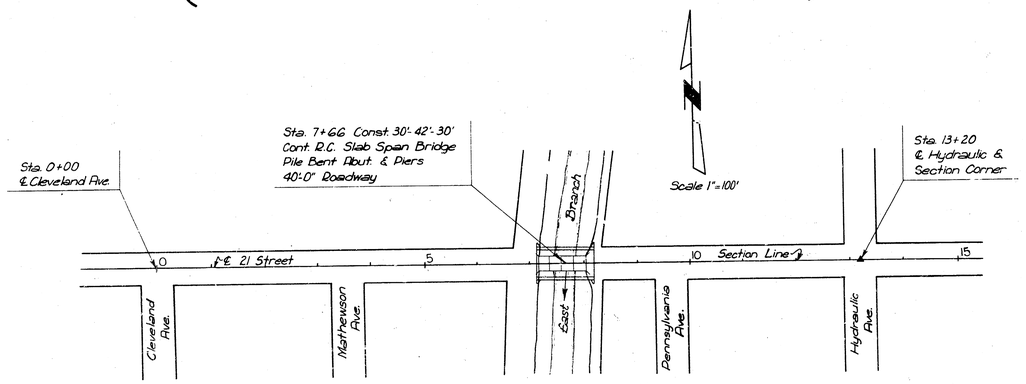
21 ST. STREET BRIDGE

OVER THE

WICHITA DRAINAGE CANAL
(EAST BRANCH, CHISHOLM CREEK)



CITY ENGINEERING DEPARTMENT

WICHITA, KANSAS

B. E. SMITH, CITY ENGINEER

PLANS PREPARED BY

R.S. DELAMATER, CONSULTING ENGINEER

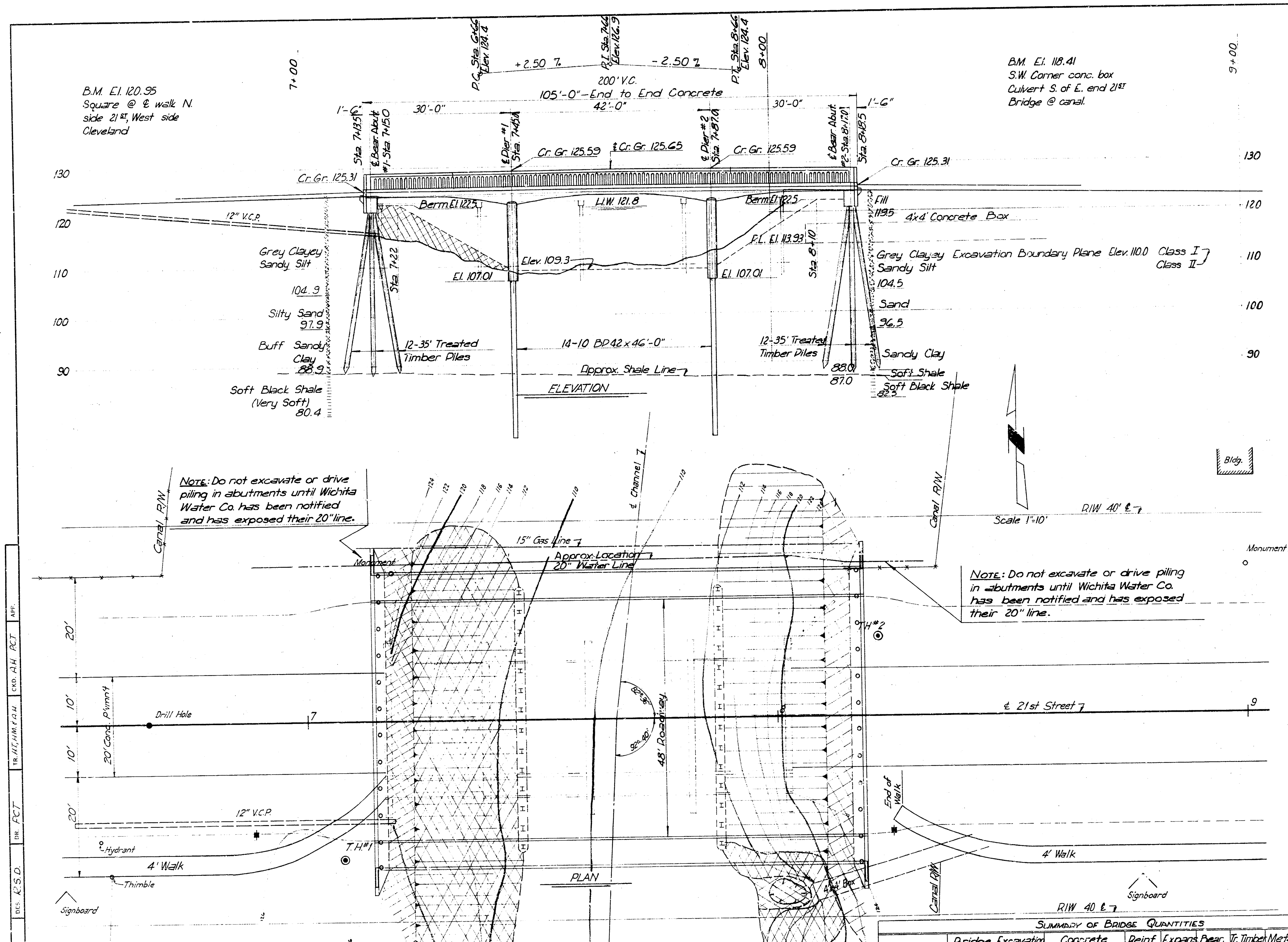
WICHITA, KANSAS

JUNE, 1953

INDEX OF SHEETS

SHEET NO.

R. S. DELAMATER
ENGR.
513



GENERAL NOTES:

COMMON EXCAVATION: Common Excavation consists of grading the East bank to the lines indicated and extending North to approximately 50' from ℄, removing material of whatever nature is encountered. Excavated material shall be stockpiled as directed by the Engineer.

ROCK EMBANKMENT: Rock Embankment includes filling the West bank to the slope and over the areas indicated; and filling around and below the 4 x 4 box outlet to a thickness of from 12 to 18 inches. Material for Rock Embankment, consisting of broken concrete, shall be furnished by the City, stockpiled at the site. Contractor shall dump the Rock Embankment directly on the slope; hand placing will be required only as necessary to obtain a reasonably even and presentable surface.

REMOVAL OF EXISTING STRUCTURE: Contractor shall remove the superstructure and caps of the existing bridge, storing any useable material at the site as directed by the Engineer. Piles and backwalls shall be either pulled out or cut off at finished grade line at the option of the Contractor.

BRIDGE EXCAVATION: Elevation 110.0 shall designate the Excavation Boundary Plane, Class I excavation above the plane and Class II below. Bridge excavation quantities shall be computed to a line 1'-6" outside of concrete lines all around.

CONCRETE: Concrete shall be class A in abutments, piers and handrail and Class AAA concrete in superstructure.

PILES: All piles shall be driven to the penetration shown unless in the opinion of the Engineer such penetration cannot be obtained without injury to the piles. All Treated Timber Piles shall be driven to a minimum bearing value of 20 Tons per pile and all steel piles driven to a minimum bearing value of 37 Tons per pile.

SOUNDINGS: Soundings are as taken by borings in the field and represent the best information available to the City of Wichita.

REINFORCING STEEL: All reinforcing steel shall conform to A.S.T.M. Specification A 305-49

DESIGN:

Design Loading: H20-S-16-49 AASHO Specifications.

Unit Stresses: fs = 20,000 p.s.i., reinforcing; fc = 1000 p.s.i., Class A; fc = 1350 p.s.i., Class AAA

Pile Loading: 20 tons per pile, Treated Timber; 37 tons per pile, Steel

GENERAL REQUIREMENTS: It is the intention of these plans and specifications that construction of the bridge shall be in accordance with applicable standard specifications and requirements of the Kansas State Highway Commission and that materials shall conform to those specifications unless otherwise expressly noted.

SUMMARY OF GRADING QUANTITIES

	Common Excavation Cu. Yds.	Rock Embankment Cu. Yds.	Removal Existing Structure
East Bank	181	25	—
West Bank	—	244	—
Total	181	269	Lump Sum

SUMMARY OF BRIDGE QUANTITIES

Location	Bridge Excavation Class I Cu. Yds.	Bridge Excavation Class II Cu. Yds.	Concrete Class A Cu. Yds.	Concrete Class AAA Cu. Yds.	Reinf. Steel Lbs.	Expans. Devices Lbs.	Bear. Devices Lbs.	Tr. Timber Piles Lin. Ft.	Metal Pile Pts. Each	Steel Piles Lin. Ft.	Conc. Handrail Lin. Ft.
Abut. #1	65	—	30.8	—	3890	—	—	420	12	—	8.0
Pier #1	—	31	61.3	—	5090	—	—	—	—	644	—
Pier #2	1	31	61.3	—	5,090	—	—	—	—	644	—
Abut. #2	65	—	30.8	—	3890	—	—	420	12	—	8.0
Superstructure	—	—	—	328.7	59,940	2340	2265	—	—	—	206.5
Totals	131	62	184.2	328.7	77,900	2340	2265	‡840	24	*1288	222.5

‡24 @ 35' *28 @ 46'

21 ST. STREET BRIDGE

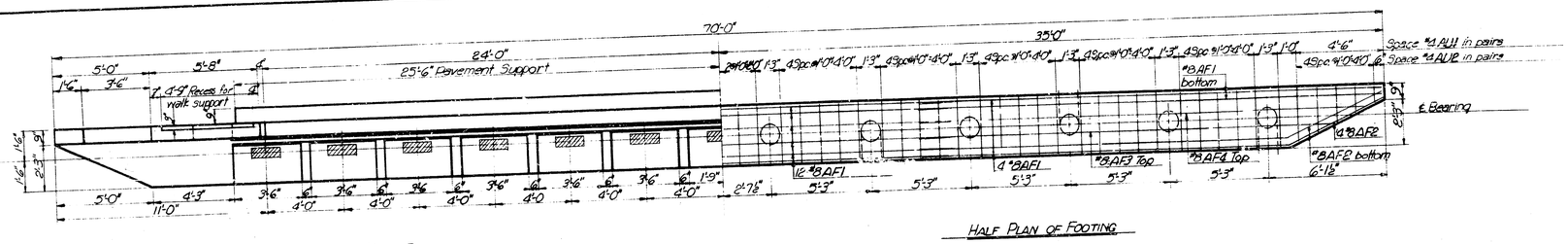
CONSTRUCTION LAYOUT

EAST BRANCH, CHISHOLM CREEK

R. S. DELAMATER
CONSULTING ENGINEER
WICHITA, KANSAS

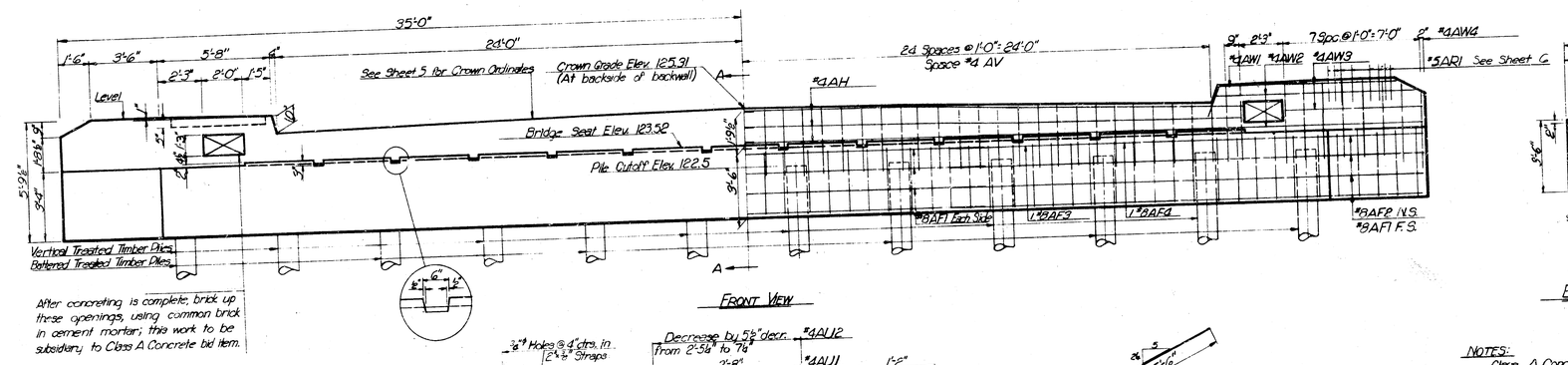
DATE June 1953 | SCALE 1" = 10' | DWG. NO. 79-C-2

5090 2265

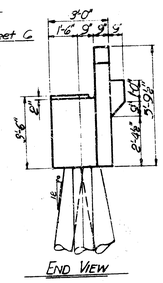


HALF PLAN

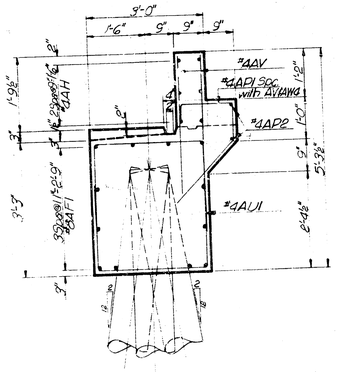
HALF PLAN OF FOOTING



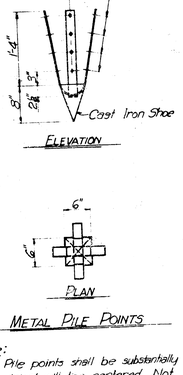
FRONT VIEW



END VIEW



SECTION A-A
Scale ¾"=1'-0"

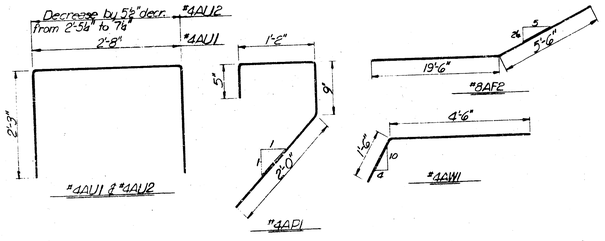


ELEVATION

PLAN

METAL PILE POINTS

Note:
Pile points shall be substantially symmetrical with tips centered. Not more than ⅛" concavity nor more than ⅛" convexity shall be permitted in fine top face.
Pile points shall be fastened to pile by one ½"x9" boat spike or two 60-d spikes per hole.



BENDING DIAGRAMS
(All dimensions are out to out of bar)

NOTES:
Class A Concrete shall be used throughout.
Bevel all exposed edges with a ¾" triangular molding and fillet all corners ⅜" unless otherwise indicated.
All dimensions shown relative to reinforcing steel placement are to ℄ of bars. Refer to A.A.S.H.O. Manual of Recommended Practice for Detailing Reinforced Concrete Highway Structures.
See Sheet 6 for Handrail Details, Expansion Device Details and Abutment Bearing Device Details.

ALLEN R. HENSON LICENSED 2338 KANSAS PROFESSIONAL ENGINEER

BAR LIST & SUMMARY OF QUANTITIES

Mark	AF1	AF2	AF3	AF4	AH	AV	AW1	AW2	AW3	AW4	AP1	AP2	AR1	AR2	AU1	AU2
No. Reqd	28	10	2	2	12	98	4	8	5	40	51	1	16	4	114	20
Size	#8	#8	#8	#8	#4	#4	#4	#4	#4	#4	#4	#4	#5	#4	#4	#4
Length	24'-4"	25'-0"	21'-8"	23'-9"	26'-1"	3'-3"	6'-0"	11'-3"	7'-0"	3'-6"	4'-4"	25'-10"	4'-0"	3'-9"	7'-2"	*
Shape																

Class A Concrete	30.8	Cu. Yd.
Reinforcing Steel	3890	Lbs.
Treated Timber Piles	420	Lin. Ft.
Metal Pile Points	12	Each
Concrete Handrail	8.0	Lin. Ft.

* See Bending Diagrams.

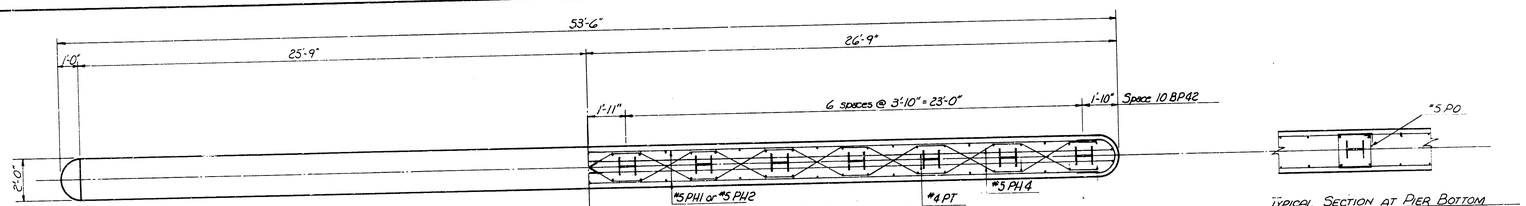
21 ST. STREET BRIDGE
ABUTMENT DETAILS
EAST BRANCH, CHISHOLM CREEK

R. S. DELAMATER
CONSULTING ENGINEER
WICHITA, KANSAS

DATE June, 1953
SCALE ⅜"=1'-0"
DRG. NO. 79-0-3

MAP | CKD. PCT | DR. A.R.H. | TR | DES. | PLOT | SURV

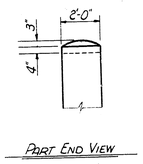
Sheet No.	Total Sheets
4	7



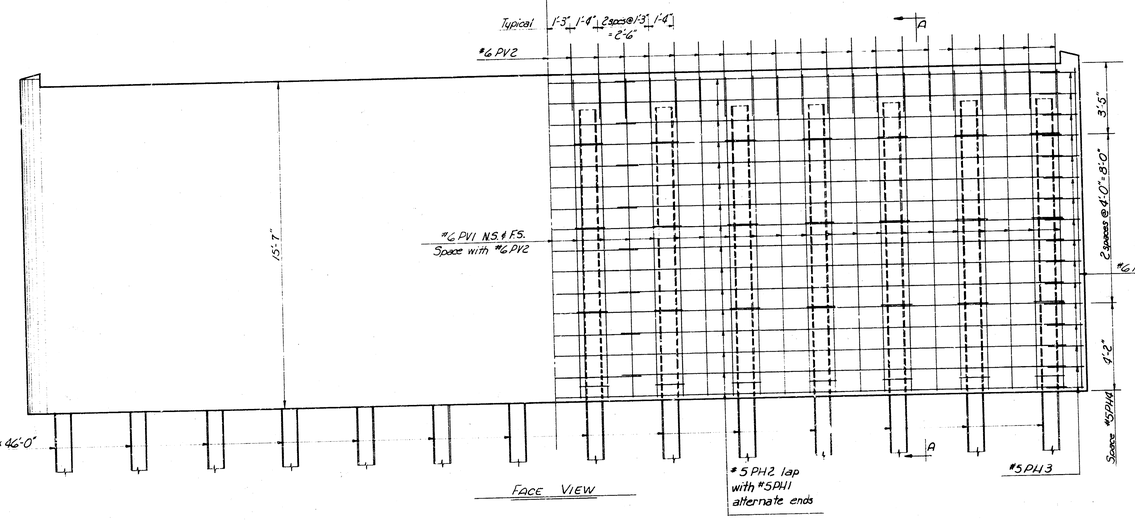
HALF TOP VIEW

HALF TOP SECTION

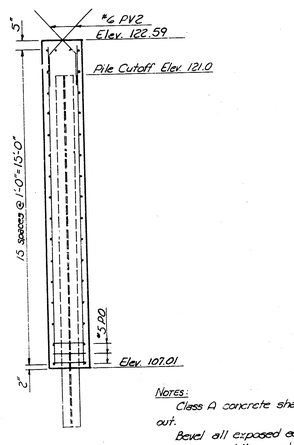
TYPICAL SECTION AT PIER BOTTOM



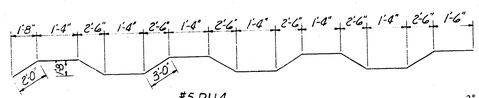
PART END VIEW



FACE VIEW



SECTION A-A



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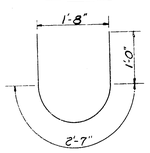

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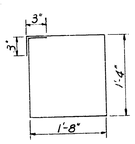

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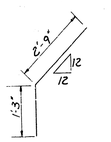
BENDING DIAGRAMS



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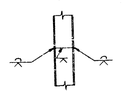


TYPICAL PILE SPLICE

Notes:

Class A concrete shall be used throughout.

Bevel all exposed edges with a ¾" triangular molding and fillet all corners ¾" unless otherwise indicated.

All dimensions shown relative to reinforcing steel placement are to ℄ bars unless otherwise noted. All dimensions shown in the bending diagrams are out to out of bars; refer to AASHO Manual of Recommended Practice for Detailing Reinforced Concrete Structures.

Design Loading: H 20-S16-44

Pile Loading: 37 tons per pile

SUMMARY OF PIER QUANTITIES

Mark	PH1	PH2	PH3	PH4	PV1	PV2	PO	PT				
No. Reqd	32	32	32	12	86	82	42	4				
Size	#5	#5	#5	#5	#6	#6	#5	#4				
Length	30'-0"	22'-6"	4'-7"	29'-6"	15'-3"	4'-0"	6'-6"	26'-9"				
Shape	—	—	U	∿	—	⌐	□	—				

Class A Concrete 61.3 Cu. Yds.
Reinforcing Steel 5090 Lbs.
Steel Piles(10BP42) 644 Lin. Ft.

21ST. STREET BRIDGE

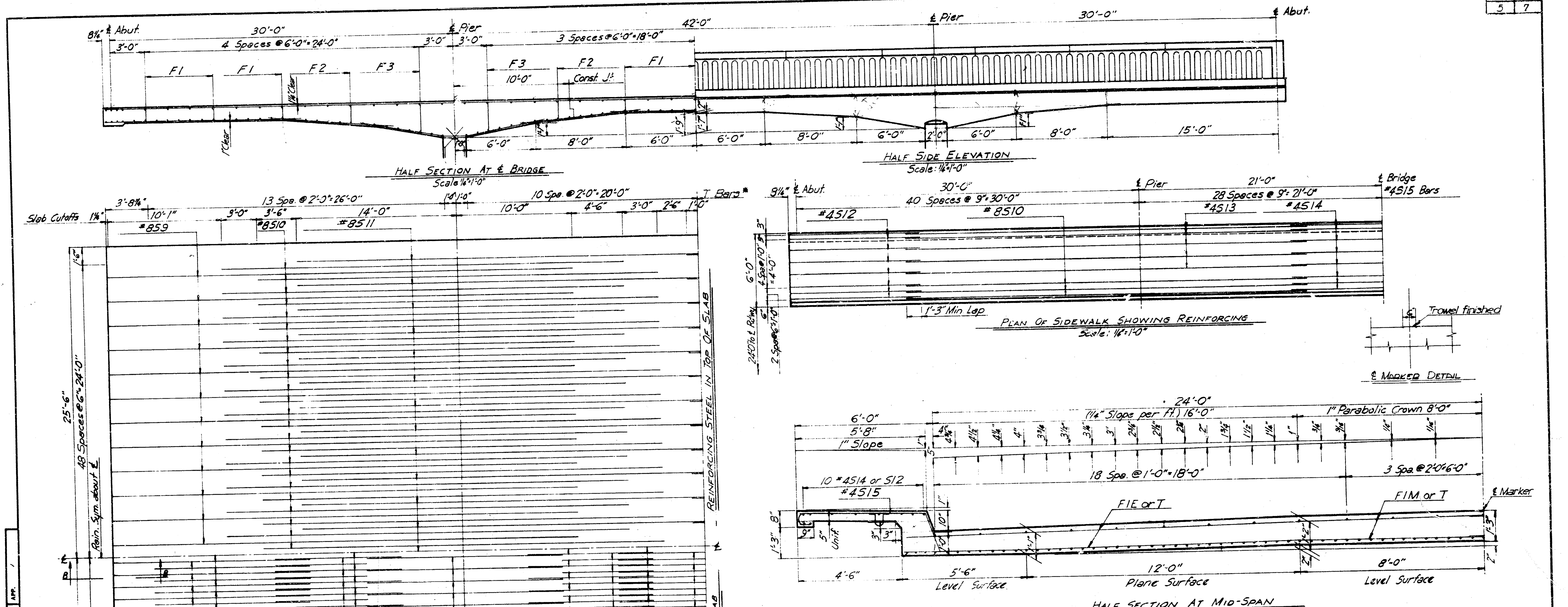
PIER DETAILS

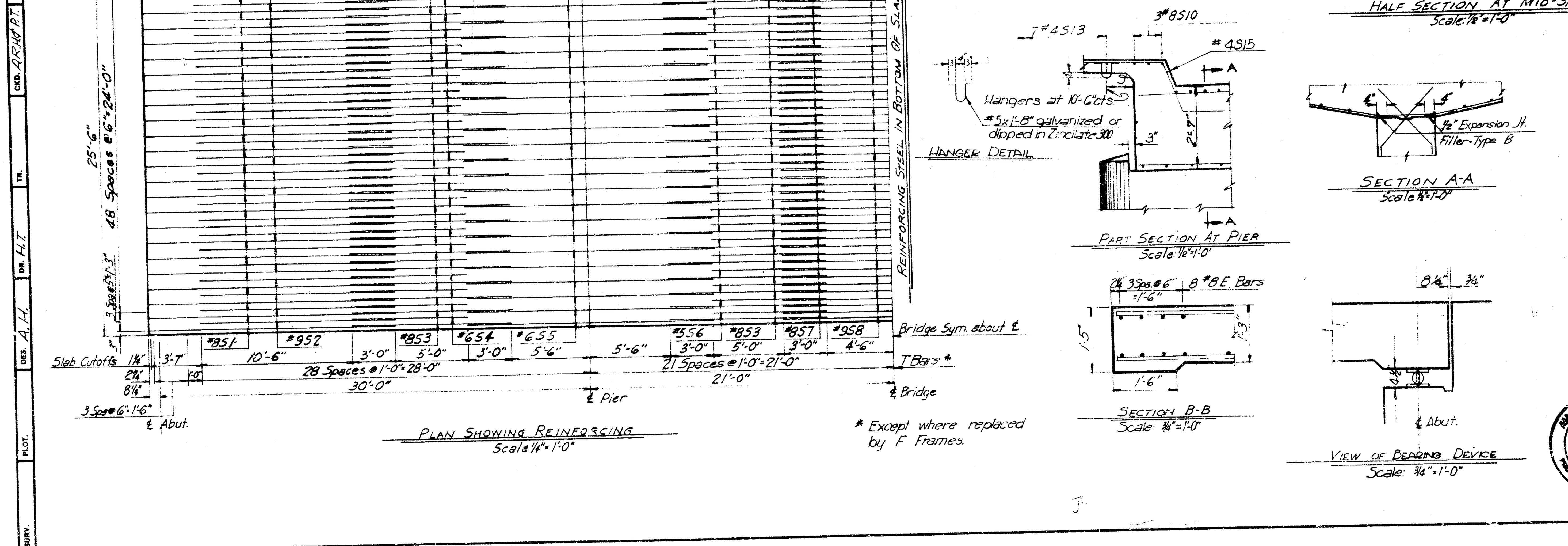
EAST BRANCH, CHISHOLM CREEK

R. S. DELAMATER
CONSULTING ENGINEER
WICHITA, KANSAS

DATE June 1953
SCALE ¾" = 1'-0"
DWG. NO. 79-C-4

APP. A.H. CKD. PCT TR. PCT DR. DES. CHK. SURV.





NOTES:

All concrete shall be Class AAA. Bevel all exposed edges with a ¾" Trianguler molding and fillet all corners ¾" unless otherwise indicated.

All dimensions for placement of Reinforcing Steel are to ℄ of bar unless otherwise noted.

Falsework shall be left in place for the entire structure until both slab and sidewalk concrete have attained their design strength.

Construction joints in slab are optional but if used shall be at the points indicated and constructed as shown. Walk and curb shall be poured integrally with the slab, as shown.

Provide ¾" dead load camber in each span.

DESIGN LOADING: H20-S16-49, AASHO.

Unit Stresses: f_c = 1350 psi.
f_s = 20,000 p.s.i.

See Sheet 6 for handrail details, bar list, Quantities and Bending Diagrams.

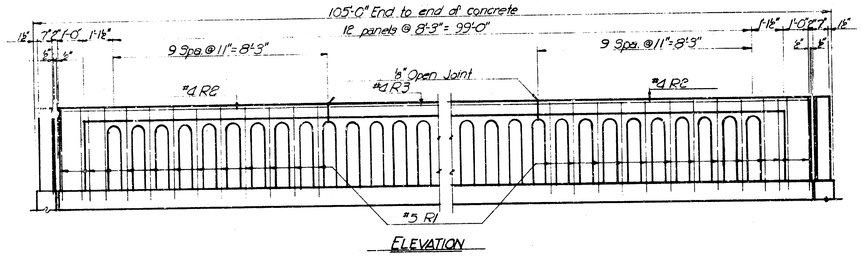
Hangers shall not be paid for directly but shall be included in Class AAA concrete bid item.

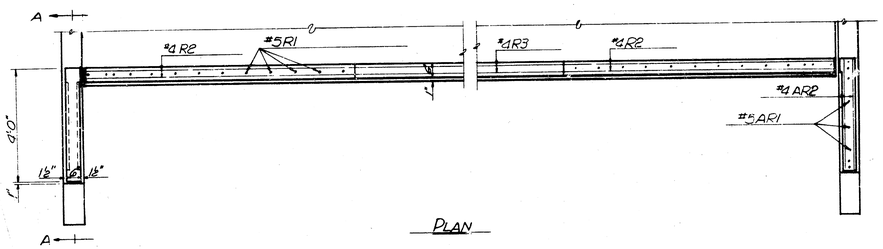
21 ST. STREET BRIDGE
SUPERSTRUCTURE DETAILS
EAST BRANCH, CHISHOLM CREEK

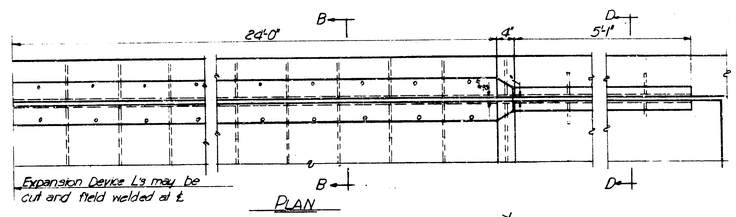
R. S. DELAMATER
CONSULTING ENGINEER
WICHITA, KANSAS

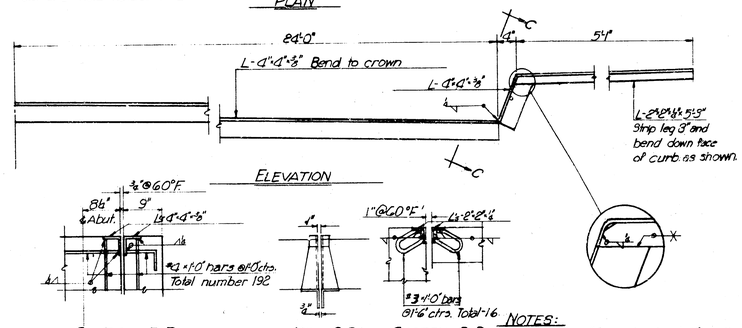
DATE June, 1953
SCALE As shown
DWG. NO. 79-C-5

SHEET NO. 5 TOTAL SHEETS 7









NOTES:

Bid Item "Concrete Handrail" shall include only concrete and labor involved. Reinforcing steel is included in the abutment and superstructure quantities. All concrete shall be Class A in handrail.

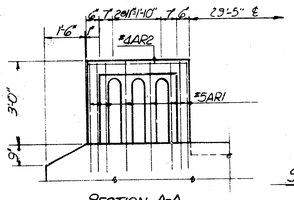
Bevel all exposed edges with a ¾" triangular molding and fillet all corners ¾" unless otherwise indicated.

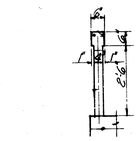
All dimensions relative to placement of reinforcing steel are to ℄ of bar unless otherwise noted. All dimensions in Bending Diagrams are out to out of bar. Refer to AASHO Manual of Recommended Practice for Detailing Reinforced Concrete Highway Structures.

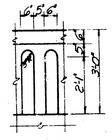
All welds shall be ⅛" continuous fillet welds unless otherwise indicated.

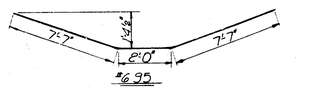
All parts of Bearing Devices shall be Structural Steel. All rollers, bearing plates, anchor bars and alignment bars shall be included in the "Bearing Device" bid item.

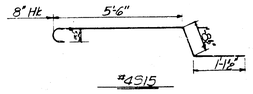
All parts of Expansion Devices shall be painted as specified for Structural Steel by Kans. State Highway Comm. specifications except those parts that are to be in contact with concrete when erected, which shall receive no paint.

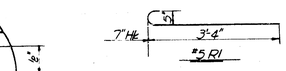




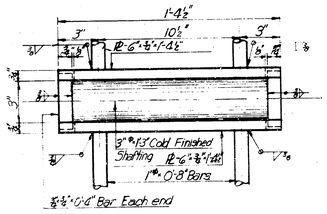


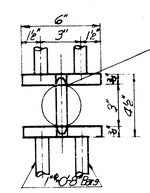


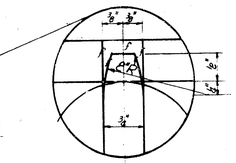




HANDRAIL DETAILS





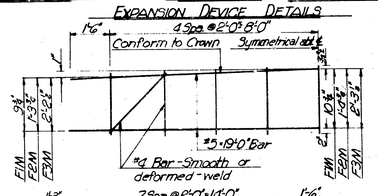


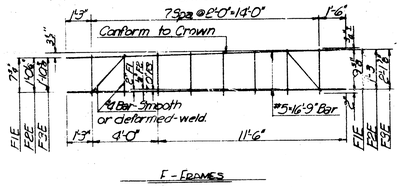
BEARING DEVICES

26 Assemblies Required

87.1 Lbs. Each

EXPANSION DEVICE DETAILS





F - FRAMES

BENDING DIAGRAMS

SUPERSTRUCTURE QUANTITIES & BAR LIST

Mark	E	F1M	F2M	F3M	F1E	F2E	F3E	R1	R2	R3	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
No. Reqd.	32	9	4	4	18	8	8	232	8	40	104	102	208	102	104	102	51	52	48	108
Size	#8	*	"	"	*	*	*	#5	#4	#4	#8	#9	#8	#6	#6	#5	#9	#9	#8	#8
Length	26'-6"	*	"	"	*	*	*	3'-11"	10'-2"	8'-0"	17'-1"	13'-6"	11'-0"	8'-0"	17'-0"	8'-0"	15'-0"	15'-0"	100'-7"	35'-0"
Shape																				

Mark	S11	S12	S13	S14	S15	T
No. Reqd.	50	40	28	20	270	224
Size	#8	#4	#4	#4	#4	#5
Length	36'-0"	11'-4"	35'-0"	15'-6"	9'-0"	26'-9"
Shape						

* See Bending Diagrams

Class AAA Concrete	328.1 Cu. Yd.
Concrete Handrail	206.5 Lin. Ft.
Reinforcing Steel	59,300 Lbs.
Expansion Devices	2,340 Lbs.
Bearing Devices	2,265 Lbs.

21ST. STREET BRIDGE

AUXILIARY DETAILS

EAST BRANCH, CHISHOLM CREEK

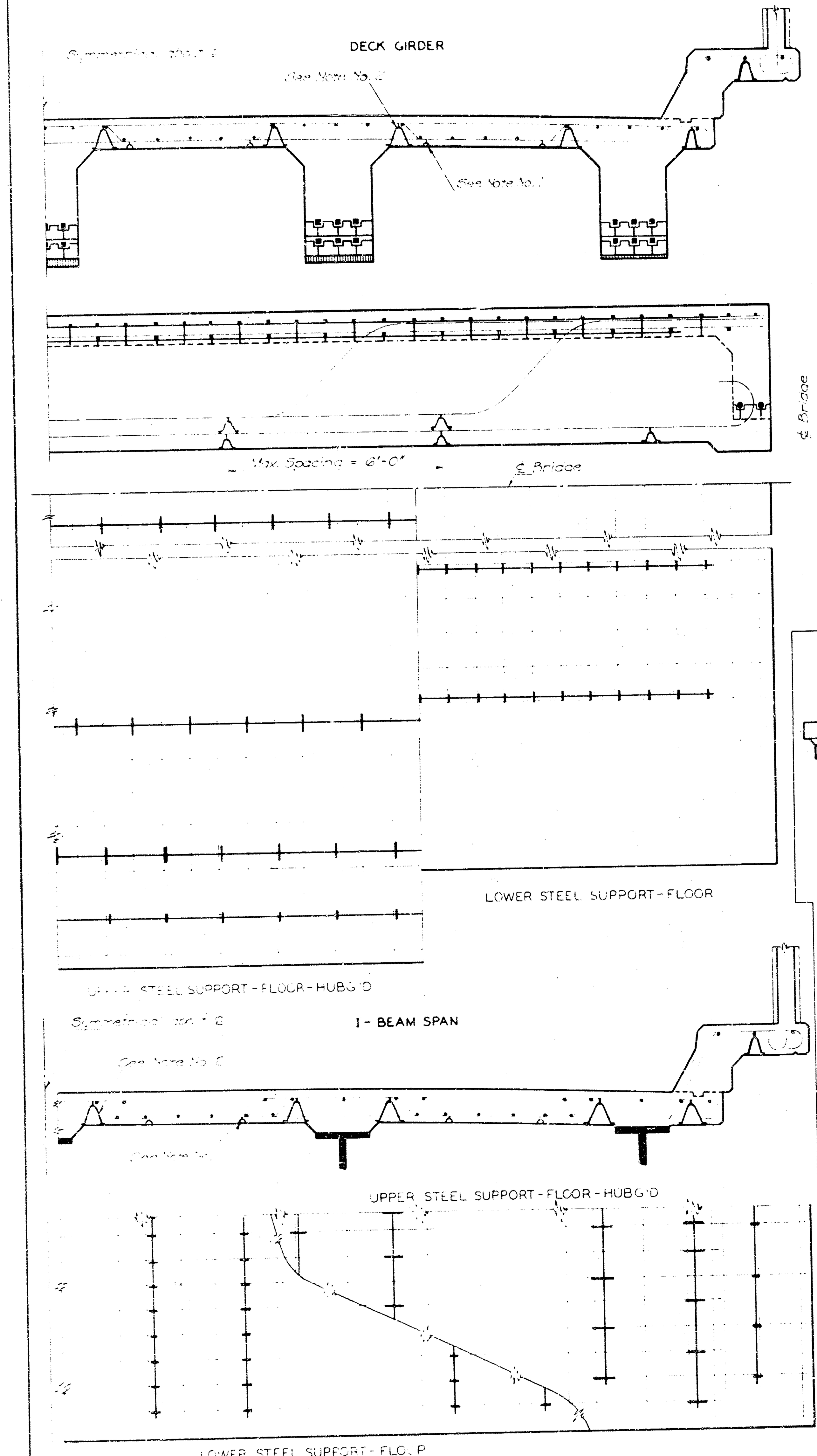
R. S. DELAMATER
CONSULTING ENGINEER
WICHITA, KANSAS

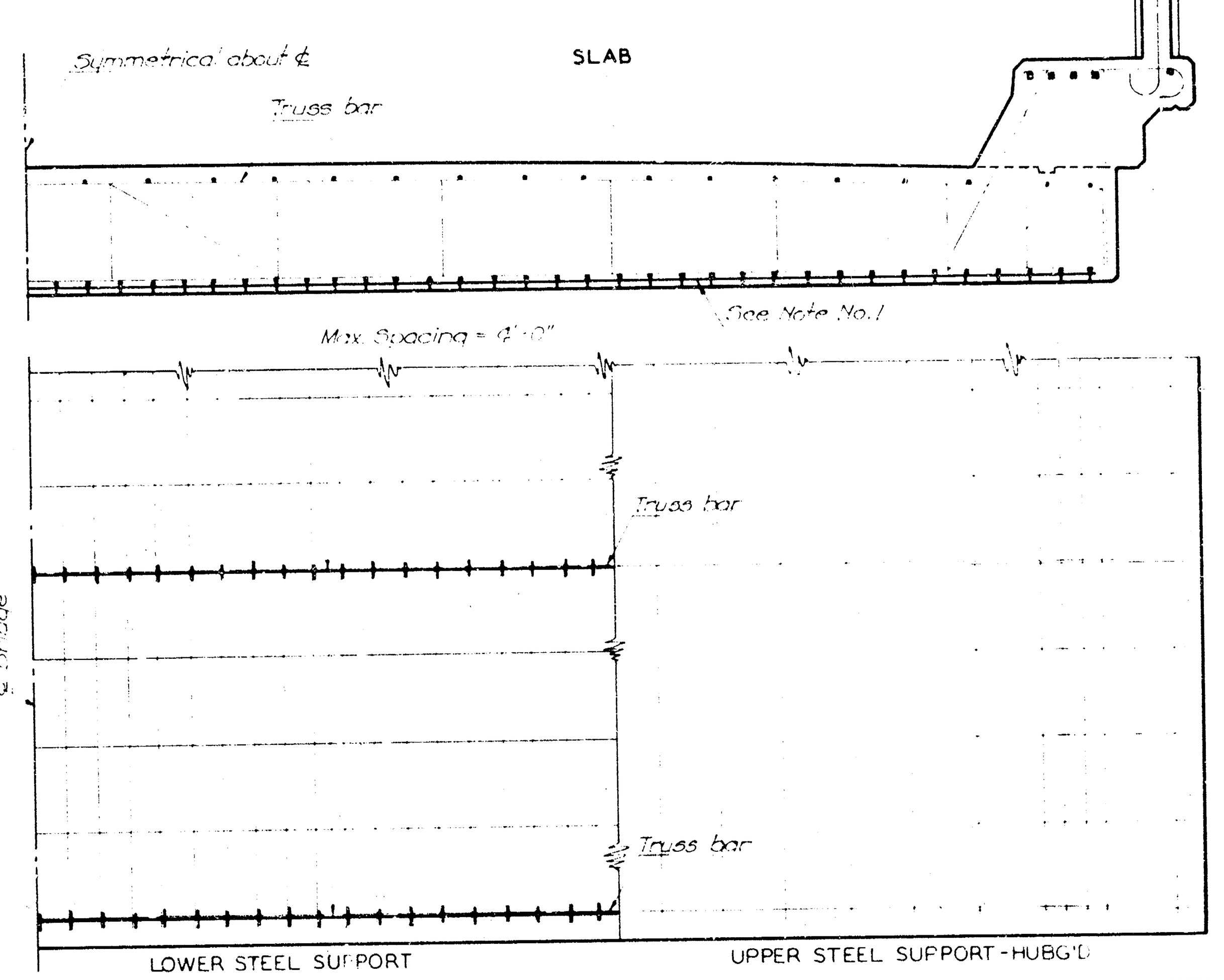
DATE June, 1959
SCALE Use Dim.
DWG. NO. 79-0-6

APP. | CKD. PCT | TR. | DR. AFH | DES. | PLOT. | SURV.

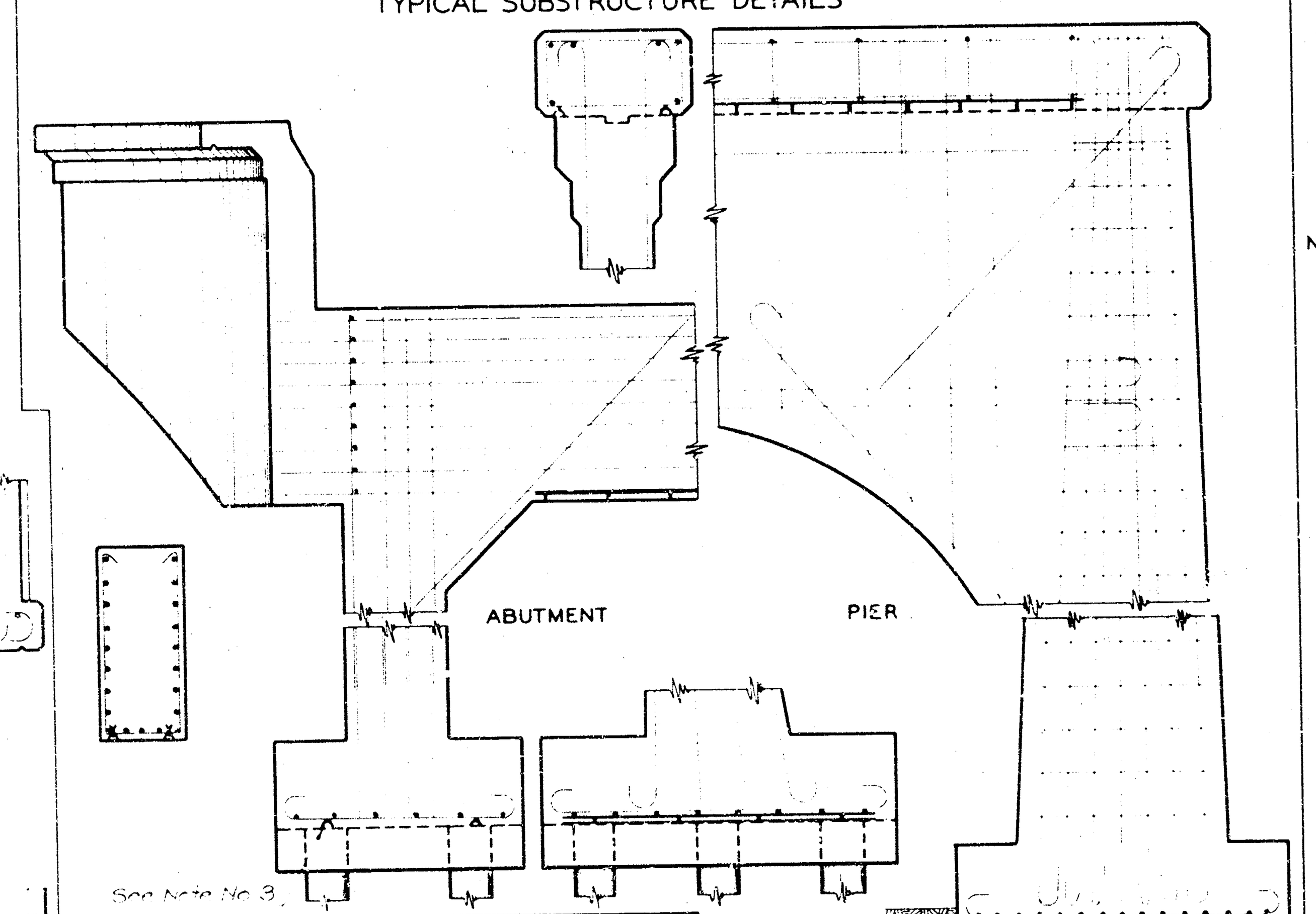
No	Sheets
7	7

TYPICAL SUPERSTRUCTURE DETAILS





TYPICAL SUBSTRUCTURE DETAILS



GENERAL NOTE

Spacings shown are maximum. Sufficient supports shall be used, as determined by the Engineer, to retain the reinf. steel in position.

Approved designs and arrangements of Supports or Spacers other than as shown on this sheet, may be used with the permission of the Engineer. Component parts of Supports and Spacers shall be securely welded at all contact points. Legs shall be so constructed that only the ends bear upon the forms.

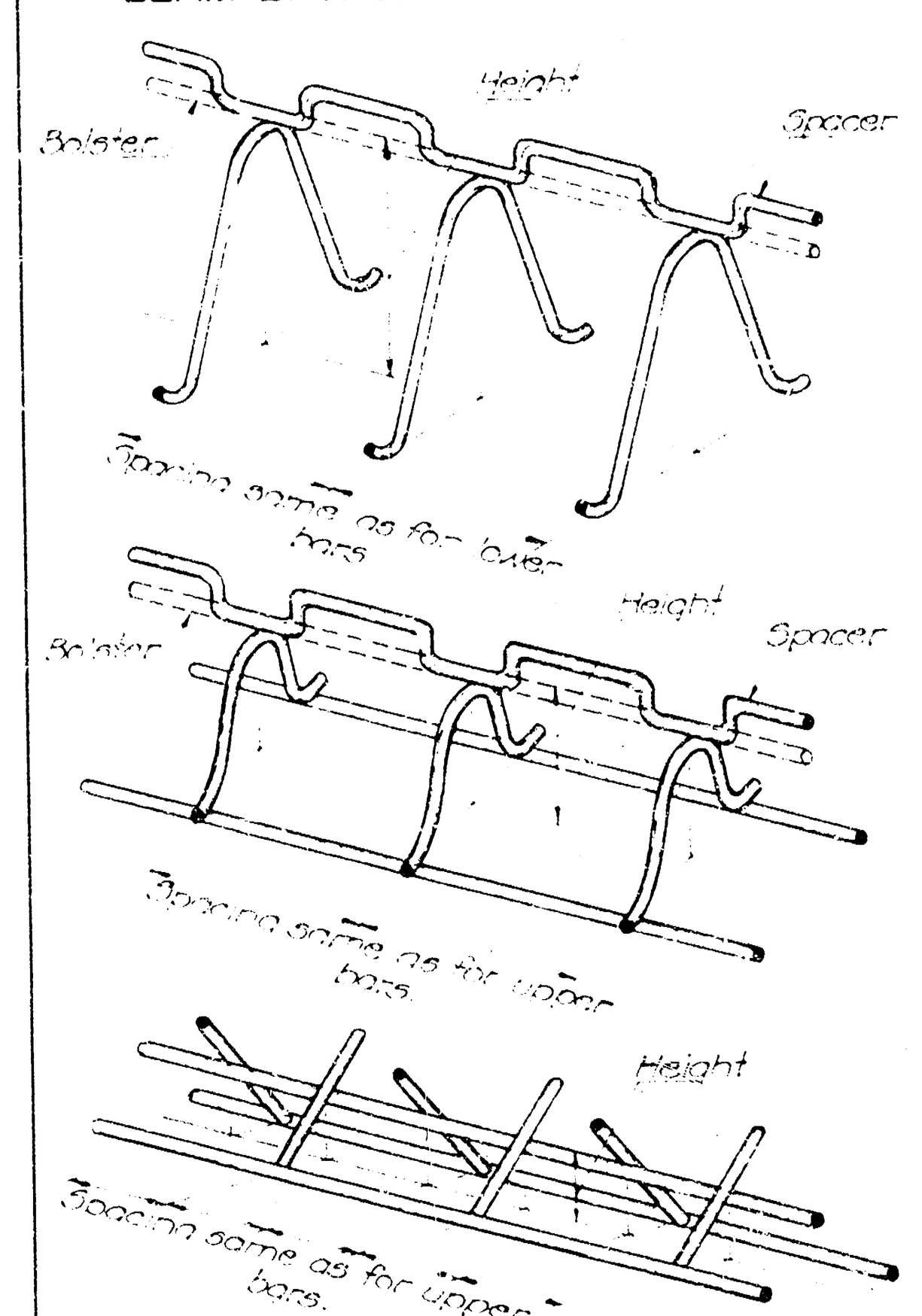
Wire used for Supports and Spacers shall be of sufficient size to insure stability of Reinforcing Steel at the position shown on the Plans, within the limits indicated by Notes 1 & 2. Wire supports shall be supplemented with form ties or other approved devices where necessary.

NOTE 1: The lower side of Reinforcing Steel in these locations shall be not less than one inch (1") from the surface of the concrete.

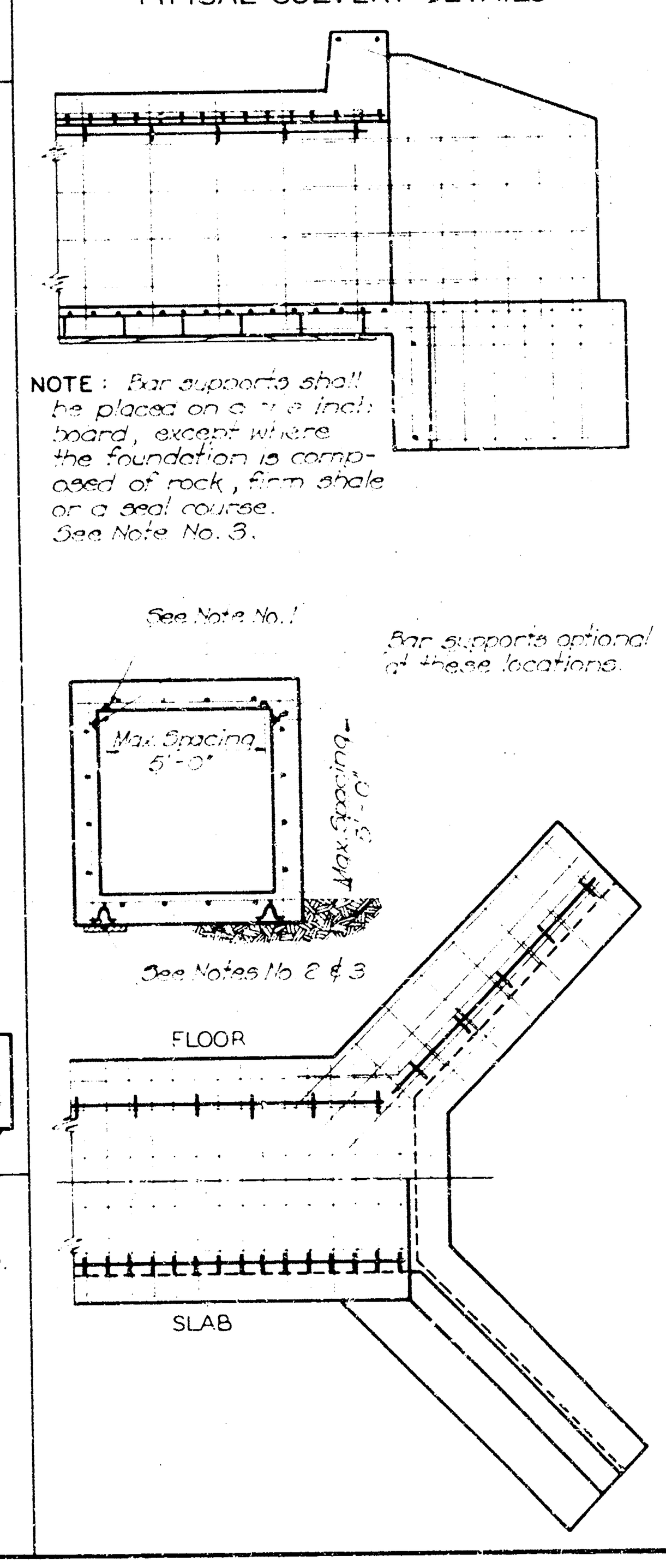
NOTE 2: The upper side of Reinforcing Steel in these locations shall be within the limits shown on the Plans.

NOTE 3: The use of Wire Supports for Reinforcing Steel in these locations is optional. Where they are not used the Steel shall be supported from the forms by means of wire ties or saddles.

BEAM BAR SPACERS & BOLSTERS



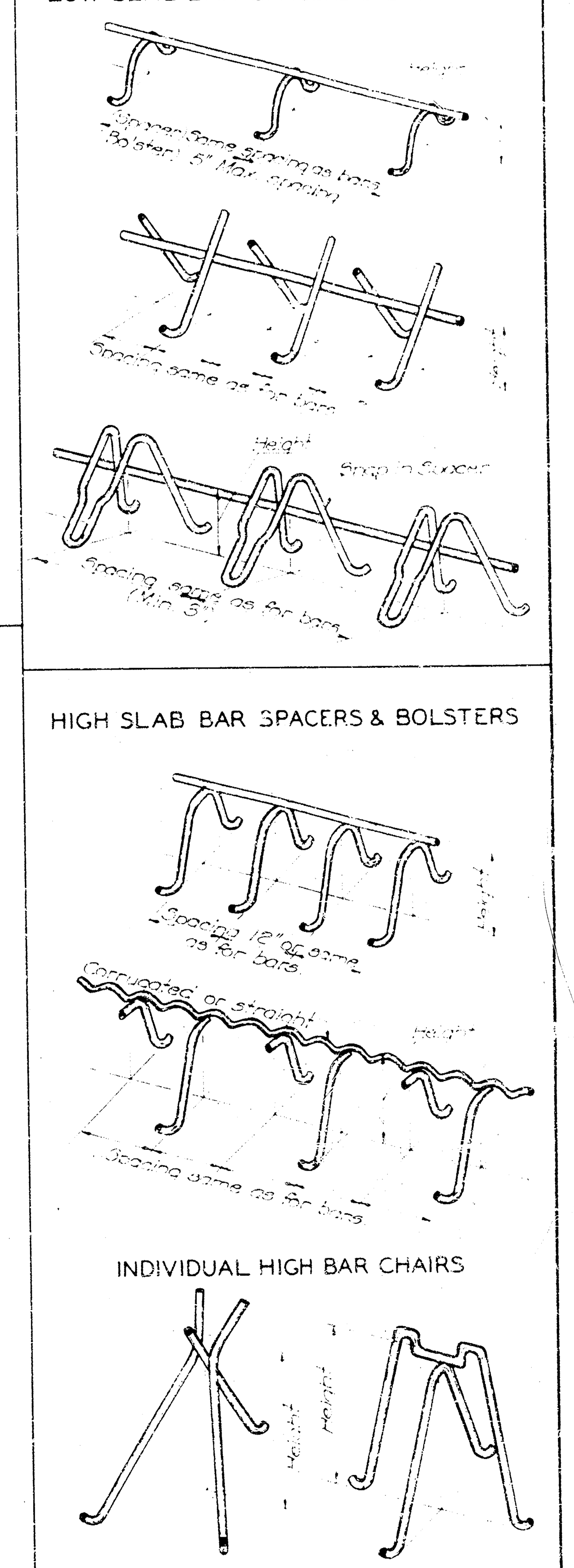
TYPICAL CULVERT DETAILS



LOW SLAB BAR SPACERS & BOLSTERS

HIGH SLAB BAR SPACERS & BOLSTERS

INDIVIDUAL HIGH BAR CHAIRS



NO	DATE	REVISIONS	BY	APP'D
3				
2				
1	3-45	No change for 1945 Spec's		

SUPPORTS AND SPACERS FOR REINFORCING STEEL

STD. NO. 610 SCALE No Scale

DESIGNED BY [illegible] DATE [illegible] DETAILED BY [illegible] TRACED BY [illegible]

CHECKED BY G.T. APPROVED BY [illegible] DATE [illegible]