

GENERAL NOTES

DESIGN SPECIFICATIONS: Standard Specifications for Highway Bridges as adopted by A.A.S.H.T.O. - 1977 Edition and subsequent revisions.

DESIGN LOADING: HS 20-44 Live Loading; Dead Load includes allowance for 15 p.s.f. future wearing surface.

DESIGN UNIT STRESSES: Structural Steel A.S.T.M. A-36, A.A.S.H.T.O. M-183 fy=36,000 psi fs=20,000 psi
 Class AAA-AE Conc. fc=4000 psi fc=1600 psi
 Class AAA AE Conc. (Decks) fc=4000 psi. fc=1200 psi
 Class AAA Concrete fc=4000 psi fc=1600 psi
 Reinf. Steel (Grade 40) fy=40,000 psi. fs=20,000 psi

STRUCTURAL STEEL: Flange plate and flange splice plate steel shall conform to A.A.S.H.T.O. Desig. M183. All other structural steel shall conform to A.S.T.M. Desig. A36.

WELDING: All materials and construction shall conform to Kansas Department of Transportation Specifications and the latest edition of the American Welding Society Specifications.

OPTIONAL WELDED CONNECTIONS: Field connections shown as bolted may be field welded at the Contractor's option. If the welded option is to be used the Contractor will submit details of the welded connections and shop drawings to the Kansas Department of Transportation for approval. Structural steel quantities are based on bolted field connections. If welded connections are used the Contractor shall furnish design, material, and labor without additional compensation. If the welded option is used, the contractor shall include in his bid a credit for weight of splice plates from the total weight of structural steel.

CURVED FLANGE PLATES: Horizontally curved flange plates for the Westbound superstructure shall be cut to curvature. At the contractor's option, flange plates may be heat-curved in accordance with K.D.O.T. Special Provision.

PREFORMED ANCHOR BOLT HOLES: Preformed holes are required for Bearing Device anchor bolts in piers - See details.

CONCRETE: Pier and abutment concrete below bridge seat construction joint shall be Class AAA Concrete above bridge seat construction joint, deck slab, and curbs shall be Class AAA-AE. Bevel all exposed edges with a 3/4" triangular moulding unless otherwise noted.

REINFORCING STEEL: Grade 40 reinforcing steel shall be used throughout. All dimensions shown for reinforcing are to centerline of bar unless noted otherwise. Refer to bending diagram for bar bending and dimensions.

CAMBER: Web plates shall be cut to camber for full Dead Load Deflection. Compensation for variations in curvature shall be provided for in concrete fillets over girders when placing forms for the concrete roadway.

INSPECTION: Radiographic and Magnetic Particle Inspection shall be provided in accordance with requirements set forth by the Kansas Department of Transportation.

BOLTS: All bolts, nuts, and washers shall conform to High Strength Bolts for Structural Steel Joints, including Suitable Nuts and Plain Hardened Washers, A.S.T.M. A325 (A.A.S.H.T.O. M-164) and to applicable sections of the Standard Specifications for Highway Bridges as adopted by A.A.S.H.T.O. 1973 Edition.

High Strength Bolts - All bolts in girder flange and web splices shall be 7/8" φ A325 bolts. All bolts in cross frame & diaphragm connections shall be 3/4" φ A325 bolts.

BRIDGE EXCAVATION: All excavation shall be Class III. See Bridge Excavation Sheet for limits of pay excavation. Excavate footing in rock or shale to neat lines. No side forming of footing will be permitted below top of rock or shale.

BACKFILL COMPACTION: Backfill compaction shall be required at both abutments.

PAINTING: All shop and field coats of paint for structural steel shall conform to the Inorganic Zinc Vinyl System.

Item Location	Excavation			Concrete			Reinf. Steel		Struct. Steel	Bearing Devices	Bridge Drain System	Bridge Deck Surfacing	Lime Oil Surf. Treatmt (Bridges)	4" Reinf. Conc. Rip Rap	Mobiliz. Lump Sum	Field Off. Lab (Type C) (Qty Const)	Trained (2) Hr
	Class III Cu Yds	Class AAA Cu Yds	Class AAA (AE) Cu Yds	# Lbs	A36 Lbs	M183 Lbs											
Abut No 1	220	35.5	34.2	6,507													
Pier No 1	50	66.6		10,656													
Pier No 2	50	66.5		10,653													
Pier No 3	50	65.9		10,674													
Abut No 2	186	33.8	34.4	6,175													
Total Substr.	605	268.3	68.6	44,742													
Total Superstr.			432.0	111,113	150,140	154,120	7,355				1,468	1,468					
Total	605	268.3	500.6	155,860	150,140	154,120	7,355			519	1,468	1,468	1,224	Lump Sum	1	1	

Item Location	Excavation			Concrete			Reinf. Steel		Struct. Steel	Bearing Devices	Bridge Drain System	Bridge Deck Surfacing	Lime Oil Surf. Treatmt (Bridges)	4" Reinf. Conc. Rip Rap
	Class III Cu Yds	Class AAA Cu Yds	Class AAA (AE) Cu Yds	# Lbs	A36 Lbs	M183 Lbs								
Abut No 1	179	34.6	25.7	1,928										
Pier No 1	103	56.0		3,362										
Pier No 2	125	56.0		3,361										
Pier No 3	103	55.6		3,347										
Abut No 2	92	25.6	25.7	2,387										
Total Substr.	602	227.9	51.4	37,185										
Total Superstr.			418.8	105,870	145,030	201,050	7,355				1,413	1,413		
Total	602	227.9	470.2	142,755	145,030	201,050	7,355			754	1,413	1,413	998	

* Note - Reinforcement designated as 'A' bars in abutments above abutment beam construction joint as shown on abutment sections and details are included in the Superstructure Quantities. All reinforcement designated as 'W' bars are included in Substructure Quantities.

SHEET NO.	DRAWING
	Bridge No 395
	General Notes & Quantities
	Contour Map
	Construction Layout
	Engineering Geology
	Geometric Layout
	Abutment No. 1 Details
	Abutment No. 2 Details
	Pier Details
	Girder Details
	Superstructure Details
	Bridge No 396
	Construction Layout
	Engineering Geology
	Abutment No 1 Details
	Abutment No 2 Details
	Pier Details
	Girder Details
	Superstructure Details
	Miscellaneous Superstructure Details
	Camber Diagram And Bolted Connections
	Bearing Devices
	Pouring Sequence & Guard Rail Connection Details
	Bridge Deck Drainage Plan
	Bridge Deck Drain Details
	Bill Of Reinforcing Steel And Bending Diagram
	Reinforced Concrete Riprap
	Bridge Excavation
	Supports And Spacers For Reinforcing Steel

NO.	DATE	REVISIONS	BY	APP'D
1				
2				
3				

GBA
 GEORGE BUTLER ASSOCIATES
 CONSULTING ENGINEERS/ARCHITECTS
 LANDSCAPE ARCHITECTS/PLANNERS

OFFICE:
 414 ANDERSON STREET / SUITE 200 / KANSAS CITY, MO 64108

BR NO 12-46-3.95 STA 54+97.4
 BR NO 12-46-3.96 STA 10+50.0

KANSAS DEPARTMENT OF TRANSPORTATION
 K-12 OVER RENNER ROAD
GENERAL NOTES & QUANTITIES

PROJECT NO. 12-46-FF-181-112
 SHEET NO. 31 OF 37
 SCALE: AS SHOWN
 DESIGNED: M.L.S. CHECKED: J.E.S. DRAWN: J.E.H. TRACED: J.E.H.
 SUPERVISED: G.E.S. DATE: 11/13/95



S.W. Cor. Sec. 6, T15S, R24E
 1. Rd. 1/2" Rebar @ Cor. Electrotape 502.31 Lt. or S. of Ok. Tang. Sta. 110+33.63 Ext. fwd. to N-3
 Sec. Line N.E. Angle is 91° 46' 41"
 2. Spk. in top cor. fc. po. 51.5' N.W.
 3. Spk. f Wahr. in power po. 34.48' S.E.
 4. Spk. f Wahr. in guy po. 33.52' S.W.
 5. 31 ft. South of po. line West
 6. 18 ft. South of po. line South
 7. 24.5 ft. East of po. fc. line South, 23' North of fc. f hedge West.

PO.T. Sta. 330+78.06
 1. 1/2" Rebar at P.O.T.
 2. Spk. f Wahr. in 60° Hedge 79.2' N.
 3. Spk. f Wahr. in 40° Hedge 48.6' W.S.W.
 4. Spk. f Wahr. in 40° Hedge 42.7' S.E.

P.C. Sta. 334+37.52
 1. 1/2" Rebar at P.C.
 2. Spk. f Wahr. in 10° Hedge 23.7' N.E.
 3. Spk. f Wahr. in 10° Locust 22.2' N.N.E.
 4. Spk. f Wahr. in 10° Elm 21.0' N.W.

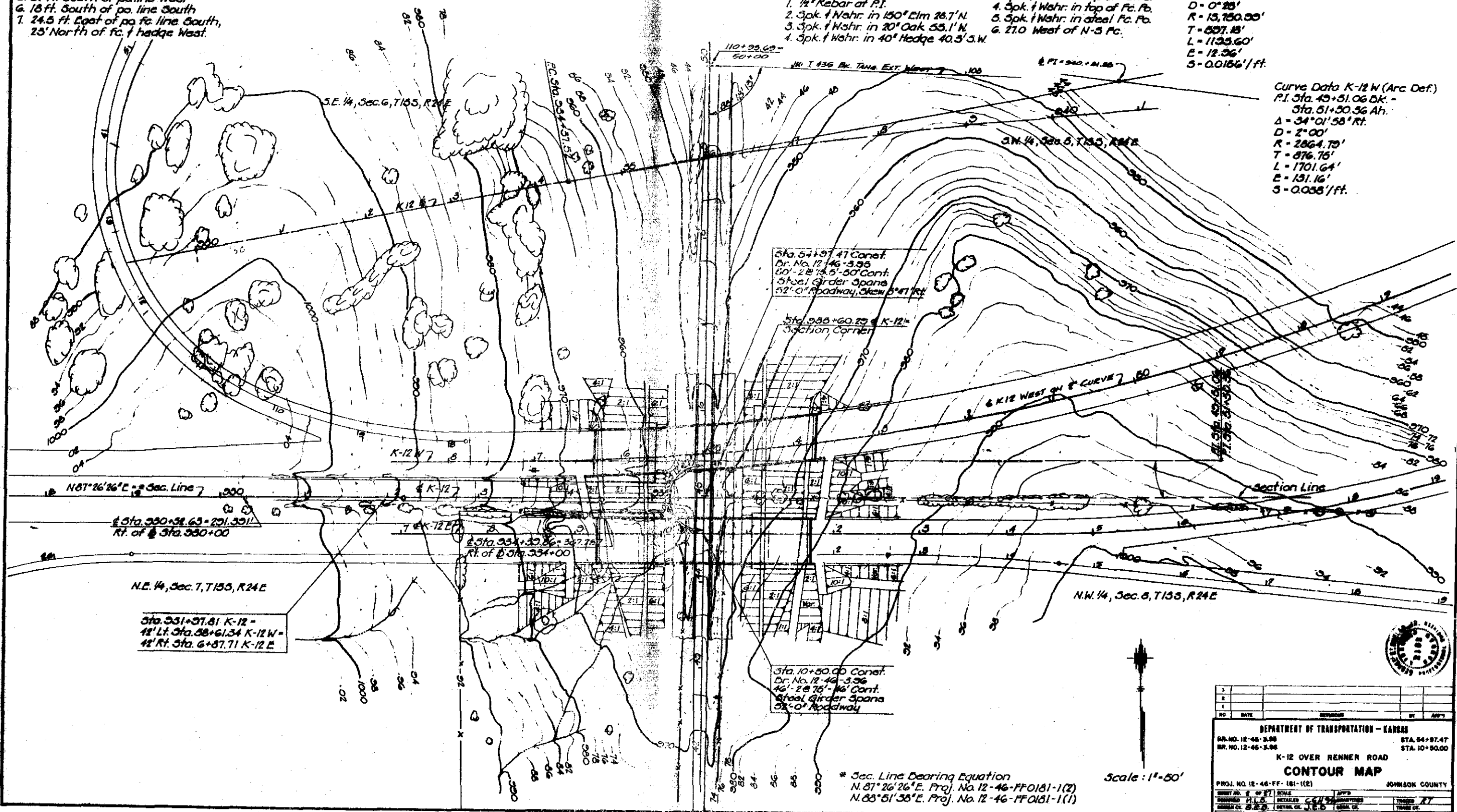
P.I. Sta. 340+81.85 Δ = 12° 50' Rt.
 1. 1/2" Rebar at P.I.
 2. Spk. f Wahr. in 150° Elm 28.7' N.
 3. Spk. f Wahr. in 20° Oak 55.1' N.
 4. Spk. f Wahr. in 40° Hedge 40.3' S.W.


P.O.T. on Oak Tang. Ext. West
 Sta. 110+33.63 = 0+00 fwd. = 50+00
 on & Renner Road and
 Section Line
 1. Set 3/4" Rebar @ P.O.T. f Sec. Line
 2. Spk. f Wahr. in #
 3. Spk. f Wahr. in top of Fc. Po.
 4. Spk. f Wahr. in top of Fc. Po.
 5. Spk. f Wahr. in steel Fc. Po.
 6. 27.0 West of N-3 Fc.

K-12 Curve Data (Arc Def.)
 P.I. Sta. 313+54.75 Dk. =
 Sta. 313+53.59 Ah.
 Δ = 4° 58' 24" Rt.
 D = 0' 23"
 R = 13,150.00'
 T = 657.18'
 L = 1133.60'
 E = 12.26'
 S = 0.0166'/ft.

Curve Data K-12 W (Arc Def.)
 P.I. Sta. 49+51.06 Dk. =
 Sta. 51+50.36 Ah.
 Δ = 34° 01' 58" Rt.
 D = 2' 00"
 R = 2864.70'
 T = 876.76'
 L = 1701.64'
 E = 131.16'
 S = 0.035'/ft.

NO.	DATE	PROJECT NO.	YEAR	BY	CHKD.
7	MAR 68	12-46-FF-101-1(2)	19	32	134

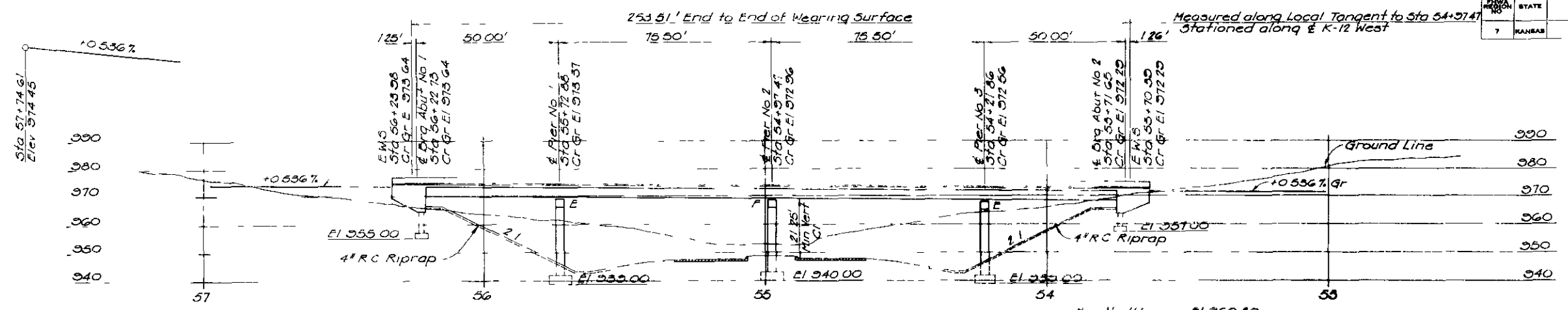



 DEPARTMENT OF TRANSPORTATION - KANSAS
 BR. NO. 12-46-5.98 STA. 54+97.47
 BR. NO. 12-46-5.98 STA. 10+90.00
K-12 OVER RENNER ROAD
CONTOUR MAP
 PROJ. NO. 12-46-FF-101-1(2) JOHNSON COUNTY
 SHEET NO. 2 OF 21 SCALE 1" = 50'
 DESIGNED BY P.L.S. CHECKED BY C.H.S. DRAWN BY T.H.S. TRACED BY T.H.S.
 REVISION NO. 03.02.01 DATE 11.15.01

* Sec. Line Bearing Equation
 N. 87° 26' 26" E. Proj. No. 12-46-FF0181-1(2)
 N. 85° 51' 35" E. Proj. No. 12-46-FF0181-1(1)

Scale: 1" = 50'

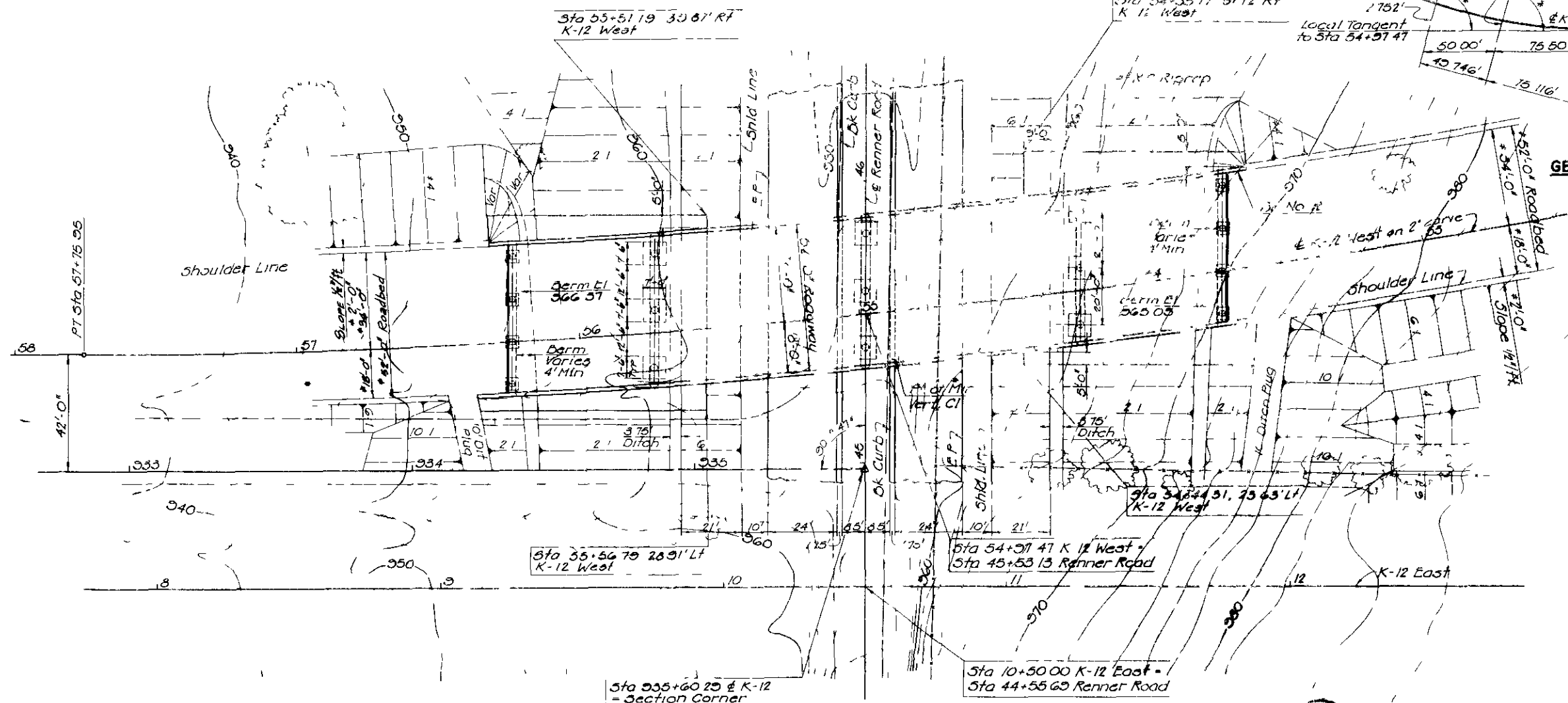
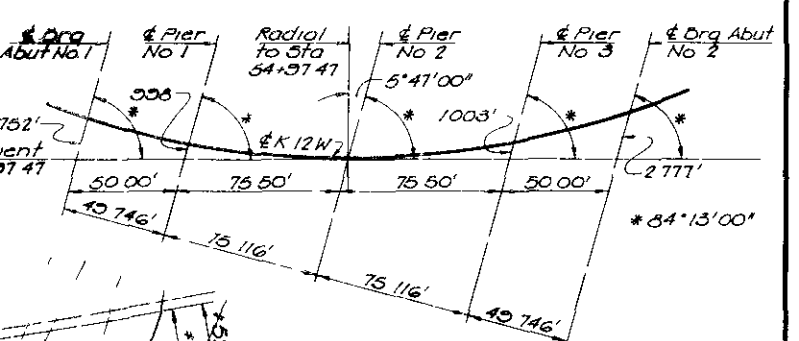
STATE	PROJECT NO	YEAR	SHEET NO	TOTAL SHEETS
KANSAS	12 46 FF 181-1(2)	19	33	134



ELEVATION VIEW
 50, 2 @ 75' - 50' Steel Girder Spans
 52' x Roadway, 5ken 3'41'00" RT

DM No 95 El 1000.41
 RR spike in 100' hedge
 230' Lt Sta 531+30

5 M, 110 El 960.80
 RR spike, top 50' atump
 3' Lt Renner Rd Sta 44+73



PLAN VIEW

GEOMETRIC LAYOUT

Scale 1"=20'



*Note See Road Cross Sections for transition to normal section

NO	DATE	REVISIONS	BY	APP'D
1				
2				

GBA
 GEORGE BUTLER ASSOCIATES
 CONSULTING ENGINEERS/ARCHITECTS
 LANDSCAPE ARCHITECTS/PLANNERS

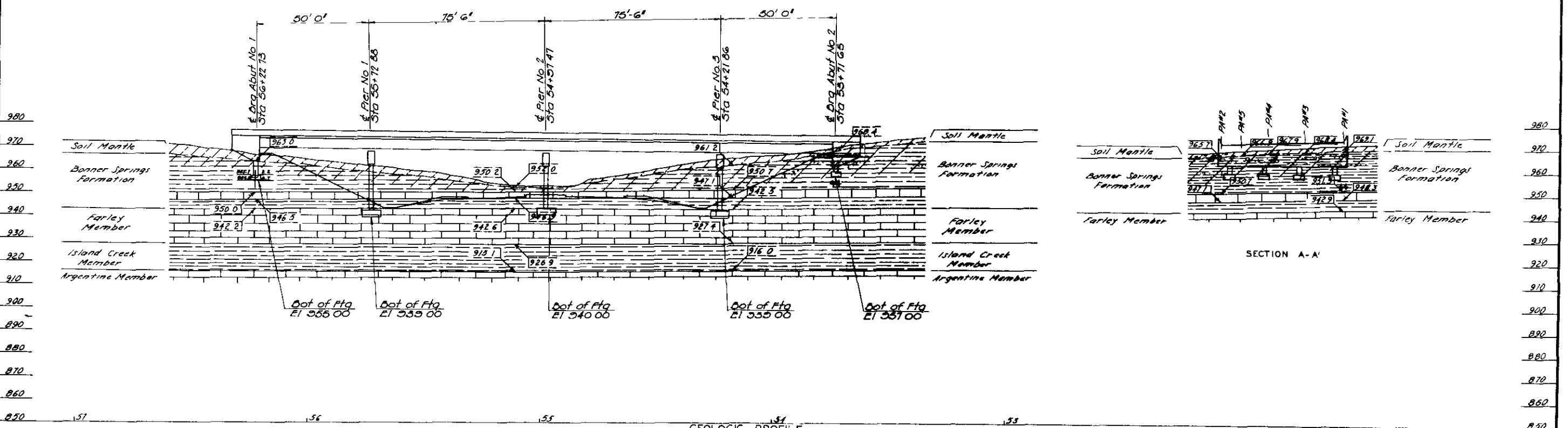
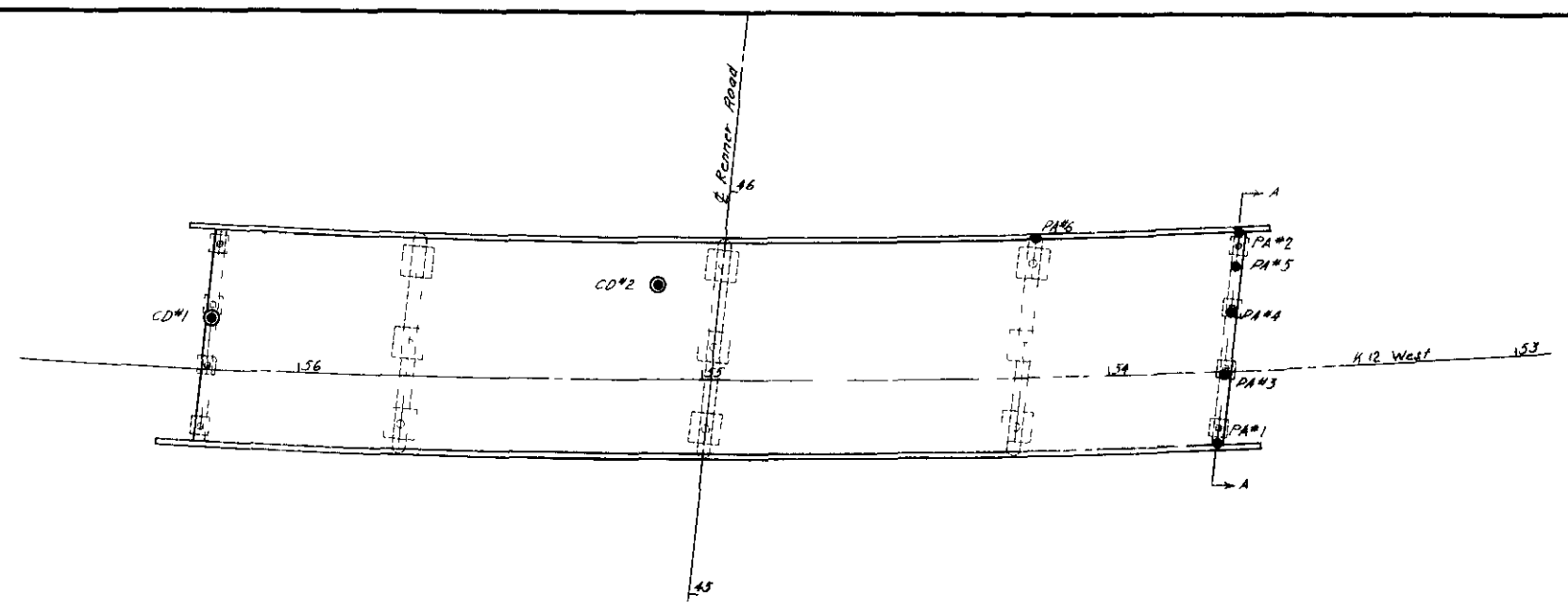
KANSAS DEPARTMENT OF TRANSPORTATION
 BR NO 12 46 395 STA 54+97.47
 K-12 WESTBOUND OVER RENNEN ROAD

CONSTRUCTION LAYOUT

PROJ NO 12 46 FF 181-1(2) JOHNSON COUNTY

SHEET NO 3 OF 27 SCALE 1"=20' APP'D
 DESIGNED HLB DETAILED GBH QUANTITIES TRACED JED
 DESIGNER GEB DETAILER JEB QUANT. TRACKER

REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	12 46 FF 81 (2)	18	34	134



LEGEND

	Silty Clay		Weathered Shale
	Silty Clay & Limestone Rubbel		Limestone
	Silty Clayey Shale		Sandy Limestone
	Shale with Sandstone lenses		Water level Nov 1977

000.0 Elevation interpolated or from adjacent soundings

000.0 Actual sounding elevation

Elevation Tons/sq ft

UNCONFINED COMPRESSION TEST

SOUNDINGS

● Coredrill

● Power auger



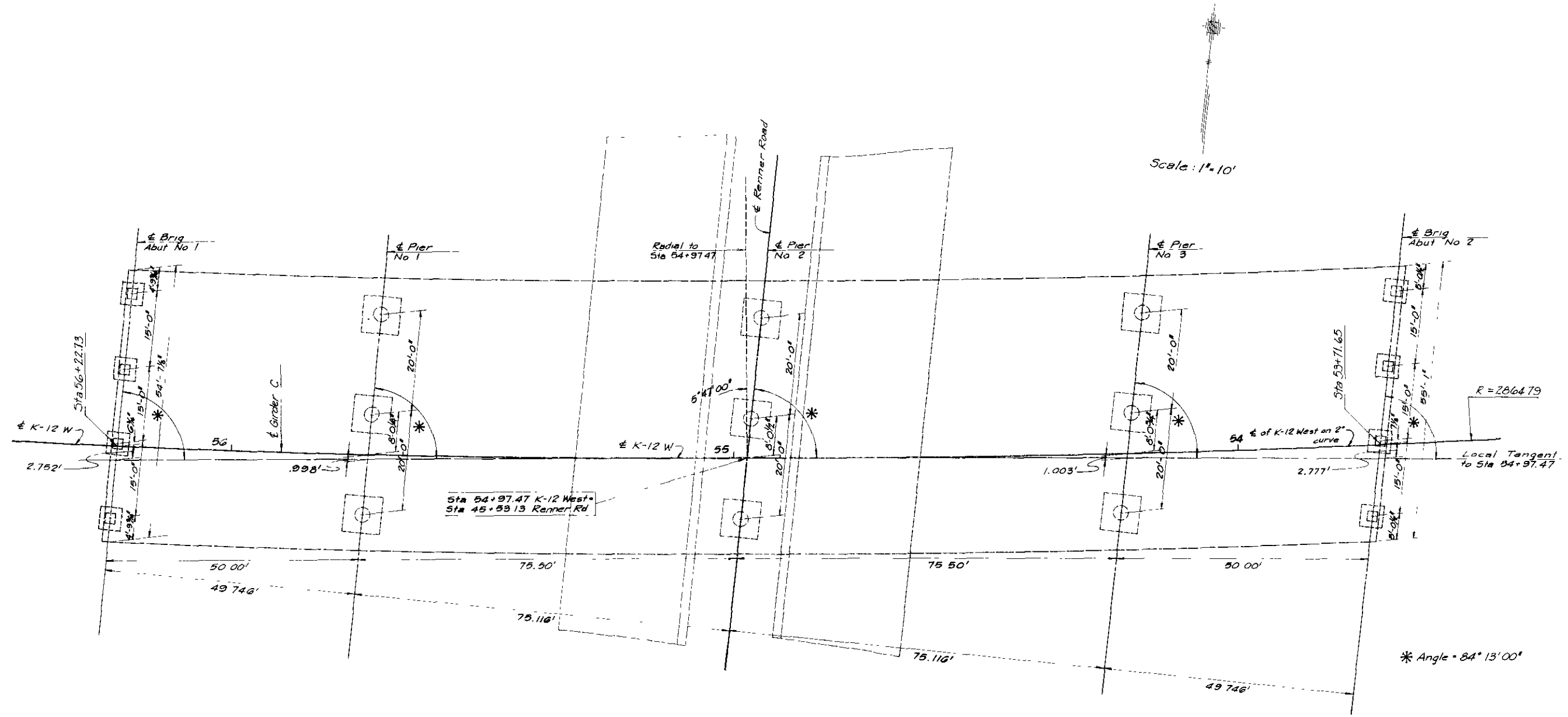
NOTE: THE SOUNDINGS SHOWN ON THESE PLANS ARE TAKEN FROM NOTES THROWN IN THE FIELD AND REPRESENT THE BEST INFORMATION AVAILABLE. THE LOGS OF THESE SOUNDINGS ARE IN THE FILES OF THE KANSAS DEPARTMENT OF TRANSPORTATION AND ARE AVAILABLE AT THEIR OFFICES AT TOPEKA, KANSAS FOR INSPECTION BY INTERESTED AND QUALIFIED INDIVIDUALS.

Scale 1"=30' Horiz 1"=20' Vert

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	

KANSAS DEPARTMENT OF TRANSPORTATION
 BR NO 12 46 395 STA 54+97.47
 K 12 WESTBOUND OVER RENNER ROAD
ENGINEERING GEOLOGY
 PROJ NO 12 46 FF 181 (2) JOHNSON COUNTY
 SHEET NO 4 OF 21 SCALE APP B
 DESIGNER M.L.S. QUANTITIES TRACED
 DESIGN CR G.R.B. DETAIL CR M.L.S. QUAN CR TRACER

DISTRICT NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	12-46-FF-181-1(2)		35	134



GEOMETRIC LAYOUT - BR. 3.95



NO.	DATE	REVISIONS	BY	APP'D

GBA
GEORGE BUTLER ASSOCIATES
CONSULTING ENGINEERS, ARCHITECTS
LANDSCAPE ARCHITECTS, PLANNERS

OFFICES:
SUITE 200-A FARMWAY OFFICE CENTER
2312 JOHNSON DRIVE / SHAWNEE, MISSOURI / KANSAS 66206
SUITE 800 THE HANNOVER BUILDING
18 WEST TENTH STREET / KANSAS CITY / MISSOURI 64108
SUITE 104 LAKESIDE PLAZA
8700 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64114

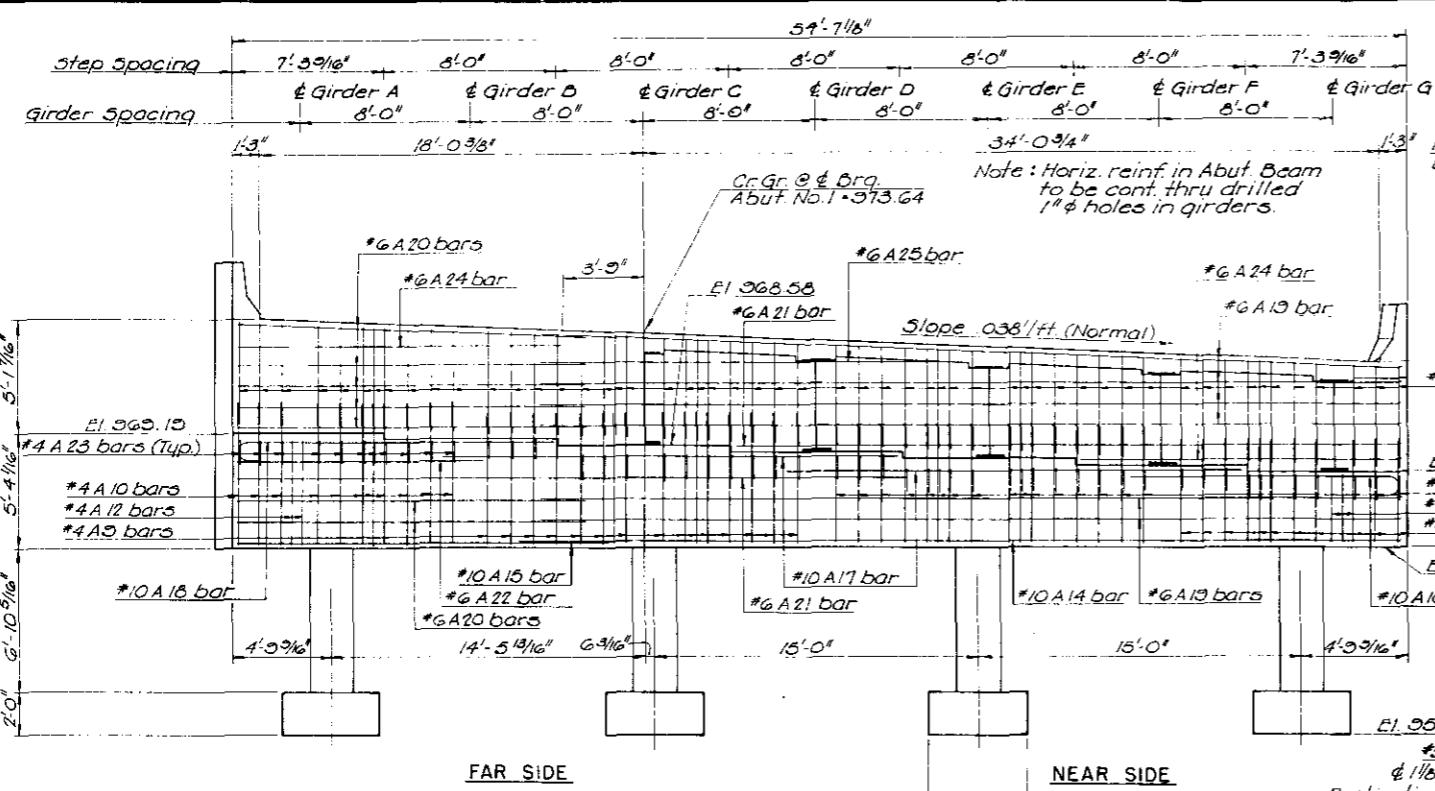
KANSAS DEPARTMENT OF TRANSPORTATION
BR NO 12-46-395 STA 54+97.47
K-12 WESTBOUND OVER RENNEN ROAD

GEOMETRIC LAYOUT

PROJ NO 12-46-FF-181-1(2) JOHNSON COUNTY

SHEET NO 5 OF 27	SCALE 1" = 10'	APP'D
DESIGNED NLS	DETAILED JEB	QUANTITIES
DESIGN CK GEB	DETAIL CK MLS	QUAN CK
		TRACE CK JEB

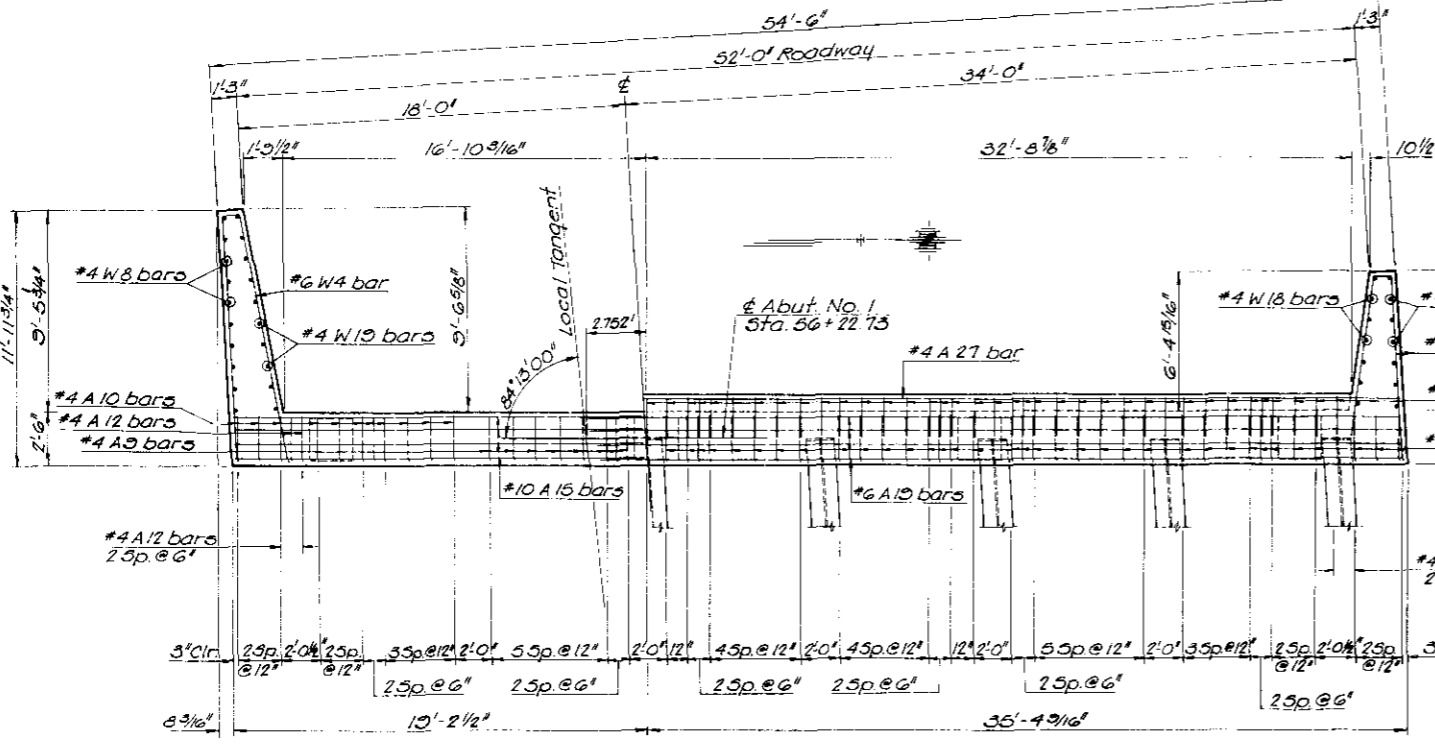
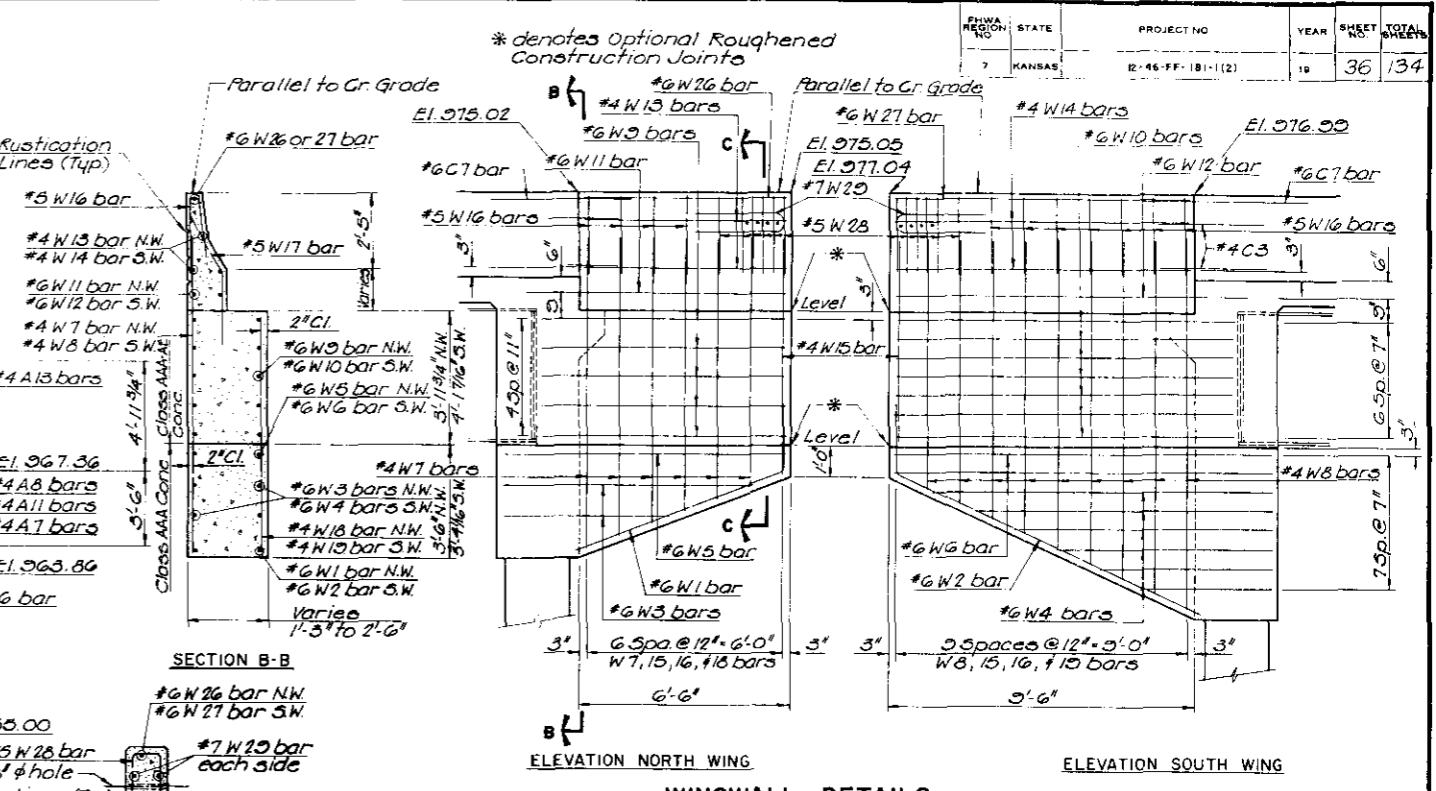
PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
12-46-FF-181-1(2)	19	36	134



Girder	A	B	C	D	E	F	G
Elev.	369.19	368.89	368.58	368.28	367.97	367.67	367.36

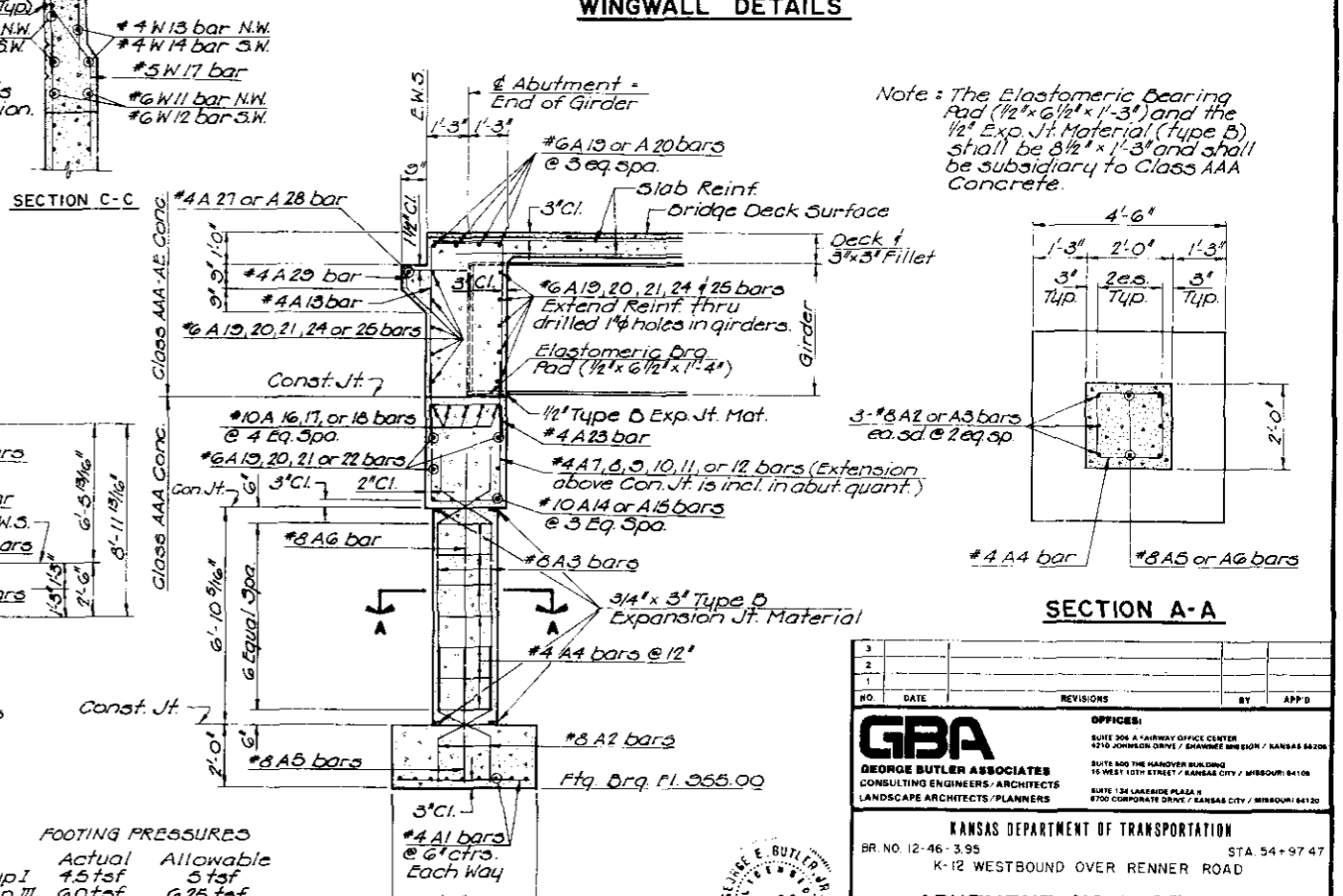
ELEVATION OF ABUTMENT (LOOKING WEST)

Note: See Sheet No. 21 for Curb Transition details for Guard Rail Connection.



REINFORCING STEEL IN BOTTOM OF BEAM

REINFORCING STEEL IN TOP OF BEAM



Note: The Elastomeric Bearing Pad (1/2" x 6 1/2" x 1'-3") and the 1/2" Exp. Jt. Material (Type B) shall be 8 1/2" x 1'-3" and shall be subsidiary to Class AAA Concrete.

NO.	DATE	REVISIONS	BY	APP'D

GBA
GEORGE BUTLER ASSOCIATES
 CONSULTING ENGINEERS/ARCHITECTS
 LANDSCAPE ARCHITECTS/PLANNERS

OFFICES:
 SUITE 206 AIRWAY OFFICE CENTER
 1210 JOHNSON DRIVE / SHAWNEE MISSOURI / KANSAS 66204
 SUITE 800 THE HANOVER BUILDING
 12 WEST 10TH STREET / KANSAS CITY / MISSOURI 64108
 SUITE 126 GARFIELD PLAZA
 8700 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64120

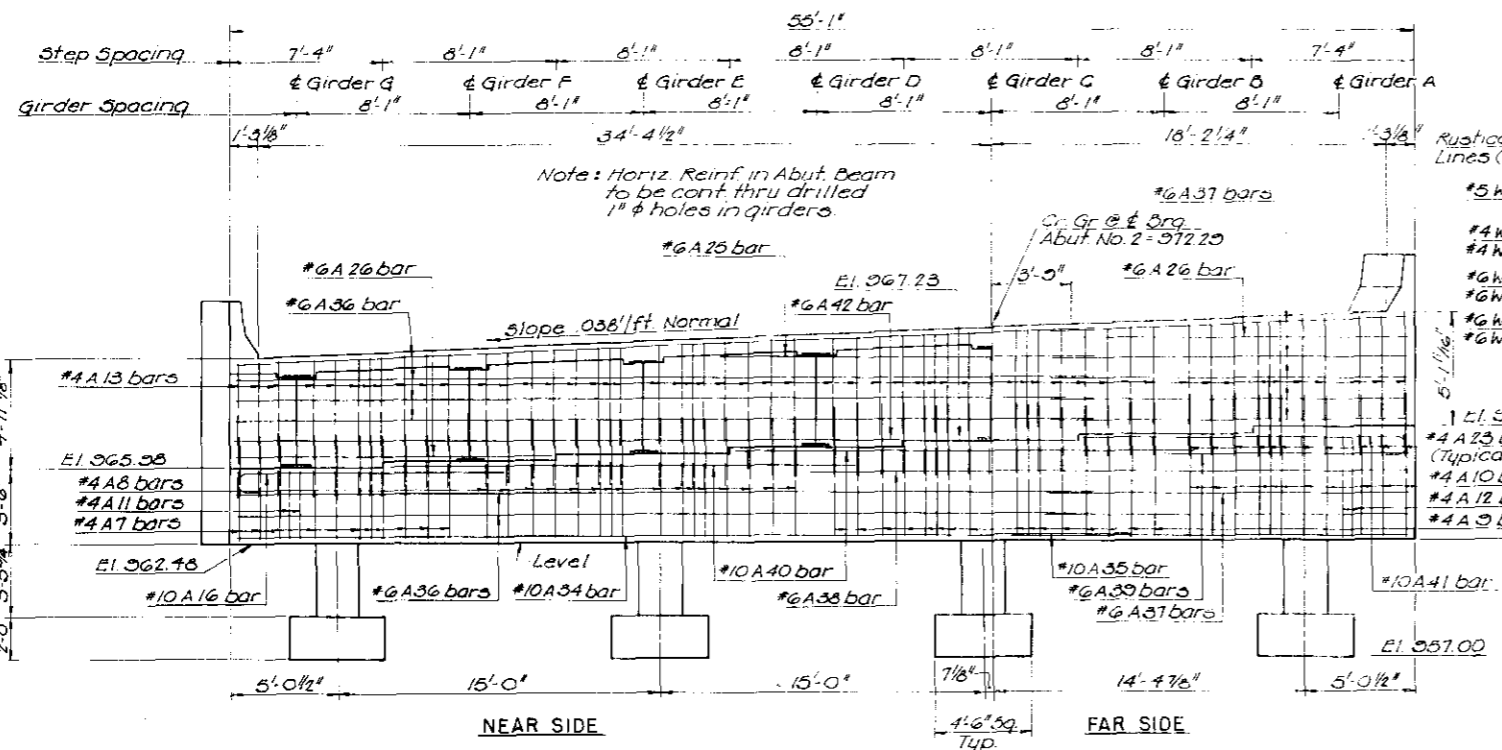
KANSAS DEPARTMENT OF TRANSPORTATION
 BR NO. 12-46-3.95 STA. 54+97.47
 K-12 WESTBOUND OVER RENNER ROAD

ABUTMENT NO. 1 DETAILS

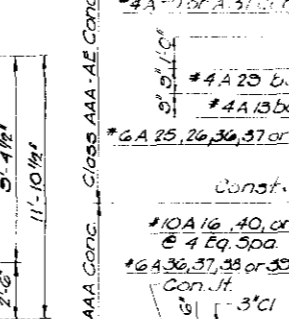
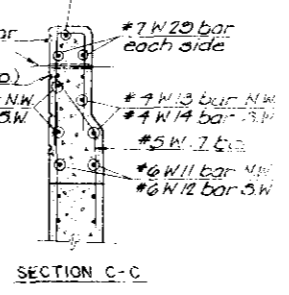
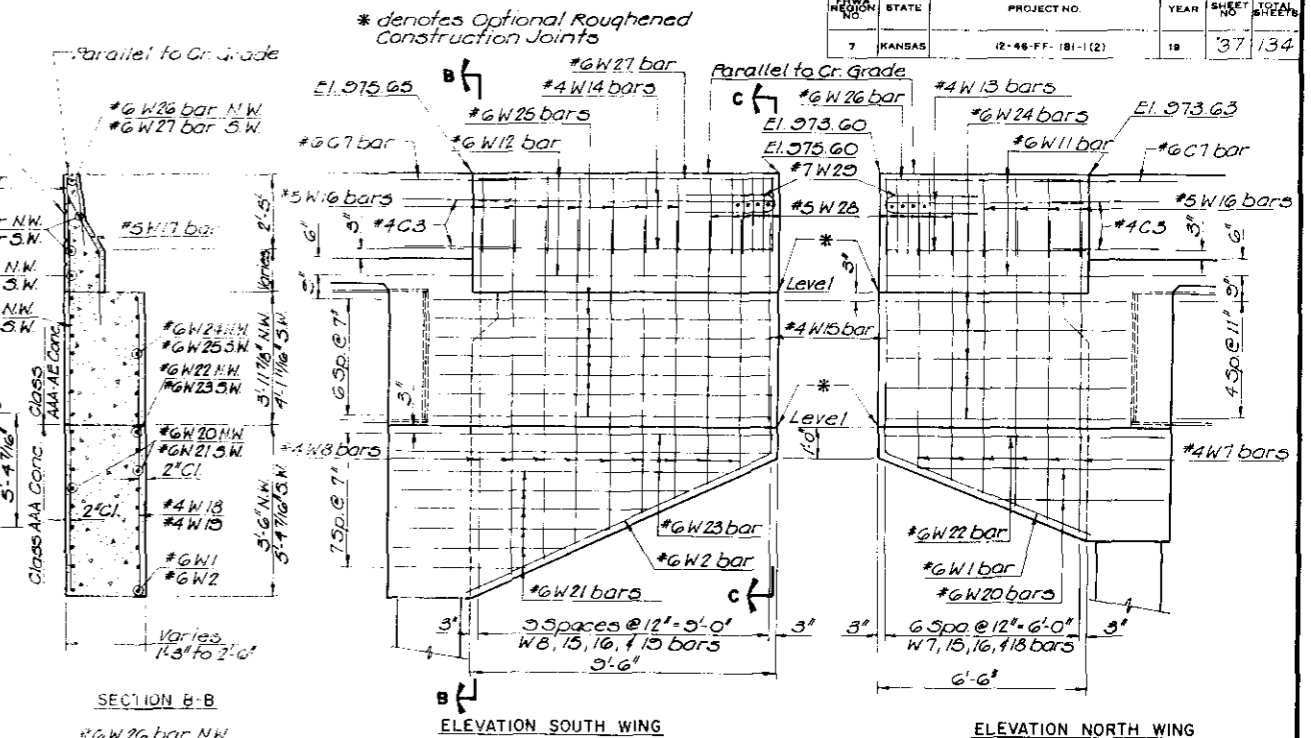
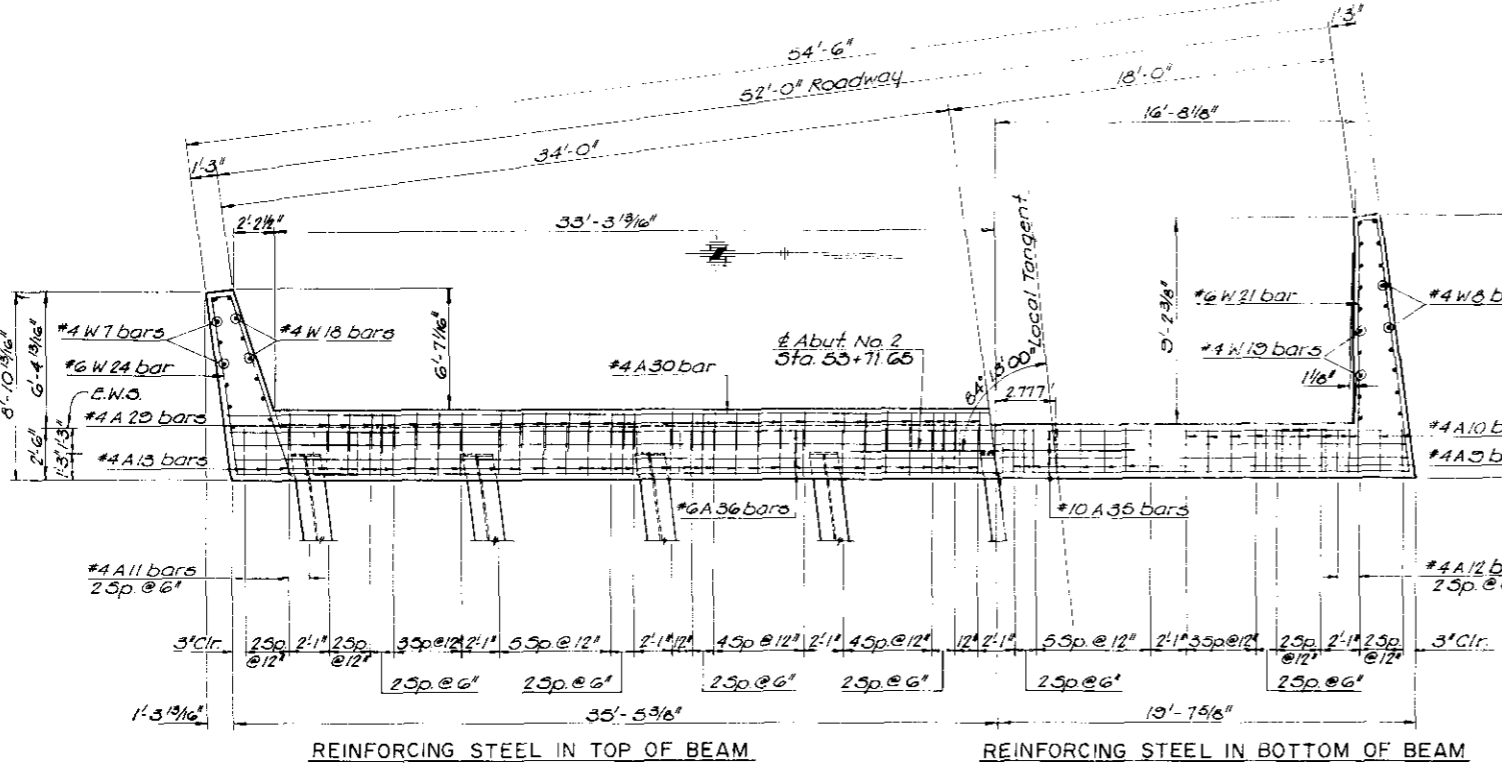
PROJ. NO. 12-46-FF-181-1(2) JOHNSON COUNTY

SHEET NO. 6 OF 27	SCALE	APP'D	QUANTITIES	J.E.B.	TRACED
DESIGNED M.L.S.	DETAILED J.E.B.	QUAN. CK. M.L.S.	TRACED		

REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	12-46-FF-181-1(2)	18	37	134

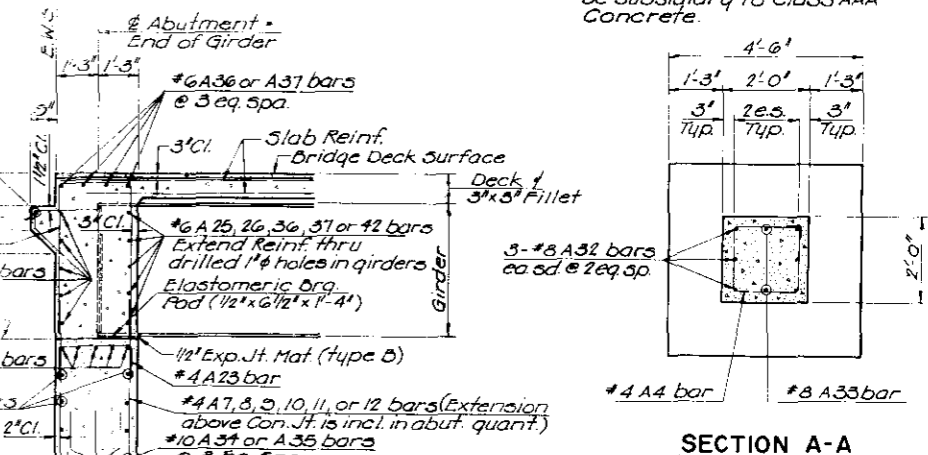


Girder	A	B	C	D	E	F	G
Elev.	567.85	567.54	567.23	566.92	566.60	566.29	565.98



Note: See Sheet No. 21 for Curb Transition details for Guard Rail Connection.

Note: The Elastomeric Bearing Pad (1/2" x 6 1/2" x 1'-3") and the 1/2" Exp. Jt. Material (Type B) shall be 6 1/2" x 1'-3" and shall be subsidiary to Class AAA Concrete.



Group	Actual	Allowable
Group I	7.5 tsf	5 tsf
Group III	6.0 tsf	6.25 tsf

TYPICAL SECTION THRU ABUTMENT

NO.	DATE	REVISIONS	BY	APP'D

GBA
GEORGE BUTLER ASSOCIATES
CONSULTING ENGINEERS / ARCHITECTS
LANDSCAPE ARCHITECTS / PLANNERS

OFFICES:
SUITE 308 A FAIRWAY OFFICE CENTER
4312 JOHNSON DRIVE / ANNEKE WEEBON / KANSAS MOORE
SUITE 808 THE HANCOCK BUILDING
18 WEST 10TH STREET / KANSAS CITY / MISSOURI 64108
SUITE 134 LAKESIDE PLAZA
4700 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64120

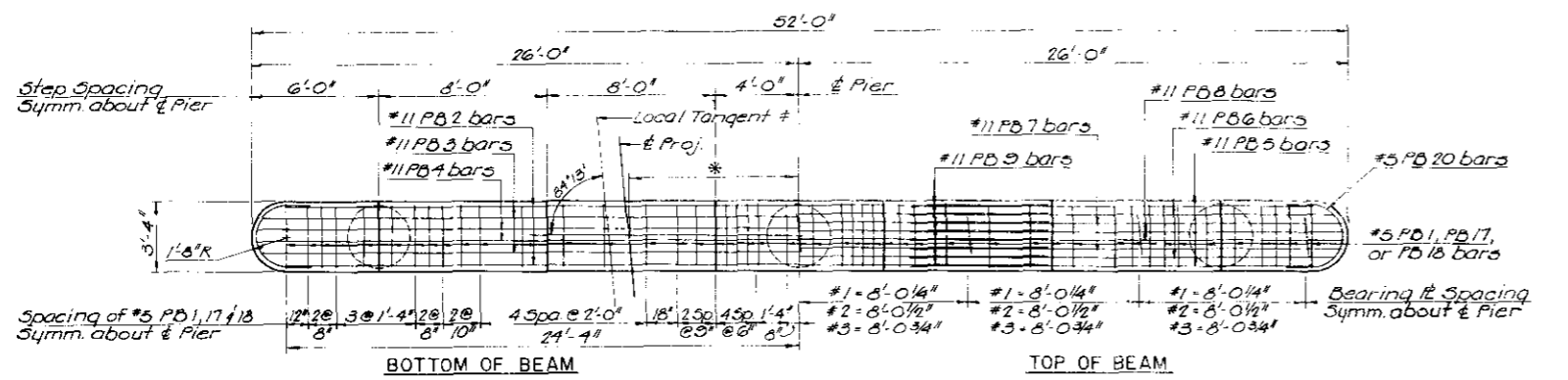
KANSAS DEPARTMENT OF TRANSPORTATION
BR. NO. 12-46-3.95 STA. 54+97.47
K-12 WESTBOUND OVER RENNER ROAD

ABUTMENT NO. 2 DETAILS

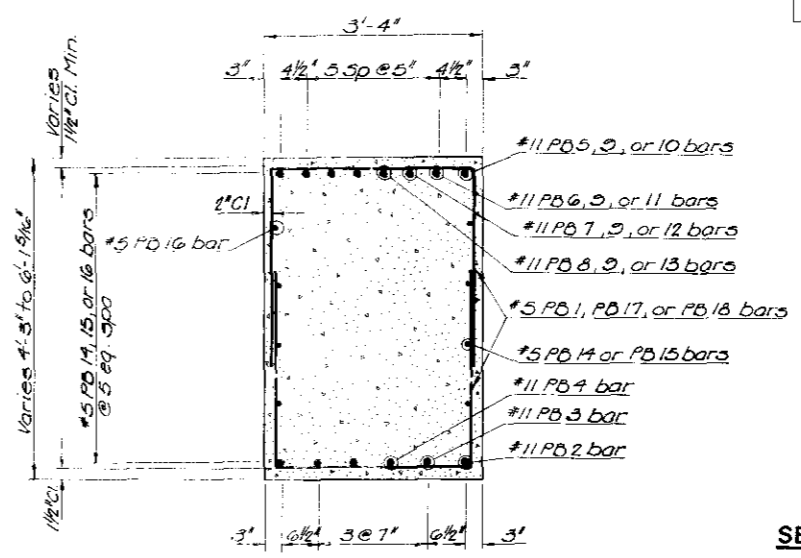
PROJ. NO. 12-46-FF-181-1(2) JOHNSON COUNTY

SHEET NO. 7 OF 27 SCALE: AS SHOWN APP'D: [Signature]
DESIGNED BY: G.E.B. CHECKED BY: M.L.S. QUANTITIES BY: J.B.C. TRACED BY: [Signature]
DESIGN OR: G.E.B. DETAIL OR: M.L.S. DRAWN OR: M.L.S. TRACE OR: [Signature]

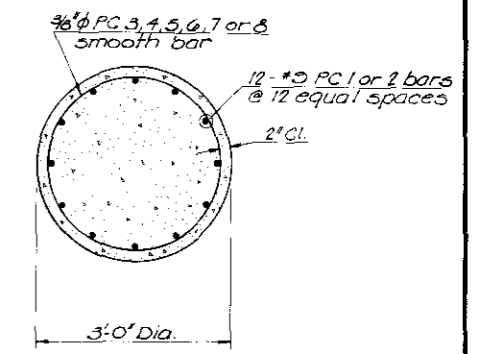
FHWA REGION	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	2-46-FF-181-1(2)	19	38	134



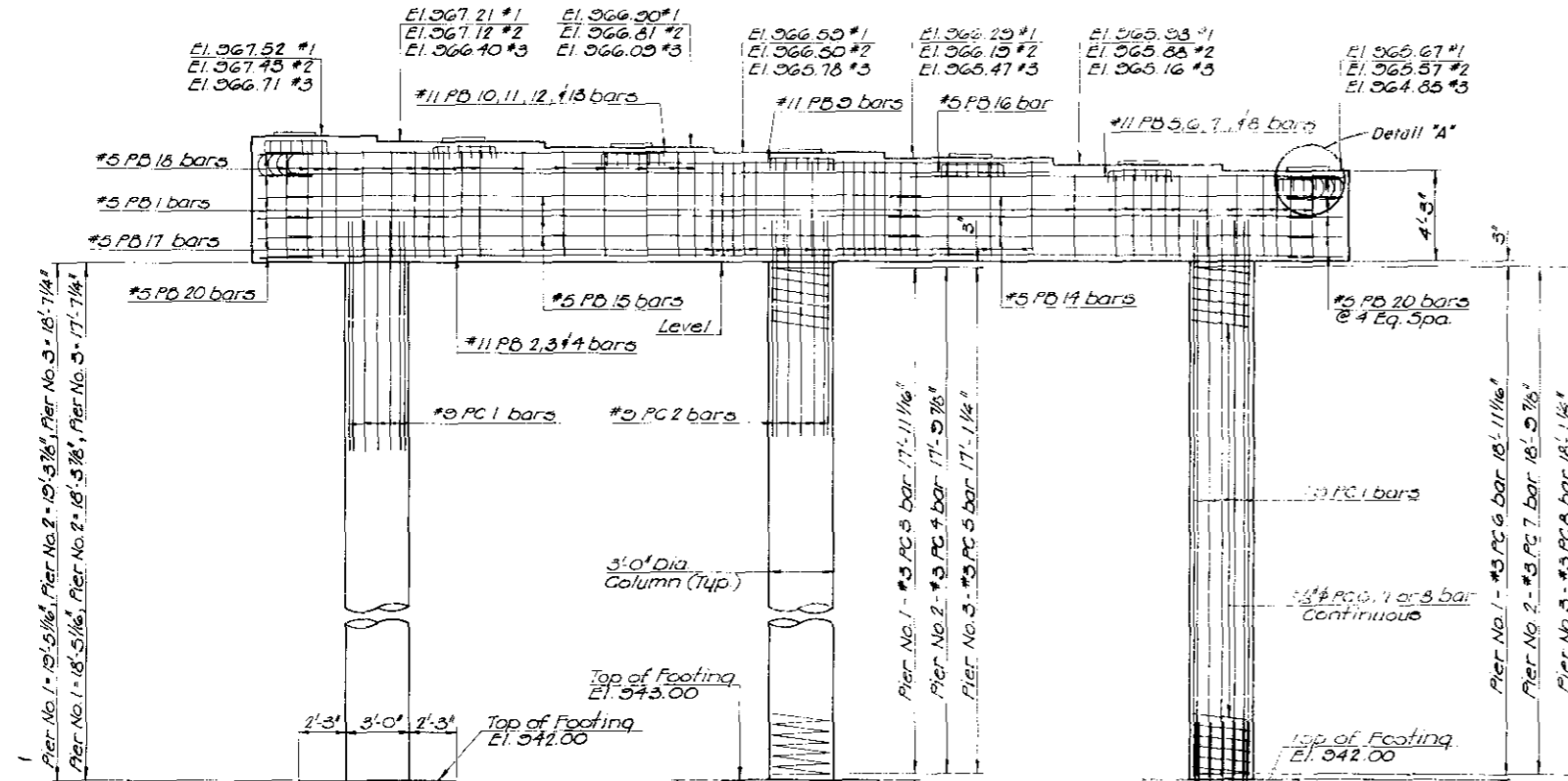
PLAN VIEW PIER BEAM
 * For relationship between Local Tangent & Project & see Geometric Layout Shf. No. 5
 * Dimension is the same as the Bearing & Spacing dimension to each pier.



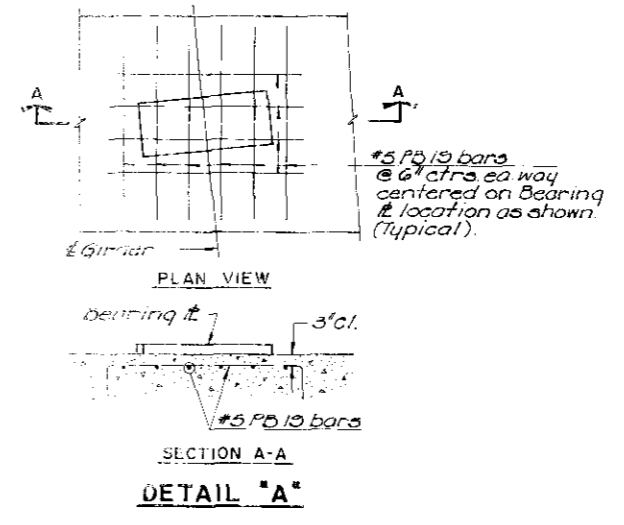
SECTION THRU BEAM



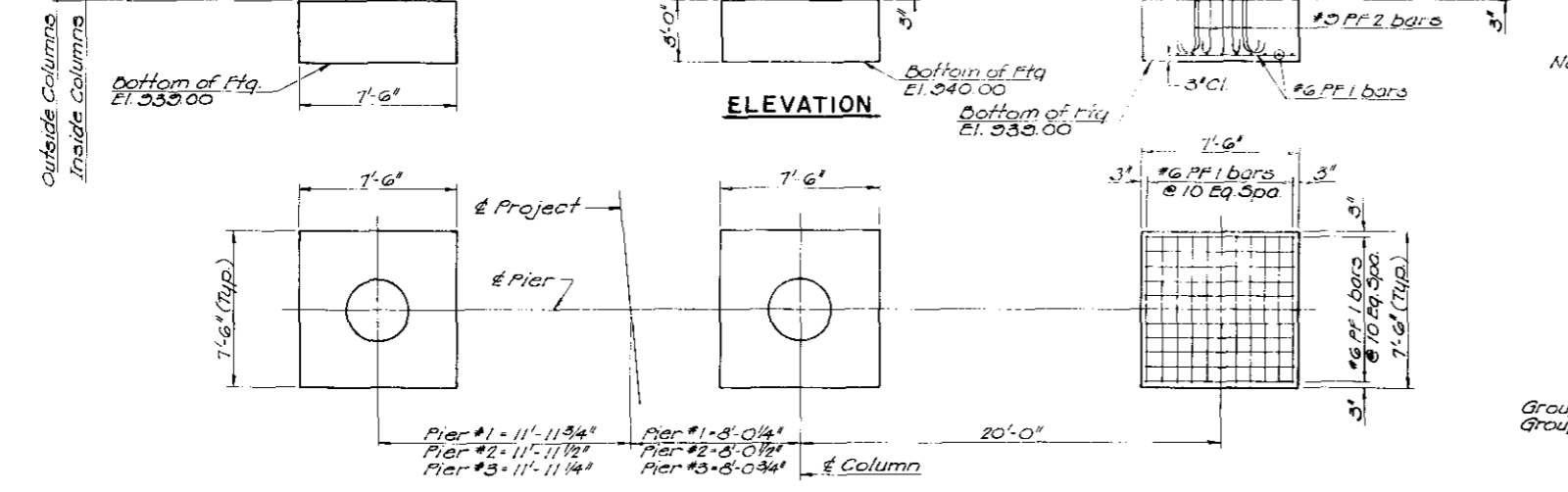
SECTION THRU COLUMN



ELEVATION



DETAIL 'A'



FOOTING DETAIL

GENERAL NOTES

Design: HS 20-44 A.A.S.H.T.O. Specifications - 1977 Edition and subsequent revisions.
 Unit Stresses: Class AAA Concrete $f_c = 1,600$ p.s.i., $f'_c = 4,000$ p.s.i.; Reinforcing Steel (Grade 40) $f_y = 40,000$ p.s.i., $f_s = 20,000$ p.s.i.
 Concrete: Class AAA Conc. shall be used thruout. Bevel all exposed edges with a 3/4" triangular moulding unless otherwise noted.
 Reinforcing: Grade 40 reinforcing steel shall be used thruout. All dimensions relative to reinforcing steel are to centerline of bar unless otherwise noted.
 Preformed Anchor Bolt Holes: The Contractor shall preform a hole 2" larger in diameter than the anchor bolts and with a roughened edge surface at the location of the anchor bolt holes for the bearing plates. The holes shall be performed by a method approved by the Engineer. This work shall not be paid for directly but shall be subsidiary to Bearing Devices.

SUMMARY OF QUANTITIES

	Pier 1	Pier 2	Pier 3
Class III Concrete	66.6 C.Y.	66.5 C.Y.	65.9 C.Y.
Reinforcing Steel	10,696 Lbs	10,693 Lbs	10,674 Lbs
Class II Excavation	20 C.Y.	20 C.Y.	20 C.Y.

Note: See Sheet No. 24 for Bill of Reinforcing Steel.

FOOTING PRESSURES

Group	Actual	Allowable
Group I	4.6 tsf	12 tsf
Group III	5.3 tsf	

GBA
 GEORGE BUTLER ASSOCIATES
 CONSULTING ENGINEERS/ARCHITECTS
 LANDSCAPE ARCHITECTS/PLANNERS

OFFICES:
 SUITE 308 & 1/2 HARVEY OFFICE CENTER
 8210 JOHNSON DRIVE / SHAWNEE MISSION / KANSAS 66208
 SUITE 600 THE HANOVER BUILDING
 19 WEST 19TH STREET / KANSAS CITY / MISSOURI 64106
 SUITE 133 CARROLL PLACE
 8700 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64110

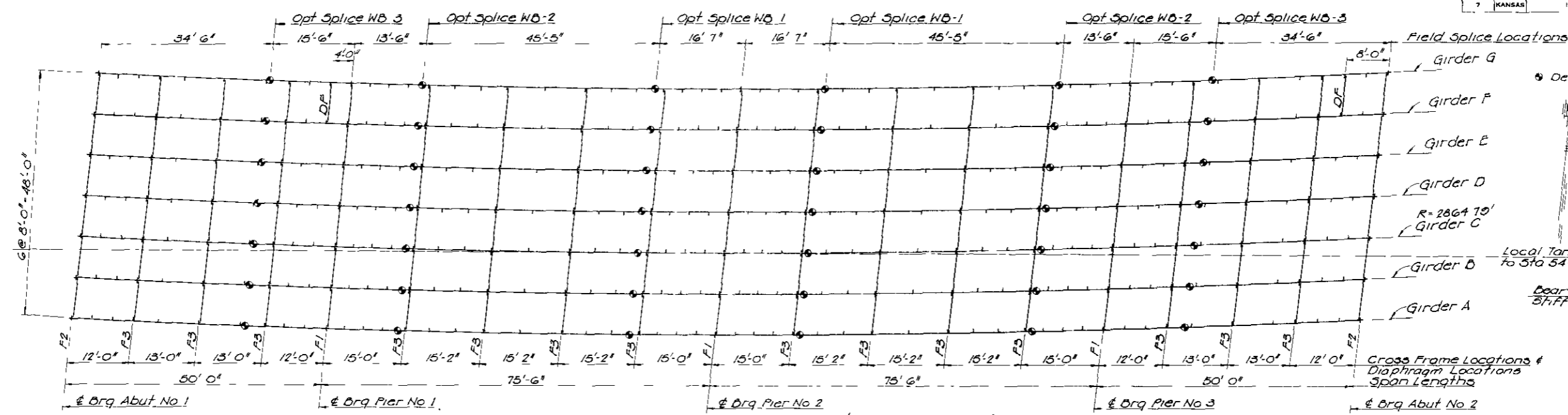
KANSAS DEPARTMENT OF TRANSPORTATION
 BR. NO. 12-46-395 STA. 54+97.47
 K-12 WESTBOUND OVER RENNER ROAD

PIER DETAILS

PROJ. NO. 12-46-FF-181-1(2) JOHNSON COUNTY
 SHEET NO. 38 OF 271 SCALE APP'D
 DESIGNED M.L.S. DETAILED J.E.D. QUANTITIES J.E.D. TRACED
 DESIGN CL. G.R.S. DETAIL CL. M.L.S. QUAN. CL. M.L.S. TRACE CL.



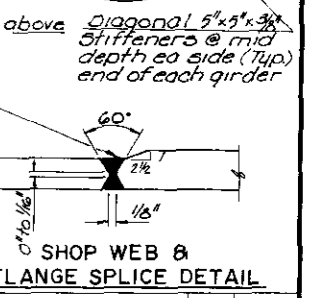
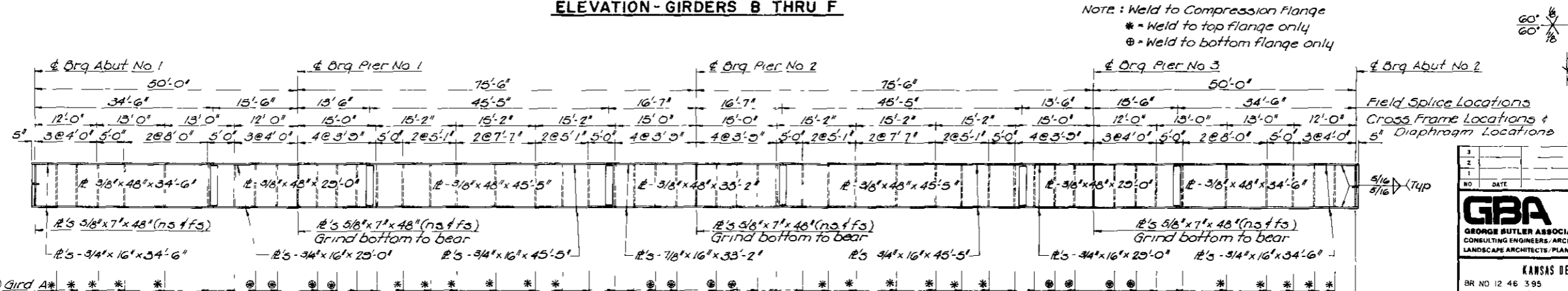
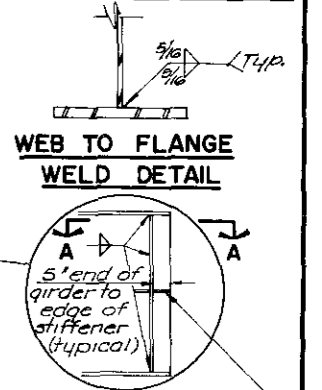
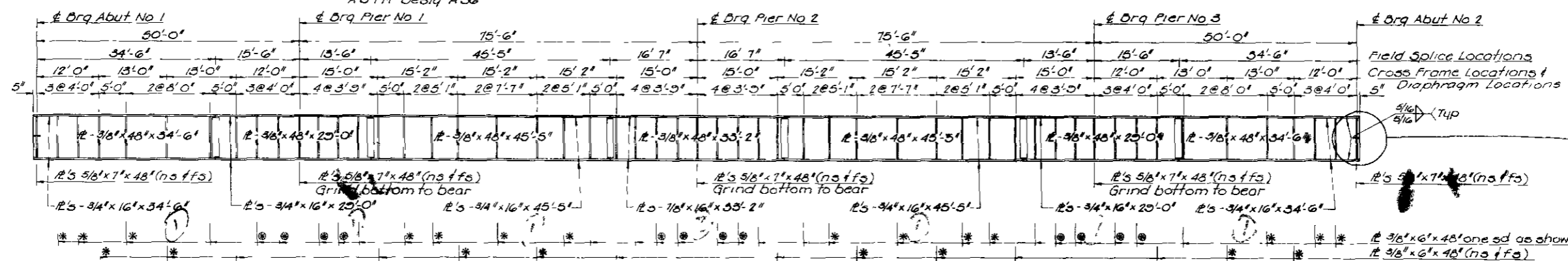
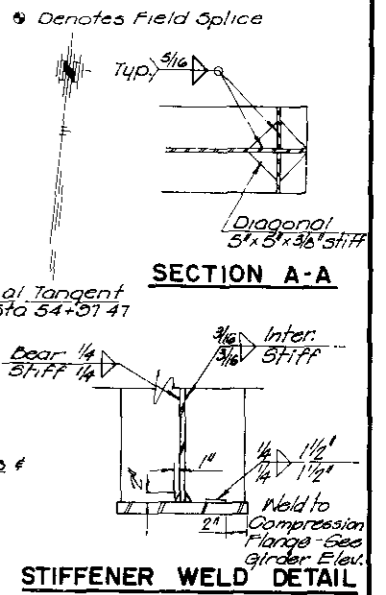
DISTRICT	STATE	PROJECT NO	YEAR	SHEET NO	TOTAL SHEETS
7	KANSAS	12 46 FF 181 (12)	19	39	10



Note: Refer to Sht. No 5 for Geometric Layout

Note: Flange plate and flange splice plate steel shall conform to AASHTO Desig M183. All other struct steel shall conform to ASTM Desig A36

NOTE: Transverse Bracing Designated as "DF" shall be drain framing. See Sht 25 for detail



2 3/8"x6"x48" (ns) Gird A
2 3/8"x6"x48" (fs) Gird G

Structural Steel & Flange plate and Flange splice plate steel shall conform to AASHTO Desig M183

NOTE: All transverse stiffeners may be vert or perpendicular to the top flange

NO	DATE	REVISIONS	BY	APP'D
3				
2				
1				

GBA
GEORGE BUTLER ASSOCIATES
CONSULTING ENGINEERS, ARCHITECTS
LANDSCAPE ARCHITECTS / PLANNERS

OFFICES:
SUITE 308 A FAIRWAY OFFICE CENTER
6510 JOHNSON DRIVE / BIRMIINGHAM / KANSAS NEARBY
SUITE 808 ONE HANOVER BUILDING
15 WEST 10TH STREET / KANSAS CITY / MISSOURI 64108
SUITE 134 LAMARBOE PLAZA II
6200 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64120

KANSAS DEPARTMENT OF TRANSPORTATION
BR NO 12 46 395 STA 54+97.47
K 12 WESTBOUND OVER RENNER ROAD

GIRDER DETAILS

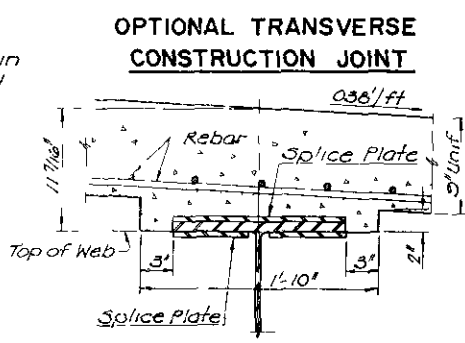
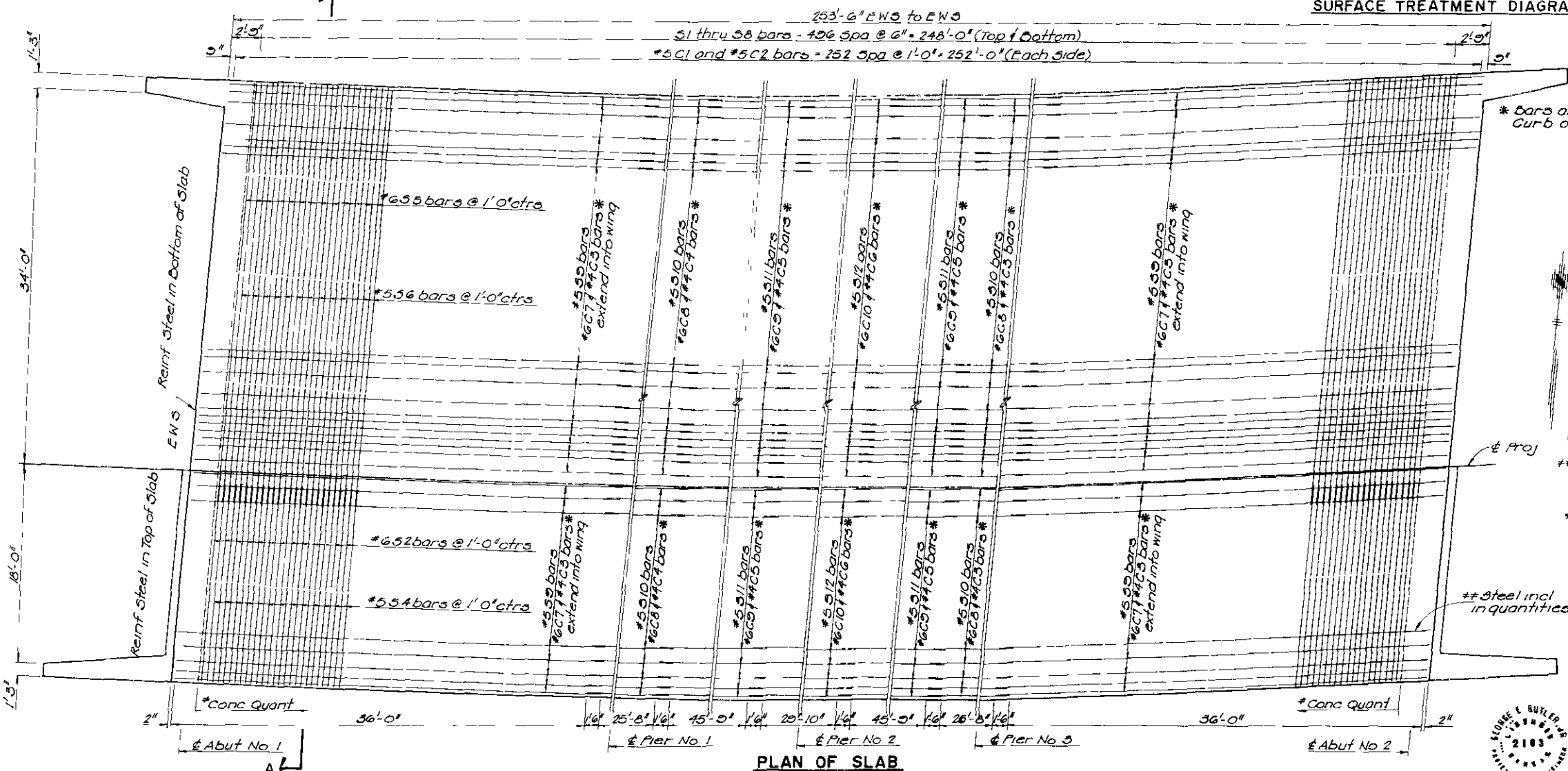
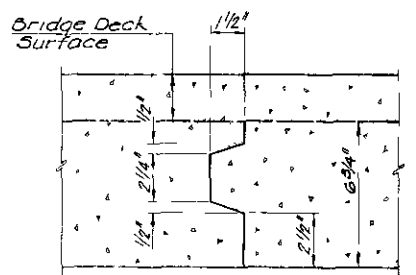
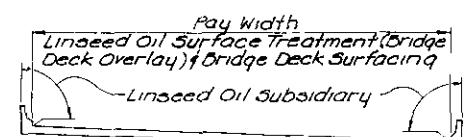
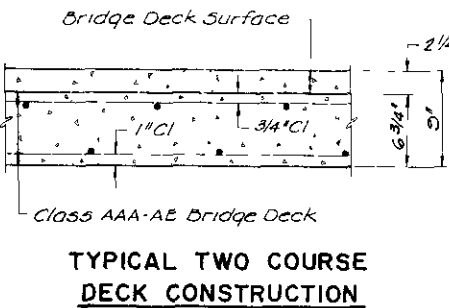
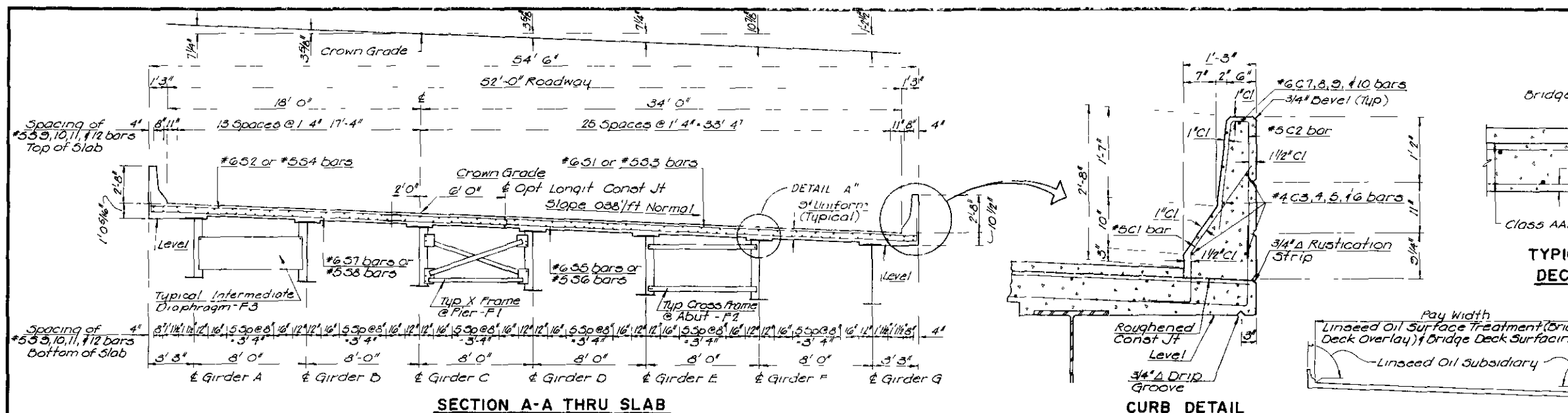
PROJ NO 12 46 FF 181 (12) JOHNSON COUNTY

SHEET NO 39 OF 271 SCALE: APP'D

DESIGNED BY J.L.S. CHECKED BY J.E.B. TRACED

DESIGN CK G.E.D. DETAIL CK M.L.S. QUAN CK M.L.S. TRACE CK

REGION	STATE	PROJECT NO	YEAR	SHEET NO	TOTAL SHEETS
7	KANSAS	12 46 FF 181 (2)	19	40	134



Note: Contractor may pour bridge deck thru optional transverse construction joint but shall end construction at construction joint location shown

* Conc Quant shown is from edge bkwall to edge bkwall of abutts incl curbs & haunches
 ** Incl curb & slab steel penetration into abutts
 ** Steel incl in quantities

SUMMARY OF QUANTITIES	
* Class AAA Concrete AE	432.0 CY
** Reinforcing Steel	107,107 Lbs

NO	DATE	REVISIONS	BY	APP'D
3				
2				
1				

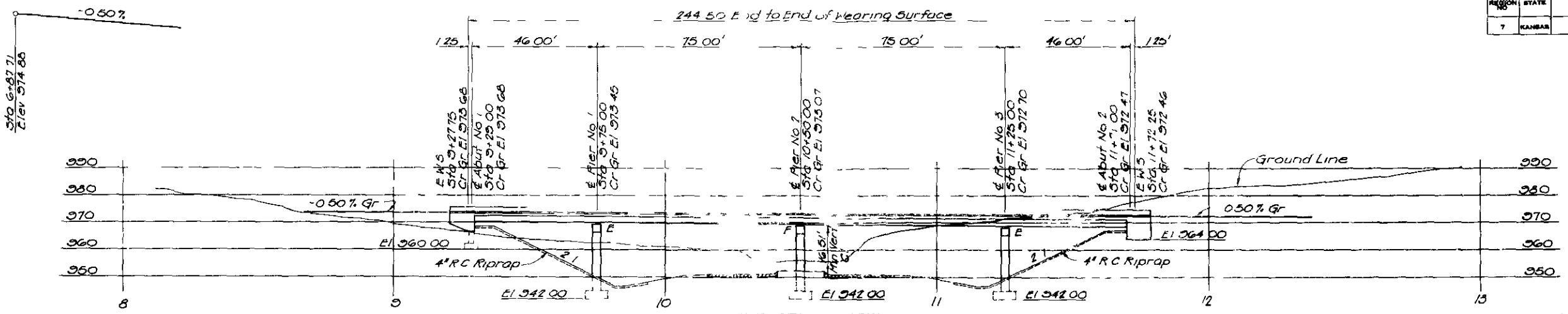
GBA
 GEORGE BUTLER ASSOCIATES
 CONSULTING ENGINEERS/ARCHITECTS
 LANDSCAPE ARCHITECTS/PLANNERS

KANSAS DEPARTMENT OF TRANSPORTATION
 BR NO 12 46 395 STA 54+97.47
 K 12 WESTBOUND OVER RENNER ROAD

SUPERSTRUCTURE DETAILS
 PROJ NO 12 46 FF 181 (2) JOHNSON COUNTY
 SHEET NO 10 OF 21 SCALE APP'D
 DESIGNED MLS DETAILED JED QUANTITIES JED TRACED
 DESIGN CK GEB DETAIL CK MLS QUAN CK MLS TRACE CK



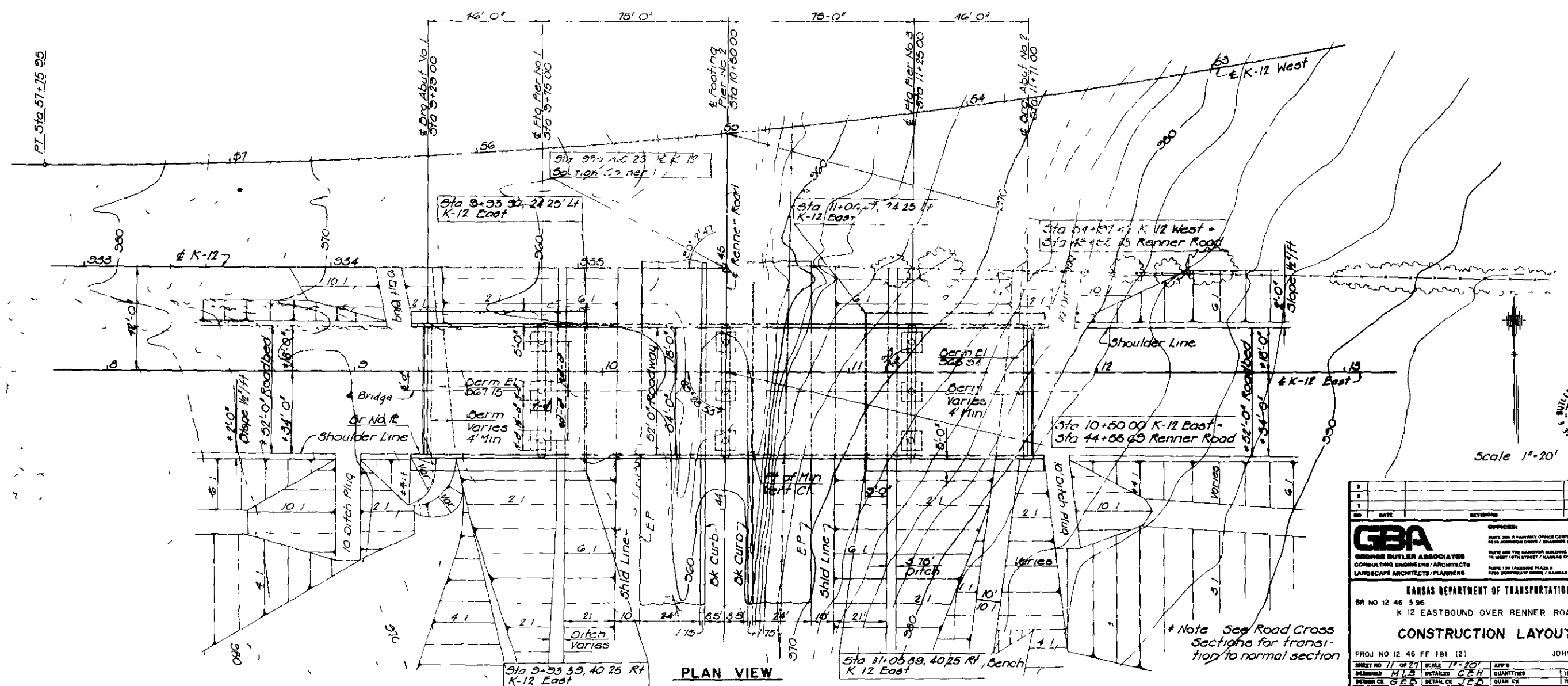
PROJECT NO.	STATE	YEAR	SHEET NO.	TOTAL SHEETS
12 46 FF 181 (2)	KANSAS	19	41	134



D.M No 96 El 1000.42
RR spike in 100' hedge
230' Lt Sta 931+30

ELEVATION VIEW
4x 2 @ 75' 46' Steel Girder Spans
52' 0" Roadway

D.M No 110 El 560.80
RR spike in top 50' stump
35' Lt Renner Rd Sta 44+10



PLAN VIEW

* Note See Road Cross Sections for transition to normal section

NO.	DATE	REVISION	BY	APP'D

GBA
GRINWOLD BUTLER ASSOCIATES
CONSULTING ENGINEERS/ARCHITECTS
LANDSCAPE ARCHITECTS/PLANNERS

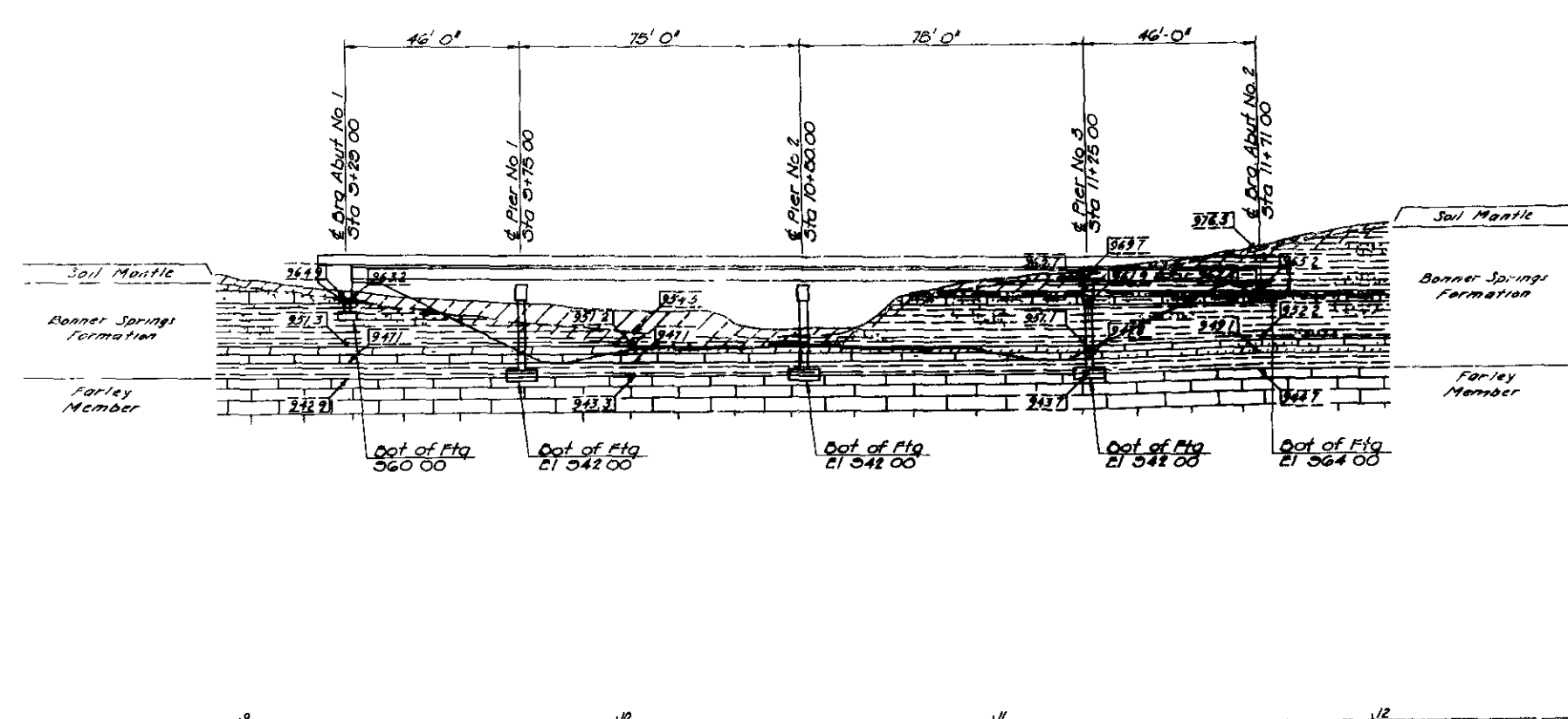
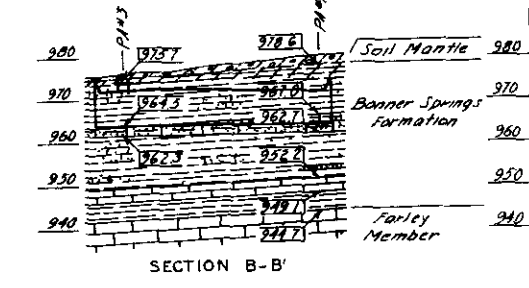
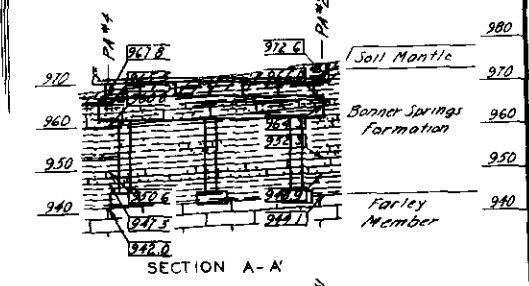
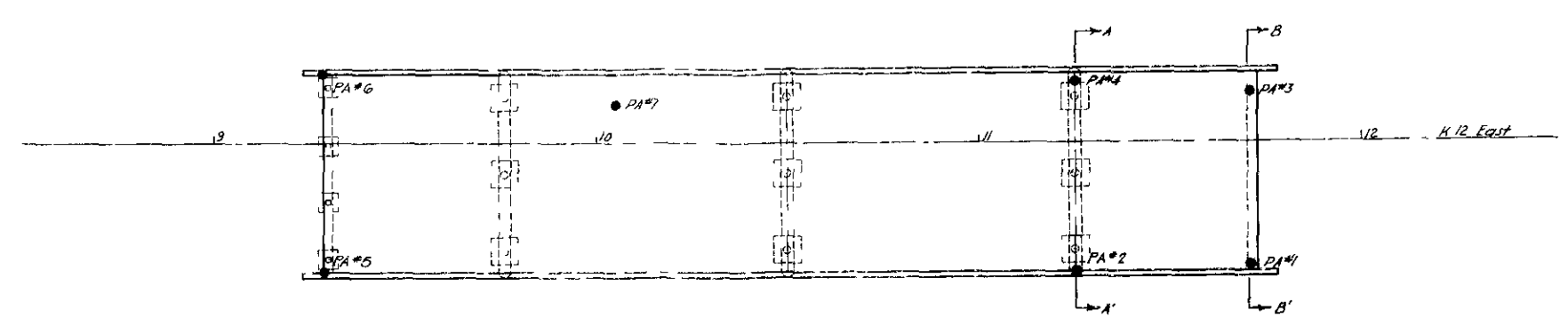
OFFICES:
ROUTE 288 & HAWTHORNE OFFICE CENTER
4516 JOHNSON DRIVE / SHAWNEE OMAHA KANSAS 68804
SUITE 200 THE SANDHILL BUILDING
15 WEST 16TH STREET / KANSAS CITY / MISSOURI 64108
SUITE 130 LAURENCE PLAZA II
7700 COMPOSITE DRIVE / KANSAS CITY / MISSOURI 64114

KANSAS DEPARTMENT OF TRANSPORTATION
BR NO 12 46 3 96 STA 10+50.00
K 12 EASTBOUND OVER RENNERS ROAD
CONSTRUCTION LAYOUT

PROJ NO 12 46 FF 181 (2) JOHNSON COUNTY

DRAWN	MLB	SCALE	1"=20'	APP'D	
DESIGNED	CEH	QUANTITIES		TRACED	JEB
REVISION	CEB	DETAILS	JEB	QUAN	

COUNTY	STATE	PROJECT NO	YEAR	SHEET NO	TOTAL SHEETS
7	KANSAS	12 46 FF 81 1(2)	19	42	134



980
970
960
950
940
930
920
910
900
890
880
870
860
850

990
980
970
960
950
940
930
920
910
900
890
880
870
860
850

LEGEND

	Silty Clay		Silty Sandstone
	Silty Clay with Limestone Rubble		Shale with Sandstone lenses
	Silty Clayey Shale		Limestone
	Sandy Shale		Sandy Limestone

- SOUNDINGS
- Elevation interpolated or from adjacent soundings
 - Actual sounding elevation
 - Power Auger
 - Water level Nov 1977



NOTE: THE SOUNDINGS SHOWN ON THESE PLANS ARE TAKEN FROM NOTES TAKEN IN THE FIELD AND REPRESENT THE BEST INFORMATION AVAILABLE. THE LOGS OF THESE SOUNDINGS ARE IN THE FILES OF THE KANSAS DEPARTMENT OF TRANSPORTATION AND ARE AVAILABLE AT THEIR OFFICES AT TOPEKA, KANSAS FOR INSPECTION BY INTERESTED AND QUALIFIED INDIVIDUALS.

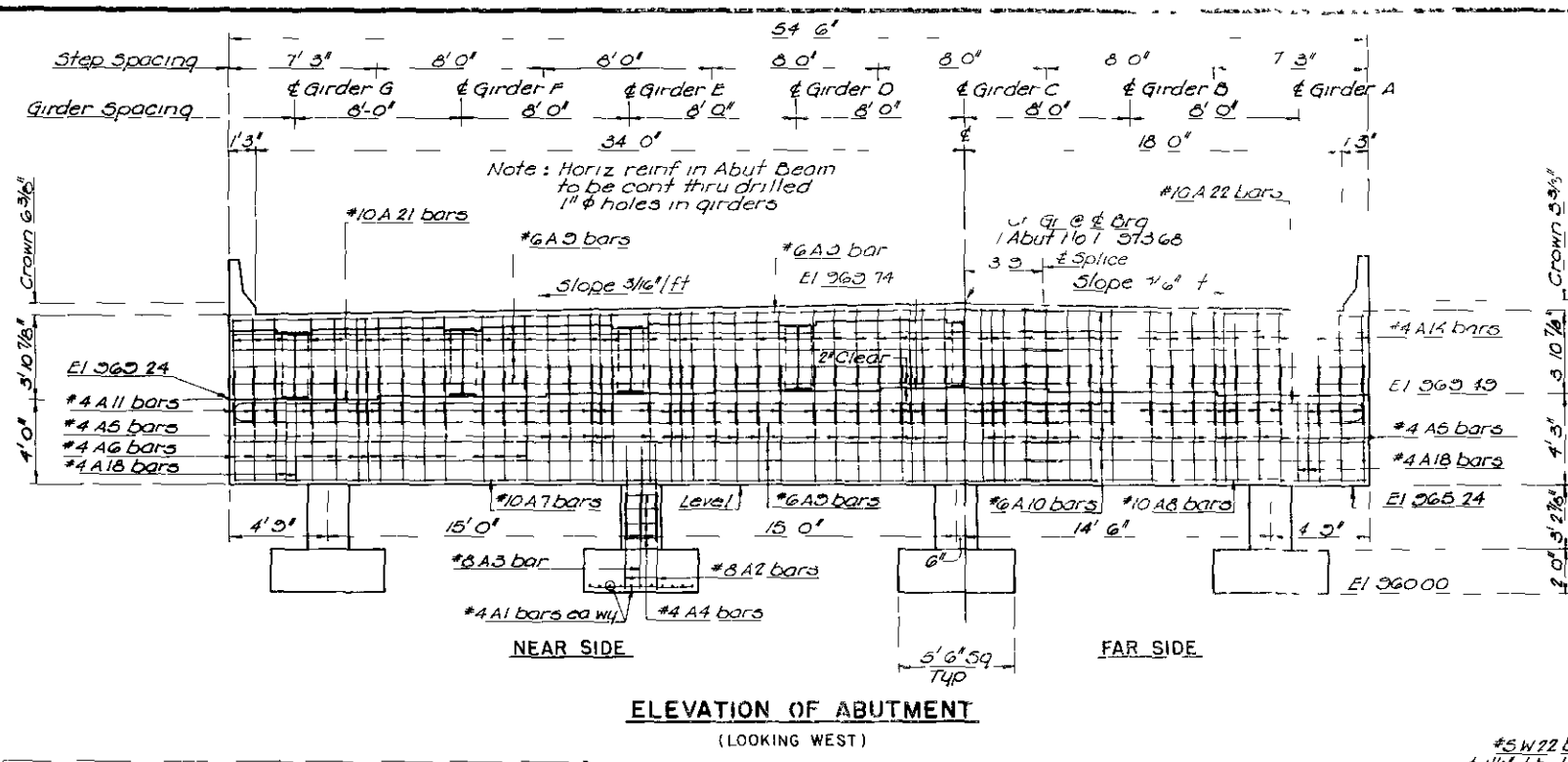
Scale 1" = 20' Horiz. 1" = 20' Vert.

NO.	DATE	REVISIONS	BY	APP'D.

KANSAS DEPARTMENT OF TRANSPORTATION
BR NO 12 46 3 96 STA 10+50.00
K 12 EASTBOUND OVER RENNEN ROAD
ENGINEERING GEOLOGY
PROJ NO 12 46 FF 131 1(2) JOHNSON COUNTY

SHEET NO 12 OF 27	SCALE	APP'D.	QUANTITIES	TRACED
DESIGNED M.L.B.	DETAILED J.C.B.			
DESIGNER G.E.B.	DETAILER M.L.B.			

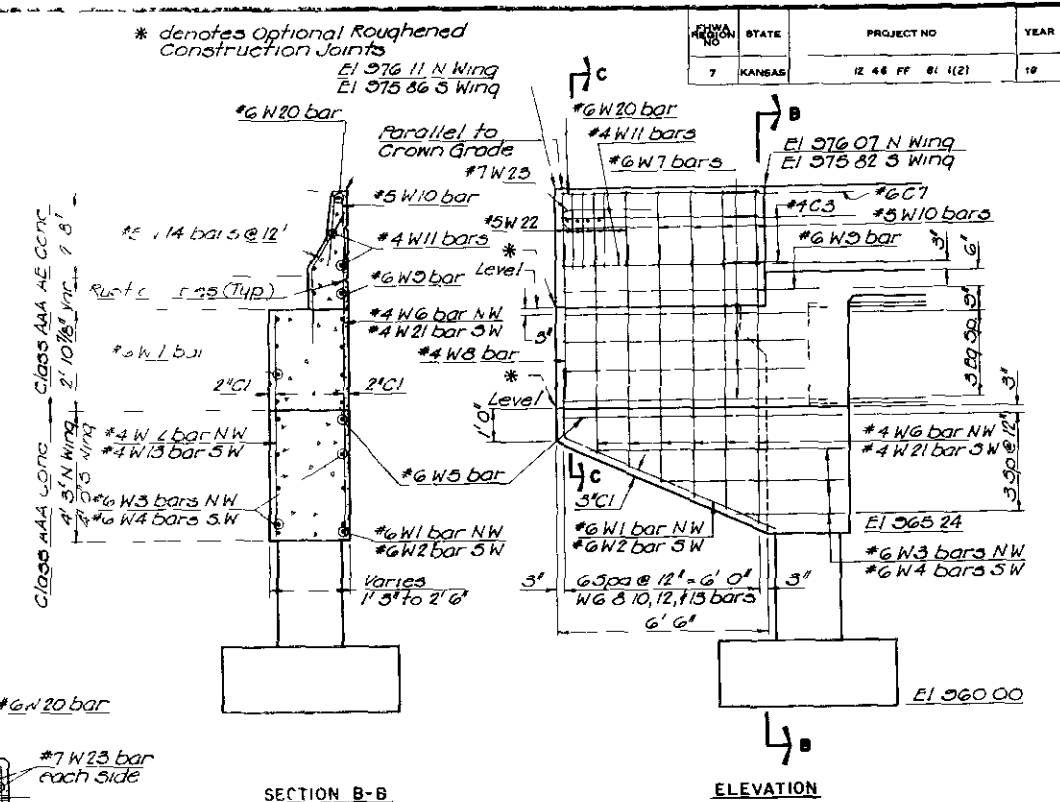
REGION	STATE	PROJECT NO.	YEAR	SHEET	TOTAL
7	KANSAS	12 46 FF 01 (2)	19	43	134



Girder	A	D	C	D	E	F	G
Elev	969.19	969.62	969.74	969.62	969.49	969.37	969.24

	Actual	Allowable
Group I	2.5 tsf	3 tsf
Group III	3.3 tsf	3.7 tsf

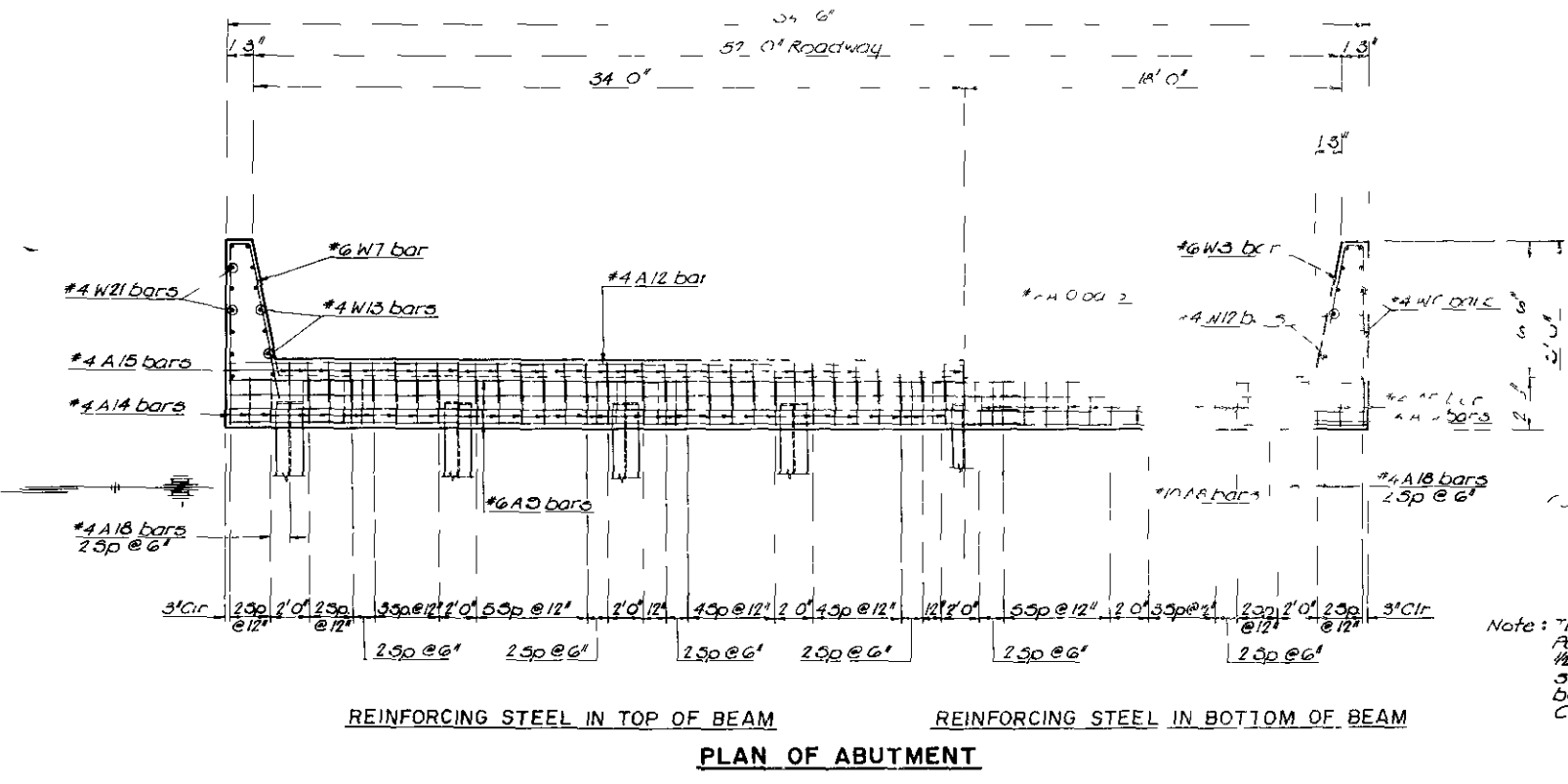
Notes: See Sheet No 21 for Curb Transition Details for Girder Rail Connection



SECTION B-B

ELEVATION

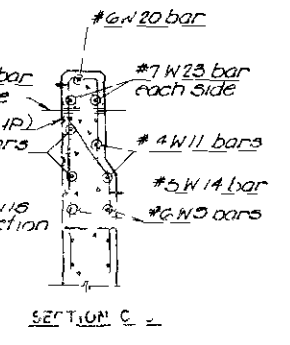
WINGWALL DETAILS



REINFORCING STEEL IN TOP OF BEAM

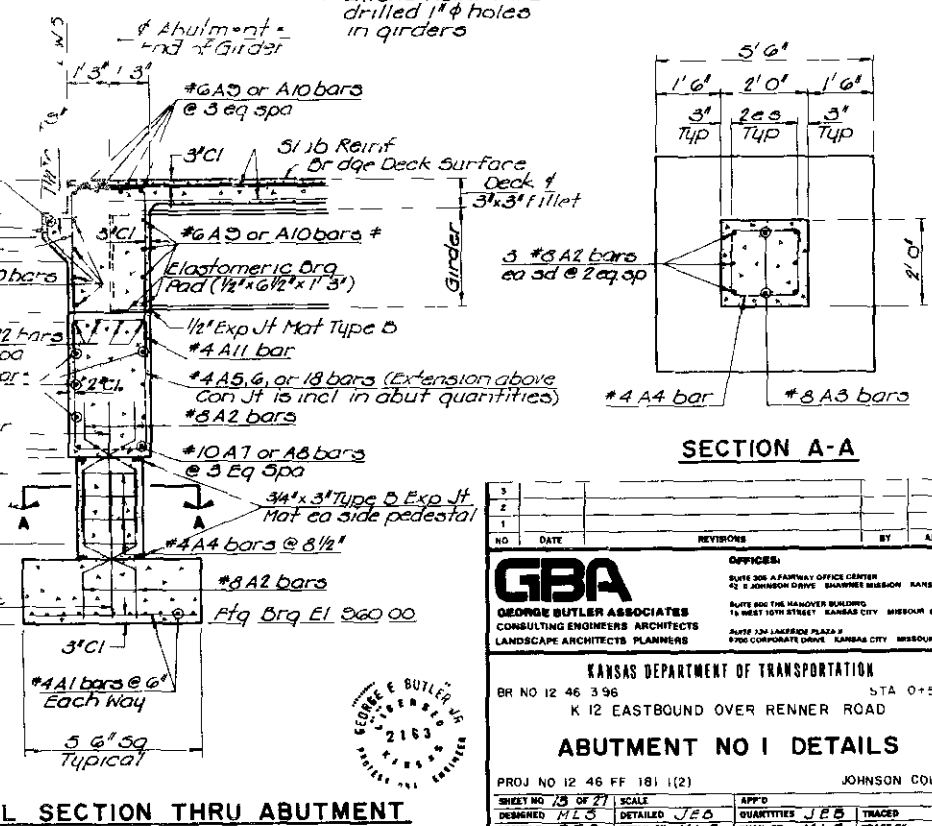
REINFORCING STEEL IN BOTTOM OF BEAM

PLAN OF ABUTMENT

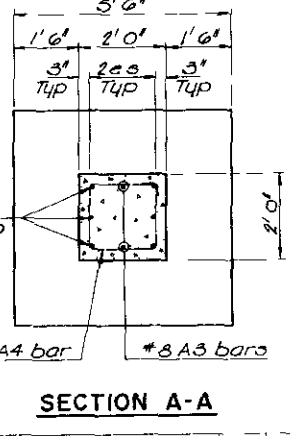


SECTION C-C

Note: The Elastomeric Bearing Pad (1/2" x 6 1/2" x 1' 3") and the 1/2" Exp Jt Material (Type B) shall be 3/4" x 1' 3" and shall be subsidiary to Class AAA Concrete



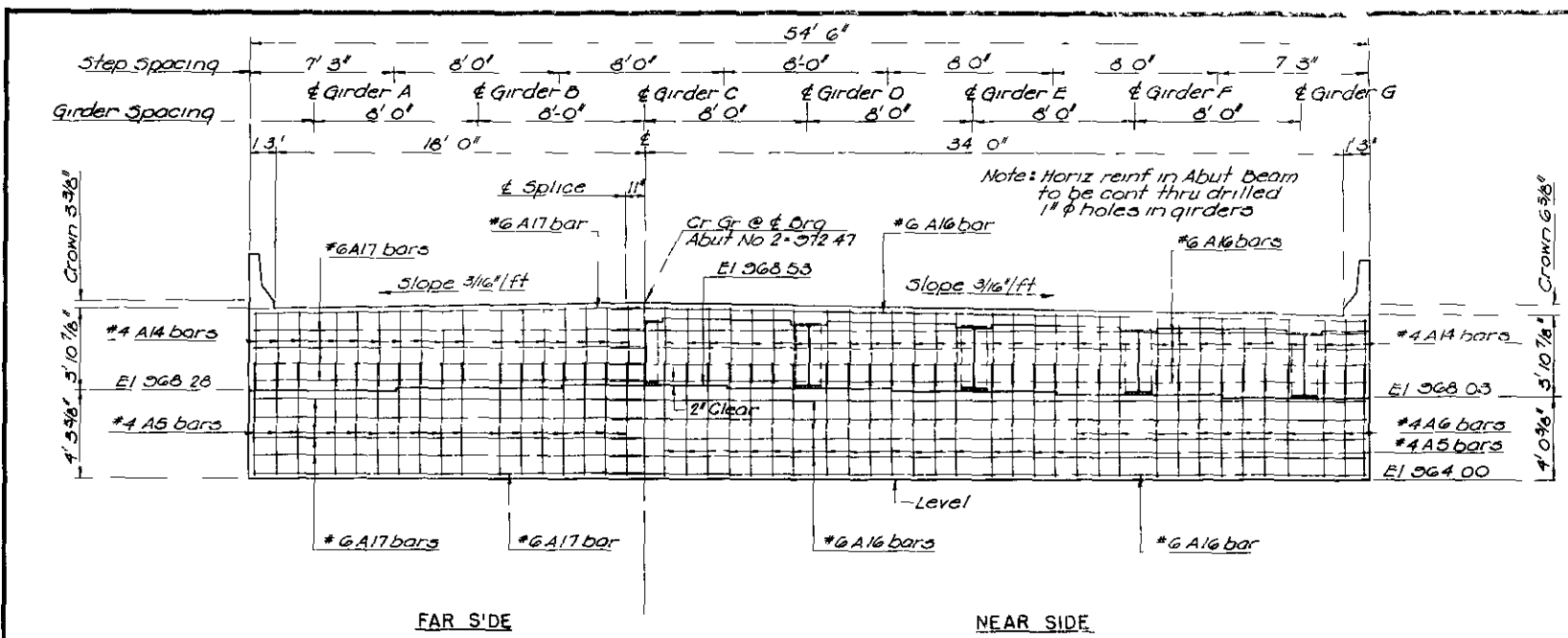
TYPICAL SECTION THRU ABUTMENT



SECTION A-A

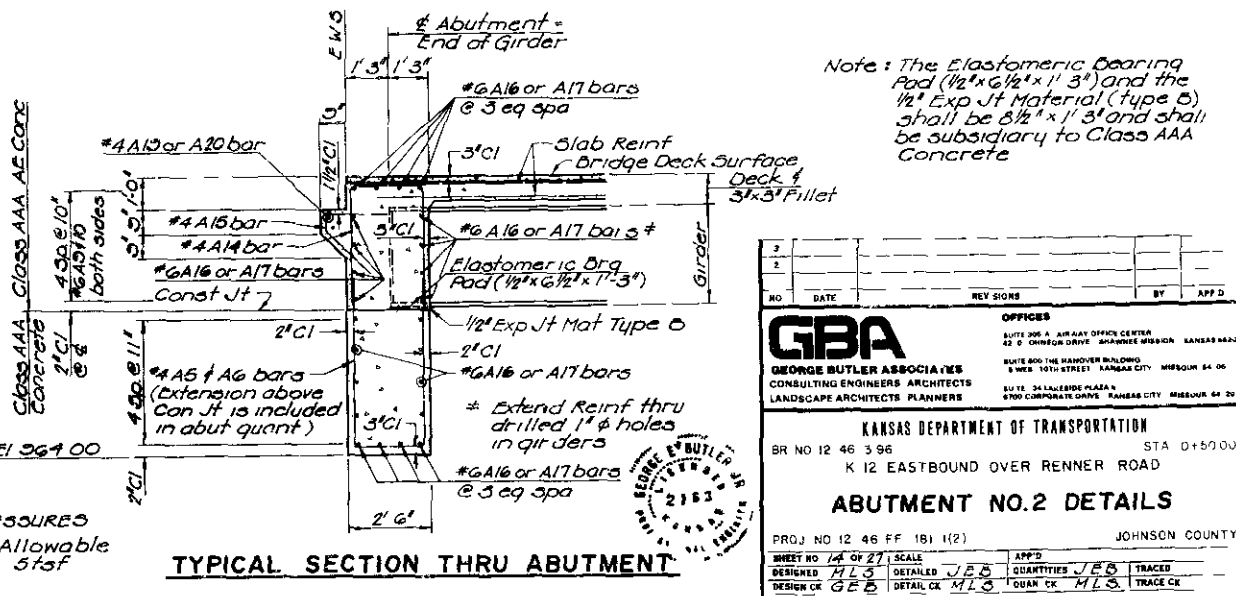
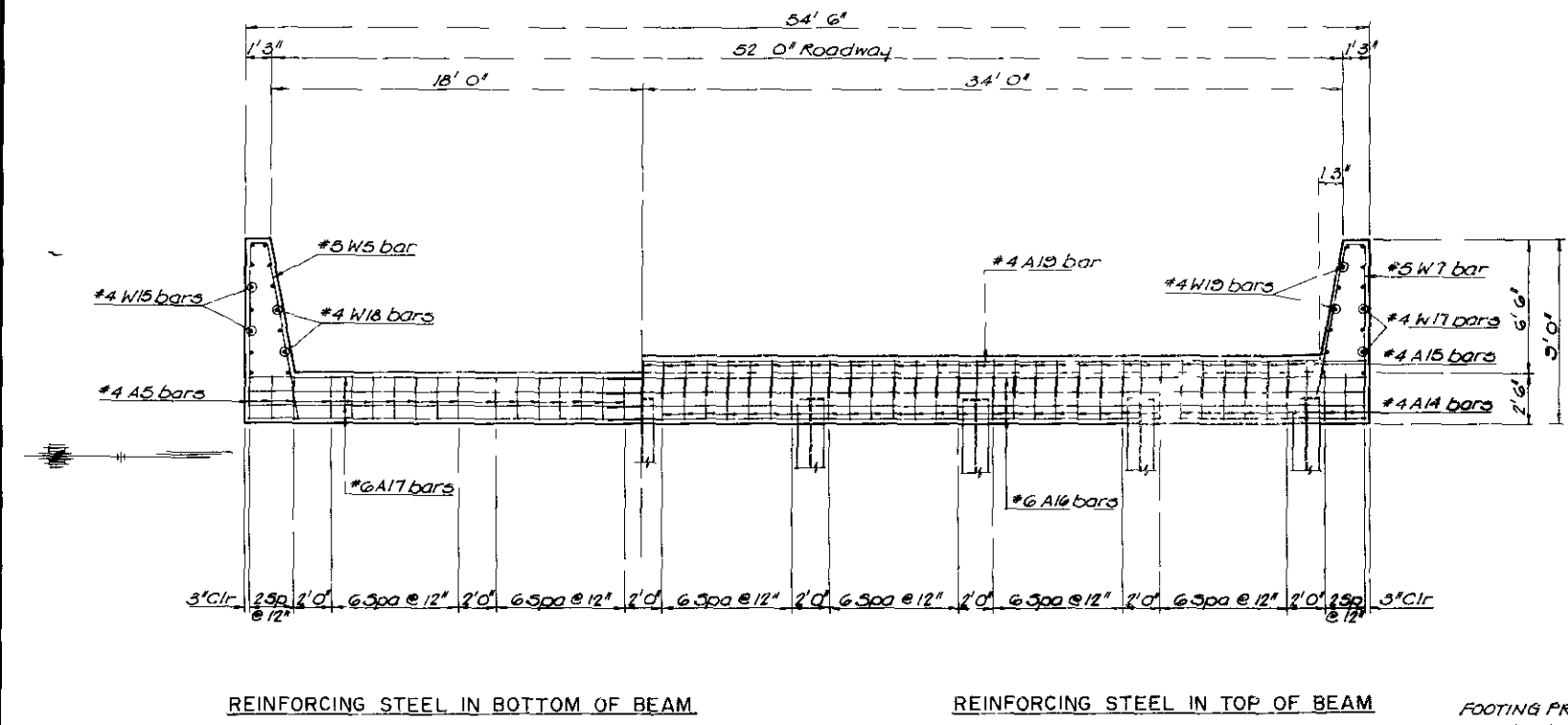
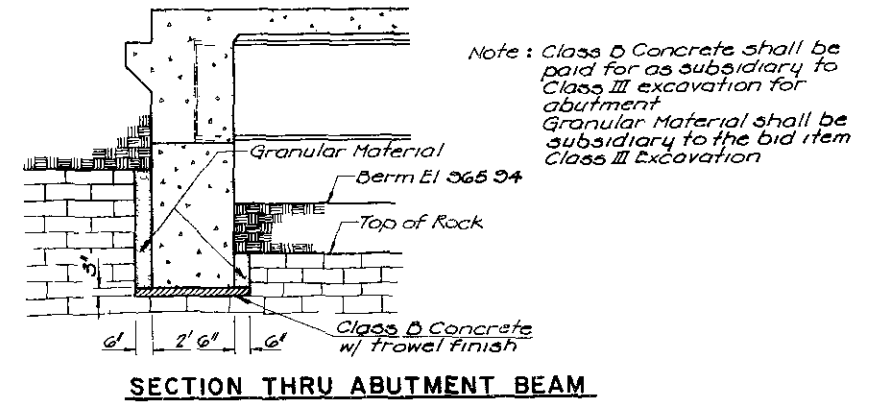
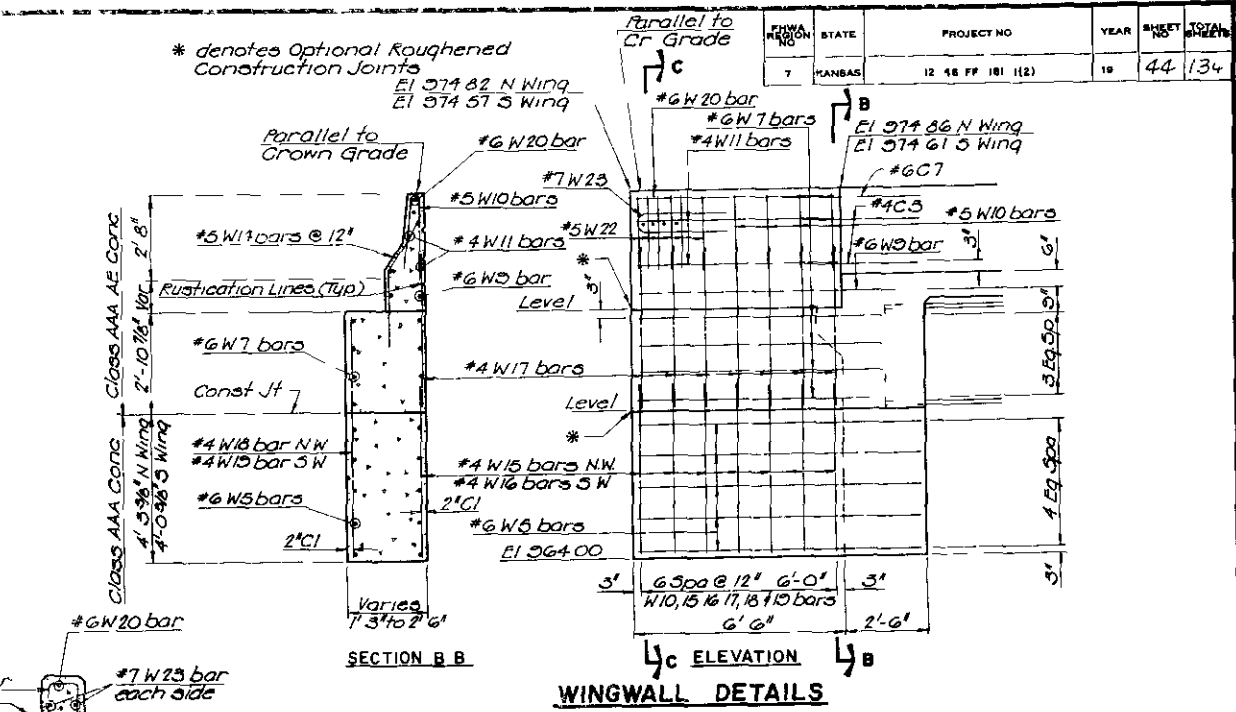
GBA		OFFICES:	
GEORGE BUTLER ASSOCIATES CONSULTING ENGINEERS ARCHITECTS LANDSCAPE ARCHITECTS PLANNERS		SUITE 308 A PARTWAY OFFICE CENTER 212 JOHNSON DRIVE SHAWNEE MISSION KANSAS 66201 SUITE 502 THE HANOVER BUILDING 15 WEST 10TH STREET KANSAS CITY MISSOURI 64108 SUITE 120 LAMARSON PLAZA 4700 CORPORATE DRIVE KANSAS CITY MISSOURI 64120	
KANSAS DEPARTMENT OF TRANSPORTATION			
BR NO 12 46 3 96		STA 0+50000	
K 12 EASTBOUND OVER RENNER ROAD			
ABUTMENT NO 1 DETAILS			
PROJ NO 12 46 FF 181 (2)		JOHNSON COUNTY	
SHEET NO 18 OF 21	SCALE	APP'D	QUANTITIES J.E.B. TRACER
DESIGNED M.L.S.	DETAILED J.F.B.	QUAN CK M.L.S.	TRACE CK
DESIGN CK G.P.D.	DETAIL CK M.L.S.		

REGION	STATE	PROJECT NO	YEAR	SHEET NO	TOTAL SHEETS
7	KANSAS	12 46 FF 181 (12)	19	44	134



Girder	A	B	C	D	E	F	G
Elev	568.28	568.41	568.53	568.41	568.28	568.16	568.03

ELEVATION OF ABUTMENT (LOOKING EAST)



NO.	DATE	REV.	BY	APP'D.

OFFICES

GBA
GEORGE BUTLER ASSOCIATES
CONSULTING ENGINEERS ARCHITECTS
LANDSCAPE ARCHITECTS PLANNERS

1015 W. 4th Street, Suite 200, Kansas City, MO 64105

KANSAS DEPARTMENT OF TRANSPORTATION
BR NO 12 46 3 96 STA 0+500.00
K 12 EASTBOUND OVER RENNER ROAD

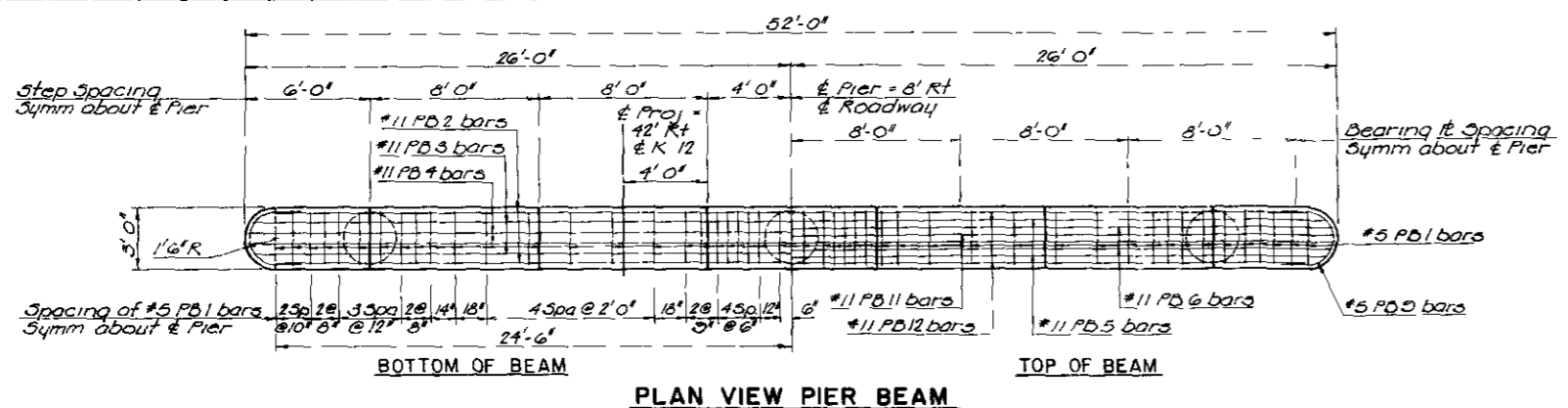
ABUTMENT NO.2 DETAILS

PROJ NO 12 46 FF 181 (12) JOHNSON COUNTY

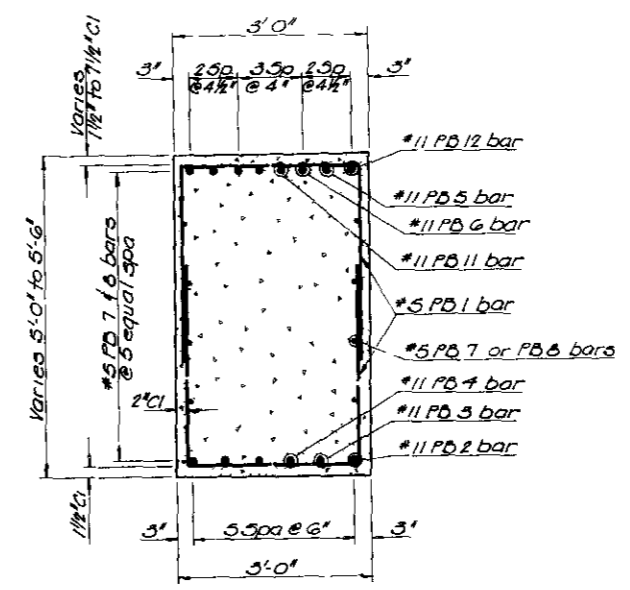
SHEET NO 44 OF 27 SCALE APP'D

DESIGNED BY M.L.S. CHECKED BY J.E.B. QUANTITIES BY J.E.B. TRACKED BY M.L.S.

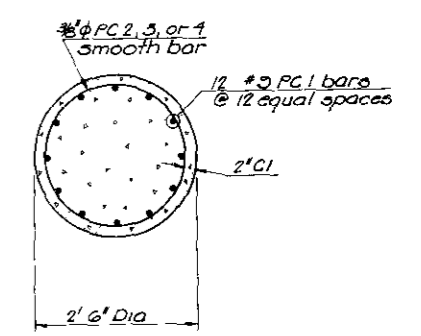
PROJ NO	STATE	PROJECT NO	YEAR	SHEET	TOTAL
1	KANSAS	12 46 FF 181 (12)	18	45	134



PLAN VIEW PIER BEAM



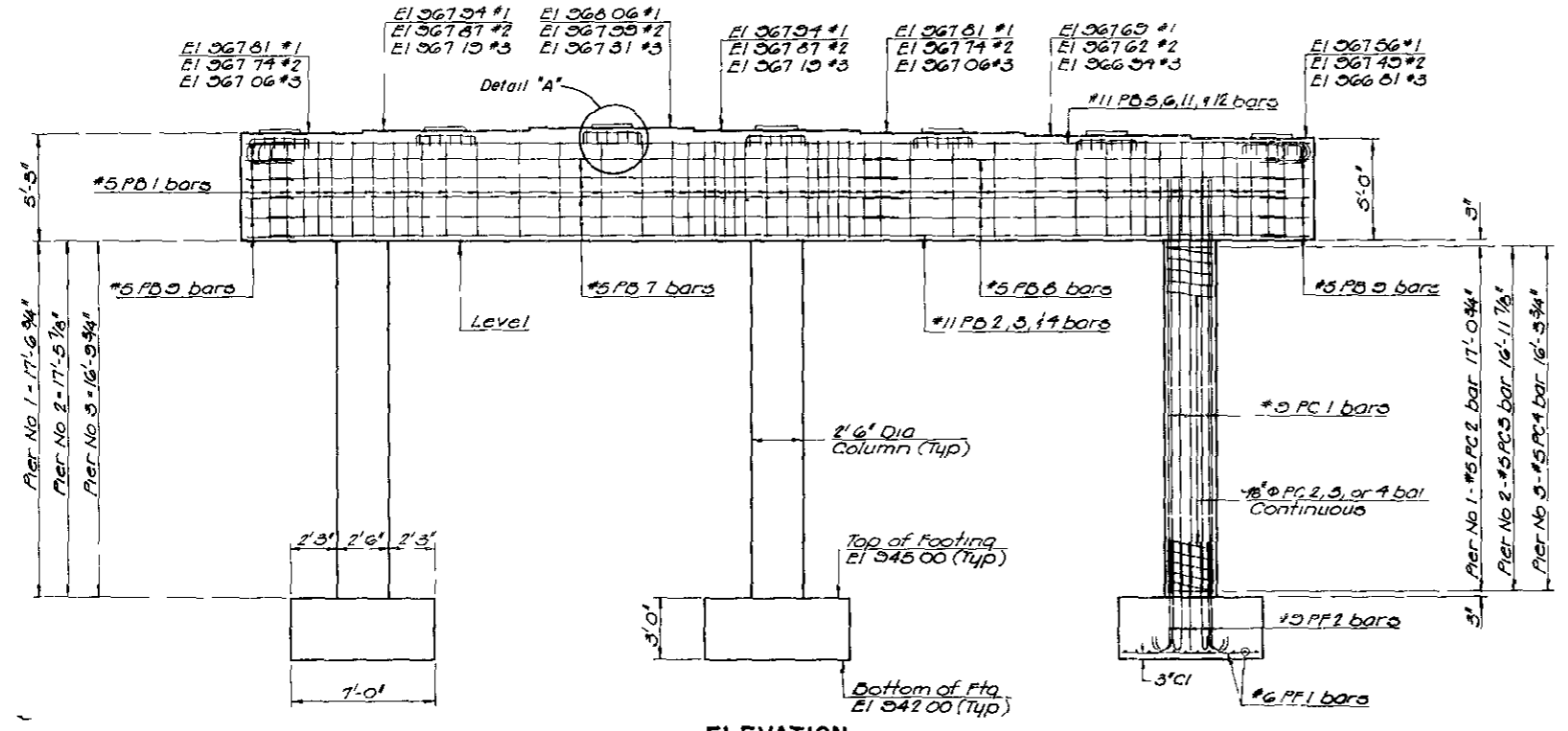
SECTION THRU BEAM



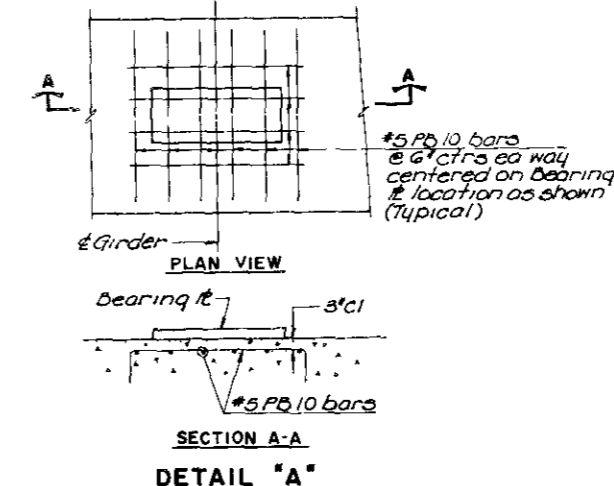
SECTION THRU COLUMN

GENERAL NOTES

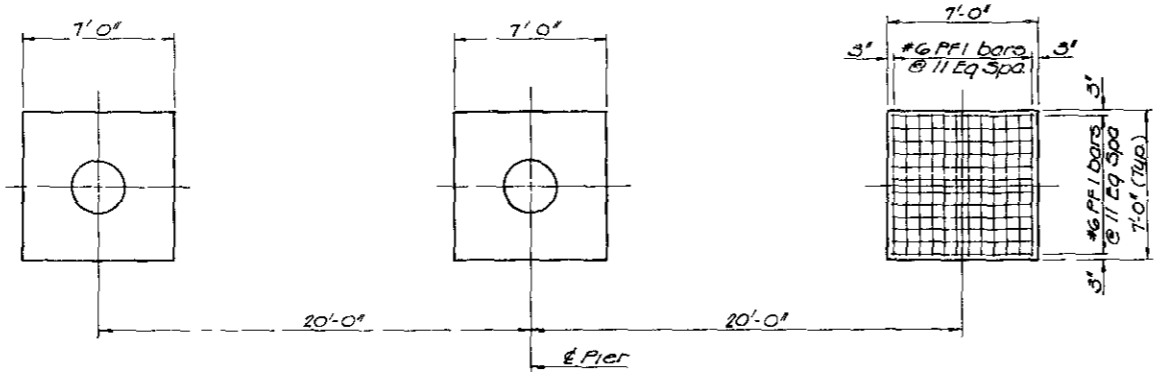
Design: H 20 44 AASHTO Specifications - 1977 Edition and subsequent revisions
 Unit Stresses: Class AAA Concrete $f_c = 1,600 \text{ psi}$, $f'_c = 1,000 \text{ psi}$, Reinforcing Steel (Grade 40) $f_y = 10,000 \text{ psi}$, $f_s = 20,000 \text{ psi}$
 Concrete: Class AAA Conc shall be used thruout. Bevel all exposed edges with a $\frac{3}{4}$ " triangular moulding unless otherwise noted.
 Reinforcing: Grade 40 reinforcing steel shall be used thruout. All dimensions relative to reinforcing steel are to centerline of bar unless otherwise noted.
 Preformed Anchor Bolt Holes: The Contractor shall preform a hole 2" larger in diameter than the anchor bolts and with a roughened edge surface at the location of the anchor bolt holes for the bearing plates. The holes shall be preformed by a method approved by the Engineer. This work shall not be paid for directly but shall be subsidiary to Bearing Devices.



ELEVATION



SECTION A-A DETAIL 'A'



FOOTING DETAIL

SUMMARY OF QUANTITIES			
	Pier 1	Pier 2	Pier 3
Class AAA Concrete	56.0 CY	56.0 CY	55.6 CY
Reinforcing Steel	2262 Lbs	2261 Lbs	2247 Lbs
Class III Excavation	103 CY	125 CY	103 CY

Note: See Sheet No 24 for Bill of Reinforcing Steel

FOOTING PRESSURES		
Group	Actual	Allowable
Group I	5.2 tsf	12 tsf
Group III	5.2 tsf	12 tsf

NO.	DATE	REVISIONS	BY	APP'D

GBA
 GEORGE BUTLER ASSOCIATES
 CONSULTING ENGINEERS, ARCHITECTS
 LANDSCAPE ARCHITECTS, PLANNERS

OFFICES:
 2112 JOE A. FARNEY OFFICE CENTER
 4310 JENNIFER DRIVE / SHAWNEE MISSION, KANSAS 66214
 SUITE 200 THE HANCOCK BUILDING
 15 WEST 14TH STREET / BARRAS CITY / MISSOURI 64108
 SUITE 34 LAKESIDE PLAZA
 4700 CORPORATE DRIVE, KANSAS CITY / MISSOURI 64110

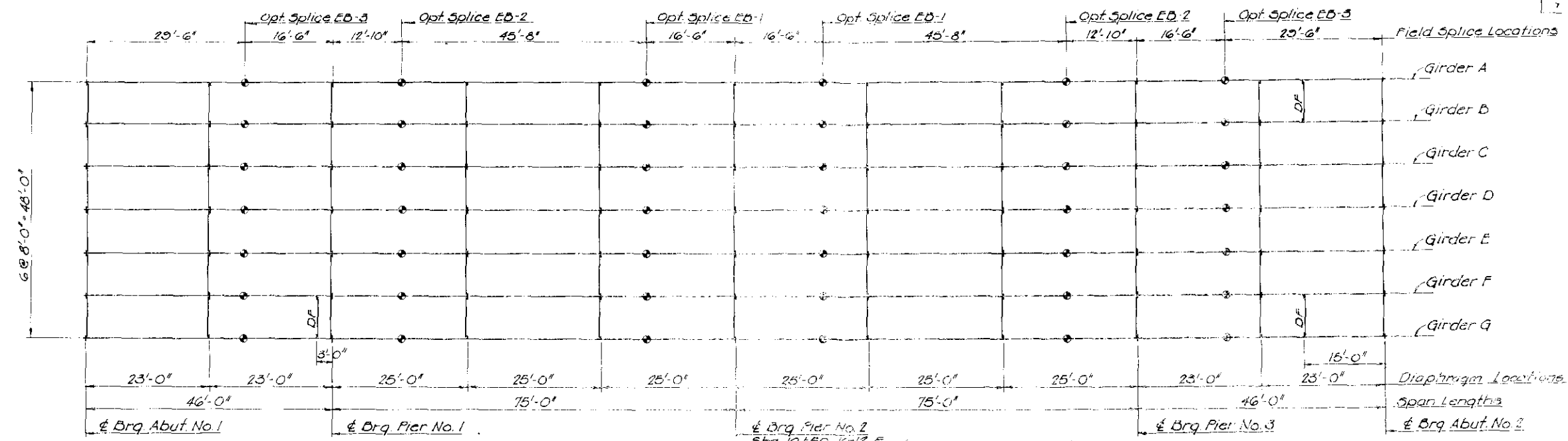
KANSAS DEPARTMENT OF TRANSPORTATION
 BR NO 12 46 386 STA 10+50.00
 K 12 EASTBOUND OVER RENNER ROAD

PIER DETAILS

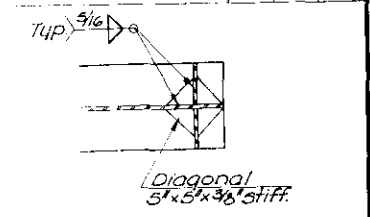
PROJ NO 12 46 FF 181 (12) JOHNSON COUNTY
 SHEET NO 15 OF 27 SCALE APP'D
 DESIGNED: M.L.S. CHECKED: J.E.D. QUANTITIES: J.E.D. TRACKED
 DESIGN: G.E.B. DETAIL: M.L.S. DRAWN: M.L.S. TRACE: C.E.



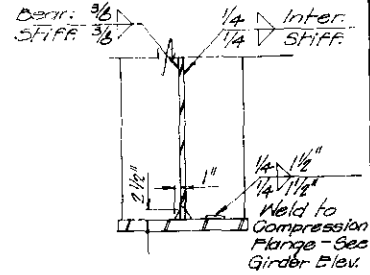
PROJ. NO.	STATE	YEAR	SHEET NO.	TOTAL SHEETS
12-46-FF-181-1(2)	KANSAS	19	46	134



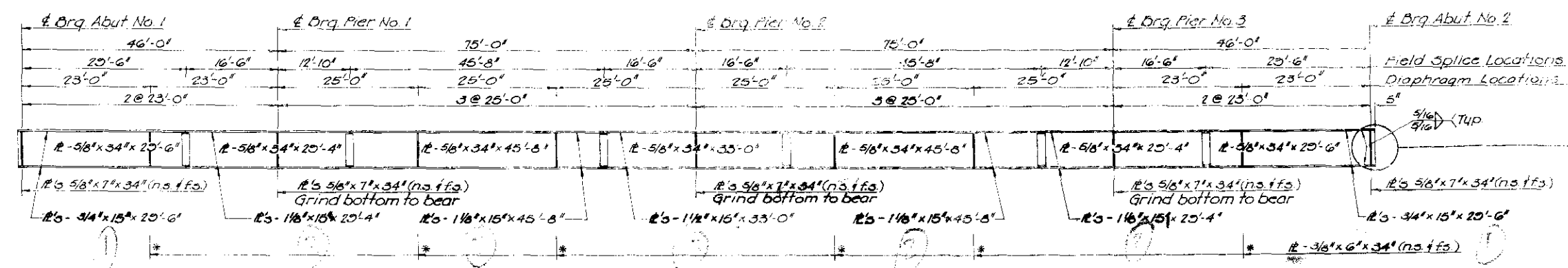
FRAMING PLAN
 Note: Transverse Bracing Designated as 'DF' shall be drain framing. See Sht. 23 for detail.



SECTION A-A

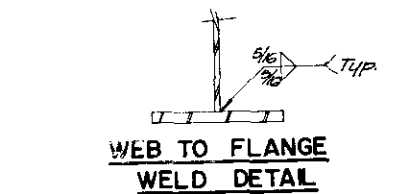


STIFFENER WELD DETAIL

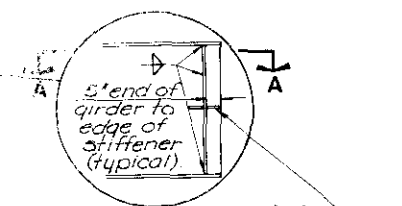


ELEVATION - GIRDERS B THRU F

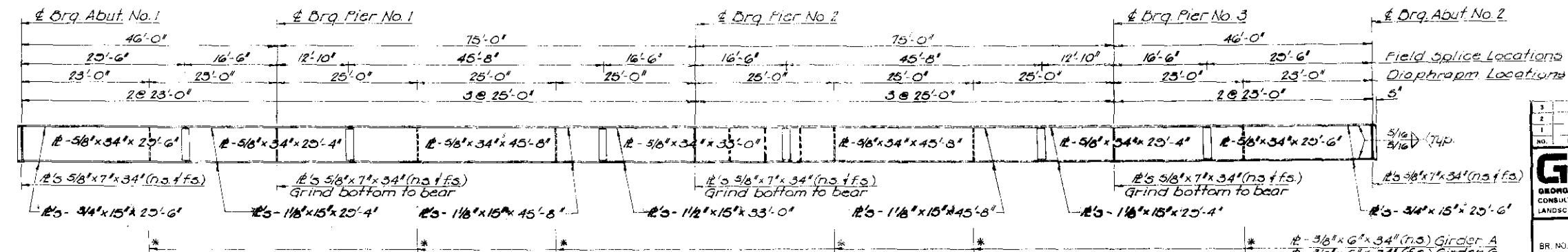
NOTE: Weld to Compression Flange
 * - Weld to top flange only.



WEB TO FLANGE WELD DETAIL



SHOP WEB & FLANGE SPLICE DETAIL



ELEVATION - GIRDERS A & G

Structural Steel: Flange plate and Flange splice plate steel shall conform to A.A.S.H.T.O. Desig. M 183.

NOTE: All transverse stiffeners may be vertical or perpendicular to the top flange.

NO.	DATE	REVISIONS	BY	APP'D

GBA
 GEORGE BUTLER ASSOCIATES
 CONSULTING ENGINEERS ARCHITECTS
 LANDSCAPE ARCHITECTS PLANNERS

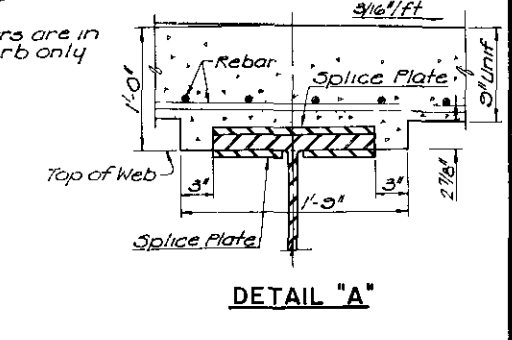
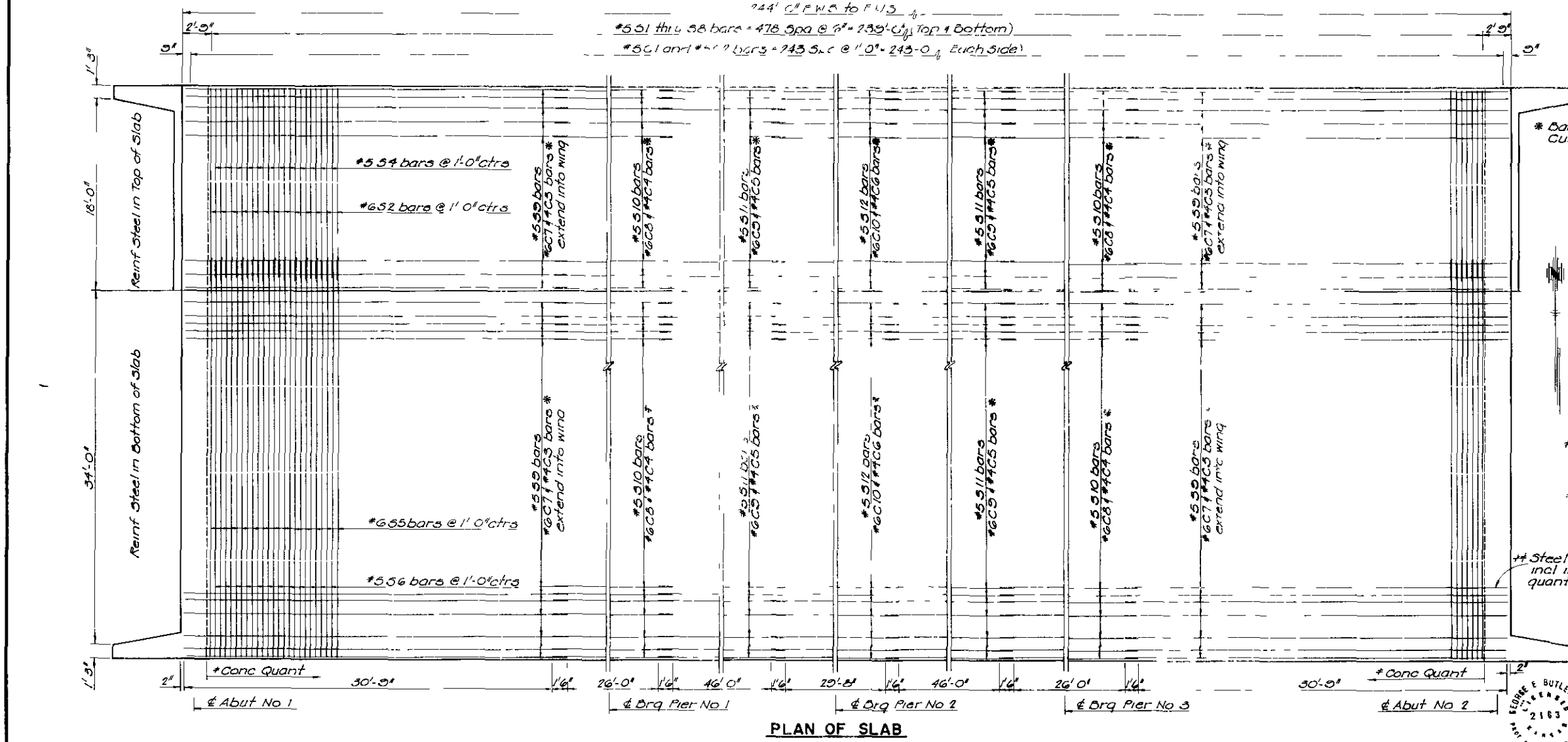
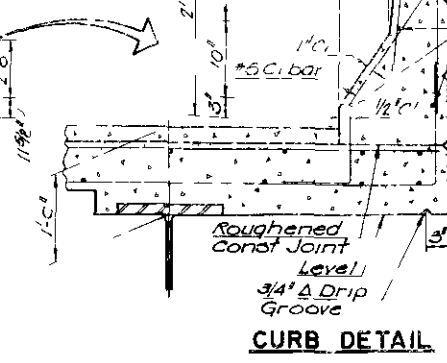
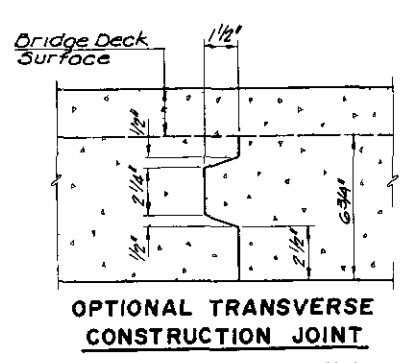
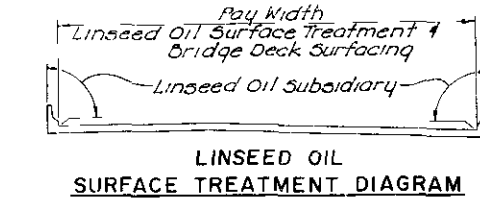
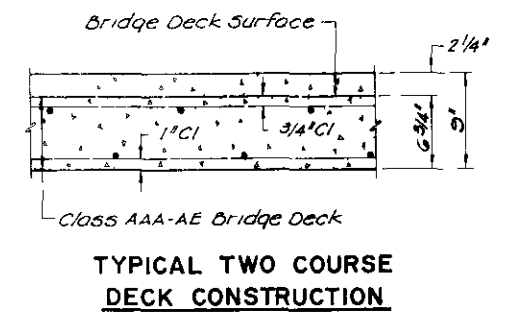
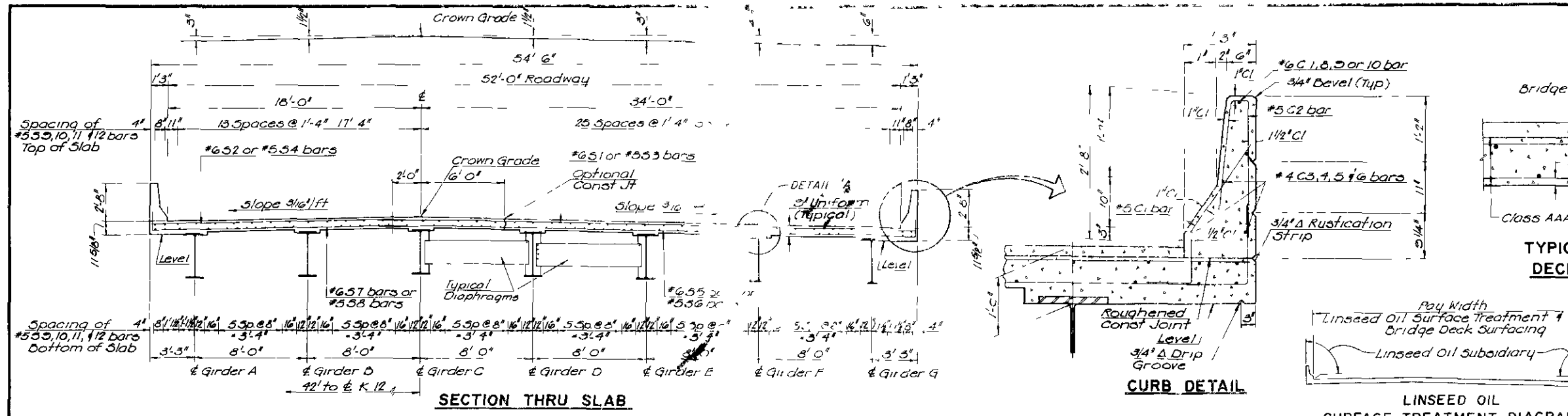
OFFICES:
 2017 304 A FARMWAY OFFICE CENTER
 4870 JOHNSON DRIVE / MANHATTAN MISSOURI / KANSAS REGION
 SUITE 200 THE HANCOCK BUILDING
 15 WEST TENTH STREET / KANSAS CITY / MISSOURI 64101
 SUITE 104 LAURELWOOD PLAZA
 8700 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64114

KANSAS DEPARTMENT OF TRANSPORTATION
 BR. NO. 12-46-396 STA 10+50.00
 K 12 EASTBOUND OVER RENNER ROAD

GIRDER DETAILS

PRJ. NO. 12-46-FF-181-1(2) JOHNSON COUNTY
 SHEET NO. 76 OF 27 SCALE
 DESIGNED: P.L.S. CHECKED: J.E.S. QUANTITIES: J.E.S. (TRACED)
 DESIGN: G.L.S. DETAIL: G.L.S. QUAN. CK: M.L.S. TRACE: G.L.S.

REGION NO	STATE	PROJECT NO	YEAR	SHEET NO	TOTAL SHEETS
7	KANSAS	12 48 FF 181 (12)	10	47	134



Note: Contractor may pour bridge deck thru optional transverse construction joint but shall end construction at construction joint location shown

* Conc Quant shown is from edge of abutment to edge of abutment incl curbs & haunches
** Incl curb & slab steel penetration into abutments

SUMMARY OF QUANTITIES	
* Class AAA Concrete AE	418.8 CY
** Reinforcing Steel	102,560 Lbs

NO	DATE	REVISIONS	BY	APP'D
1				
2				
3				

GBA
GEORGE BUTLER ASSOCIATES
CONSULTING ENGINEERS ARCHITECTS
LANDSCAPE ARCHITECTS / PLANNERS

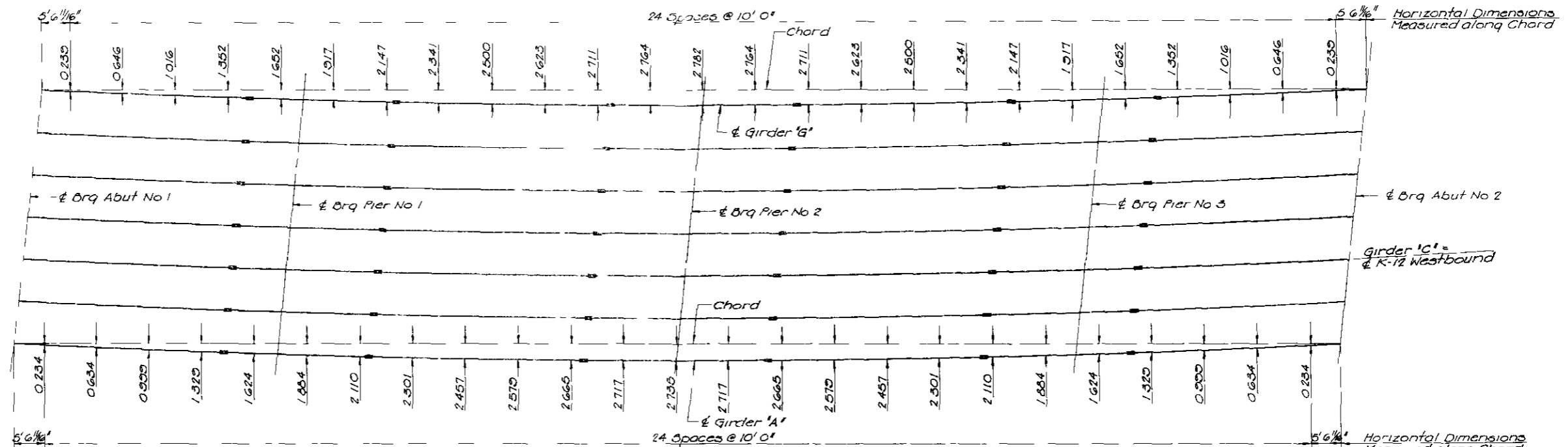
KANSAS DEPARTMENT OF TRANSPORTATION
BR NO 12 48 3 96 STA 10+50.00
K 12 EASTBOUND OVER RENNER ROAD

SUPERSTRUCTURE DETAILS

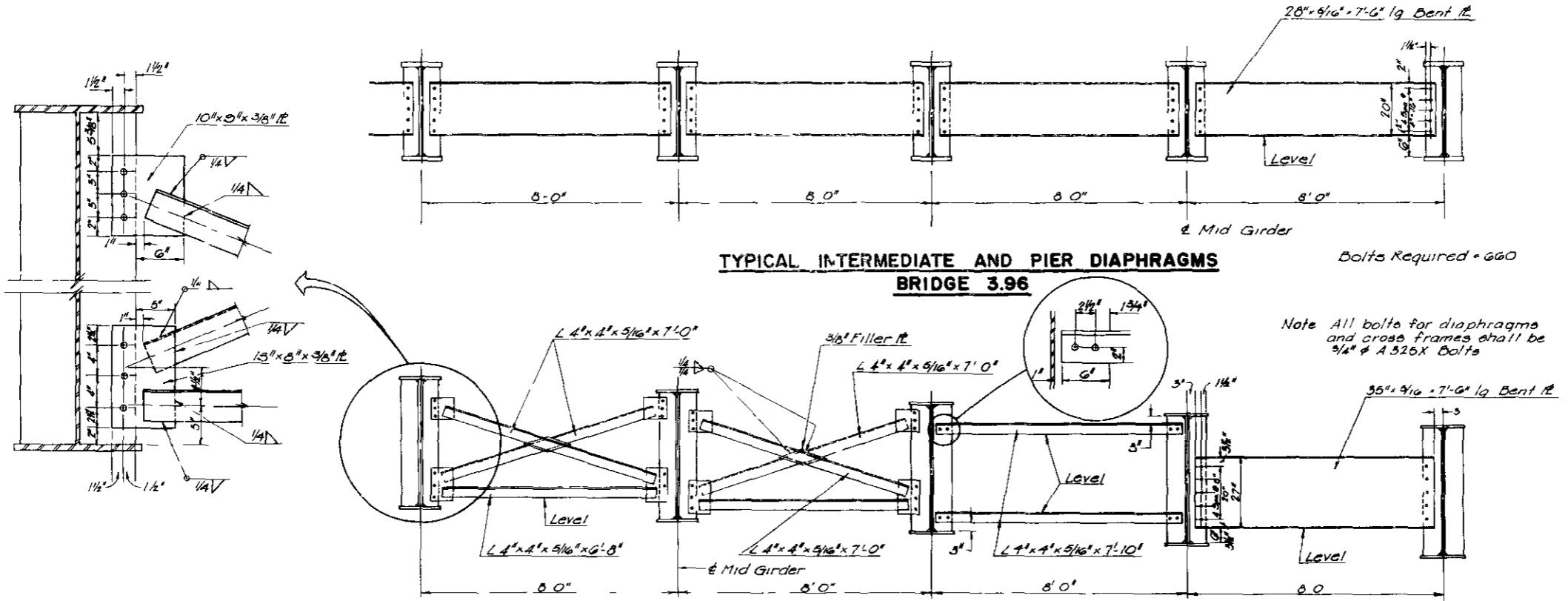
PROJ NO 12 48 FF 181-(12) JOHNSON COUNTY

SHEET NO 77 OF 271 SCALE APP'D
DESIGNED HLS DETAILED JEB QUANTITIES JEB TRACED
CHECKER GEB DETAIL CR HLS QUAN CR HLS TRACE CR

CIVIL REGION	STATE	PROJECT NO	YEAR	SHEET NO	TOTAL SHEETS
7	KANSAS	12 46 FF 181 (2)		48	134



**CHORD DIMENSIONS FOR CURVED GIRDERS
BRIDGE 3.95**



**TYPICAL INTERMEDIATE AND PIER DIAPHRAGMS
BRIDGE 3.96**

BRIDGE 3.95 SUMMARY OF STRUCT STEEL QUANT

	M183	A36
Girder Flanges	146,640 Lbs	
Girder Webs		107,785 Lbs
Stiffeners		16,625 Lbs
Cross Frames & Diaphragms		28,919 Lbs
Flange Splice Plates	7,460 Lbs	
Web Splice Plates		5,300 Lbs
Drain Frames		200 Lbs
TOTAL	154,120 Lbs	150,138 Lbs

BRIDGE 3.96 SUMMARY OF STRUCT STEEL QUANT

	M183	A36
Girder Flanges	187,642 Lbs	
Girder Webs		122,520 Lbs
Stiffeners		4,648 Lbs
Diaphragms		14,715 Lbs
Flange Splice Plates	13,407 Lbs	
Web Splice Plates		3,726 Lbs
Drain Frames		314 Lbs
TOTAL	201,049 Lbs	145,532 Lbs

TYPE "F1" CROSS FRAMES AT PIERS
TYPE "F2" CROSS FRAME AT ABUTMENT
TYPE "F3" INTERMEDIATE DIAPHRAGM
**TYPICAL INTERMEDIATE DIAPHRAGMS AND PIER CROSS FRAMES
BRIDGE 3.95**

Bolts Req'd = 1,152

NO. DATE REVISIONS BY APP'D

GBA
GEORGE BUTLER ASSOCIATES
CONSULTING ENGINEERS / ARCHITECTS
LANDSCAPE ARCHITECTS / PLANNERS

OFFICE:
SUITE 202 & LAMARWAY OFFICE CENTER
1212 JOHNSON DRIVE / SHAWNEE DESIGN / KANSAS 66205

APR 2001 THE HANOVER BUILDING
18 WEST 19TH STREET / KANSAS CITY / MISSOURI 64108

SUITE 152 LAMARWAY PLAZA II
6701 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64130

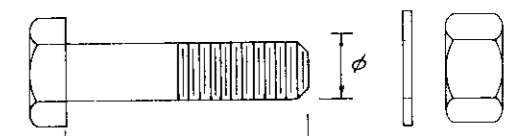
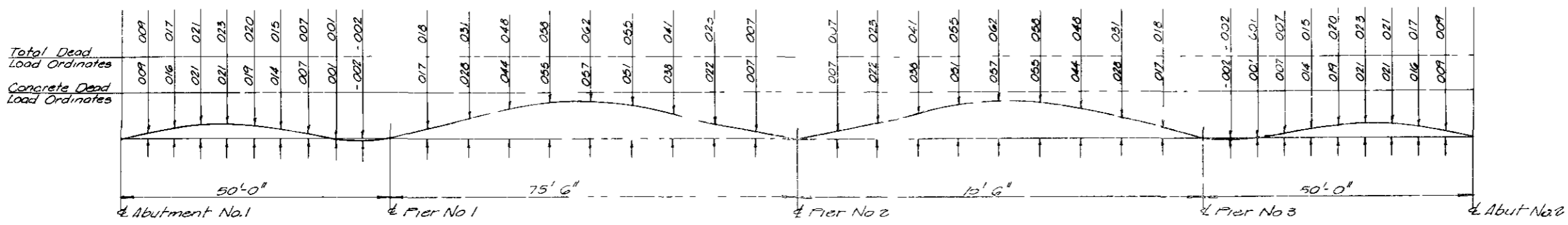
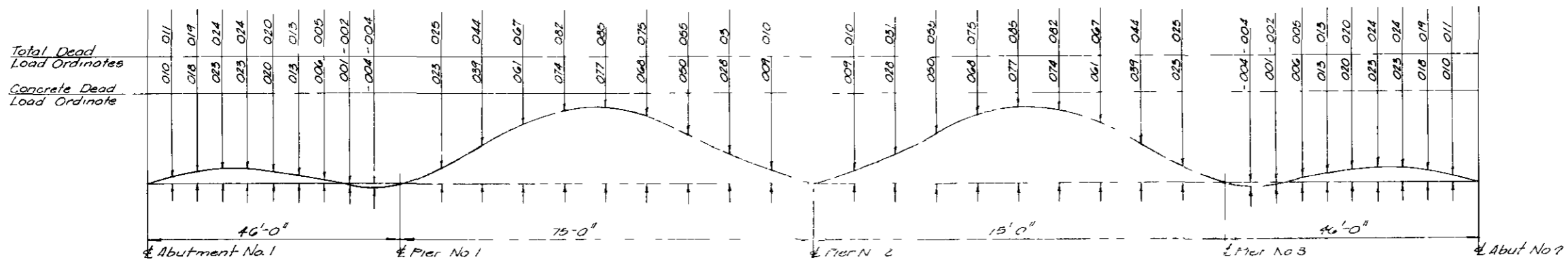
KANSAS DEPARTMENT OF TRANSPORTATION
BR NO 2 46 3 95 STA 54+97.47
BR NO 12 46 3 96 STA 10+50.00

K 12 OVER RENNER ROAD

**MISCELLANEOUS SUPERSTRUCTURE
DETAILS**

PROJ. NO. 12 46 FF 181-112 JOHNSON COUNTY
SHEET NO. 48 OF 77 SCALE APP'D
DESIGNED MLS CHECKED JEB QUANTITIES JEB TRACED JEB
DESIGN CK GEB DETAIL CK MLS QUAN CK MLS TRACE CK JEB

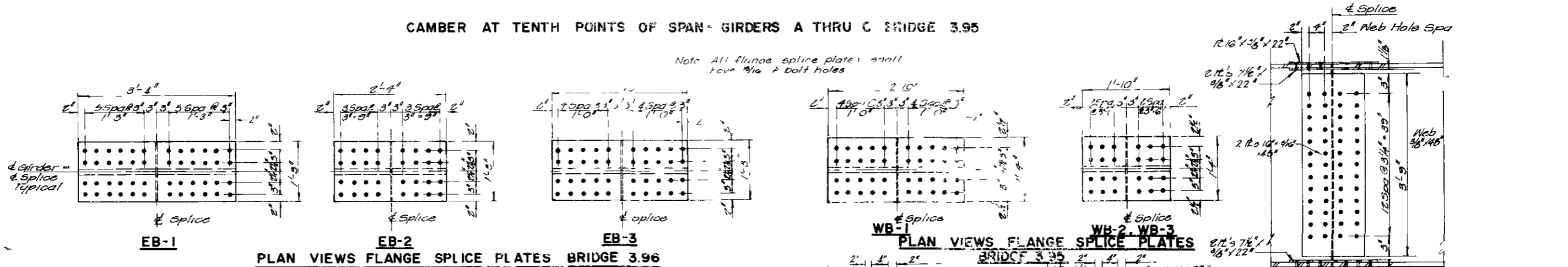
DISTRICT	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	12 46 FF 181 (2)	19	49	132



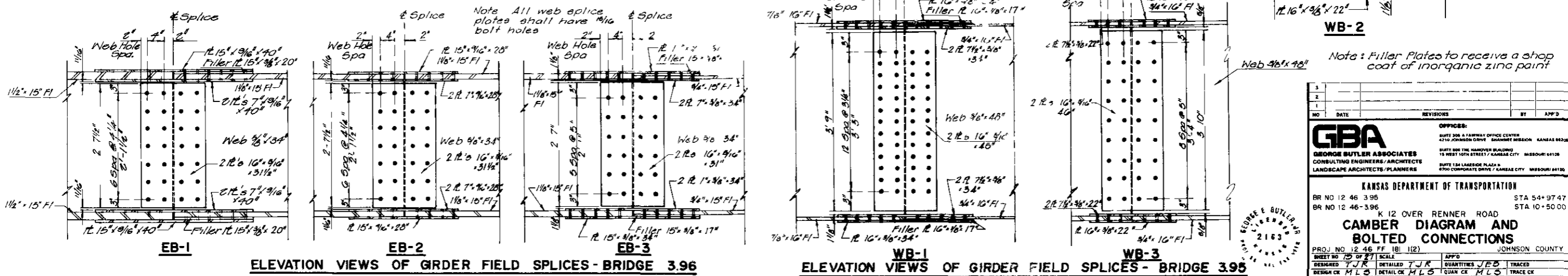
7/8" φ	2 1/4" WB-1, 2 1/3 Webs	1,260 Req'd
7/8" φ	2 1/2" EB-1, 2 1/3 Webs	1,176 Req'd
7/8" φ	2 3/4" WB 2 1/3 Flange	1,344 Req'd
7/8" φ	3" WB-1 Flange	1,120 Req'd
7/8" φ	3 1/4" EB-3 Flange	1,120 Req'd
7/8" φ	3 1/2" EB-2 Flange	896 Req'd
7/8" φ	4" EB 1 Flange	1,344 Req'd

BOLT DETAIL
Total Bolts Req'd - 8,960

Note: All flange splice plates shall have 1/16" & bolt holes



Note: All web splice plates shall have 1/16" bolt holes



NO.	DATE	REVISIONS	BY	APP'D
1				
2				
3				

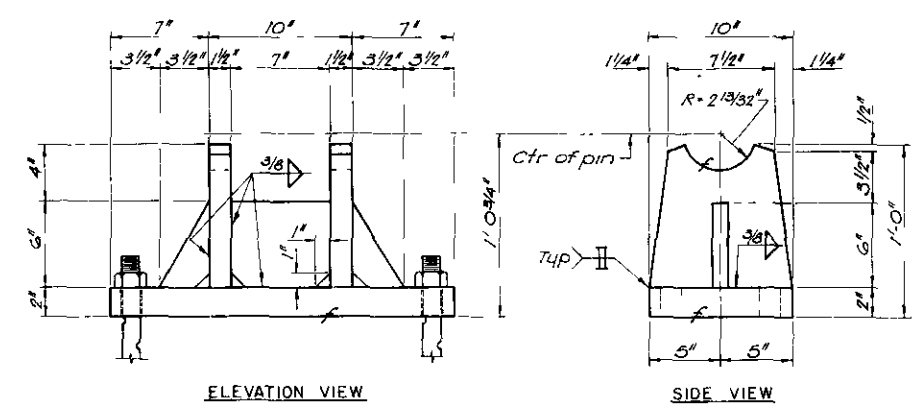
GBA
GEORGE BUTLER ASSOCIATES
CONSULTING ENGINEERS/ARCHITECTS
LANDSCAPE ARCHITECTS/PLANNERS

OFFICES:
SUITE 208 & FAIRWAY OFFICE CENTER
4210 JOHNSON DRIVE SHAWNEE MISSOURI KANSAS 66208
SUITE 209 THE HARVEY BUILDING
15 WEST 10TH STREET KANSAS CITY MISSOURI 64108
SUITE 134 LAKEVIEW PLAZA B
6700 CORPORATE DRIVE / KANSAS CITY MISSOURI 64120

KANSAS DEPARTMENT OF TRANSPORTATION
BR NO 12 46 3.95 STA 54+37.47
BR NO 12 46-3.96 STA 10+50.00
K 12 OVER RENNER ROAD
CAMBER DIAGRAM AND BOLTED CONNECTIONS
JOHNSON COUNTY

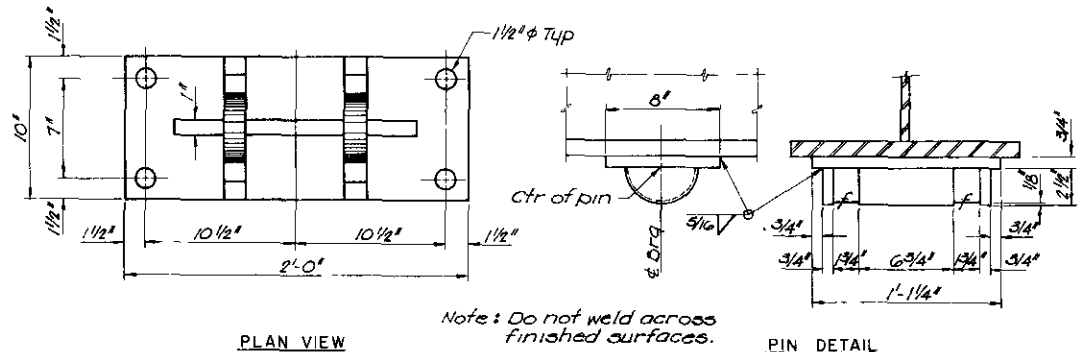
PROJ. NO. 12 46 FF 181 (12)
DESIGNED TJK SCALE APP'D
CHECKED MLS DETAILED TJK QUANTITIES JEB TRACED
DESIGN CK MLS DETAIL CK MLS QUAN CK MLS TRACE CK

PROJECT NO	STATE	PROJECT NO	YEAR	SHEET	TOTAL SHEETS
12 46 FF-181 (12)	KANSAS	12 46 FF-181 (12)	10	50	134



ELEVATION VIEW

SIDE VIEW

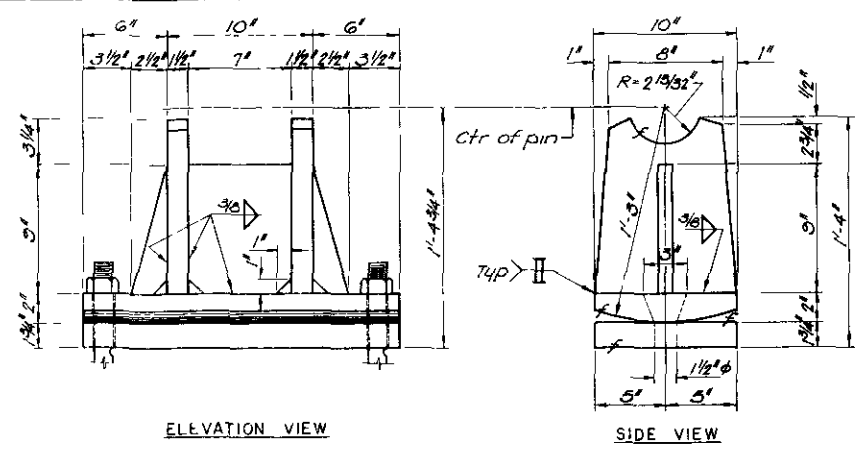


PLAN VIEW

PIN DETAIL

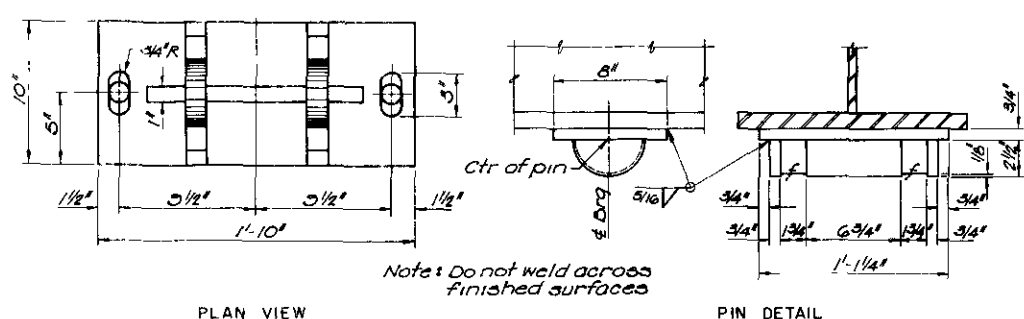
BOLSTER DETAIL

NOTE: Use Swedged Anchor Bolt A Typ for all Bolsters.
 Computed Weight
 Pin = 54.3 Lbs
 Bolster = 198.0 Lbs
 Total = 252.3 Lbs
 Number Req'd Br 305 = 7
 Number Req'd Br 306 = 7



ELEVATION VIEW

SIDE VIEW

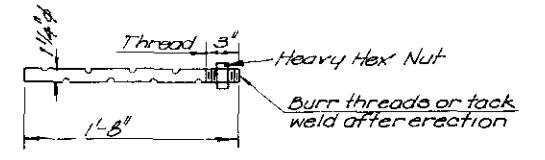


PLAN VIEW

PIN DETAIL

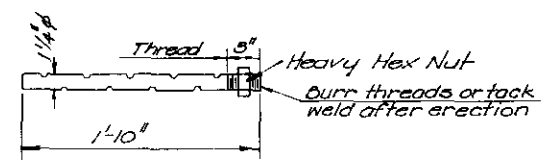
ROCKER DETAIL

NOTE: Use Swedged Anchor Bolt B Typ for all Rockers.
 Computed Weight
 Pin = 54.3 Lbs
 Rocker = 215.6 Lbs
 Bearing Plate = 97.1 Lbs
 Total = 367.0 Lbs
 Number Req'd Br 305 = 14
 Number Req'd Br 306 = 14



SWEDGED ANCHOR BOLT A

Computed Weight = 17 Lbs
 No Req'd Br 305 = 28
 No Req'd Br 306 = 28

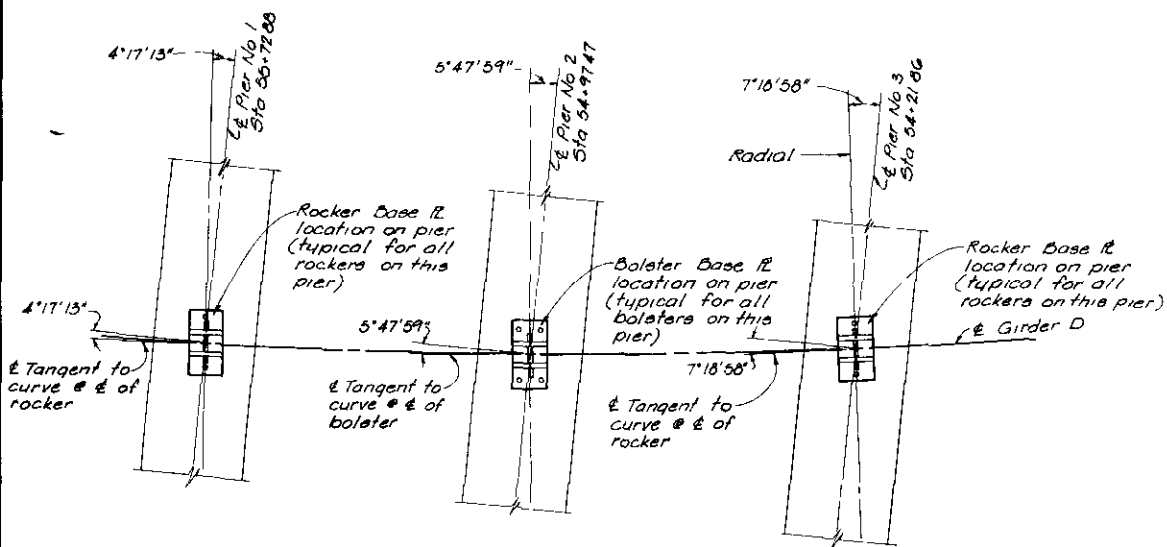


SWEDGED ANCHOR BOLT B

Computed Weight = 87 Lbs
 No Req'd Br 305 = 28
 No Req'd Br 306 = 28

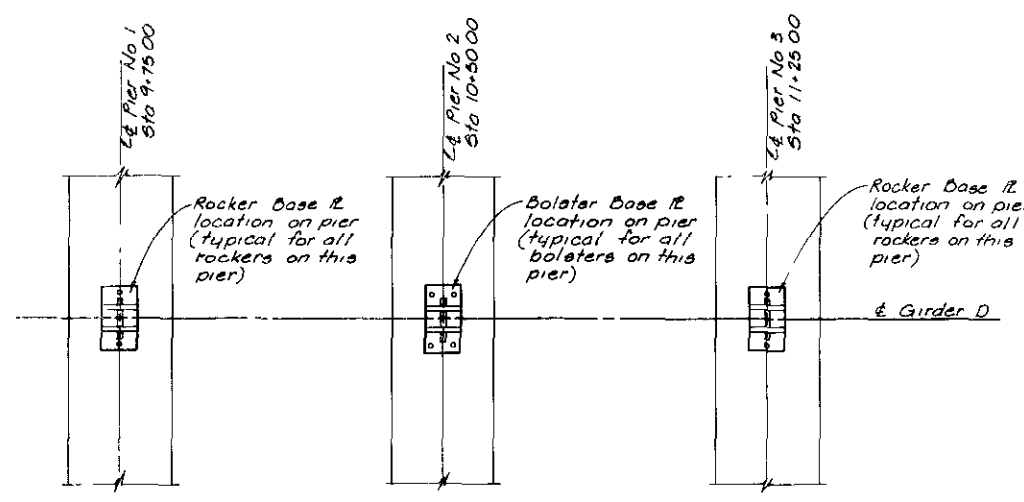
NOTE: Weight of Bearing Devices shall include sole plates, pins, rockers, bolsters, bearing plates, shim plates, anchor bolts, and heavy hex nuts. Bearing Devices, except pins, shall be structural steel conforming to ASTM A36. Pins shall conform to ASTM-A108, Grade 1018. Pin plates and bearings shall be true to form to prohibit binding. Machining to dimensions less than those shown above will not be permitted. Steel: All structural steel in Bearing Devices shall be A36. Paint: Rockers shall be painted as specified for structural steel. Finished surfaces shall be painted with 1/2 Mills inorganic zinc paint.

SUMMARY OF QUANTITIES		
Item	Br 305	Br 306
Rockers	5,138 Lbs	5,138 Lbs
Bolsters	1,766 Lbs	1,766 Lbs
Anchor Bolts	750.8 Lbs	450.8 Lbs
TOTAL	7,354.8 Lbs	7,354.8 Lbs



Note See Bolster/Rocker Details above for bolt hole locations

WEST BOUND
 Br 305



Note See Bolster/Rocker Details above for bolt hole locations

EAST BOUND
 Br 306

BEARING DEVICE LAYOUT

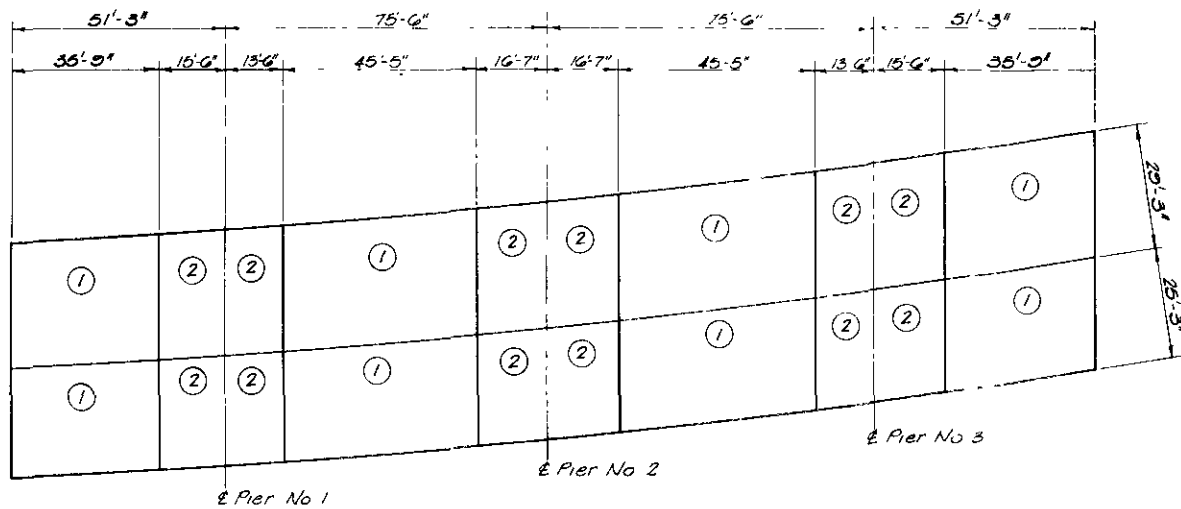
NO	DATE	REVISIONS	BY	APP'D

OFFICE: 2163
GBA
 GEORGE BUTLER ASSOCIATES
 CONSULTING ENGINEERS/ARCHITECTS
 LANDSCAPE ARCHITECTS/PLANNERS
 4210 JOHNSON DRIVE / SHAWNEE MISSION / KANSAS 66205
 SUITE 200 THE HANOVER BUILDING
 14 WEST 10TH STREET / KANSAS CITY / MISSOURI 64108
 SUITE 134 LAWRENCE PLAZA
 8702 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64120

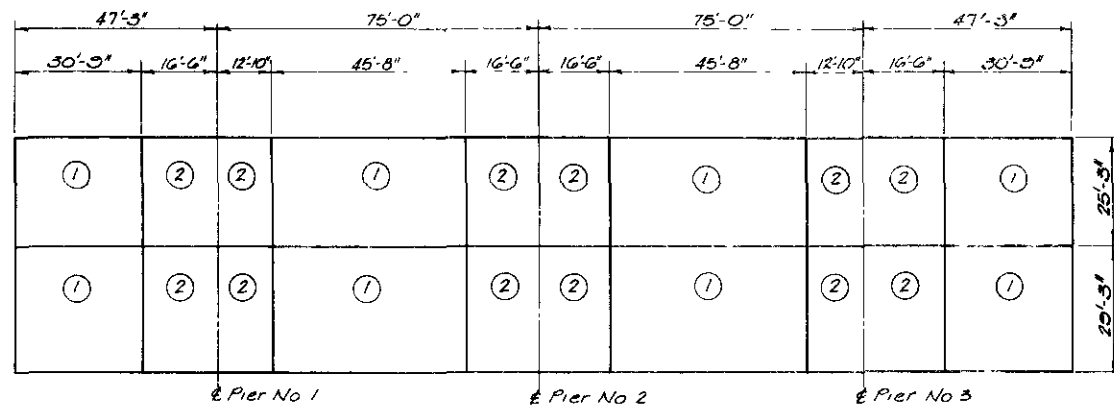
KANSAS DEPARTMENT OF TRANSPORTATION
 BR NO 12 46 3 95 STA 54+37.47
 BR NO 12 46 3 96 STA 10+50.00

K-12 OVER RENNER ROAD
BEARING DEVICES
 PROJ NO 12 46 FF 181 (12) JOHNSON COUNTY
 SHEET NO 20 OF 27 SCALE APP'D
 DESIGNED MLO RETAILED JFB QUANTITIES JEB TRACED
 DESIGN CK GEB DETAIL CK MLO QUAN CK MLO TRACE CK

FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	12-46-FF-181-1(2)	18	51	134

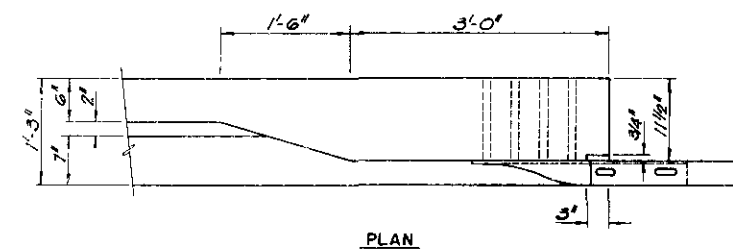


POURING SEQUENCE - WEST BOUND STRUCTURE
Bridge 3.95

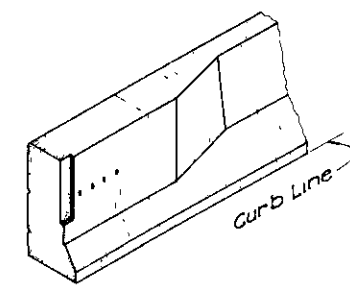


POURING SEQUENCE - EAST BOUND STRUCTURE
Bridge 3.95

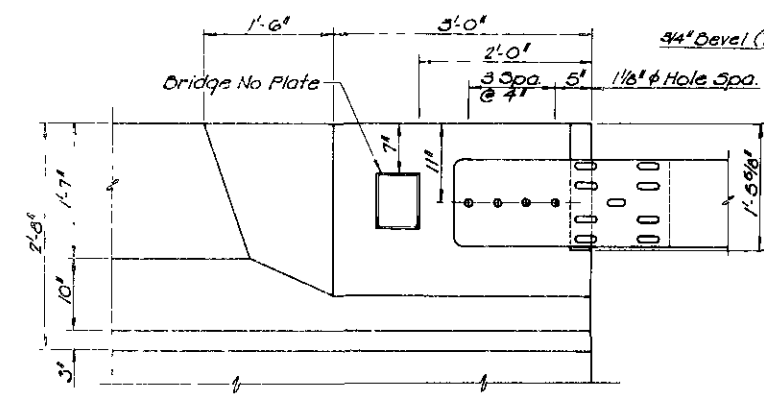
PLACING OF CONCRETE: The sequence of placing concrete in the floor and curbs shall be as shown, except with the approval of the Engineer, consecutive pours may be combined to pour continuously from end of the bridge to the other. If a pour does not extend the full length of a continuous unit, the end of the pour shall terminate at the construction joint short of a pier. All falsework used for erection of the girders shall be removed before the floor is placed. The curbs shall be placed in the same sequence as the floor with a minimum of three days between the placing of concrete for the floor in any section and the concrete for the curbs in the same section. Construction joints shall be made only at locations shown or as approved by the Engineer. The three day waiting period may be waived if a satisfactory procedure for placing the concrete in the curbs without injury to the deck is submitted by the Contractor and approved by the Engineer.



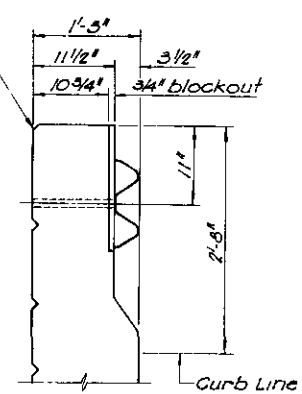
PLAN



TYPICAL BLOCKOUT



ELEVATION



SIDE VIEW

GUARD RAIL CONNECTION DETAILS

NO.	DATE	REVISIONS	BY	APP'D

GBA
GEORGE BUTLER ASSOCIATES
CONSULTING ENGINEERS/ARCHITECTS
LANDSCAPE ARCHITECTS/PLANNERS

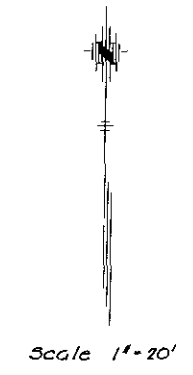
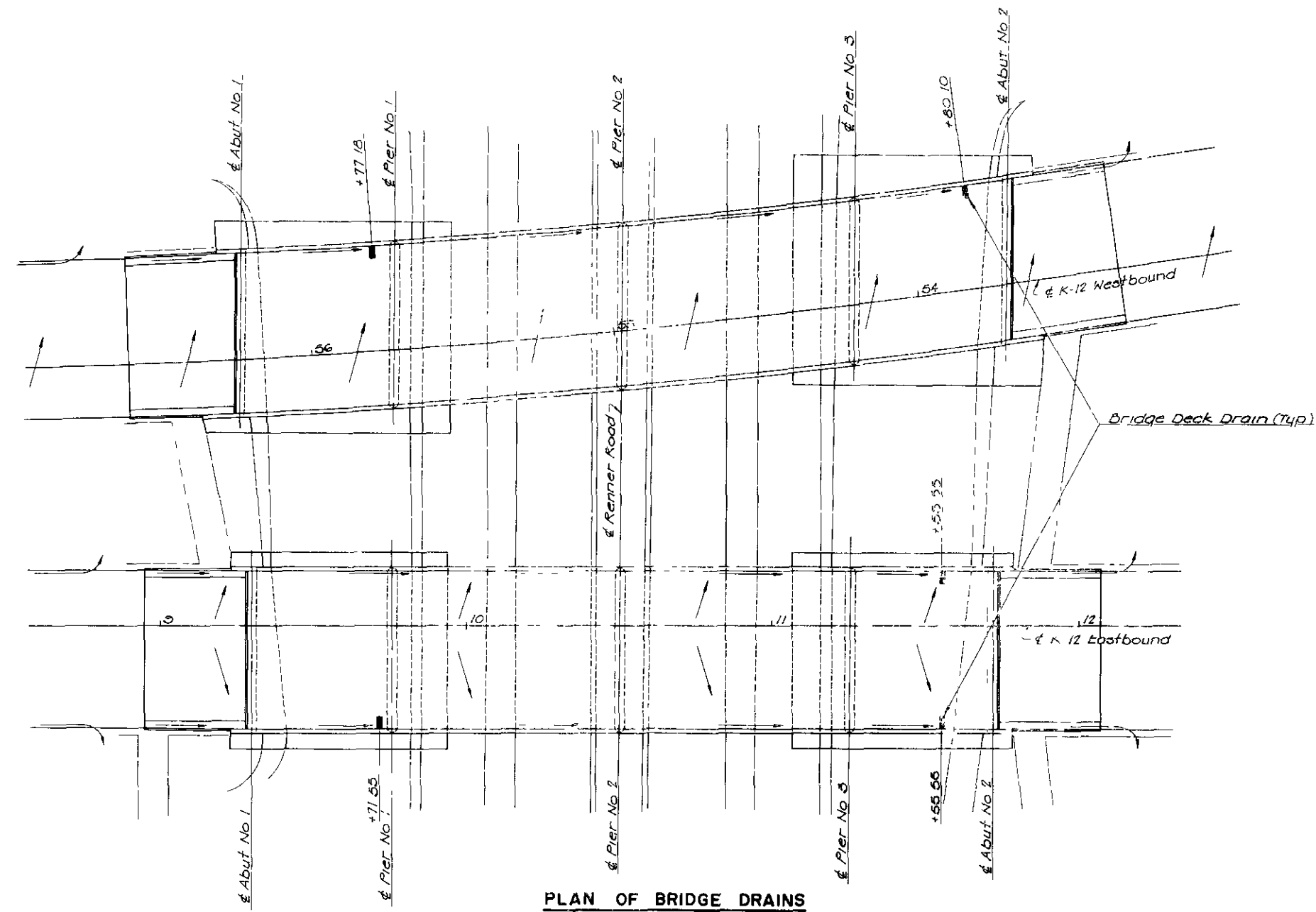
OFFICES:
SUITE 308 A AIRWAY OFFICE CENTER
4212 JOHNSON DRIVE / SHAWNEE MISSOURI / KANSAS 64295
SUITE 502 THE HANCOCK BUILDING
13 WEST 10TH STREET / KANSAS CITY / MISSOURI 64108
SUITE 134 LAKEVIEW PLAZA #1
4700 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64120

KANSAS DEPARTMENT OF TRANSPORTATION
BR NO 12-46-3-95
BR NO 12-46-3-96
K-12 OVER RENNER ROAD
POURING SEQUENCE & GUARD RAIL CONNECTION DETAILS
PROJ NO 12-46-FF-181-1(2) JOHNSON COUNTY

DESIGNED **MLB** DETAILED **JEB** QUANTITIES **JEB** TRACED **JEM**
DESIGN CH. **GEB** DETAIL CH. **MLB** QUAR. CH. **MLB** TRACE CH. **JEB**



DISTRICT NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	12-46-FF 101-1(2)	10	51A	134



PLAN OF BRIDGE DRAINS

3				
2				
1				
NO.	DATE	REVISIONS	BY	APP'D

GBA
GEORGE BUTLER ASSOCIATES
CONSULTING ENGINEERS/ARCHITECTS
LANDSCAPE ARCHITECTS/PLANNERS

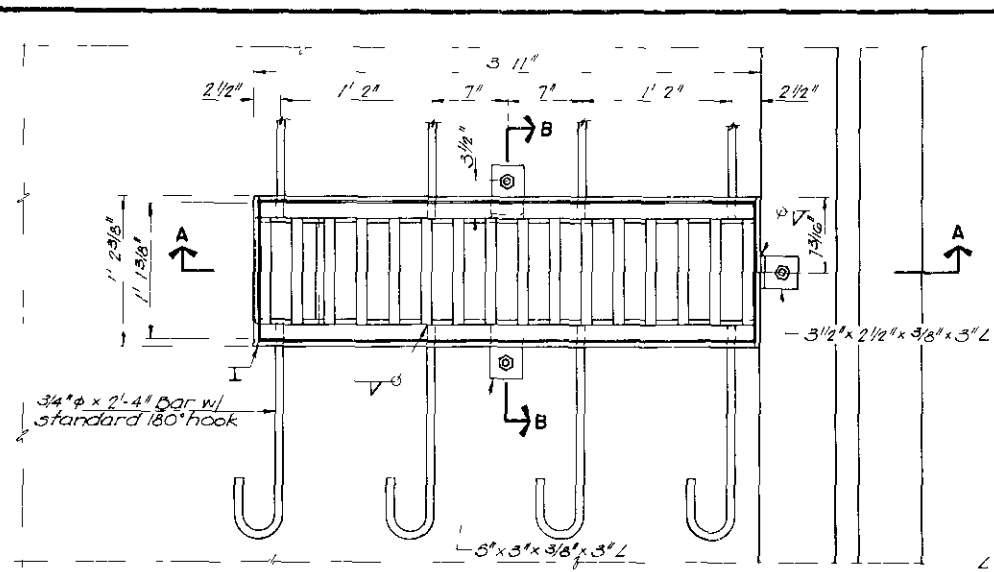
KANSAS DEPARTMENT OF TRANSPORTATION
BR NO 12-46-395 STA 54+97.47
BR NO 12-46-396 STA 10+50.00

K-12 OVER RENNER ROAD
BRIDGE DECK DRAINAGE PLAN
PROJ NO 12-46-FF 101-1(2) JOHNSON COUNTY

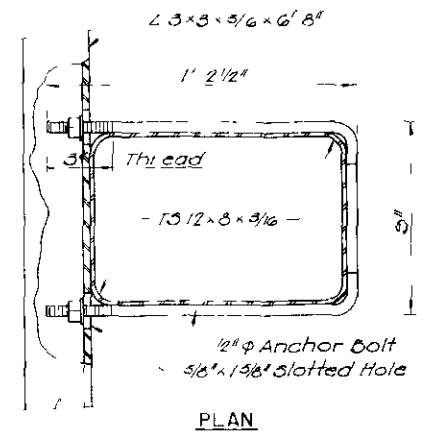
SHEET NO 22 OF 27 SCALE APP'D
DESIGNER *JEB* CHECKED *JEB* QUANTITIES *JEB* TRACED
DESIGNER *HLS* DETAIL CR *HLS* QUAN CR *HLS* TRACK CR



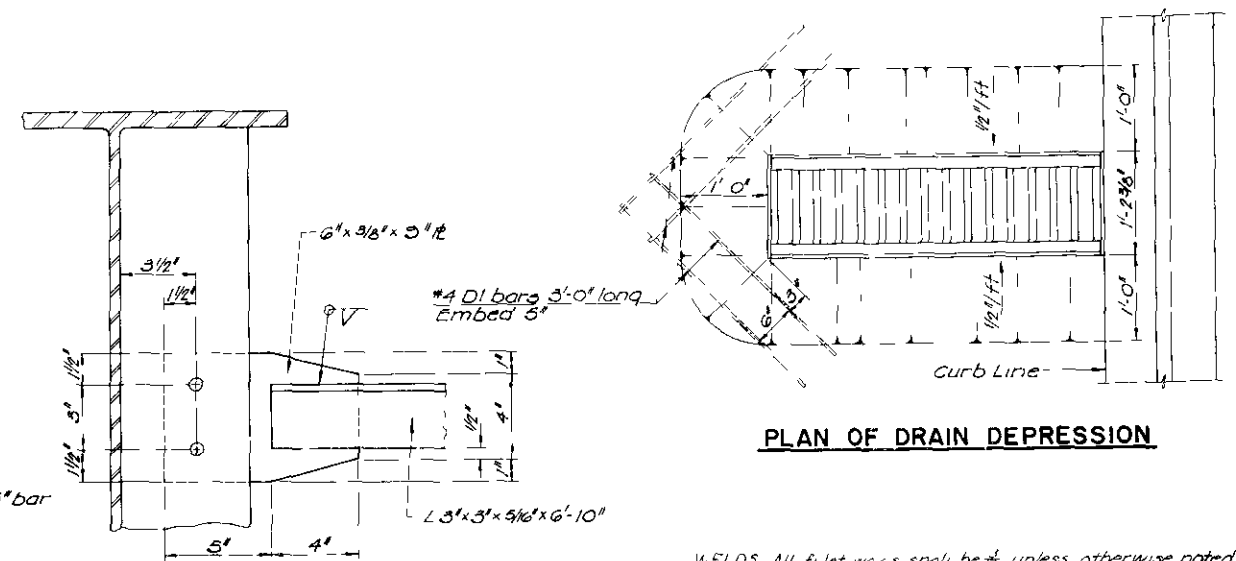
FHWA REGION	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	12 46 FF 181 (2)	18	51B	134



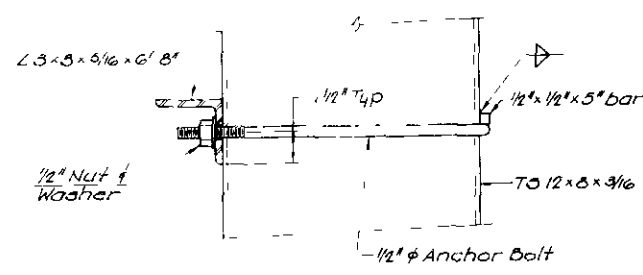
PLAN OF BRIDGE DRAIN



PLAN

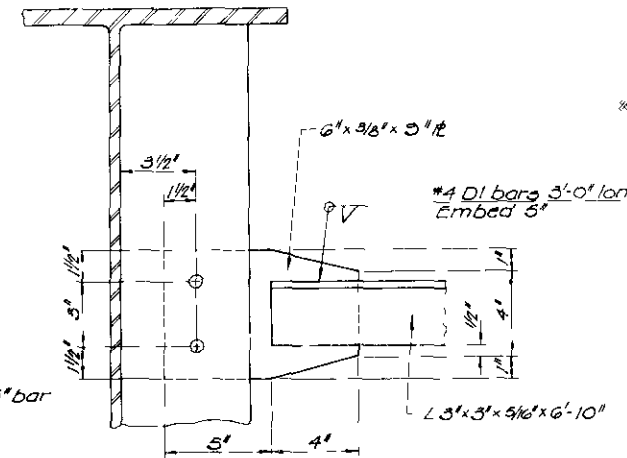


PLAN OF DRAIN DEPRESSION



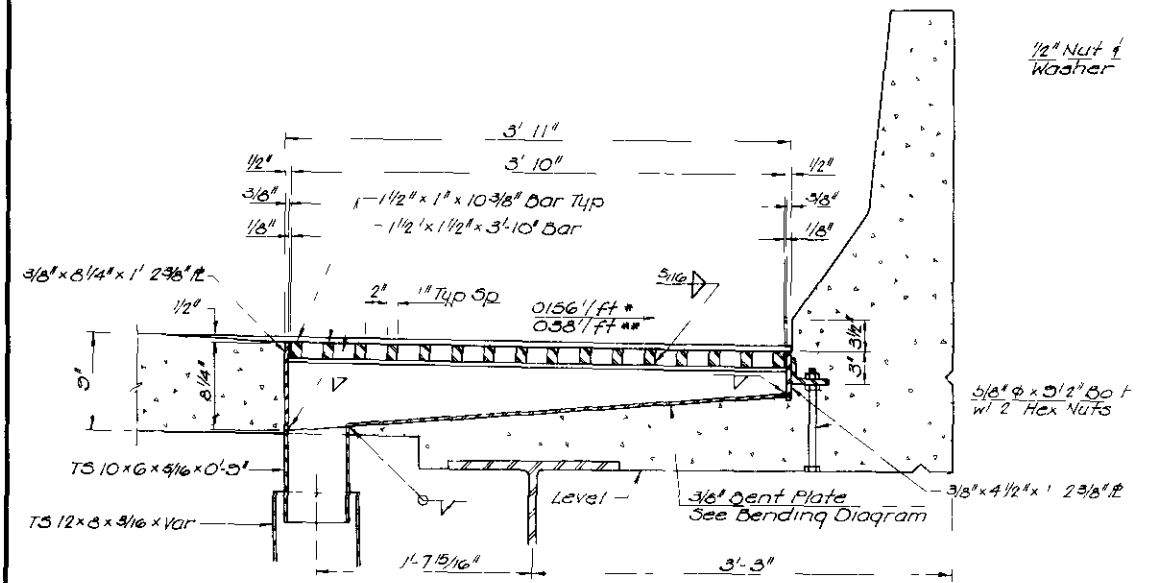
ELEVATION

DETAIL B



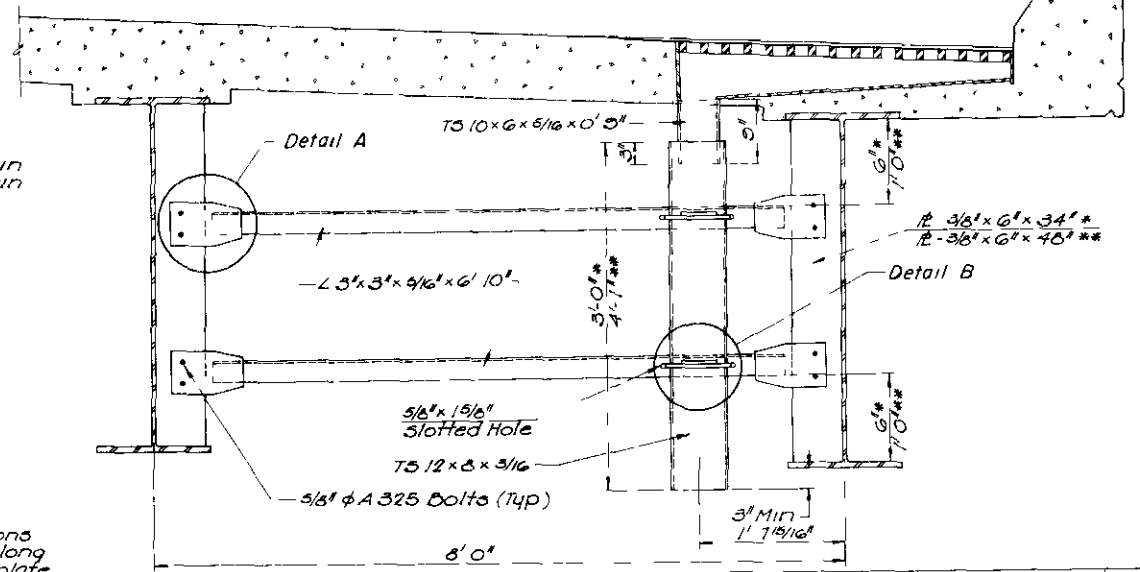
DETAIL A

WELDS: All fillet welds shall be 1/8\"/>

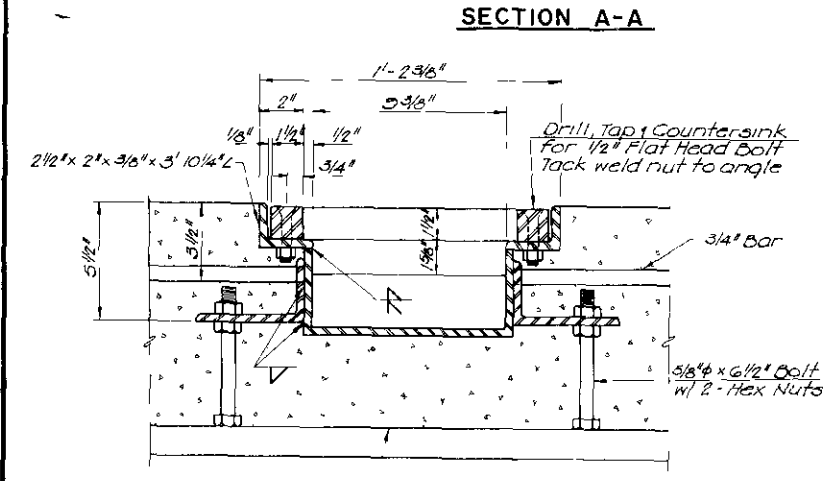


SECTION A-A

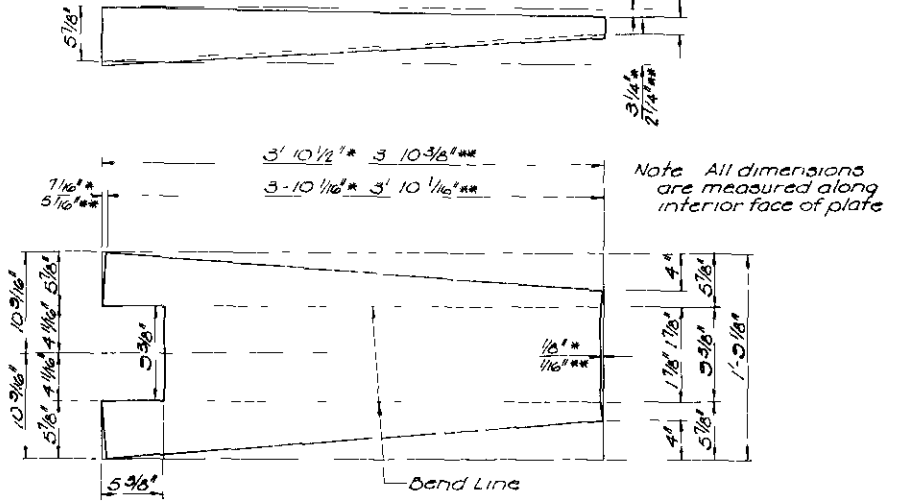
NOTE: * denotes Eastbound deck drain
** denotes Westbound deck drain



DRAIN FRAMING DETAIL



SECTION B-B



BENDING AND CUT OUT DIAGRAM FOR BENT PLATE

SUMMARY OF QUANTITIES		
Item	Br 395	Br 396
Drainage System	512 3 Lbs	753 5 Lbs

<p>GBA GEORGE BUTLER ASSOCIATES CONSULTING ENGINEERS ARCHITECTS LANDSCAPE ARCHITECTS PLANNERS</p>		<p>OFFICES SUITE 306 A FARMWAY OFFICE CENTER 4212 JOHNSON DRIVE / SHAWNEE MISSION, KANSAS 66209 SUITE 800 THE HANOVER BUILDING 15 WEST 10TH STREET / KANSAS CITY / MISSOURI 64111 SUITE 100 LAKEVIEW PLAZA I 4900 CORPORATE DRIVE / KANSAS CITY / MISSOURI 64120</p>	
<p>KANSAS DEPARTMENT OF TRANSPORTATION BR NO 12 46 395 STA 54+97.47 BR NO 12 46 396 STA 10+50.00 K 12 OVER RENNER ROAD</p>			
<p>BRIDGE DECK DRAIN DETAILS</p>			
<p>PROJ. NO 12 46 FF 181 (2) SHEET NO 25 OF 27 SCALE</p>		<p>APP D QUANTITIES JCB DESIGNED JCB CHECKED JCB DETAIL CK MLS QUAN CK MLS TRACE CK</p>	



REGION	STATE	PROJECT NO.	YEAR	SHEET	TOTAL SHEETS
7	KANSAS	12-46-FE-181-112	19	52	134

Notes: All dimensions are out to out of bars
See Bending Diagram.
Bend dimensions shown are to inside of bar.

Bridge Number	395	396
Superstructure	111,118	105,510
Substructure	44,742	37,185
TOTAL	155,860	142,755

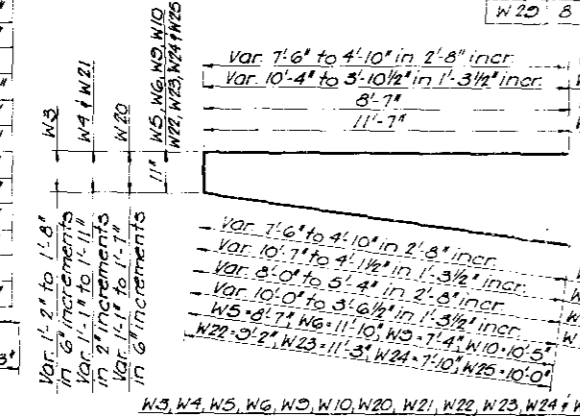
* NOTE: W7 bars vary in length from 7'-10" to 9'-6" in 1/2" increments
W8 bars vary in length from 7'-10" to 11'-6" in 3/4" increments
W13 bars vary in length from 5'-6" to 7'-2" in 1/2" increments
W19 bars vary in length from 5'-6" to 9'-2" in 3/4" increments

* NOTE: W6 bars vary in length from 6'-8" to 9'-2" in 6" increments
W12 bars vary in length from 4'-4" to 6'-10" in 6" increments
W13 bars vary in length from 4'-1" to 6'-7" in 6" increments
W21 bars vary in length from 6'-5" to 8'-11" in 6" increments

BRIDGE 3.95 BILL OF REINFORCING STEEL

Abutment Steel				Wing Steel				Pier Steel			
Straight Bars		Bent Bars		Straight Bars		Bent Bars		Straight Bars		Bent Bars	
Mark	No. Size Length	Mark	No. Size Length	Mark	No. Size Length	Mark	No. Size Length	Mark	No. Size Length	Mark	No. Size Length
A1	144 #4 4'-0"	A2	24 #8 5'-0"	W7*	12 #4 8'-8" Avg	W1	4 #6 8'-6"	PF1	108 #6 7'-0"	PC5	1 #3 6"
A5	8 #8 4'-5"	A3	24 #8 8'-11"	W8*	18 #4 9'-8" Avg	W2	4 #6 11'-11"	PB2	6 #11 48'-8"	PC7	1 #3 6"
A6	8 #8 7'-10"	A4	44 #4 6'-6"	W11	4 #6 7'-11"	W3	2 #6 13'-9" Avg	PB3	6 #11 51'-4"	PC6	1 #3 6"
A14	4 #10 4'-7"	A7	22 #4 12'-4"	W12	4 #6 10'-11"	W4	6 #6 15'-11 1/2" Avg	PB4	6 #11 51'-8"	PC6	2 #3 6"
A15	4 #10 18'-1"	A8	32 #4 13'-8"	W13	8 #4 6'-1"	W5	1 #6 18'-1"	PD0	24 #11 22'-6"	PC7	2 #3 6"
		A9	32 #4 15'-0"	W14	5 #4 9'-1"	W6	2 #6 24'-4"	PD14	18 #5 20'-2"	PC8	2 #3 6"
		A10	22 #4 15'-8"	W15	8 #4 6'-2"	W9	5 #6 18'-10"	PD15	18 #5 30'-2"	PD17	102 #5 5'-2"
		A11	4 #4 10'-10"	W16*	12 #4 7'-4" Avg	W10	1 #6 22'-11"	PD16	6 #5 36'-2"	PD18	102 #5 5'-10"
A19	14 #6 33'-11"	A12	4 #4 13'-10"	W18*	18 #4 7'-4" Avg	W16	22 #5 4'-9"	PC1	72 #5 21'-10"	PD18	102 #5 5'-10"
A20	16 #6 16'-4"	A13	108 #4 11'-2"	W26	2 #6 6'-1"	W17	46 #5 4'-0"	PC2	36 #5 20'-10"	PD19	210 #5 4'-2"
A21	4 #6 30'-11"	A23	108 #4 4'-6"	W27	2 #6 9'-1"	W20	2 #6 14'-2" Avg	PC2	36 #5 20'-10"	PD20	35 #5 7'-9"
A22	2 #6 11'-6"	A29	110 #6 4'-8"			W21	6 #6 15'-4 1/2" Avg			PF2	108 #5 6'-7"
A24	4 #6 15'-0"	A32	48 #8 5'-3"			W22	1 #6 18'-8"	PD3	6 #11 20'-5"		
A25	4 #6 18'-1"	A16	10 #10 13'-10"			W23	2 #6 23'-5"	PD6	6 #11 21'-5"		
A26	4 #6 15'-1"	A18	5 #10 16'-3"			W24	5 #6 17'-4"	PD7	6 #11 22'-1"		
A27	1 #4 39'-6"	A11	5 #10 16'-4"			W25	7 #6 22'-6"	PD8	6 #11 22'-2"		
A28	1 #4 16'-0"					W26	24 #5 5'-5"	PD10	6 #11 19'-10"		
A30	1 #4 39'-10"					W28	24 #5 5'-5"	PD12	6 #11 21'-3"		
A31	1 #4 16'-2"					W29	8 #7 5'-10"	PD13	6 #11 21'-4"		
A33	16 #8 4'-6"										
A34	4 #10 41'-11"										
A35	4 #10 18'-3"										
A36	14 #6 40'-2"										
A37	16 #6 16'-6"										
A38	2 #6 28'-5"										
A39	2 #6 11'-7"										
A40	10 #10 21'-5"										
A42	2 #6 31'-2"										

BENDING DIAGRAMS



Weight of spiral spacers is included in the weight of reinforcing steel.
Dr 395 has 4 spiral spacers per column & Dr 396 has 3 spiral spacers per column, each with a minimum section modulus of 0.005 in³ and weighing 0.68 lb/ft. Spiral reinforcement shall meet the requirements of either A.S.T.M. A615 or A62.

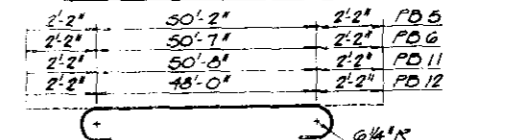
Slab Steel

Straight Bars		Bent Bars	
Mark	No. Size Length	Mark	No. Size Length
S1	240 #6 38'-5"	S5	240 #6 40'-1"
S2	240 #6 18'-3"	S6	248 #5 40'-4"
S3	248 #5 38'-3"	S7	240 #6 20'-4"
S4	248 #5 18'-1"	S8	248 #5 20'-2"
S5	124 #5 37'-3"	C1	506 #5 3'-5"
S10	124 #5 28'-8"	C2	506 #5 4'-0"
S11	124 #5 48'-9"		
S12	97 #5 32'-10"		
C3	16 #4 38'-1"		
C4	16 #4 28'-8"		
C5	16 #4 47'-5"		
C7	4 #6 39'-11"		
C8	4 #6 28'-8"		
C9	4 #6 48'-5"		
C10	2 #6 32'-10"		

BRIDGE 3.96 BILL OF REINFORCING STEEL

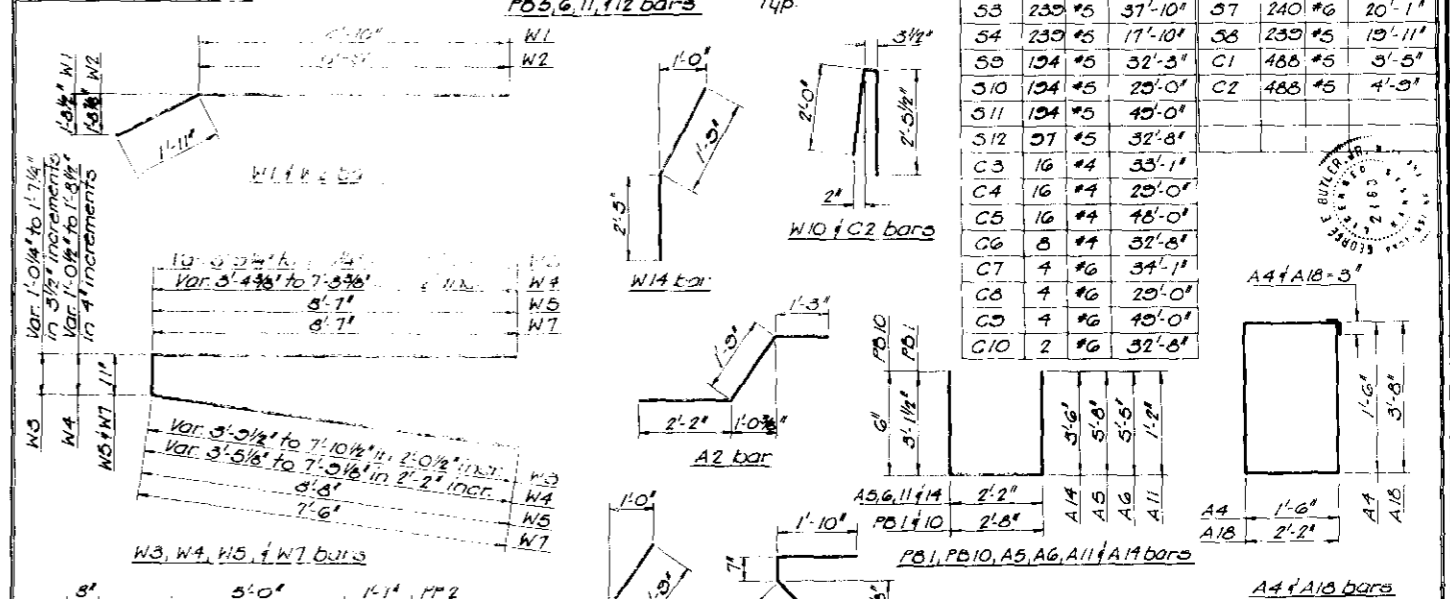
Abutment Steel				Wing Steel				Pier Steel			
Straight Bars		Bent Bars		Straight Bars		Bent Bars		Straight Bars		Bent Bars	
Mark	No. Size Length	Mark	No. Size Length	Mark	No. Size Length	Mark	No. Size Length	Mark	No. Size Length	Mark	No. Size Length
A1	88 #4 5'-0"	A2	24 #8 5'-2"	W6*	6 #4 7'-11" Avg	W1	2 #6 8'-9"	PF1	216 #6 6'-6"	PC2	3 #3 6"
A3	8 #8 4'-5"	A4	16 #4 6'-6"	W8	4 #4 5'-0"	W2	2 #6 8'-8"	PB2	6 #11 49'-2"	PC3	3 #3 6"
A7	4 #10 41'-5"	A5	75 #4 13'-6"	W9	8 #6 7'-11"	W3	3 #6 12'-11" Avg	PD3	6 #11 51'-4"	PC4	3 #3 6"
A8	4 #10 17'-11"	A6	27 #4 13'-0"	W11	16 #4 6'-1"	W4	3 #6 12'-6" Avg	PD4	6 #11 51'-8"	PD1	288 #5 8'-11"
A9	18 #6 30'-8"	A11	54 #4 4'-6"	W12*	6 #4 5'-7" Avg	W5	12 #6 18'-2"			PD9	36 #5 7'-2"
A10	18 #6 16'-2"	A14	102 #4 5'-2"	W13*	6 #4 5'-4" Avg	W7	16 #6 16'-0"			PD10	210 #5 3'-8"
A12	1 #4 39'-4"	A15	38 #4 4'-8"	W15	7 #4 5'-4"	W10	16 #5 4'-5"	PD7	24 #5 30'-4"	PD12	108 #5 6'-7"
A13	1 #4 15'-10"	A18	4 #4 12'-2"	W16	7 #4 5'-1"	W14	40 #5 4'-0"	PD8	24 #5 20'-4"	PD5	6 #11 54'-6"
A16	24 #6 36'-8"	A21	4 #10 42'-9"	W17	14 #4 4'-11"	W22	24 #5 5'-5"	PC1	108 #5 19'-9"	PD6	6 #11 54'-11"
A17	24 #6 18'-10"	A22	4 #10 19'-3"	W18	7 #4 6'-8"	W23	8 #7 5'-10"			PD11	6 #11 55'-0"
A19	1 #4 36'-5"			W19	7 #4 6'-5"					PD12	6 #11 52'-4"
A20	1 #4 18'-7"			W20	4 #6 6'-1"						
				W21*	6 #4 7'-8" Avg						

BENDING DIAGRAMS



Slab Steel

Straight Bars		Bent Bars	
Mark	No. Size Length	Mark	No. Size Length
S1	240 #6 38'-0"	S5	240 #6 40'-1"
S2	240 #6 18'-0"	S6	239 #5 39'-11"
S3	235 #5 37'-10"	S7	240 #6 20'-1"
S4	239 #5 17'-10"	S8	239 #5 19'-11"
S9	194 #5 32'-3"	C1	488 #5 3'-5"
S10	194 #5 28'-0"	C2	488 #5 4'-9"
S11	194 #5 48'-0"		
S12	97 #5 32'-8"		
C3	16 #4 33'-1"		
C4	16 #4 29'-0"		
C5	16 #4 48'-0"		
C6	8 #4 32'-8"		
C7	4 #6 34'-1"		
C8	4 #6 29'-0"		
C9	4 #6 49'-0"		
C10	2 #6 32'-8"		



GBA
GEORGE BUTLER ASSOCIATES
CONSULTING ENGINEERS/ARCHITECTS
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SUITE 124 LANSBERRY PLAZA
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KANSAS DEPARTMENT OF TRANSPORTATION
BR. NO. 12-46-395 STA. 54+97.47
BR. NO. 12-46-396 STA. 10+50.00

K-12 OVER RENNER ROAD
BILL OF REINFORCING STEEL & BENDING DIAGRAM
JOHNSON COUNTY

PROJ. NO. 12-46-FE-181-112
SHEET NO. 24 OF 27
DESIGNED J.E.B. CHECKED J.E.B. QUANTITIES J.E.B. TRACED J.E.B.
SCALE 1/4" = 1'-0" DETAIL CK. M.L.S. TRACK CK.