PROJECT NUMBER	SHEET No.	TOTAL SHEETS
87S-428 (II)	1	25

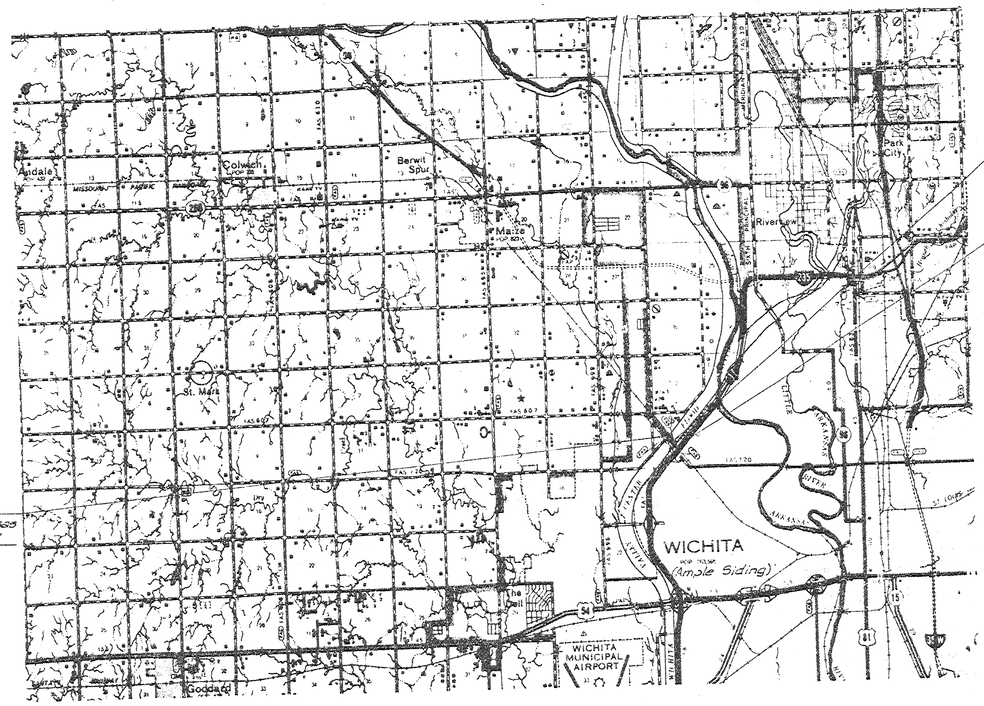
PART I
BRIDGE

INDEX OF SHEETS

STATE OF KANSAS
SECONDARY ROAD SYSTEM
SEDGWICK COUNTY

KANSAS FEDERAL AID SECONDARY PROJECT 87S-428(II) PART I

1970 TRAFFIC CENSUS 5400 VEHICLES PER DAY
DESIGN SPEED 60 M.P.H.



Sta. 1187+65.86 Const. 45'-6"-88'6"-45'-6" Cont. R.C. Slab Spans (Haunched) 9°00' Skew Lt. 72'-0" Roadway

Sta 1190+38.30 END Kansas FAS Project 87S-428(II) Part I.

Sta. 1184+92.42 BEGIN Kansas FAS Project 87S-428(II) Part I

Note: Traffic to be carried thru construction.

CONVENTIONAL SIGNS

GUARD FENCE	BASE OR SURVEY LINE
UNFENCED PROPERTY	LEVEE
COUNTY LINE	CULVERTS
CITY, VILLAGE, OR BOROUGH	DROP INLETS
STATE OR NATIONAL LINE	PIPE LINES
TOWNSHIP, GRANT, OR SECTION LINE	POWER LINES
FENCE LINE	TELEPHONE LINES
RIGHT OF WAY LINE	TELEGRAPH
TRAVELLED WAY	HEDGE
RAILROADS	TREES
RETAINING WALL	GRADE ELEVATION
CONSTRUCTION LIMITS	ROCK

GROSS LENGTH OF PROJECT	546.88	FT.	
ADDITIONS	0	FT.	
EXCEPTIONS	0	FT.	
NET LENGTH OF PROJECT	546.88	FT.	0.104 MILES
NET LENGTH OF BRIDGES	546.88	FT.	0.104 MILES
NET LENGTH OF ROAD	0	FT.	0 MILES

PLANS PREPARED BY:
PROFESSIONAL ENGINEERING CONSULTANTS ENGINEERS
WICHITA, KANSAS

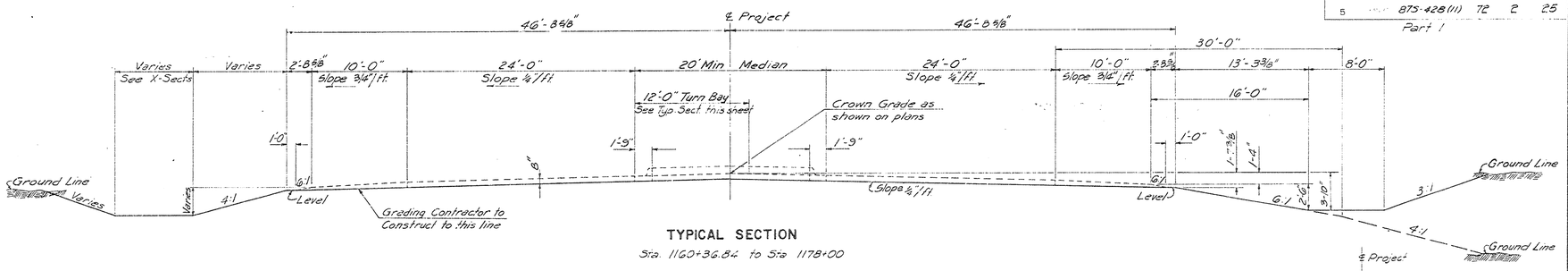
APPROVED:
COUNTY ENGINEER
DATE July 12 1972

STATE HIGHWAY COMMISSION OF KANS.
RECOMMENDED FOR APPROVAL
ENGINEER OF SECONDARY ROADS
APPROVED: DATE:
STATE HIGHWAY ENGINEER

JUL 12 1972

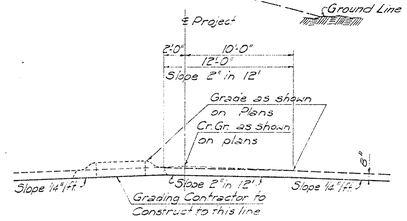
5 875-428(11) 72 2 25

Part 1

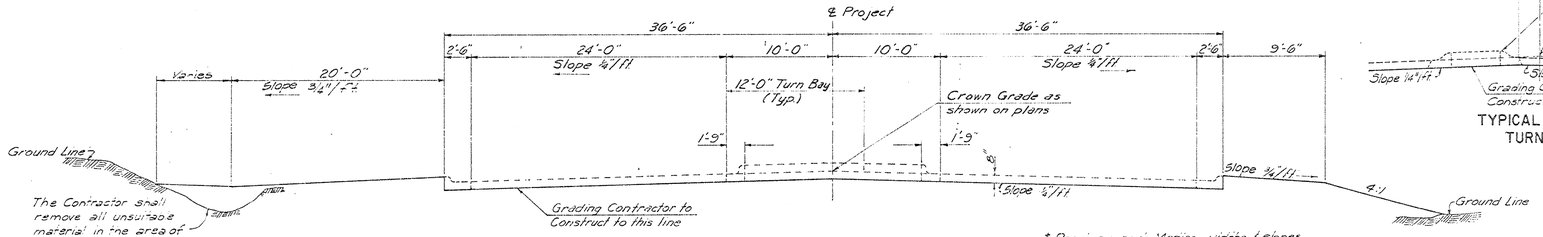


TYPICAL SECTION

Sta. 1160+36.84 to Sta. 1178+00



TYPICAL SECTION
TURN BAY

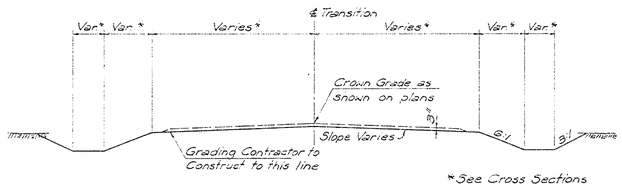


TYPICAL SECTION WITH CURB & GUTTER

Sta. 1178+00 to Sta. 1185+00

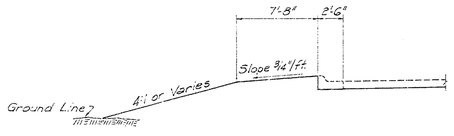
* Sta. 1190+30 to Sta. 1195+67.76

* Roadway and Median Widths & Slopes vary.



TRANSITION SECTION

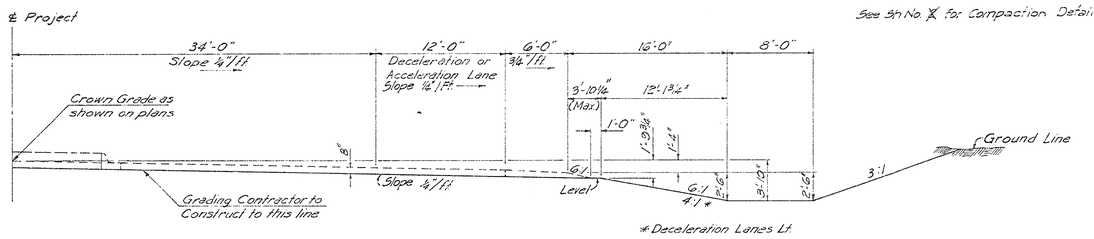
Sta. 1155+50 to Sta. 1160+36.84



TYPICAL SHOULDER SECTION

Lt Sta. 1193+00 to Sta. 1195+67.76

See Sh No. X for Compaction Details.



* Deceleration Lanes Lt.

TYPICAL HALF SECTION WITH SPEED CHANGE LANE

SEDGWICK COUNTY HIGHWAY DEPARTMENT

G.C. McLURE, JR., P.E. COUNTY ENGINEER

TYPICAL SECTIONS
MAIN LINE

SEDGWICK COUNTY PROJECT 87S-428(11)

PROFESSIONAL ENGINEERING CONSULTANTS

Designed by K.E.

Drawn by G.G. Mar. 72 7027

CONSTRUCTION SEQUENCE

TRAFFIC SHALL BE CARRIED THROUGH CONSTRUCTION ON BICKEL AVENUE.

CROSSROAD AND INLET PIPES WILL BE INSTALLED BEFORE THE BITUMINOUS BASE COURSE (ROAD MIX) SUB-BASE IS PLACED.

PHASE I - GRADING OF LEFT LANES

TRAFFIC IS TO BE MAINTAINED ON THE EXISTING ROADWAY AND BRIDGE.

NO CONSTRUCTION SHALL BE ACCOMPLISHED BETWEEN STA. 1155+50 AND STA. 1160+00 DURING PHASE I.

ALL GRADING LEFT OF THE PROJECT CENTERLINE BETWEEN STA. 1160+00 AND STA. 1184+92.42 SHALL BE COMPLETED AS SHOWN ON THE TYPICAL SECTION PHASE I GRADING THIS SHEET.

ALL GRADING ON HOOVER ROAD AND THE HOOVER ROAD RELOCATION WILL BE COMPLETED. TRAFFIC WILL BE CARRIED THROUGH CONSTRUCTION ON THE EXISTING HOOVER ROAD ALIGNMENT.

UPON COMPLETION OF PHASE I GRADING THE BITUMINOUS BASE COURSE (ROAD MIX) WILL BE PLACED ON THE LEFT LANES AND THE HOOVER ROAD RELOCATION AS SHOWN ON THE PLANS

TRAFFIC BETWEEN STA. 1190+39.30 AND STA. 1195+70 WILL BE ROUTED TO THE EXISTING TWO LANES RIGHT OF THE PROJECT CENTERLINE. PAVEMENT REMOVAL, GRADING AND PLACING OF BITUMINOUS BASE COURSE (ROAD MIX) SHALL BE ACCOMPLISHED ON THIS PORTION WITHOUT INTERIM DELAYS.

PHASE II - GRADING OF RIGHT LANES

TRAFFIC IS TO BE CARRIED ON THE BITUMINOUS BASE COURSE (ROAD MIX) LEFT OF CENTERLINE. IF DIRECTED BY THE ENGINEER A BITUMINOUS SEAL WILL BE PLACED ON THE BITUMINOUS BASE COURSE (ROAD MIX) BEFORE OPENING IT TO TRAFFIC. TRAFFIC WILL BE CARRIED ACROSS PHASE II CONSTRUCTION AT THE ZOO ENTRANCE STA. 1171+22.10 AND AT THE INTERSECTION WITH WINDMILL ROAD STA. 1180+51.85.

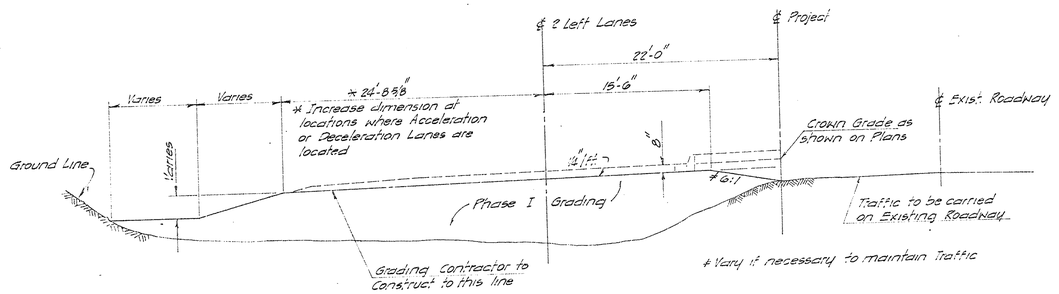
ALL GRADING BETWEEN STA. 1155+50 AND STA. 1160-00 IS TO BE COMPLETED. TRAFFIC MAY BE ROUTED ONTO THE HOOVER ROAD RELOCATION IF NECESSARY.

ALL GRADING RIGHT OF THE PROJECT CENTERLINE BETWEEN STA. 1160+00 AND STA. 1192+76 IS TO BE COMPLETED AS SHOWN ON THE TYPICAL SECTION PHASE II GRADING THIS SHEET.

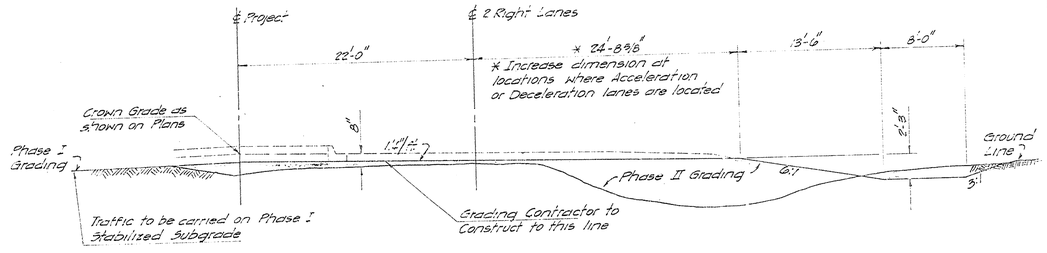
UPON COMPLETION OF PHASE II GRADING, THE BITUMINOUS BASE COURSE (ROAD MIX) WILL BE PLACED AS SHOWN ON THE PLANS.

PHASE III - SURFACING (PLANT MIX)

THE SEQUENCE OF SURFACING IS TO BE COORDINATED BETWEEN THE CONTRACTOR AND THE ENGINEER. TRAFFIC WILL BE CARRIED THROUGH CONSTRUCTION DURING PHASE III.



TYPICAL SECTION PHASE I GRADING



TYPICAL SECTION PHASE II GRADING

SEDGWICK COUNTY HIGHWAY DEPARTMENT
G. C. McLURE, JR., P.E. COUNTY ENGINEER

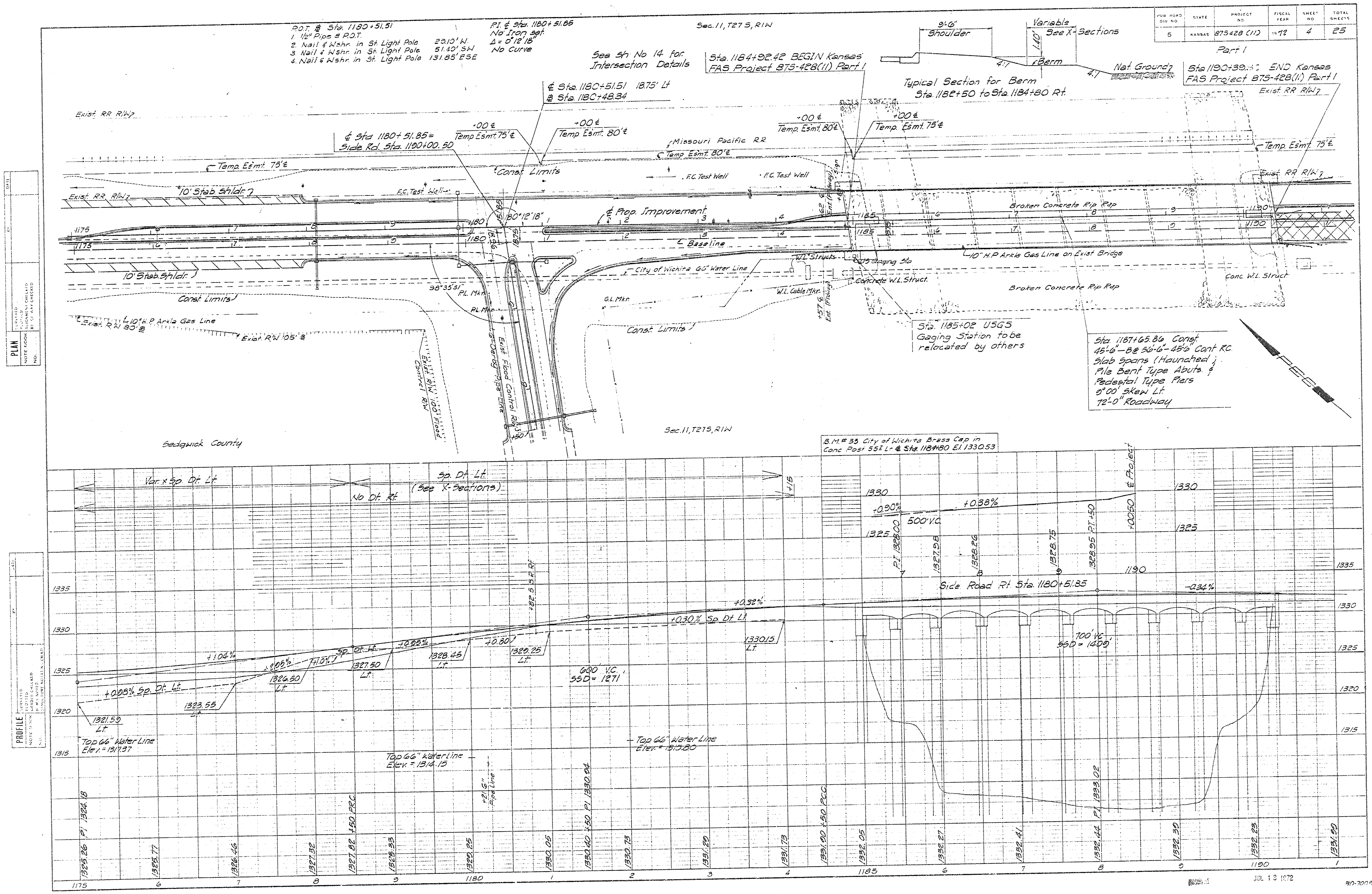
CONSTRUCTION SEQUENCE

SEDGWICK COUNTY PROJECT 87S-428(11)

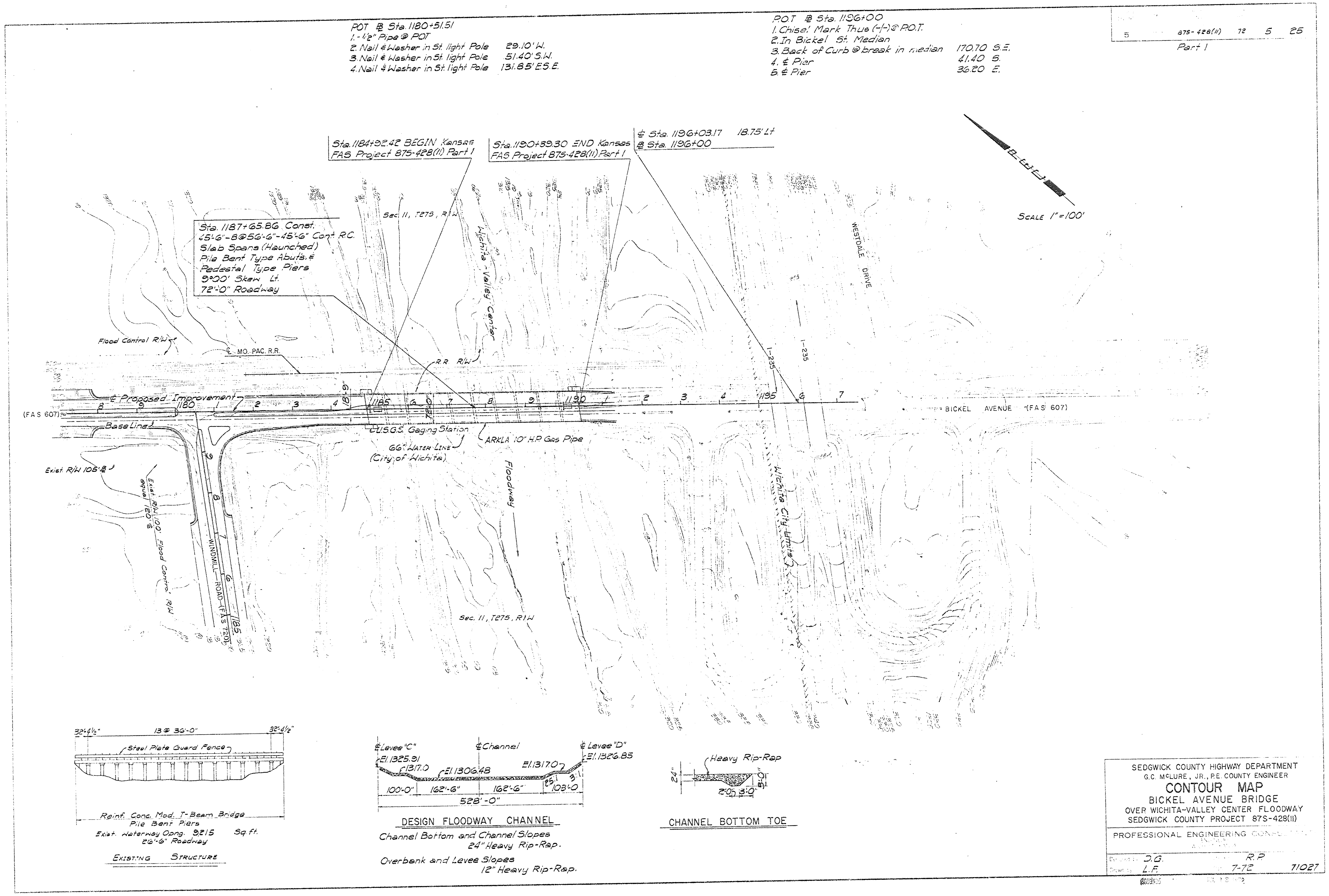
PROFESSIONAL ENGINEERING CONSULTANTS

K.E.
E.S. Jan 72 7.227

APPROVED
JUL 13 1972



FED. ROAD DIV. NO. 5 | STATE KANSAS | PROJECT NO. 87S428 (11) | FISCAL YEAR 1972 | SHEET NO. 4 | TOTAL SHEETS 25
Part I
P.O.T. Ⓑ Sta. 1180+51.51
1. 1½" Pipe @ P.O.T.
2. Nail & Wshr. in St. Light Pole 29.10' W.
3. Nail & Wshr. in St. Light Pole 51.40' SW
4. Nail & Wshr. in St. Light Pole 131.85' ESE
P.I. ℄ Sta. 1180+51.86
No Iron Set
Δ = 0°12'18"
No Curve
Sec. 11, T27S, R1W
See Sh No 14 for Intersection Details
Sta. 1184+92.42 BEGIN Kansas FAS Project 87S-428(11) Part I
Sta. 1190+39.41 END Kansas FAS Project 87S-428(11) Part I
9'-6" Shoulder
Variable See X-Sections
1.40'
4:1
Berm
Nat. Ground
Typical Section for Berm Sta. 1182+50 to Sta. 1184+80 Rt.
℄ Sta. 1180+51.51 18.75' Lt
Ⓑ Sta. 1180+48.34
℄ Sta. 1180+51.85 = Side Rd. Sta. 1100+00.50
Temp. Esmt. 75' ℄
Temp. Esmt. 80' ℄
Missouri Pacific R.R.
Exist. RR R/W
Const. Limits
10' Stab. Shldr.
F.C. Test Well
℄ Prop. Improvement
Ⓑ Baseline
90°12'18"
City of Wichita 66" Water Line
W.L. Structs.
USGS Gaging Sta.
Concrete W.L. Struct.
W.L. Cable Mkr.
Broken Concrete Rip Rap
10" H.P. Arkla Gas Line on Exist. Bridge
Conc. W.L. Struct.
10" H.P. Arkla Gas Line
Exist. R/W 80' Ⓑ
Exist. R/W 105' Ⓑ
Exist. Flood Control R/W
Exist. Flood Control Road
PL Mkr.
G.L. Mkr.
Sta. 1185+02 USGS Gaging Station to be relocated by others
Sta. 1187+65.86 Const. 45'-6"-8@56'-6"-45'-6" Cont. R.C. Slab Spans (Haunched), Pile Bent Type Abuts. & Pedestal Type Piers 5°00' Skew Lt. 72'-0" Roadway
Sedgwick County
Sec. 11, T27S, R1W
B.M. # 33 City of Wichita Brass Cap in Conc. Post 55' Lt. ℄ Sta. 1184+80 El. 1330.53
Var. Sp. Dt. Lt.
Sp. Dt. Lt. (See X-Sections)
No Dt. Rt.
+0.30%
+0.38%
500' V.C.
P.I. 1328.00
1327.98
1328.26
1328.75
1329.95 P.T. 1.50
+0.050 ℄ Proj.
Side Road Rt. Sta. 1180+51.85
-0.34%
+0.32%
+0.30% Sp. Dt. Lt.
+1.04%
+0.65%
+0.85% Sp. Dt. Lt.
700' V.C. SSD = 1405'
600' V.C. SSD = 1271'
1321.59 Lt
1323.55 Lt
1324.50 Lt
1327.50 Lt
1328.45 Lt
1329.25 Lt
1330.15 Lt
Top 66" Water Line Elev. = 1317.57
Top 66" Water Line Elev. = 1314.15
Top 66" Water Line Elev. = 1315.80
1335 1330 1325 1320 1315
P.I. 1324.18
1325.26 1325.77 1326.46 1327.32 1327.82 1.50 P.R.C. 1328.33 1329.25 1330.05 1330.40 1.50 P.I. 1330.94 1330.78 1331.20 1331.73 1331.60 1.50 P.C.C. 1332.05 1332.27 1332.41 1332.44 P.I. 1333.02 1332.30 1332.28 1331.80
1175 6 7 8 9 1180 1 2 3 4 1185 6 7 8 9 1190 1
PLAN
PROFILE
JUL 13 1972


5 875-428(II) 72 5 25
Part 1
POT ℞ Sta. 1180+51.51
1. - 1/2" Pipe @ POT
2. Nail & Washer in St. light Pole 29.10' W.
3. Nail & Washer in St. light Pole 51.40' S.W.
4. Nail & Washer in St. light Pole 131.85' E.S.E.
P.O.T ℞ Sta. 1196+00
1. Chisel Mark Thus (-|-) @ P.O.T.
2. In Bickel St. Median
3. Back of Curb @ break in median 170.70 S.E.
4. ℄ Pier 41.40 S.
5. ℄ Pier 36.20 E.
Sta. 1184+92.42 BEGIN Kansas FAS Project 875-428(II) Part 1
Sta. 1190+39.30 END Kansas FAS Project 875-428(II) Part 1
℄ Sta. 1196+03.17 18.75' Lt
℞ Sta. 1196+00
Sta. 1187+65.86 Const. 45'-6"-8@56'-6"-45'-6" Cont. R.C. Slab Spans (Haunched) Pile Bent Type Abuts. & Pedestal Type Piers 9°00' Skew Lt. 72'-0" Roadway
SCALE 1" = 100'
Sec. 11, T27S, R1W
Wichita - Valley Center
WESTDALE DRIVE
Flood Control R/W
℄ MO. PAC. R.R.
R.R. R/W
℄ Proposed Improvement
(FAS 607)
Baseline
BICKEL AVENUE (FAS 607)
I-235
U.S.G.S. Gaging Station
66" WATER LINE (City of Wichita)
ARKLA 10" H.P. Gas Pipe
Floodway
Wichita City Limits
Exist R/W 108'
Exist R/W 100' Flood Control R/W
WINDMILL ROAD
Sec. 11, T27S, R1W
32'-4 1/2" 13 @ 30'-0" 32'-4 1/2"
Steel Plate Guard Fence
Reinf. Conc. Mod. T-Beam Bridge
Pile Bent Piers
Exist. Waterway Opng. 3215 Sq. ft.
26'-6" Roadway
EXISTING STRUCTURE
℄ Levee "C"
℄ Channel
℄ Levee "D"
El. 1325.91
El. 1317.0
El. 1306.48
El. 1317.0
El. 1326.85
100'-0" 162'-6" 162'-6" 103'-0"
528'-0"
DESIGN FLOODWAY CHANNEL
Channel Bottom and Channel Slopes
24" Heavy Rip-Rap.
Overbank and Levee Slopes
12" Heavy Rip-Rap.
Heavy Rip-Rap
CHANNEL BOTTOM TOE
SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER
CONTOUR MAP
BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(II)
PROFESSIONAL ENGINEERING CONSULTANTS
D.G.
R.P.
L.F.
7-72
71027

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	KANSAS	87S-428(11)	72	G	25

Part 1

GENERAL NOTES

LOADING: H520 - 44 A.A.S.H.O. SPECIFICATIONS OF 1969.

UNIT STRESS: f'c = 4,000 P.S.I., fc = 1,800 P.S.I., fs = 20,000 P.S.I.

BRIDGE EXCAVATION: ELEVATION 1307.0 SHALL DESIGNATE THE EXCAVATION BOUNDARY PLANE OF CLASS I AND CLASS II EXCAVATION. CLASS I ABOVE THE PLANE, CLASS II BELOW. SEE BRIDGE EXCAVATION SHEET FOR LIMITS OF PAY EXCAVATION.

PILES: ALL PILES SHALL BE DRIVEN TO A PENETRATION INTO ROCK OR SHALE UNLESS IN THE OPINION OF THE ENGINEER SUCH PENETRATION CANNOT BE OBTAINED WITHOUT INJURY TO THE PILE. PILES SHALL BE DRIVEN TO A MINIMUM COMPUTED BEARING VALUE OF:

ABUTMENT - 39 TONS PER PILE
PIERS - 42 TONS PER PILE

RIPRAP: THE EXISTING RIPRAP REMOVED DUE TO THE EXCAVATION SHALL BE REPLACED TO THE ORIGINAL POSITION. SEE SHEET 5 FOR DESIGN FLOODWAY CHANNEL. NEW RIPRAP SHALL BE PLACED ON THE UPSTREAM SIDE OF PIERS 3,4,5,6 AND 7. THE TOP OF THE NEW RIPRAP SHALL BE AT ELEVATION 1306.48. IT SHALL CONSIST OF 24" OF HEAVY CONCRETE RUBBLE RIPRAP, COMPARABLE IN SIZE TO THE EXISTING RIPRAP. A ROCK TOE SHALL BE CONSTRUCTED AT THE OUTER EDGE OF ALL NEW RIPRAP. SEE SHEET 5 FOR ROCK TOE DETAILS AND SHEET 7 FOR LIMITS OF NEW RIPRAP. THE CONTRACTOR MAY USE MATERIAL FROM THE EXISTING BRIDGE AS RIPRAP. THIS ITEM WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE SUBSIDIARY TO CLASS II EXCAVATION.

REMOVAL OF EXISTING STRUCTURE: THE BRIDGE CONTRACTOR SHALL REMOVE THE EXISTING MODIFIED T-BEAM SPANS AND ABUTMENTS AND PIERS. THE BRIDGE CONTRACTOR SHALL NOTIFY THE WICHITA-VALLEY CENTER FLOOD CONTROL, 104 SOUTH MAIN, WICHITA, KANSAS, PHONE 262-0811, PRIOR TO REMOVING THE EXISTING STRUCTURE. ALL CONCRETE RUBBLE, EXCEPT THAT USED BY THE BRIDGE CONTRACTOR FOR RIPRAP, SHALL BE STOCKPILED DOWNSTREAM WITHIN 1000 FEET OF THE EXISTING STRUCTURE AT A LOCATION TO BE DESIGNATED BY THE ENGINEER.

ALL EXISTING PILES, EXCEPT THOSE CONFLICTING WITH NEW CONSTRUCTION, SHALL BE CUT OFF ONE FOOT BELOW EXISTING RIPRAP. EXISTING PILES CONFLICTING WITH NEW CONSTRUCTION SHALL BE REMOVED.

TRAFFIC CONTROL: TRAFFIC WILL BE CARRIED THROUGH CONSTRUCTION ON THE EXISTING BRIDGE UNTIL THE LEFT ONE-HALF OF THE NEW BRIDGE IS COMPLETED, AT WHICH TIME TRAFFIC WILL BE DIVERTED TO THE NEW STRUCTURE. THE BRIDGE CONTRACTOR SHALL COMPLETE THE PERMANENT CURB AND METAL HANDRAIL FOR THE LEFT SIDE OF THE BRIDGE AND THE 3 FOOT SECTION OF MEDIAN AS SHOWN ON THE PLANS, BEFORE THE LEFT ONE-HALF OF THE BRIDGE IS OPENED TO TRAFFIC. SEE SHEETS NOS. 21, 22 AND 23 FOR TRAFFIC CONTROL DURING CONSTRUCTION. SEE SHEET NO. 3 FOR ADDITIONAL CONSTRUCTION SEQUENCE INFORMATION.

U.S.G.S. GAGING STATION: THE U.S.G.S. GAGING STATION, RT. STA. 1185+02 IS TO BE RELOCATED BY OTHERS.

ENGINEERING GEOLOGY: THE SOUNDINGS SHOWN ON THESE PLANS ARE TAKEN FROM NOTES OBTAINED IN THE FIELD AND REPRESENT THE BEST INFORMATION AVAILABLE TO THE SEDGWICK COUNTY ENGINEERING DEPARTMENT. THE LOGS OF THESE SOUNDINGS ARE IN THE FILES OF THE SEDGWICK COUNTY ENGINEER AND ARE AVAILABLE FOR INSPECTION BY INTERESTED AND QUALIFIED BIDDERS.

FALSEWORK: FALSEWORK SHALL BE IN PLACE IN ANY SPAN UNTIL THE CONCRETE IN THAT SPAN AND THE NEXT ADJACENT SPAN CONSTRUCTED LATEST SHALL HAVE ATTAINED ITS DESIGN STRENGTH, EXCEPT THAT FALSEWORK SHALL REMAIN IN PLACE UNDER THE ENTIRE LEFT ONE-HALF OF THE NEW BRIDGE UNTIL SUCH TIME AS THE ADJOINING RIGHT ONE-HALF SPAN QUALIFIES FOR REMOVAL OF FALSEWORK. IN LIEU OF THE ABOVE EXCEPTION THE CONTRACTOR MAY AT HIS OPTION, WHEN PILE BENTS AT NOT MORE THAN 15'-2" C. C. ARE ERECTED TO SUPPORT THE FALSEWORK, ELECT TO REMOVE THE SLAB FORMS, WHEN THE CONCRETE THEREON OTHERWISE QUALIFIES, AND RESHORE THE COMPLETED WORK AT EACH BENT. THE RESHORING SHALL REMAIN IN PLACE ON THE LEFT-HALF OF THE STRUCTURE UNTIL THE CONCRETE IN THE ADJACENT RIGHT-HALF QUALIFIES FOR REMOVAL OF FALSEWORK. WHERE THE RESHORING OPTION IS ELECTED THE CONTRACTOR'S PROPOSED SEQUENCE OF OPERATIONS SHALL BE APPROVED BY THE ENGINEER.

TEST PILES: (TWO) CONCRETE TEST PILES SHALL BE DRIVEN AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. TEST PILES SHALL REMAIN IN PLACE AS PERMANENT PILING.

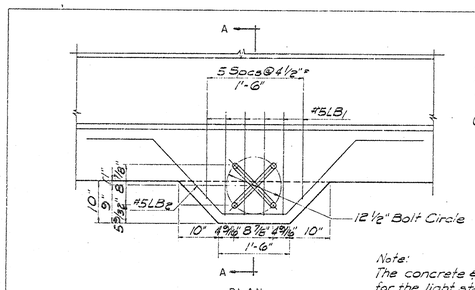
GRADING FOR STAIRS: THE BRIDGE CONTRACTOR SHALL DO THE NECESSARY GRADING TO CONSTRUCT THE STAIRS ADJACENT TO THE ABUTMENTS, AND WILL BE RESPONSIBLE FOR SUPPLYING ANY NECESSARY FILL MATERIAL. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR CLASS I EXCAVATION.

SUMMARY OF QUANTITIES

Item / Location	Excavation (Cu. Yds) Class I	Class II	Concrete (Cu. Yds) Class AAA	Class AAA(AE)	Steel (Lbs) Reinforcing	Structural	Bearing Devices (Lbs.)	Concrete Piles (Lin. Ft.)	Concrete Test Piles (Lin. Ft.)	2" Electrical Conduit Metallic (Lin. Ft.)	Metal Handrail Special (Lin. Ft.)	Pipe Handrail (Lump Sum)	Linseed Oil Surf. Treat. Bridge (Sq. Yds.)	Removal of Exist. Structure (Lump Sum)	Field Office & Lab (Type C) (Each)	Mobilization (Lump Sum)	Traffic Control (Lump Sum)
Abut. #1	76	—	49.2	—	4525		2112	668	—								
Pier #1	102	—	48.0	—	12100		4512	1144	—								
Pier #2	37	100	53.6	—	14275		4512	882	46								
Pier #3	18	98	45.0	—	10155		—	880	—								
Pier #4	12	98	45.0	—	10155		—	924	—								
Pier #5	—	97	45.0	—	10155		—	990	—								
Pier #6	—	97	45.0	—	10155		—	968	—								
Pier #7	—	98	45.0	—	10155		—	968	—								
Pier #8	22	99	53.6	—	14275		4512	968	—								
Pier #9	100	—	48.0	—	12100		4512	1144	—								
Abut #2	80	—	49.2	—	4205		2112	620	72								
Substr. Tot.	447	687	538.6	—	112555		22272	10156	118								
Superstr. Tot.	—	—	—	3166.2	601385	4380	—	—	—	1460	2524		3397				
Walkways, Stairs & Retaining Walls	390			125.3	7850												
Total	837	687	538.6	3291.5	722,190	4380	22,272	‡ 10,156	118	1460	2524	Lump Sum	3397	Lump Sum	1	Lump Sum	Lump Sum

Note: Only one of the following types of Piles shall be used on this structure: Prestressed 14", Pipe 12 3/4", Precast 16".

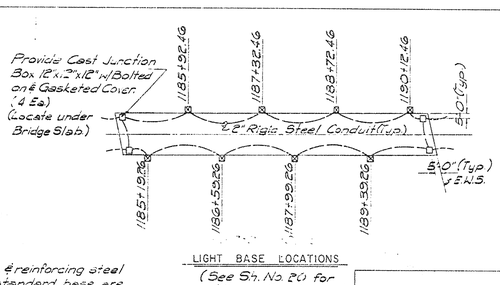
‡ Includes - 22 @ 40', 43 @ 42', 66 @ 44', 22 @ 45', 44 @ 52', 6 @ 66', 9 @ 68', & 4 @ 70'.



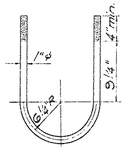
PLAN

SECTION A-A

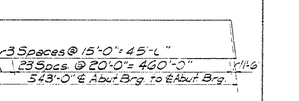
Note:
The concrete & reinforcing steel for the light standard base are included in the superstructure quantities. The junction boxes will not be paid for directly but will be subsidiary to the 2" electrical conduit.



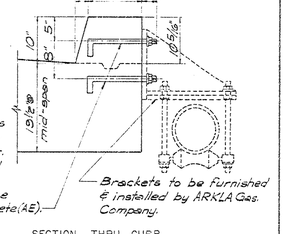
LIGHT BASE LOCATIONS
(See Sh. No. 20 for Additional Requirements)



ANCHOR BOLT DETAIL
(Galvanized)



PLAN
(Suspension Assembly Locations)

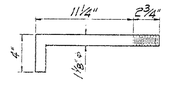


Note:
Anchor Bolts - to be furnished by ARKLA Gas Company & installed by the bridge contractor. This work will not be paid for directly but shall be included in the unit price bid for Class AAA Concrete (AE).

Brackets to be furnished & installed by ARKLA Gas Company.

SECTION THRU CURB AT BRACKET

DETAIL OF GAS PIPE MOUNTING



ANCHOR BOLT DETAIL
(GALVANIZED)
(54 Reqd)

LIGHT BASE & LIGHTING CONDUIT DETAILS

SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

SUMMARY OF QUANTITIES

BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(11)

PROFESSIONAL ENGINEERING CONSULTANTS

Designed D.G. Checked R.P.
Drawn L.F. Date 7/1027

Received JUL 13 1972

PUB ROAD DIV NO	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	KANSAS	87S-428(11)	19 72	7	25

B.M. #95 City of Wichita Brass Cap in Conc. Post 55± Lt. Sta 1184+80 El. 1330.58

546'-10⅝" End to End of Wearing Surface

Part 1

ELEVATION

45'-6"-8@56'-6"-45'-6" Cont. R.C. Slab Spans (Haunched) Pile Bent Type Abutment & Pedestal Type Piers
94°00' Skew Lt. 72'-0" Roadway
(Sts. i-s, Walls, & Walks are not shown for clarity.)

SCALE 1"=20'

VERTICAL CURVE DATA

PLAN

Drainage Data

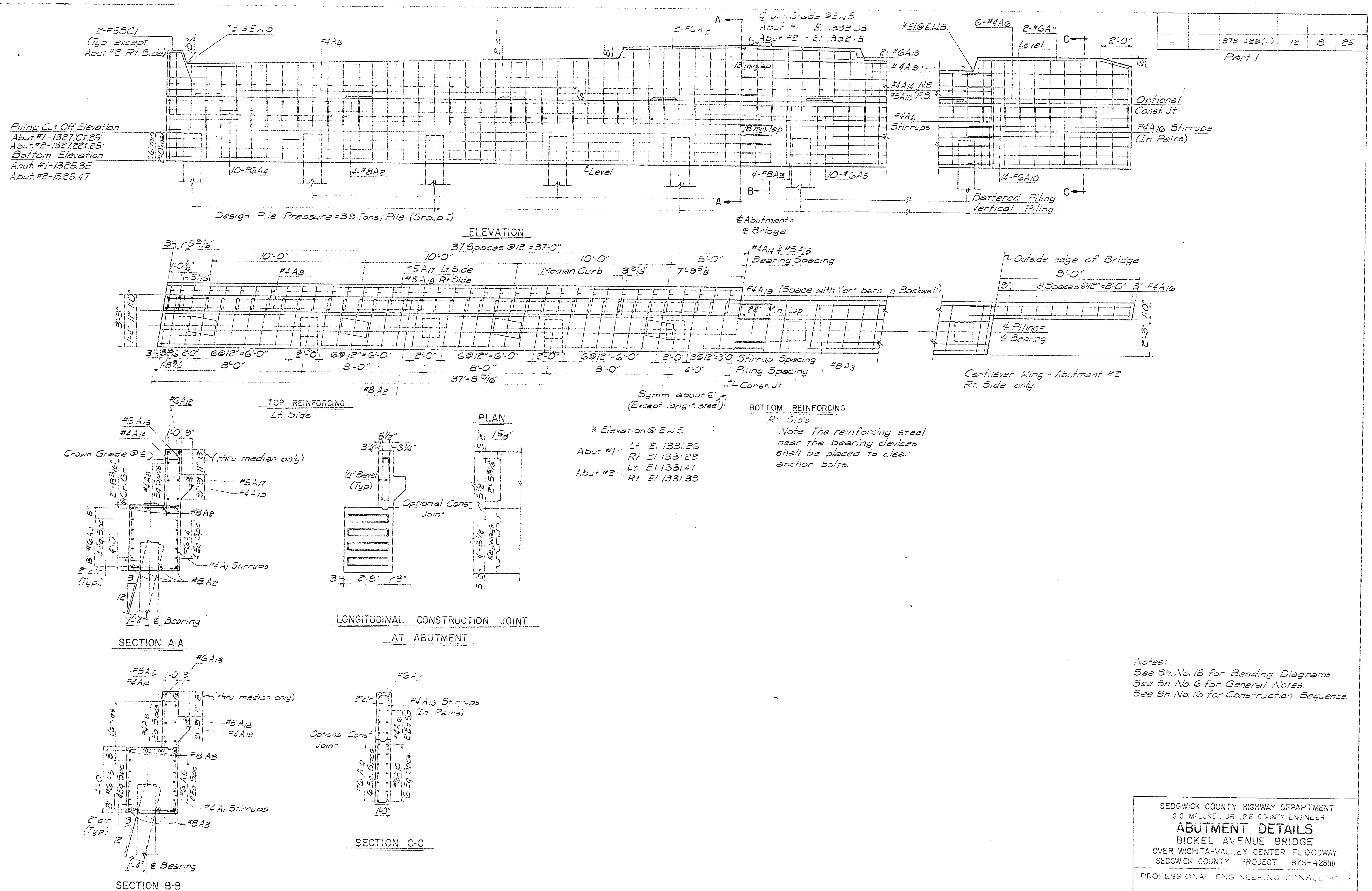
Waterway Required	6526 sq. ft.
Waterway Provided below H.W.	6526 sq. ft.
Total	9879 sq. ft.
Estimated 75 yr. Frequency discharge	46500 c.f.s.

SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

CONSTRUCTION LAYOUT

BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(11)

PROFESSIONAL ENGINEERING CONSULTANTS
ENGINEERS
WICHITA, KANSAS



Notes:
See Sh. No. 18 for Bending Diagrams.
See Sh. No. 6 for General Notes.
See Sh. No. 16 for Construction Sequence.

SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

ABUTMENT DETAILS

BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(II)

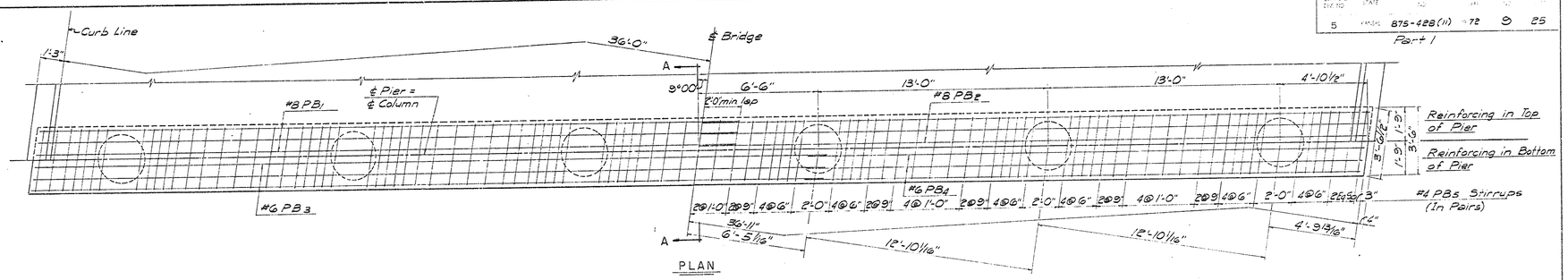
PROFESSIONAL ENGINEERING CONSULTANTS

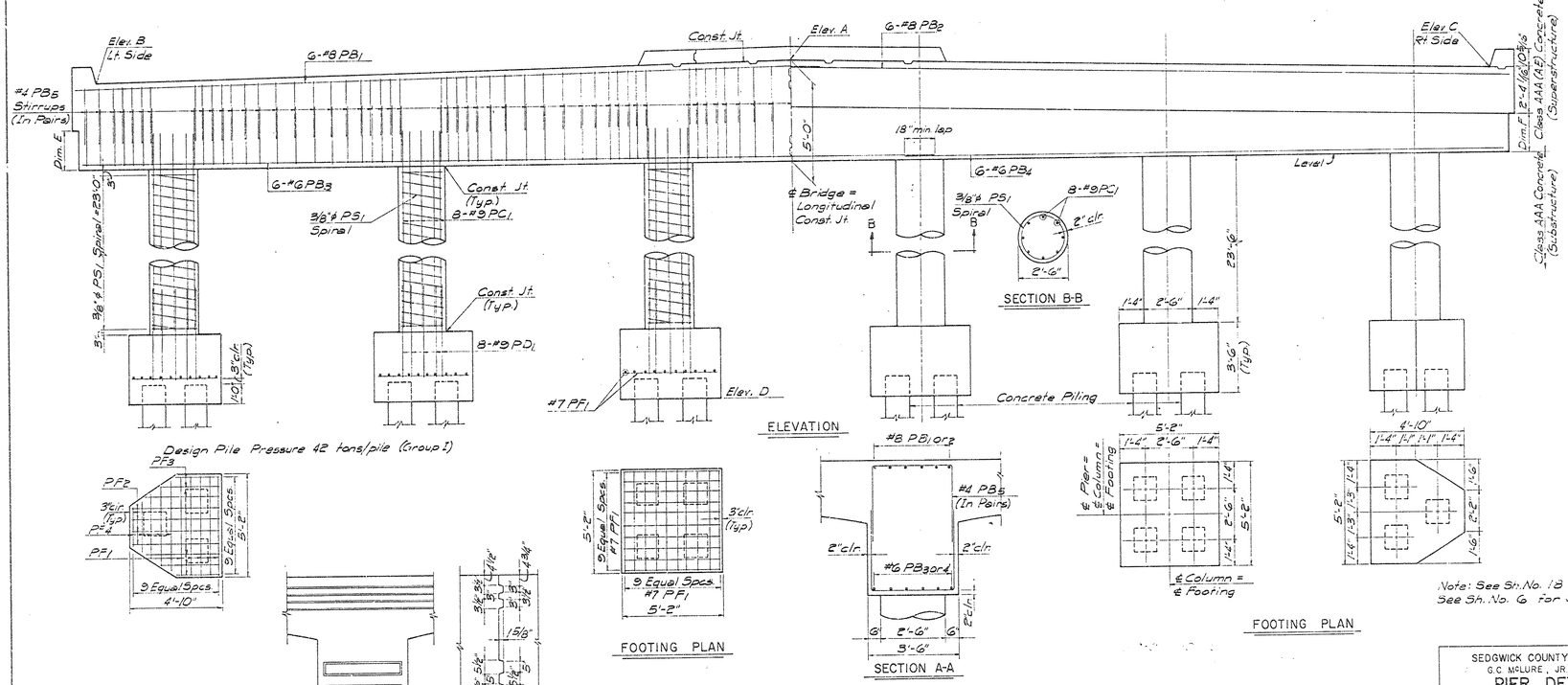
D.G.	R.P.	
L.F.	7-72	7027

JUL 13 1972

SUB. SCHEME DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHTS.
5	KANSAS	875-428(11)	72	85

Page 1





Note: See Sh. No. 18 for banding diagrams.
See Sh. No. 6 for General Notes.

TABLE OF ELEVATIONS AND DIMENSIONS

Pier	#1	#2	#3	#4	#5	#6	#7	#8	#9
Elev. A	1332.15	1332.28	1332.36	1332.41	1332.44	1332.44	1332.41	1332.34	1332.25
Elev. B	1331.38	1331.51	1331.60	1331.66	1331.69	1331.69	1331.66	1331.60	1331.51
Elev. C	1331.41	1331.53	1331.61	1331.67	1331.69	1331.69	1331.65	1331.58	1331.49
Elev. D	1310.65	1300.28	1300.36	1300.41	1300.44	1300.44	1300.41	1300.34	1310.75
Dim. E	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"
Dim. F	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"	1'-10⅜"

SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

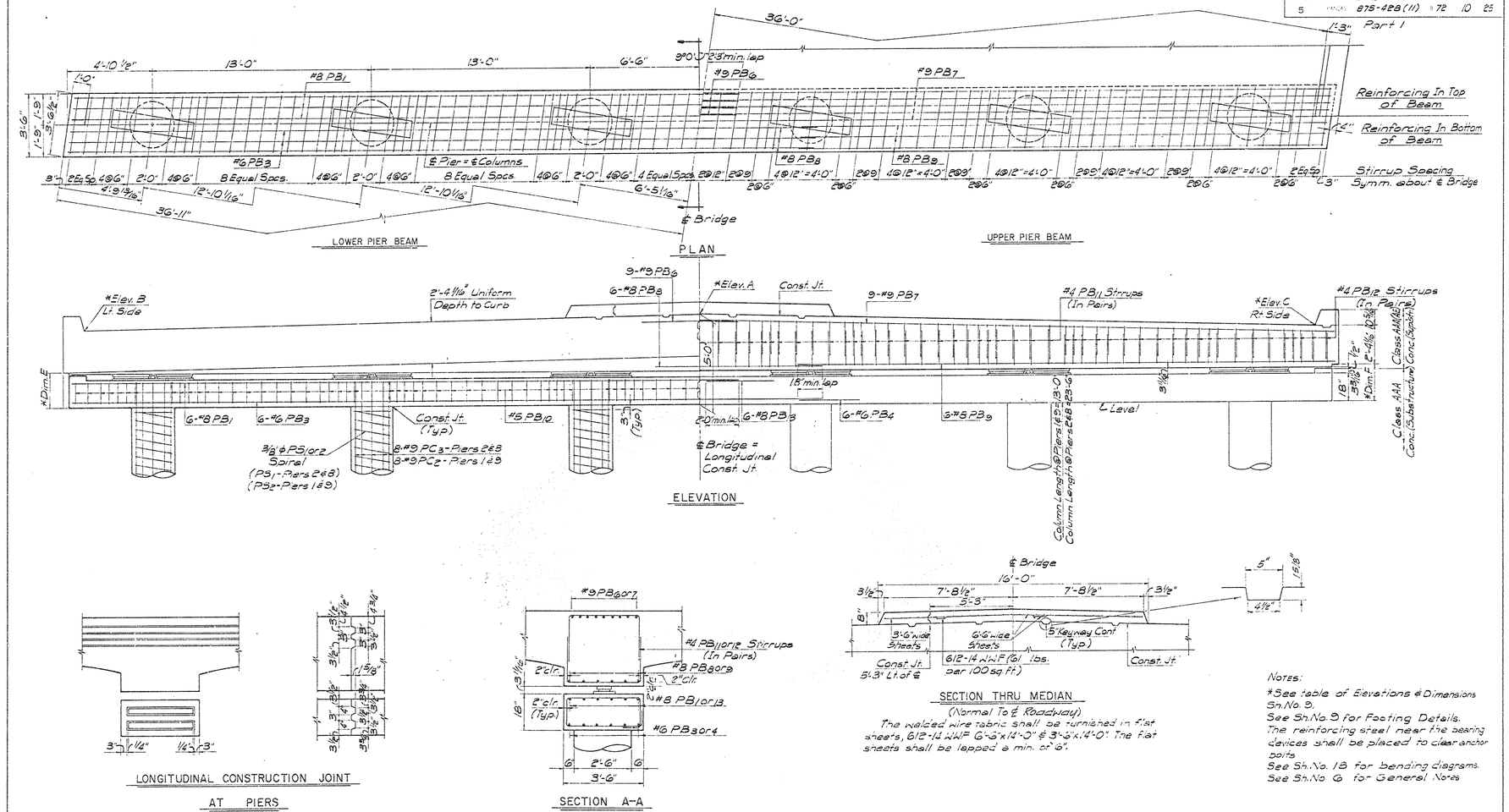
PIER DETAILS (3-7)

BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 875-428(11)

PROFESSIONAL ENGINEERING CONSULTANTS
IN ASSOCIATION WITH
KANSAS

Designed by	D.G.	Checked by	R.P.
Drawn by	L.F.	Date	7-72

7/027



[illegible] ROAD DIV. NO.	STATE	PROJECT NO.	[illegible]	[illegible]	[illegible]
5	KANSAS	87S-428(11)	72	10	25

Part 1

PLAN

ELEVATION

LONGITUDINAL CONSTRUCTION JOINT

AT PIERS

SECTION A–A

SECTION THRU MEDIAN

(Normal To ℄ Roadway)

The welded wire fabric shall be furnished in flat sheets, 612-14 WWF 6'-6"x14'-0" & 3'-6"x14'-0". The flat sheets shall be lapped a min. of 6".

Notes:

*See table of Elevations & Dimensions Sh. No. 9.
See Sh. No. 9 for Footing Details.
The reinforcing steel near the bearing devices shall be placed to clear anchor bolts
See Sh. No. 18 for bending diagrams.
See Sh. No. 6 for General Notes.

SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER
PIER DETAILS (1,2,8,&9)
BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(11)

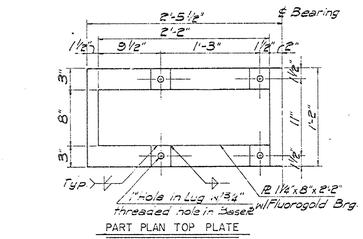
PROFESSIONAL ENGINEERING CONSULTANTS
ENGINEERS
WICHITA, KANSAS

Designed by D.G Checked by R.P
Drawn by L.F. Date 7-72 71027

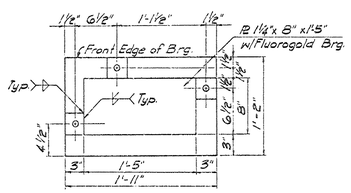
JUL 13 1972

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHT. NO.
5	KANSAS	87S-428(II)	72	11

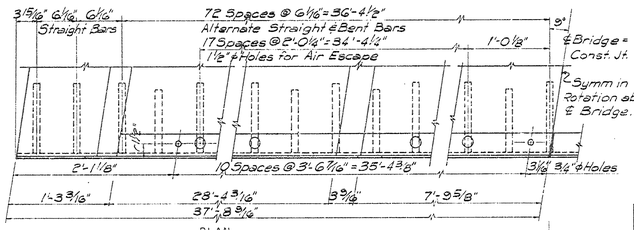
Part 1



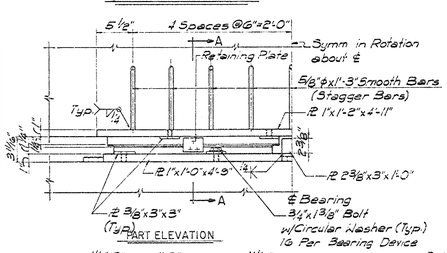
PART PLAN TOP PLATE



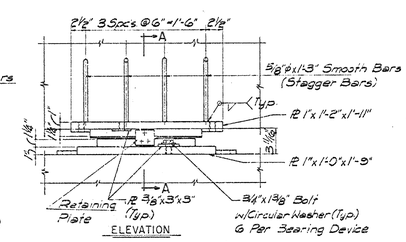
PLAN TOP PLATE



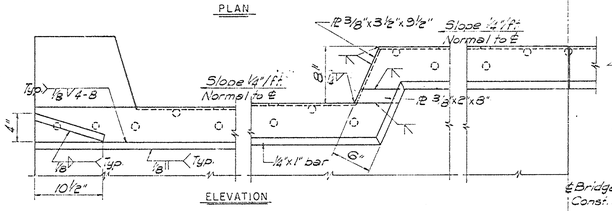
PLAN



PART ELEVATION



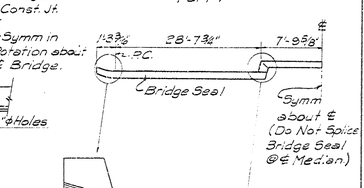
ELEVATION



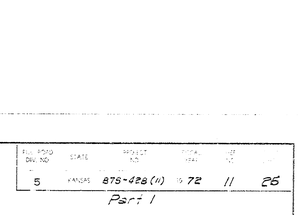
ELEVATION

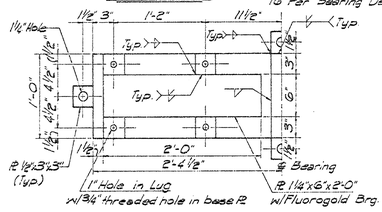
EXPANSION DEVICE DETAILS

Wt. 4290 Lbs. Total

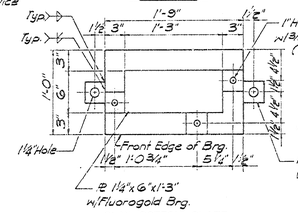


BRIDGE SEAL DETAILS





PART PLAN BOTTOM PLATE



PLAN BOTTOM PLATE

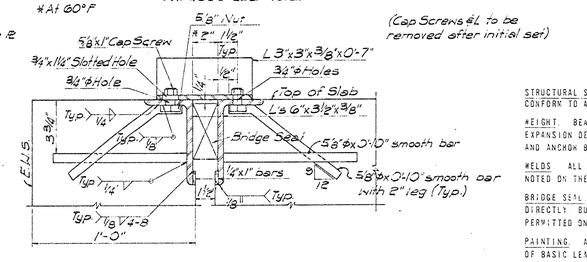
PIER BEARING DEVICES

24 Reqd. Wt. 752 Lbs. Each

ABUTMENT BEARING DEVICES

16 Reqd. Wt. 263 Lbs. Each

Note: Bearing plates to be Fluorogold slide bearings as manufactured by the Fluorocarbon Co. or approved equal.



SECTION THRU EXPANSION DEVICE

(Cap Screws ℄ L to be removed after initial set)

GENERAL NOTES

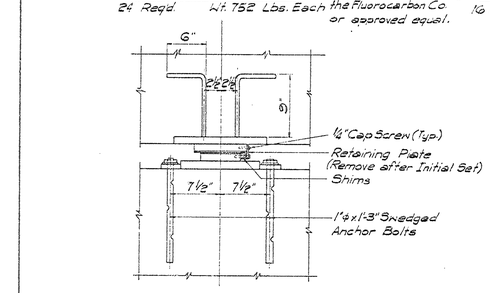
STRUCTURAL STEEL: ALL PARTS OF BEARING AND EXPANSION DEVICES SHALL CONFORM TO ASTM DESIGNATION A36.

WEIGHT: BEARING DEVICES INCLUDE THE WEIGHT OF ALL PLATES, BOLTS AND NUTS. EXPANSION DEVICES INCLUDE THE WEIGHT OF ALL ANGLES, PLATES, KEEPER BARS AND ANCHOR BARS.

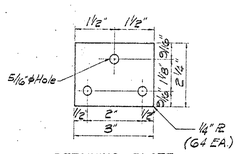
WELDS: ALL WELDS SHALL BE 5/16" CONTINUOUS FILLET WELDS UNLESS OTHERWISE NOTED ON THE PLANS.

BRIDGE SEAL: THE PREFORMED NEOPRENE BRIDGE SEAL SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE FURNISHED AS A SUBSIDIARY ITEM. SPLICING WILL BE PERMITTED ONLY AT LOCATIONS SHOWN ON THE PLANS.

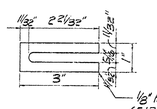
PAINTING: ALL BEARING AND EXPANSION DEVICES SHALL RECEIVE ONE SHOP COAT OF BASIC LEAD SILICO-CHROMATE PRIMER. BEARING DEVICES SHALL RECEIVE 2 SHOP COATS OF BASIC LEAD SILICO-CHROMATE DARK GREEN FINISH COAT. ALL EXPOSED AREAS OF EXPANSION DEVICES AFTER INSTALLATION OF THE NEOPRENE SEAL SHALL RECEIVE 2 COATS OF BASIC LEAD SILICO-CHROMATE DARK GREEN FINISH COAT.



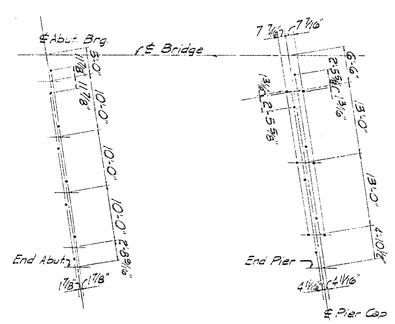
SECTION A-A



RETAINING PLATE DETAILS



SHIM DETAILS



ANCHOR BOLT LOCATIONS

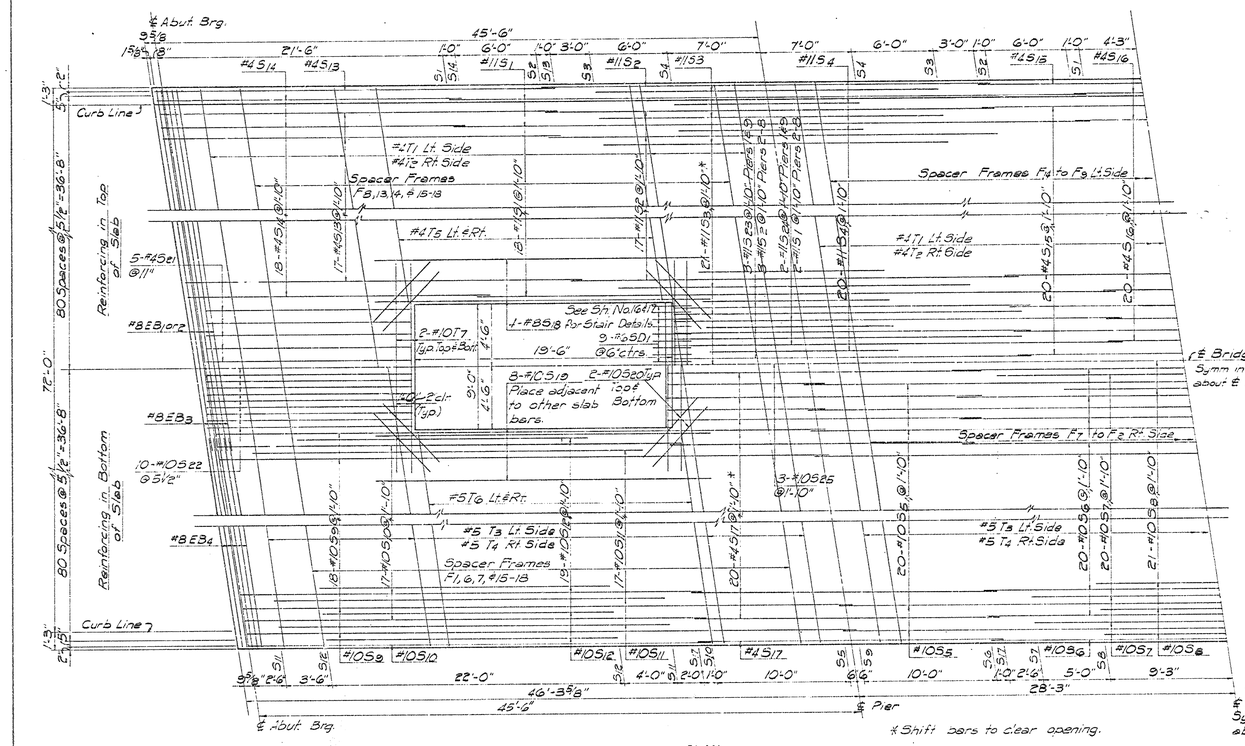
SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

BEARING & EXPANSION DEVICES

BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(II)

PROFESSIONAL ENGINEERING CONSULTANTS
WICHITA, KANSAS

Designed by D.G. Checked by R.P.
Drawn by L.F. Date 7-72 No. 71027



PUB. ROAD DIV NO	STATE	PROJECT NO	FISCAL YEAR	[illegible]	[illegible]
5	KANSAS	87S-428(II)	19 72	12	25

Part I

PLAN

CONCRETE PLACING SEQUENCE

To be used when steel beams are used for falsework.

HAUNCH ORDINATES

GENERAL NOTES

LOADING. HS20 - 44 A.A.S.H.O. SPECIFICATIONS EDITION OF 1969.

UNIT STRESSES. f'c = 4,000 P.S.I., fc = 1,600 P.S.I., fs = 20,000 P.S.I.

CONCRETE. CLASS AAA CONCRETE SHALL BE USED IN THE ABUTMENTS, COLUMNS AND FOOTINGS. CLASS AAA (AE) CONCRETE SHALL BE USED IN THE SUPERSTRUCTURE. BEVEL ALL EXPOSED EDGES WITH A 3/4 INCH TRIANGULAR MOULDING UNLESS OTHERWISE NOTED.

REINFORCING STEEL. ALL REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATIONS A615 GRADE 40. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS UNLESS OTHERWISE NOTED.

FALSEWORK. SEE SHEET NO. 23 FOR GENERAL FALSEWORK NOTES.

CONSTRUCTION JOINTS. CONSTRUCTION JOINTS, UNLESS NOTED AS OPTIONAL, SHALL BE AT THE LOCATIONS SHOWN. OPTIONAL CONSTRUCTION JOINTS, IF USED, SHALL BE MADE ONLY AT THE LOCATIONS SHOWN OR AS APPROVED BY THE ENGINEER.

CAMBER: CAMBER SHALL BE PROVIDED AS SHOWN ON THE CAMBER DIAGRAM. ADDITIONAL CAMBER WILL BE REQUIRED IF LONG SPAN STEEL BEAMS ARE USED FOR FALSEWORK.

Note: See Sh. No. 13 for End Beam Details.

LONGITUDINAL SECTION AT CROWN GRADE

TYPICAL TRANSVERSE SLAB CONSTRUCTION JOINT

Note: See Sh. No. 18 for Bending Diagrams.
See Sh. No. 6 for Gas Line Bracket Details.

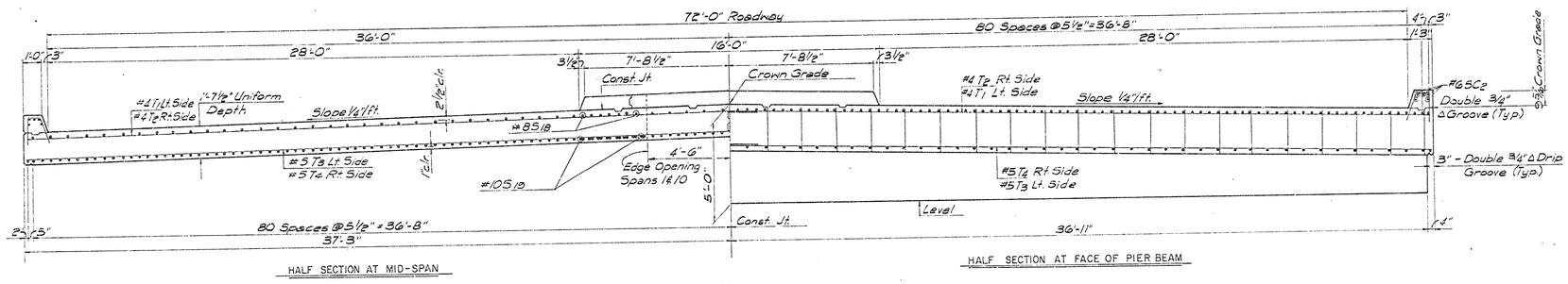
SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER
SUPERSTRUCTURE LAYOUT
BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(II)

PROFESSIONAL ENGINEERING CONSULTANTS
ENGINEERS
WICHITA, KANSAS

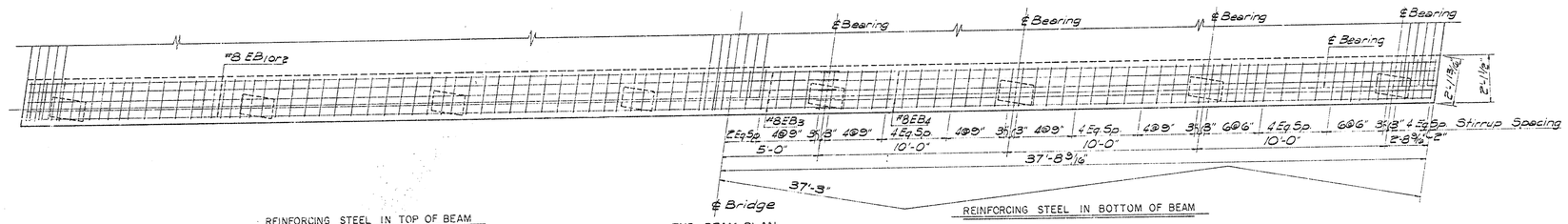
Designed by D.G. Checked by R.P.
Drawn by L.F. Date 7-72 [illegible] 71027

RIGHT OF WAY DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	KANSAS	87S-428(11)	72	13	25

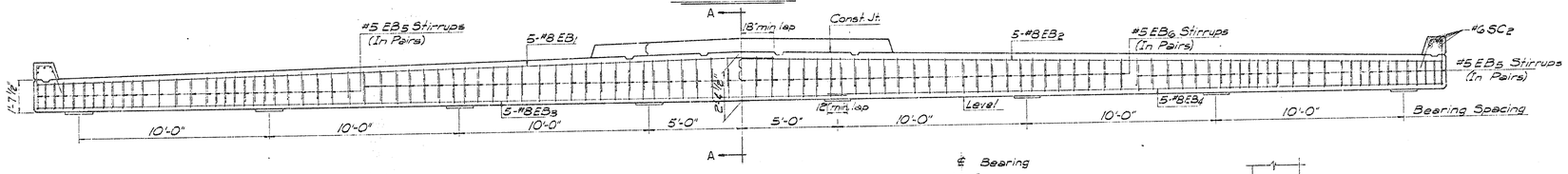
Part I



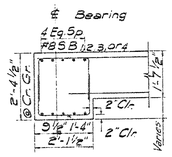
ROADWAY CROSS SECTION
Normal To Roadway



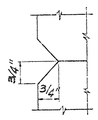
END BEAM PLAN



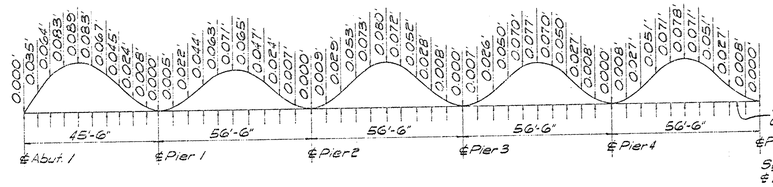
END BEAM ELEVATION



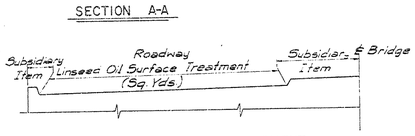
SECTION A-A



DOUBLE ¾" Δ GROOVE



DEAD LOAD CAMBER AT TENTH POINTS



LINSEED OIL SURFACE TREATMENT

Note: See Sh. No. 18 for bending diagrams. See Sh. No. 6 for General Notes.

SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

SUPERSTRUCTURE DETAILS

BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(11)

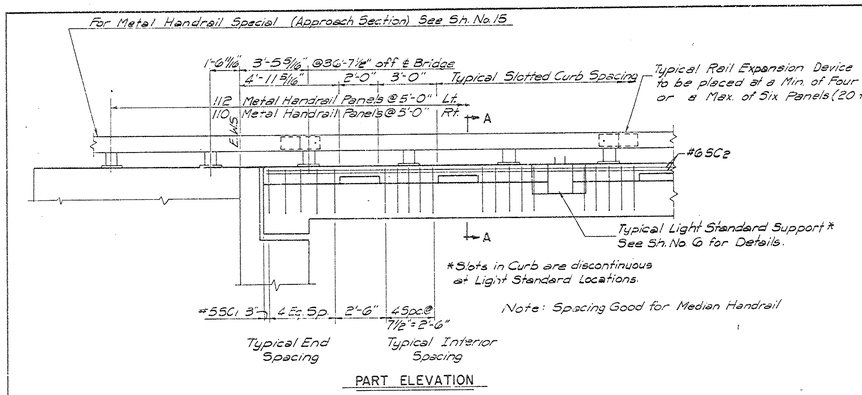
PROFESSIONAL ENGINEERING CONSULTANTS
WICHITA, KANSAS

Designed by	D.G.	Checked by	R.P.
Drawn by	L.F.	Date	7-72

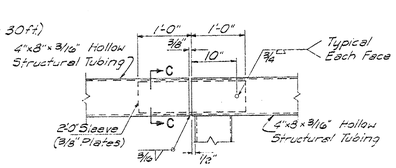
Z1027

BID BOOK DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	NO. SHTS.
5	KANSAS	87S-428(II)	'72	14	25

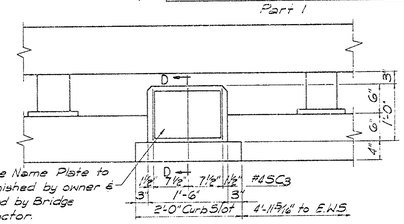
Part 1



PART ELEVATION

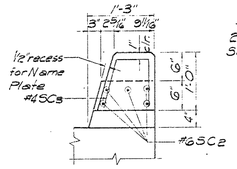


TYPICAL EXPANSION DEVICE

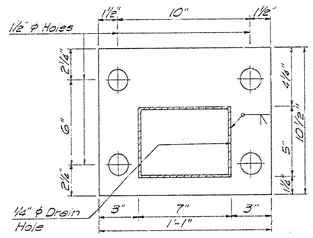


BRIDGE NAME PLATE

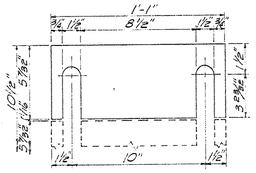
2 Reqd. - Install on Approach Side @ each end of Bridge.



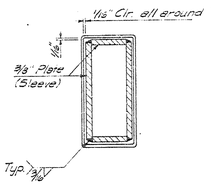
SECTION D-D



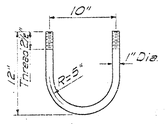
7/8" BASE PLATE DETAILS



GALVANIZED STEEL SHIMS



SECTION C-C



U BOLT DETAILS

(GALVANIZED)

GENERAL NOTES:

THE HORIZONTAL MEMBERS OF THE RAIL AND THE POSTS SHALL BE STEEL HOLLOW STRUCTURAL TUBING. ALL PLATES SHALL CONFORM TO A.S.T.M. DESIGNATION A36.

ALL PARTS OF THE RAIL, POSTS, AND BASE PLATES SHALL BE GALVANIZED AFTER FABRICATION. ANCHOR BOLTS, NU S AND WASHERS AND STEEL SHIMS SHALL BE GALVANIZED. GALVANIZING SHALL CONFORM TO LATEST REQUIREMENTS OF A.S.T.M. A-123.
RAIL POSTS SHALL BE PERPENDICULAR TO TOP OF CURB. SHIMS MAY BE USED BETWEEN CONCRETE AND BASE PLATE OF POSTS.

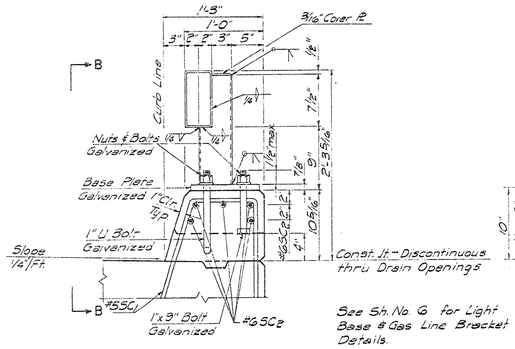
RAIL SHALL BE FABRICATED IN LENGTHS TO INCLUDE A MINIMUM OF FOUR OR A MAXIMUM OF SIX PANELS. HORIZONTAL RAIL MEMBER SHALL BE ATTACHED TO AT LEAST FOUR POSTS.

ALL ANCHOR BOLTS AND NUTS SHALL CONFORM TO SUBSECTION U15-1; WASHERS SHALL CONFORM TO SUBSECTION U15-4 OF THE 1966 STANDARD SPECIFICATIONS.

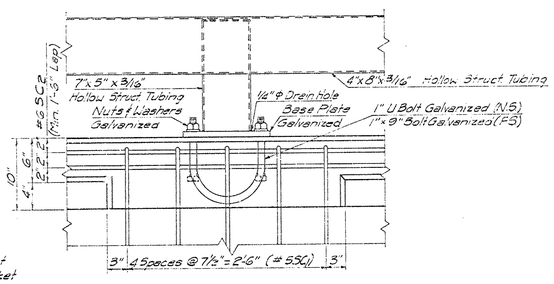
ALL WELDS ON POSTS AND RAIL SHALL BE SAND BLASTED WITHIN 4 TO 6 HOURS PRIOR TO GALVANIZING.

THE BRIDGE CONTRACTOR SHALL CLEAN ALL EXPOSED GALVANIZED SURFACES WITH SOLVENT PRIOR TO APPLYING ONE COAT OF ZINC DUST-ZINC OXIDE PRIMER AND TWO COATS OF BASIC LEAD SILICO-CHROMATE DARK GREEN FINISH COAT.

CONSTRUCTION JOINTS IN CURBS SHALL BE DISCONTINUOUS THROUGH DRAIN OPENINGS. CURBS MAY BE BUILT AFTER REMOVAL OF FALSEWORK.



SECTION A-A



SECTION B-B

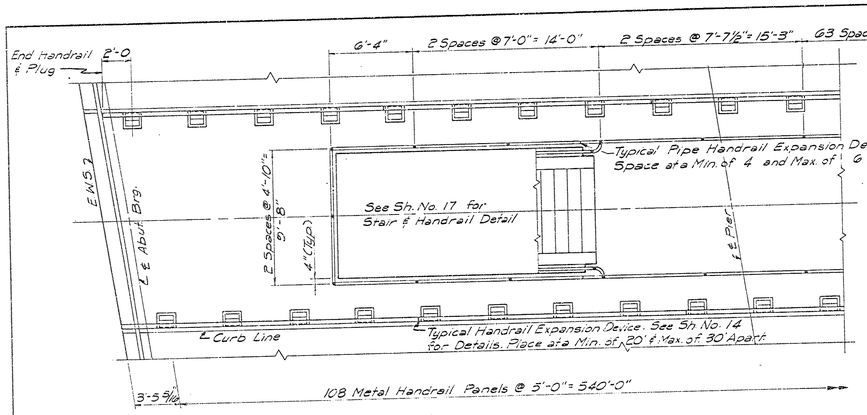
SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

HANDRAIL DETAILS
BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(II)

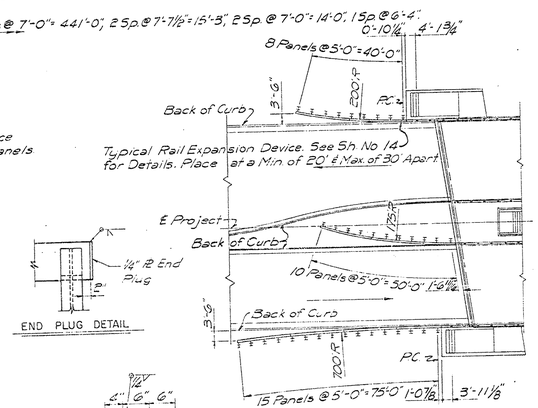
PROFESSIONAL ENGINEERING CONSULTANTS
WICHITA, KANSAS

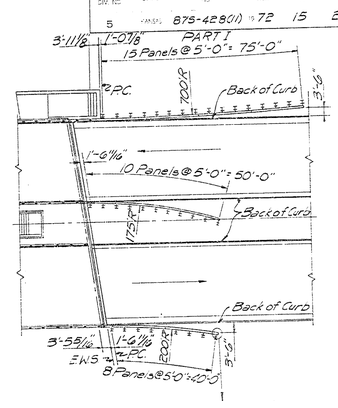
Designed by D.G. Checked by R.P.
Drawn by L.F. Date 7-72 7/027

FED. ROAD DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHTS.
5	KANSAS	87S-428(II)	72	15 25

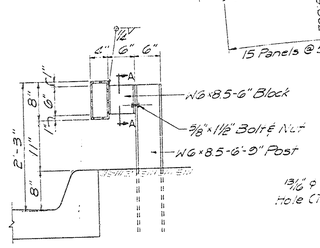


PART PLAN

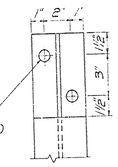




END PLUG DETAIL

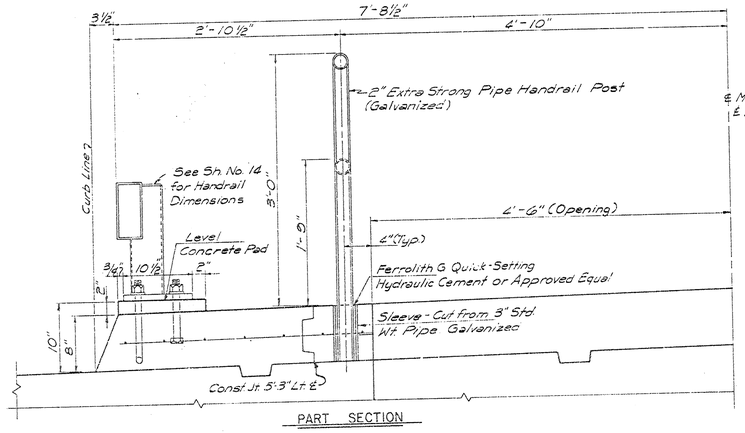


SECTION THRU RAILING

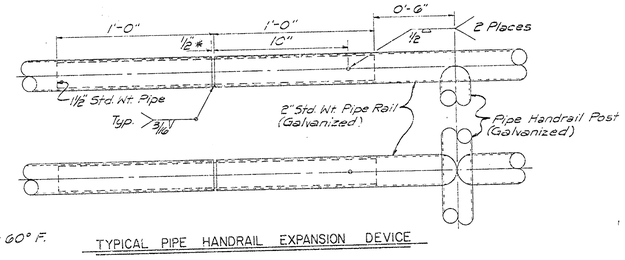


SECTION A-A

METAL HANDRAIL SPECIAL DETAILS
(Approach Section)

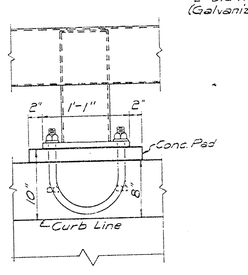


PART SECTION

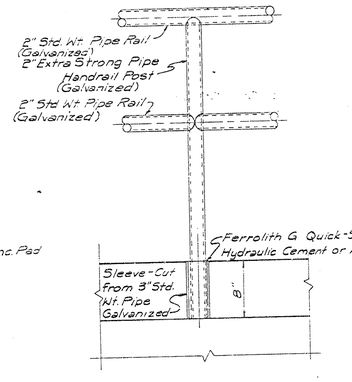


* A = 60° F.

TYPICAL PIPE HANDRAIL EXPANSION DEVICE



HANDRAIL ELEVATION
(For Median)



PIPE HANDRAIL ELEVATION

TYPICAL PLAN

GENERAL NOTES

STRUCTURAL STEEL: THE HORIZONTAL MEMBERS AND POSTS (BRIDGE SECTION) OF THE METAL HANDRAIL SPECIAL SHALL BE STEEL HOLLOW STRUCTURAL TUBING. THE HORIZONTAL MEMBERS AND POSTS OF THE PIPE HAND RAIL SHALL BE SEAMLESS STEEL PIPE. ALL POSTS (APPROACH SECTION) AND OFFSET BLOCKS OF THE METAL HANDRAIL SPECIAL, AND ALL PLATES AND ANGLES SHALL CONFORM TO ASTM DESIGNATION A36.

FABRICATION: ALL METAL HANDRAIL SHALL BE SHOP CURVED. THE PIPE HANDRAIL SHALL BE FABRICATED TO THE SHAPE AND DIMENSIONS SHOWN ON THE PLANS. ALL RAIL EXCEPT ON STAIRWAYS SHALL BE FABRICATED IN LENGTHS TO INCLUDE A MINIMUM OF FOUR AND A MAXIMUM OF SIX PANELS. WELD ALL JOINTS OF THE PIPE HANDRAIL UNLESS NOTED OTHERWISE, AND GRIND SMOOTH ALL EXPOSED WELDS. ALL WELDS ON METAL HANDRAIL SPECIAL SHALL BE SAND BLASTED WITHIN 4 TO 6 HOURS PRIOR TO GALVANIZING. ALL PARTS OF THE METAL HANDRAIL, PIPE HANDRAIL, POSTS, BLOCKS AND BASE PLATES SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO THE LATEST REQUIREMENTS OF ASTM A-123.

ERECTION: THE METAL HANDRAIL POSTS (BRIDGE SECTION) SHALL BE PERPENDICULAR TO THE CONCRETE PADS. SHIMS MAY BE USED BETWEEN CONCRETE AND BASE PLATE OF POSTS. METAL HANDRAIL POSTS (APPROACH SECTION) MAY BE SET BY DIGGING OR BY DRIVING. EXCAVATION OF ALL CLASSES, INCLUDING ROCK, SHALE AND OTHER MATERIAL, REGARDLESS OF THE ELEVATIONS ENCOUNTERED, REQUIRED FOR THE ERECTION OF THE POST, SHALL BE CONSIDERED AS SUBSIDIARY TO THE VARIOUS BID ITEMS FOR WHICH PAYMENT IS MADE. THE PIPE HANDRAIL SHALL BE INSTALLED BY INSERTING INTO THE CONCRETE AT THE TIME IT IS POURED A 3" DIAMETER STANDARD WEIGHT GALVANIZED SLEEVE. THE PIPE HANDRAIL POST SHALL BE PLACED INTO THE SLEEVE AND THE ANNULAR SPACE FILLED WITH FERROLITH G QUICK-SETTING HYDRAULIC CEMENT OR APPROVED EQUAL.

PAINTING: AFTER ERECTION THE BRIDGE CONTRACTOR SHALL CLEAN ALL EXPOSED GALVANIZED SURFACES WITH SOLVENT PRIOR TO APPLYING ONE COAT OF ZINC DUST-ZINC OXIDE PRIMER AND TWO COATS OF BASIC LEAD SILICO-CHROMATE DARK GREEN FINISH COAT.

PAYMENT FOR PIPE HANDRAIL: THE LUMP SUM PAYMENT FOR PIPE HANDRAIL INCLUDES THE FURNISHING AND INSTALLATION OF ALL GALVANIZED PIPE, PIPE SLEEVES, PLATES, BRACKETS, BOLTS, WASHERS AND NUTS AS DETAILED ON THE PLANS.

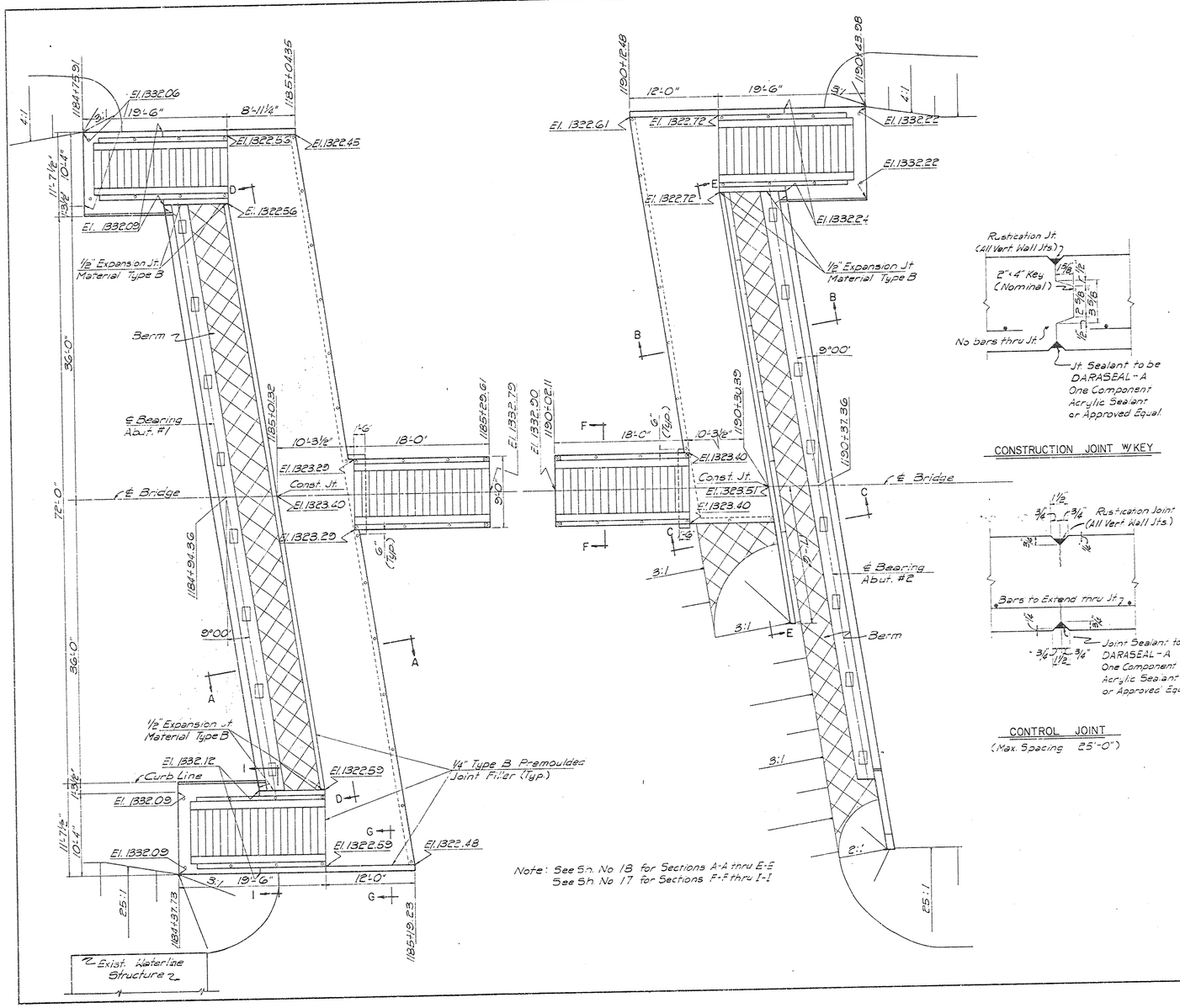
SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

HANDRAIL DETAILS
BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(III)

PROFESSIONAL ENGINEERING CONSULTANTS
WICHITA, KANSAS

Reviewed by J.G.	Checked A.G.L.
Drawn By J.M.L.	Date 7-72

Job No. 7027



CONSTRUCTION JOINT W/KEY

CONTROL JOINT
(Max. Spacing 25'-0")

GENERAL NOTES

CONCRETE: CLASS AAA (AE) SHALL BE USED IN ALL WALLS RETAINING WALLS STEPS AND WALKWAYS. BEVEL ALL EXPOSED EDGES WITH A 3/4" TRIANGULAR MOULDING UNLESS OTHERWISE NOTED.

REINFORCING STEEL: ALL REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A615 GRADE 40. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO THE CENTERLINE OF BAR UNLESS OTHERWISE NOTED.

UNIT STRESSES: f'c = 4,000 P.S.I., fc = 1,600 P.S.I. fs = 20 000 P.S.I.

CONTRACTION JOINTS IN WALKWAYS. CONTRACTION JOINTS SHALL BE LOCATED AT A MAXIMUM OF 5 FEET APART. THEY SHALL BE FORMED BY PLACING A METAL TEMPLATE HAVING A MINIMUM THICKNESS OF ONE-EIGHTH (1/8) INCH INTO THE CONCRETE FOR AT LEAST ONE-THIRD (1/3) OF THE DEPTH OR BY CUTTING ENTIRELY THROUGH THE FRESH CONCRETE WITH A SPADE OR TROWEL.

EXPANSION JOINTS IN WALKWAYS: EXPANSION JOINTS SHALL BE 1/4" THICK LOCATED NO FURTHER APART THAN 20 FEET AND SHALL EXTEND THE FULL THICKNESS THROUGH THE SLAB. ONE-FOURTH (1/4) INCH TYPE B PREMOLDED JOINT FILLER SHALL BE INSTALLED IN THESE JOINTS. EXPANSION JOINTS SHALL BE PLACED BETWEEN ALL WALKWAY SLABS AND ANY VERTICAL SURFACE.

CONSTRUCTION AND CONTROL JOINTS IN RETAINING WALLS: A KEYED CONSTRUCTION JOINT SHALL BE PLACED IN EACH RETAINING WALL AT THE CENTERLINE OF THE BRIDGE. CONTROL JOINTS SHALL BE PLACED IN EACH RETAINING WALL AT A MAXIMUM OF 25 FEET.

CONSTRUCTION SEQUENCE: FOR EACH ONE-HALF OF THE BRIDGE THE CONTRACTOR SHALL FIRST DRIVE THE ABUTMENT PILES, CONSTRUCT THE RETAINING WALLS AND OUTSIDE STAIR WALLS BEFORE CONSTRUCTING THE ABUTMENT.

SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

STAIR & WALK LAYOUT

BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(11)

PROFESSIONAL ENGINEERING CONSULTANTS
ENGINEERS
WICHITA, KANSAS

Designed by D.G. Checked by A.G.L.
Drawn by L.F Date 7-72 Job No. 71027

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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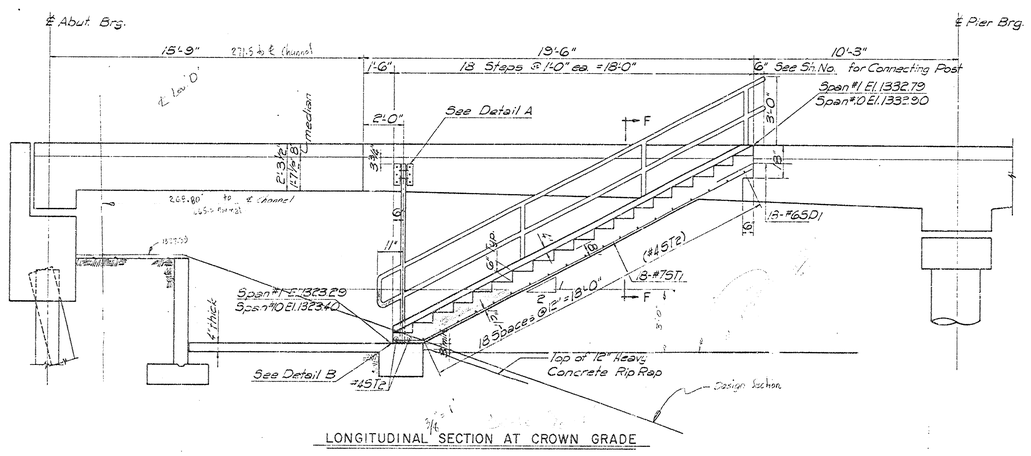
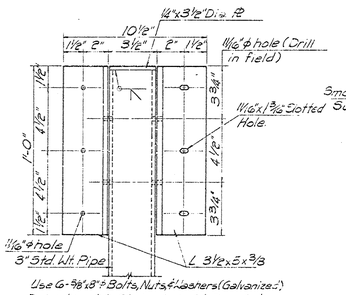
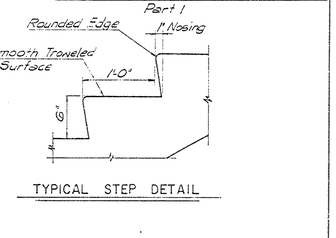
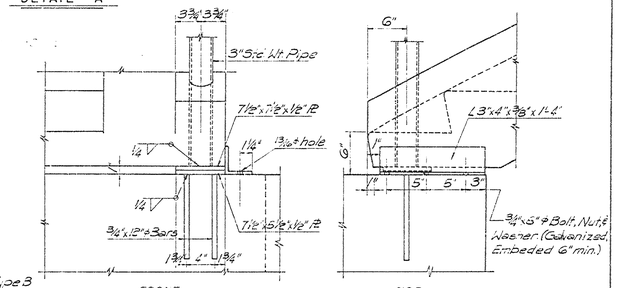




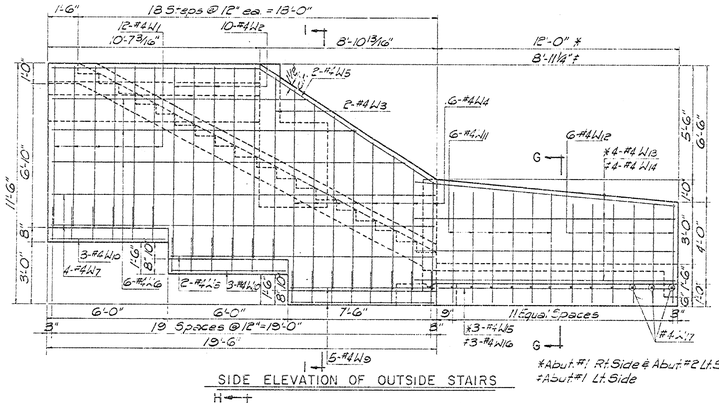
DETAIL A



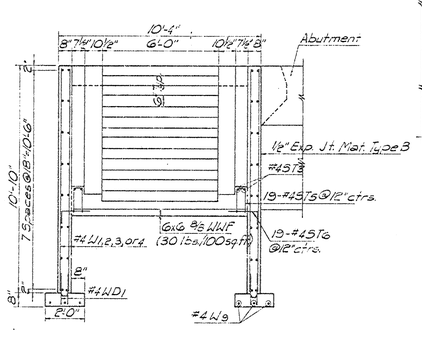
TYPICAL STEP DETAIL



DETAIL B

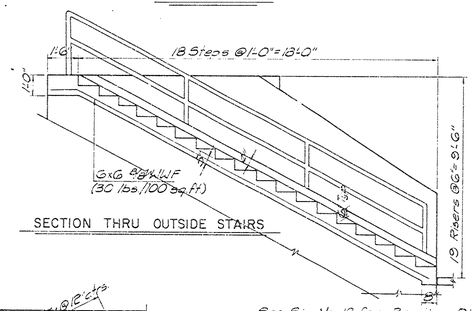


SIDE ELEVATION OF OUTSIDE STAIRS

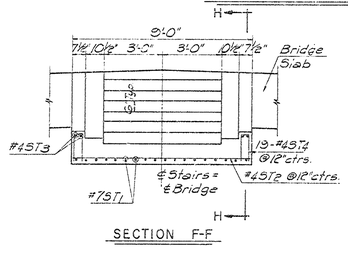


SECTION I-I

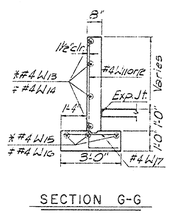
DETAIL B



SECTION THRU OUTSIDE STAIRS



SECTION F-F



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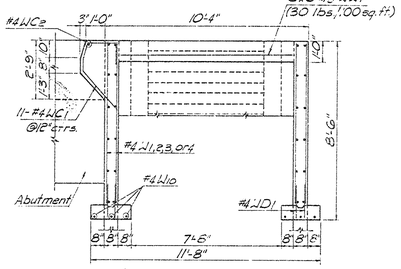
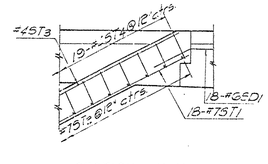


END ELEVATION OF OUTSIDE STAIRS



SECTION H-H

See Sh. No. 18 for Bending Diagrams.
See Sh. No. 16 for General Notes.

SEDGWICK COUNTY HIGHWAY DEPARTMENT
G. C. McLURE, JR., P.E. COUNTY ENGINEER

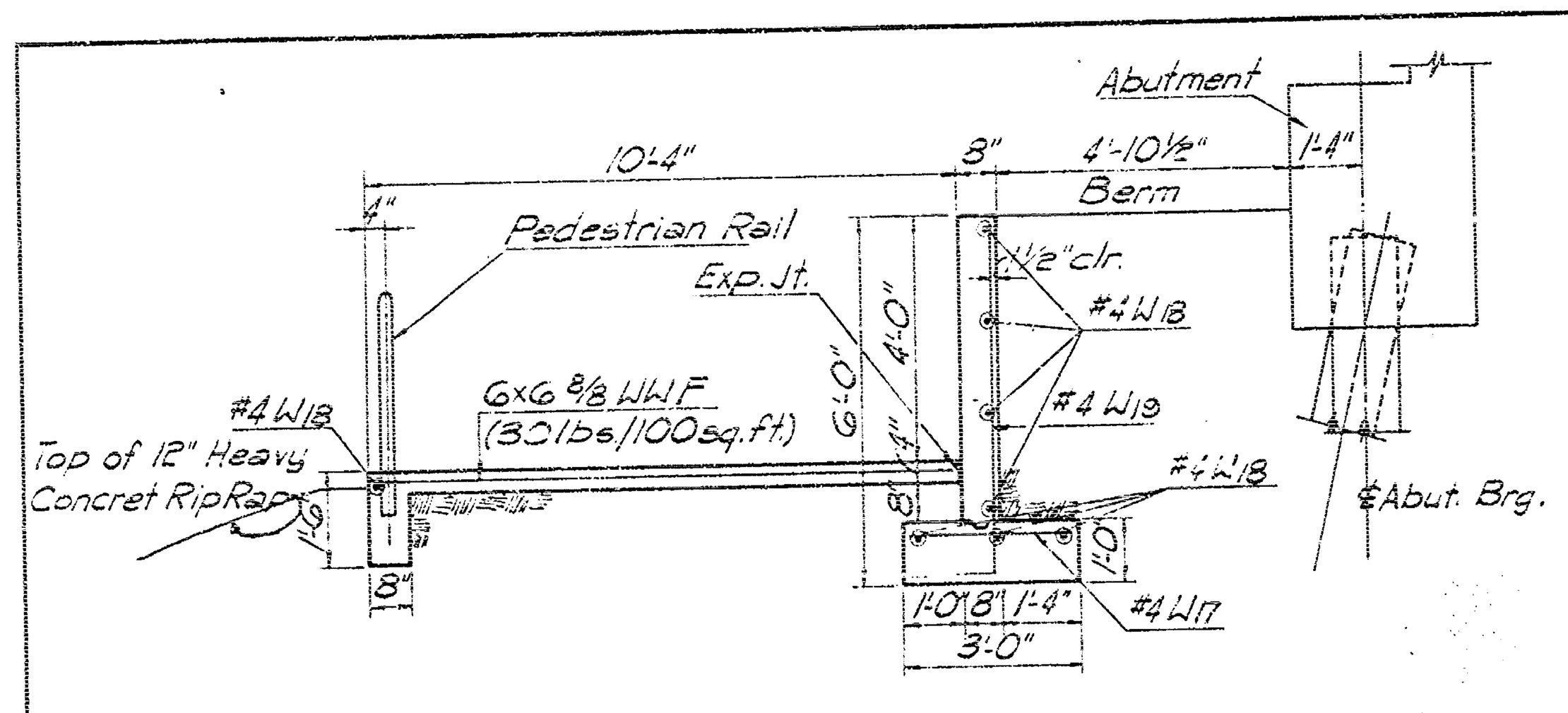
STAIR DETAILS
BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(11)

PROFESSIONAL ENGINEERING CONSULTANTS
ENGINEERS
WICHITA, KANSAS

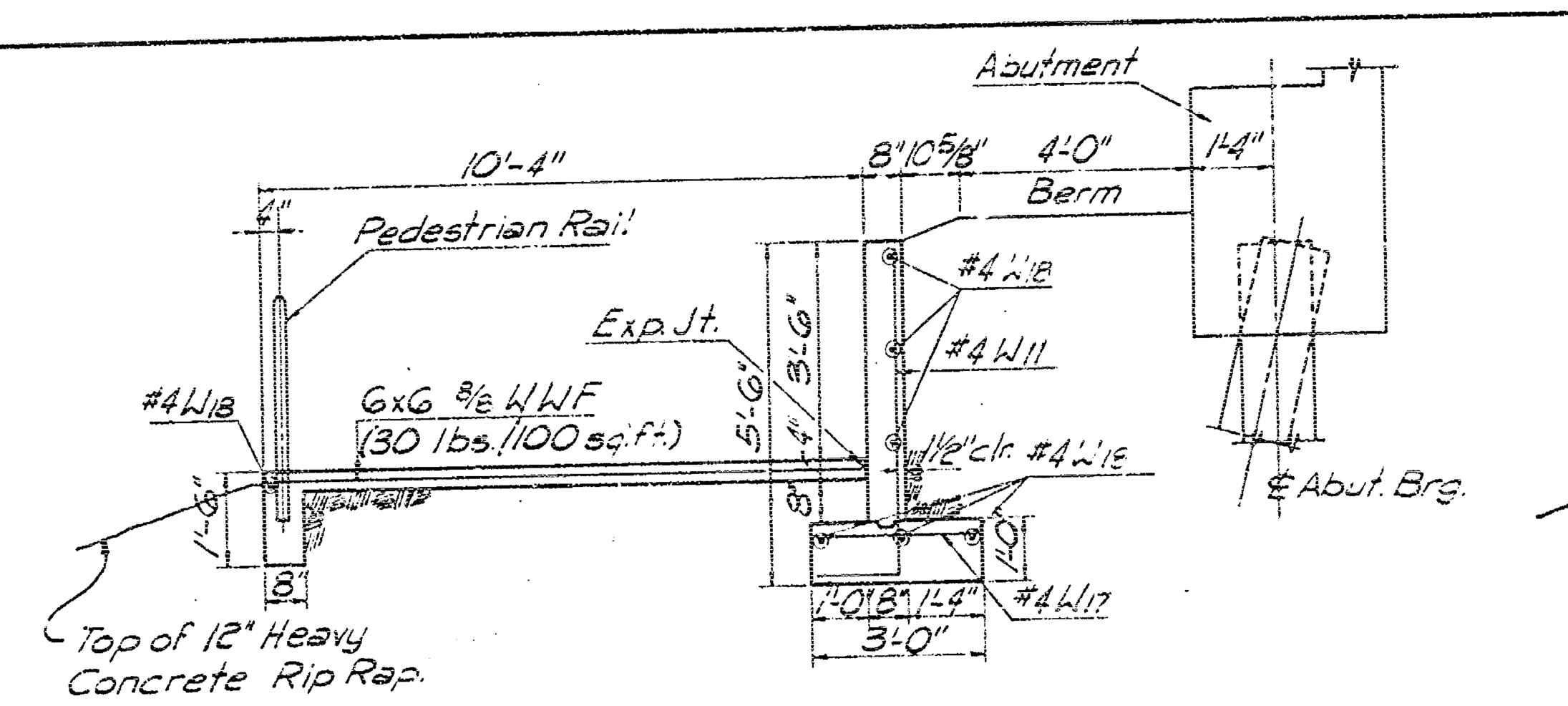
Designed by D.G. Checked A.G.L.
Drawn by L.F. Date 7-72 Job No. 71027

PUR. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	
5	KANSAS	875-428(II)	19 72	18	25

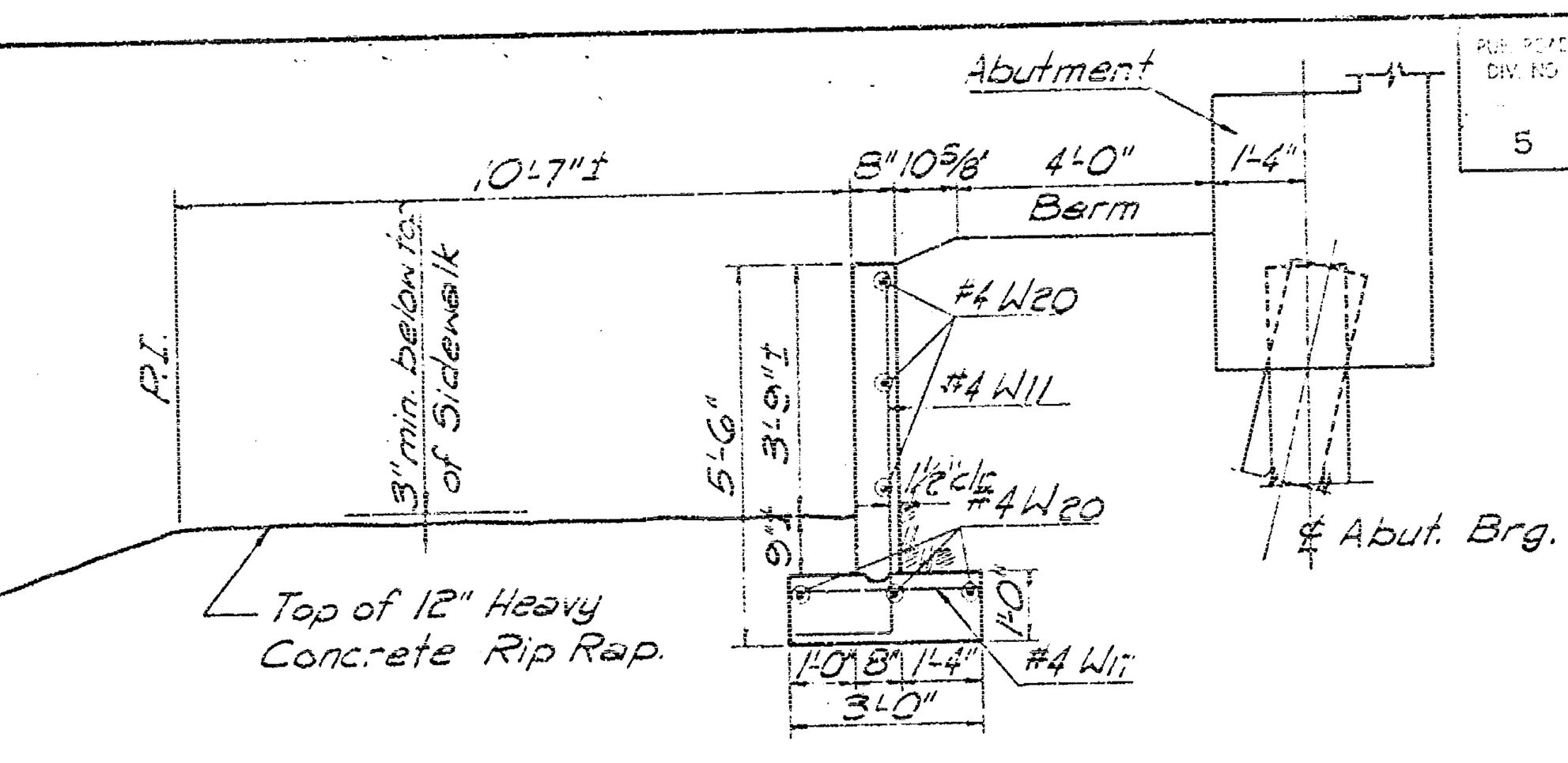
Part I



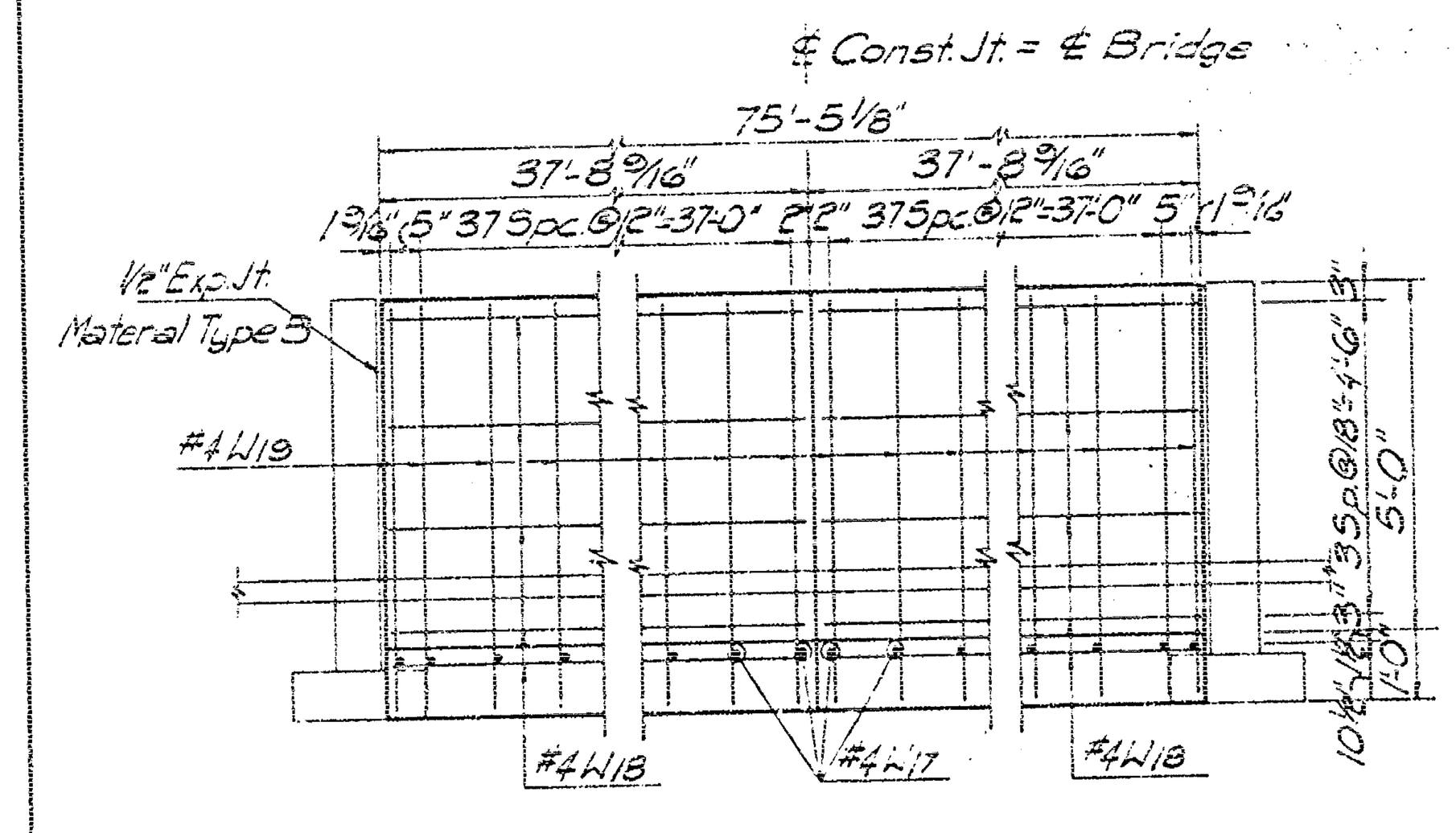
SECTION A-A



SECTION B-B



SECTION C-C



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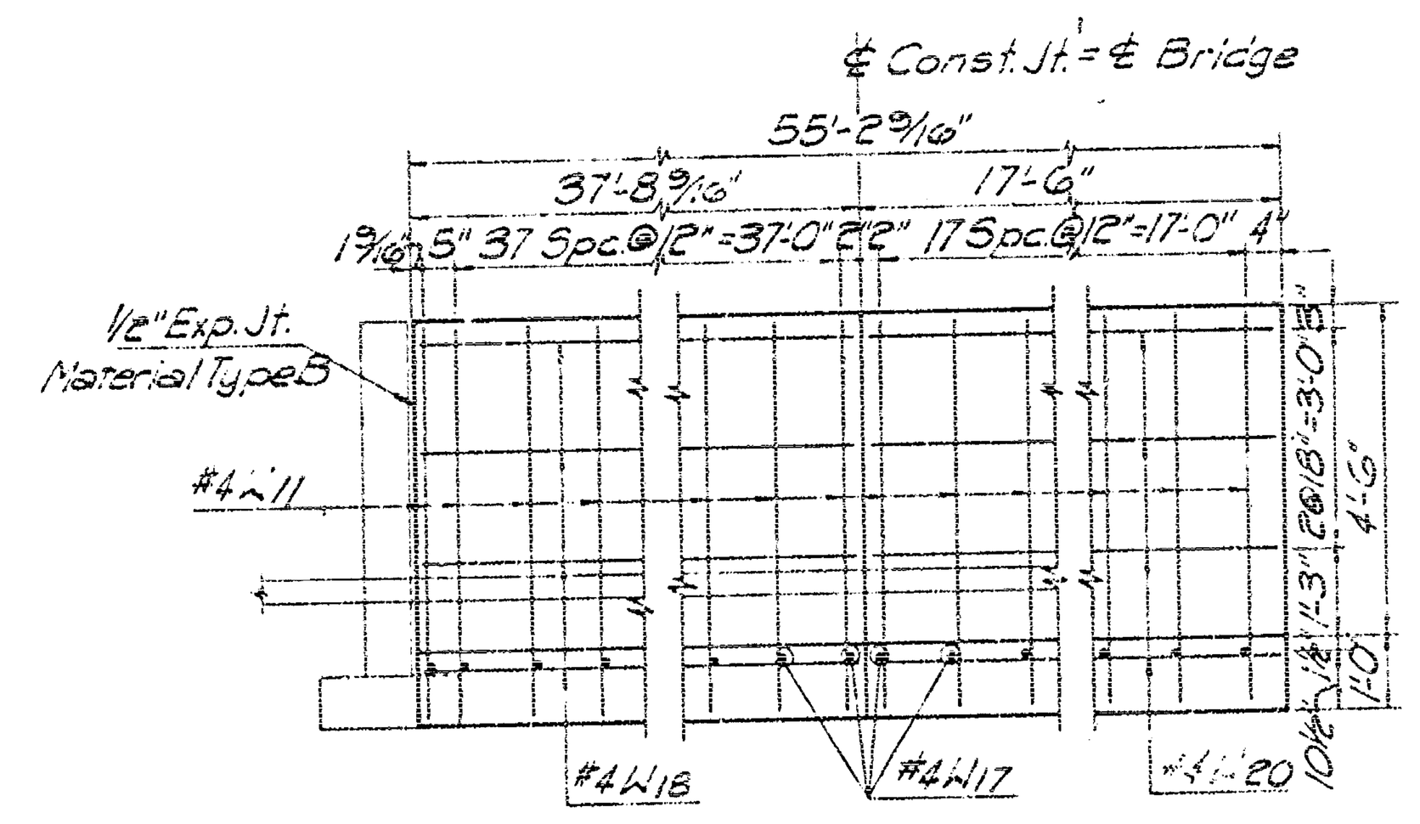
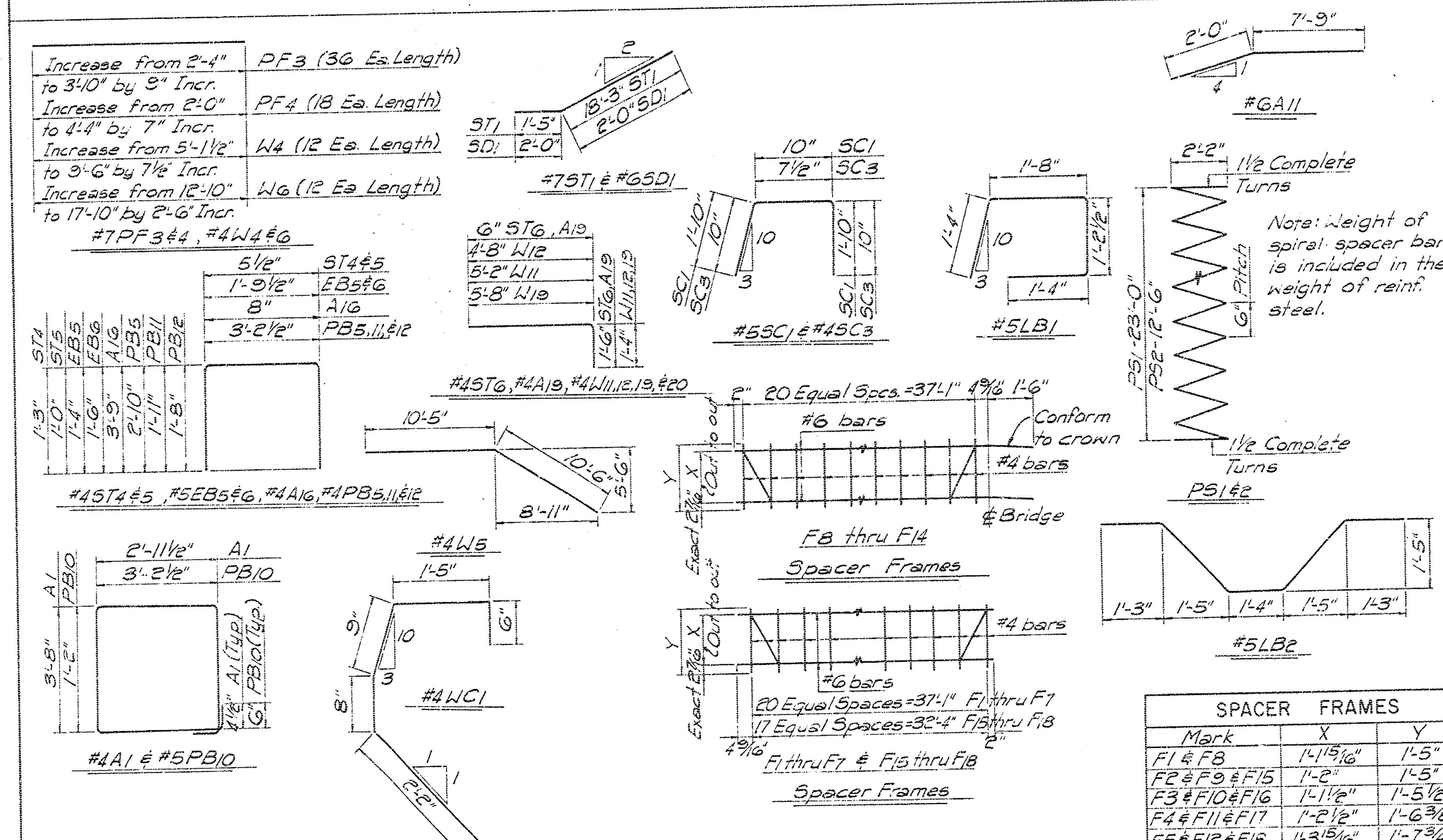


SECTION E-E



BENDING DIAGRAMS

(All dimensions are out to out of bars)

SPACER FRAMES		
Mark	X	Y
F1 & F8	1'-1¹⁵⁄₁₆"	1'-5"
F2 & F9 & F15	1'-2"	1'-5"
F3 & F10 & F16	1'-1½"	1'-5½"
F4 & F11 & F17	1'-2½"	1'-6⅜"
F5 & F12 & F18	1'-3¹⁵⁄₁₆"	1'-7¾"
F6 & F13	1'-5¹⁵⁄₁₆"	1'-9⅞"
F7 & F14	1'-8⁷⁄₁₆"	2'-0¼"

REINFORCING STEEL

STRAIGHT BARS				STRAIGHT BARS				BENT BARS			
Mark	No.	Size	Length	Mark	No.	Size	Length	Mark	No.	Size	Length
A2	16	#8	39'-9"	S21	20	#4	15'-6"	A1	134	#4	13'-11"
A3	16	#8	37'-6"	S22	38	#10	15'-6"	A11	2	#6	9'-9"
A4	20	#6	39'-3"	S23	12	#11	27'-0"	A16	18	#4	8'-2"
A5	20	#6	37'-6"	S24	8	#11	34'-0"	A19	154	#4	2'-0"
A6	6	#4	10'-3"	S25	10	#10	12'-0"				
A8	12	#4	38'-9"					PB5	990	#4	8'-10½"
A9	12	#4	37'-6"					PB10	396	#5	9'-8"
A10	14	#6	10'-3"	T1	212	#4	38'-9"	PB11	408	#4	7'-0½"
A12	4	#6	8'-9"	T2	212	#4	37'-7"	PB12	336	#4	6'-6½"
A13	4	#6	7'-7"	T3	370	#5	38'-9"	PS1	42	⅜"φ	Spiral
A14	154	#4	4'-3"	T4	370	#5	37'-7"	PS2	12	⅜"φ	Spiral
A15	154	#5	4'-3"	T5	36	#4	32'-11"				
A17	2	#5	38'-9"	T6	88	#5	32'-11"	EB5	224	#5	4'-9½"
A18	2	#5	37'-6"	T7	16	#10	15'-0"	EB6	212"	#5	4'-5½"
								SC1	1090	#5	4'-6"
								SC3	6	#4	2'-3½"
PF1	810	#7	4'-10"	EB1	10	#8	39'-3"	LB1	48	#5	5'-6½"
PF2	72	#7	4'-6"	EB2	10	#8	37'-6"	LB2	32	#5	7'-10"
PF3	108	#7	*	EB3	10	#8	43'-3"	SD1	36	#6	4'-10"
PF4	90	#7	*	EB4	10	#8	33'-3"	F1	6	*	*
PB1	54	#8	39'-9"	SC2	200	#6	28'-9"	F2	16	*	*
PB2	30	#8	37'-6"					F3	16	*	*
PB3	54	#6	44'-6"					F4	16	*	*
PB4	54	#6	31'-6"	W1	72	#4	7'-8"	F5	16	*	*
PB6	36	#9	40'-0"	W2	60	#4	9'-2"	F6	18	*	*
PB7	36	#9	37'-6"	W3	12	#4	8'-9"	F7	18	*	*
PB8	24	#8	44'-9"	W4	96	#4	*	F8	6	*	*
PB9	24	#8	31'-9"	W6	36	#4	*	F9	16	*	*
PB13	24	#8	37'-0"	W7	24	#4	19'-2"	F10	16	*	*
PC1	240	#9	25'-6"	W8	12	#4	13'-2"	F11	16	*	*
PC2	96	#9	14'-2"	W9	30	#4	7'-2"	F12	16	*	*
PC3	96	#9	24'-8"	W10	36	#4	5'-8"	F13	18	*	*
PD1	432	#9	4'-6"	W13	8	#4	13'-0"	F14	18	*	*
				W14	4	#4	10'-0	F15	4	*	*
				W15	6	#4	11'-8"	F16	4	*	*
S1	352	#11	48'-0"	W16	3	#4	8'-7"	F17	4	*	*
S2	366	#11	34'-0"	W17	171	#4	2'-8"	F18	4	*	*
S3	369	#11	26'-0"	W18	23	#4	37'-6"				
S4	360	#11	14'-0"	W20	6	#4	17'-3"	WC1	33	#4	5'-6"
S5	320	#10	57'-6"	WD1	240	#4	1'-7"	ST1	36	#7	19'-8"
S6	336	#10	35'-6"	WC2	3	#4	10'-3"	ST4	76	#4	2'-11½"
S7	320	#10	28'-6"					ST5	114	#4	2'-5½"
S8	328	#10	18'-6"					ST6	114	#4	2'-0"
S9	72	#10	46'-0"	ST2	42	#4	8'-9"	W5	12	#4	20'-11"
S10	72	#10	35'-0"	ST3	20	#4	19'-0"	W11	75	#4	6'-6"
S11	68	#10	29'-6"					W12	18	#4	6'-0"
S12	76	#10	22'-0"					W19	78	#4	7'-0"
S13	74	#4	30'-2"								
S14	72	#4	23'-2"								
S15	336	#4	24'-6"								
S16	320	#4	10'-6"								
S17	378	#4	23'-0"								
S18	16	#8	25'-6"								
S19	32	#10	25'-6"								
S20	32	#10	6'-0"								

Note: The weight of reinforcing steel includes 5420 lbs. of Welded Wire Fabric for median, & 650 lbs. of Welded Wire Fabric for walk & stairs.

SUMMARY OF QUANTITIES

Class AAA Concrete	538.6	Cu. Yds.
Class AAA (AE) Concrete	3231.5	Cu. Yds.
Reinforcing Steel	722,190	Lbs.

* See Bending Diagrams.

See Sh. No. 16 for General Notes.

SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

WALK & WALL DETAILS & BAR LIST

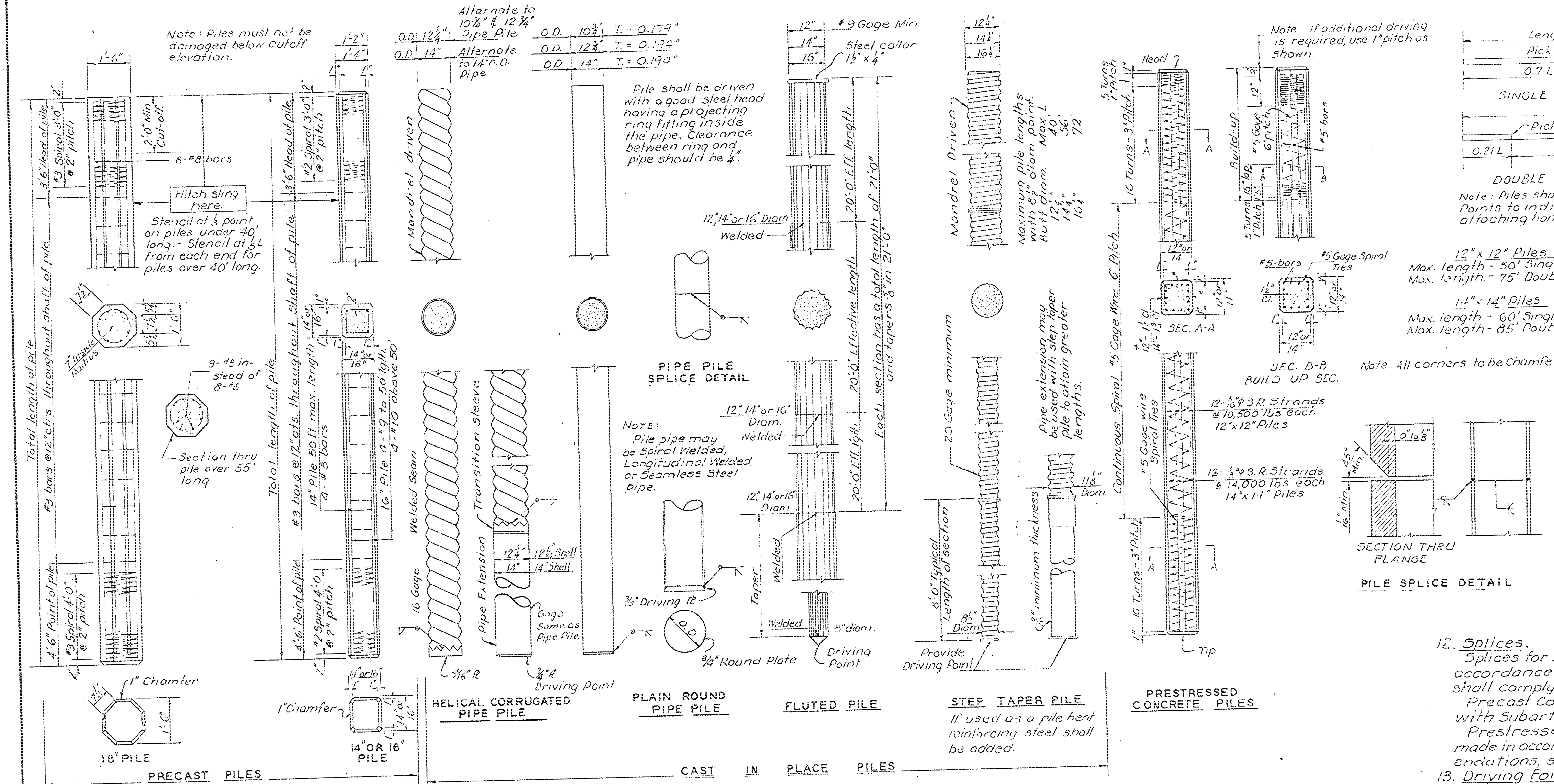
BICKEL AVENUE BRIDGE
OVER WICHITA-VALLEY CENTER FLOODWAY
SEDGWICK COUNTY PROJECT 87S-428(II)

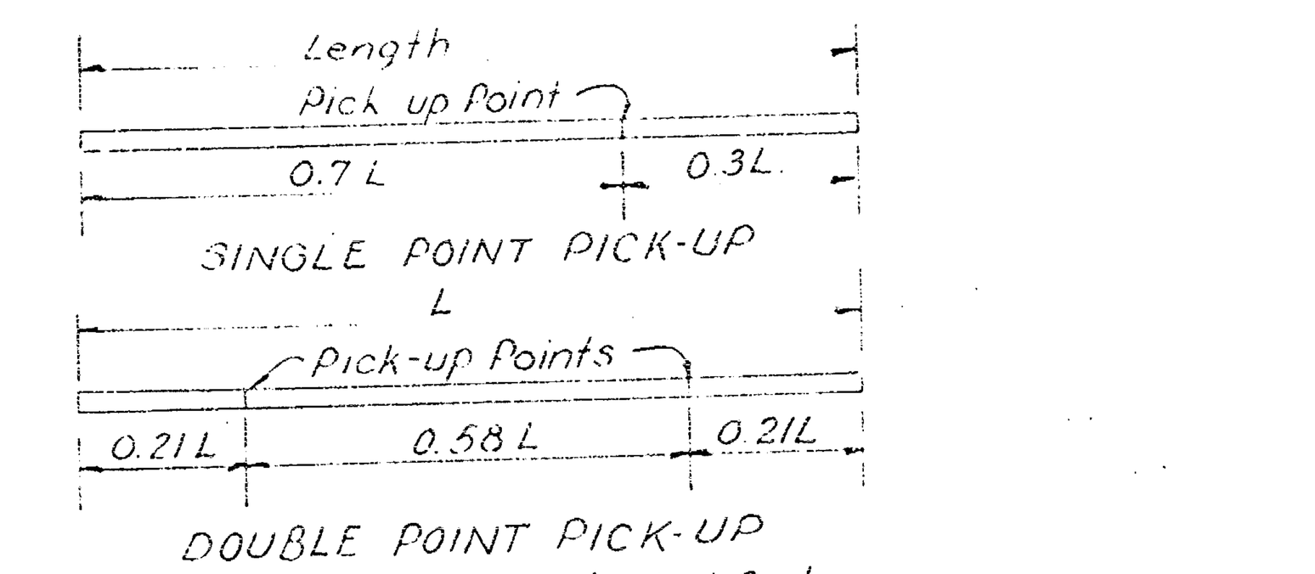
PROFESSIONAL ENGINEERING CONSULTANTS
ENGINEERS
WICHITA, KANSAS

Designed by D.G. Checked by A.G.L.
Drawn by L.F. Date 7-72 Job No. 71027

Fed. Road Div. No.	State	Project No.	Fiscal Year	Sheet No.	Total Sheets
5	Kansas	875-428(11)	1972	19	25

Part :





Note: Piles shall be marked at Pick-up Points to indicate proper points for attaching handling lines.

12" x 12" Piles
Max. length - 50' Single Point Pick-up.
Max. length - 75' Double Point Pick-up.

14" x 14" Piles
Max. length - 60' Single Point Pick-up.
Max. length - 85' Double Point Pick-up.

Note. All corners to be Chamfered 1".

FOR INFORMATION ONLY

PILES

Steel Piles	Equivalent Concrete Piles					
	Precast	Pipe	Fluted	Steptaper	Pre-stressed	*
10BP42	14"	10¾"	12"	12¼"	12"	12¼
12BP53	16"	12¾"	14"	14¼"	14"	12¼
14BP73	18"	14"	16"	16¼		14"

* Helical Corrugated Pipe shell.

CONCRETE PILES

Pipe Pile	Equivalent Concrete Piles				
	Precast	Fluted	Steptaper	Pre-stressed	*
10¾"	14"	12"	12¼"	12"	12¼"
12¾"	16"	14"	14¼"	14"	12¼
14"	18"	16"	16¼		14

GENERAL NOTES

1. Specifications.
Standard Specifications for State Road and Bridge Construction as currently used by the State Highway Commission of Kansas (Ed. 1966).

2. DELETED

3. Concrete.
All concrete for Precast and Cast-in-place shall be Class A Concrete. fc' = 3,000 p.s.i.. See Article G1-7(a) Standard Spec's.
Concrete for Prestressed Concrete piles shall be Class AAA concrete. fc' = 4,000 p.s.i.. See Article G1-7(b) Standard Spec's.

4. Reinforcement
Reinforcing bars shall be new billet steel of intermediate grade without exception. Hoops and spirals may be either plain or deformed bars.

5. Precast Piles.
Precast piles shall conform to the requirements of Article G1-7(a). Standard Specifications.

6. Cast-in-Place Shells.
Steel Shells for Cast-in-place Concrete Piles shall conform to the requirements of Section U-7. Standard Specifications.
All piles driven without mandrel use gages or thicknesses shown above, except fluted pile use No.9 gage minimum. Piles driven with mandrel shall be of sufficient strength and thickness to withstand driving without injury and to resist harmful distortion and/or buckling due to soil pressure after the mandrel is removed.
Improperly driven, broken or otherwise defective shells shall be removed and replaced or otherwise corrected to the satisfaction of the Engineer by removal and replacement, or the driving of an additional pile at no extra cost.
The Contractor shall maintain on the job at all times prior to and during the filling of the shells, a light suitable for visual inspection of the pile.

7. Steel Pile
Steel Pile shall conform to requirements of Subsection U5-8 Standard Specifications.

8. Pile Points
Pile points shall conform to the dimensions shown and requirements of Article U7-2(c) Standard Specifications. Pile points shall be mill welded to pile.

9. Welding
All field welding shall meet the requirements of Subsection G1-6 Standard Specifications.

10. Paint
All paint shall comply with Subsection Q3-8 Standard Specifications. Or as specified on the plans.

11. Test Piles.
Test Piles shall be driven where called for on the Bridge plans. All test piles shall be located so that they will become part of the Bridge Pile system.

12. Splices.
Splices for Steel Piles and Shell Piling shall be in accordance with details shown on this sheet and shall comply with Subsection G1-6 Std. Spec's.
Precast Concrete Pile splices shall comply with Subarticle G1-7(d)(1). Std. Specifications
Prestressed Concrete Pile splices shall be made in accordance with the manufacturers recommendations, subject to the approval of the Engineer.

13. Driving Formula.
Driving Formula shall conform to Subarticle G1-4(d)(3).

14. Mill Test Reports
Steel Piles test reports shall comply with Art. U5-8(c) Standard Specifications.
Steel Shells test reports for cast-in-place piles shall comply with Subsection U7-4 Std. Spec's.

15. Payment
Payment for all piles shall comply with Subsec. G1-9. Std. Specifications.

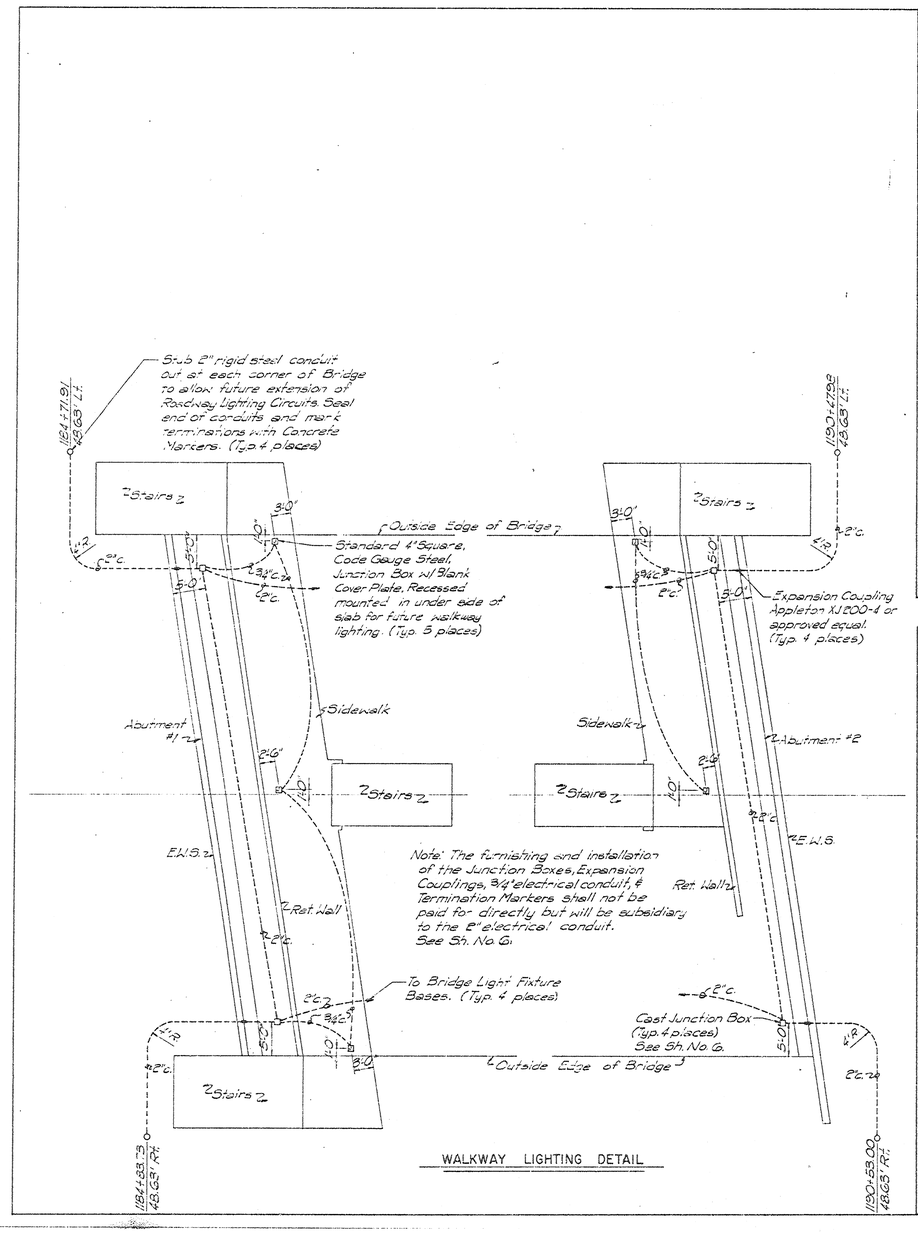
No.	Date	Revisions	By	App'd
5	8-26-66	Revise Entire Gen. Note	J.C.L.	E.E.W.
4	4-8-64	Add Longitudinal Welded Pipe pile	J.C.L.	T.W.O.
3	[illegible]	Revise Choice of Pile [illegible]	[illegible]	T.W.O.
2	5-27-61	Revise Pipe Pile General Note	J.C.L.	T.W.O.
1	1-24-61	Remove hole in Prestressed Conc. Pile	J.C.L.	T.W.O.

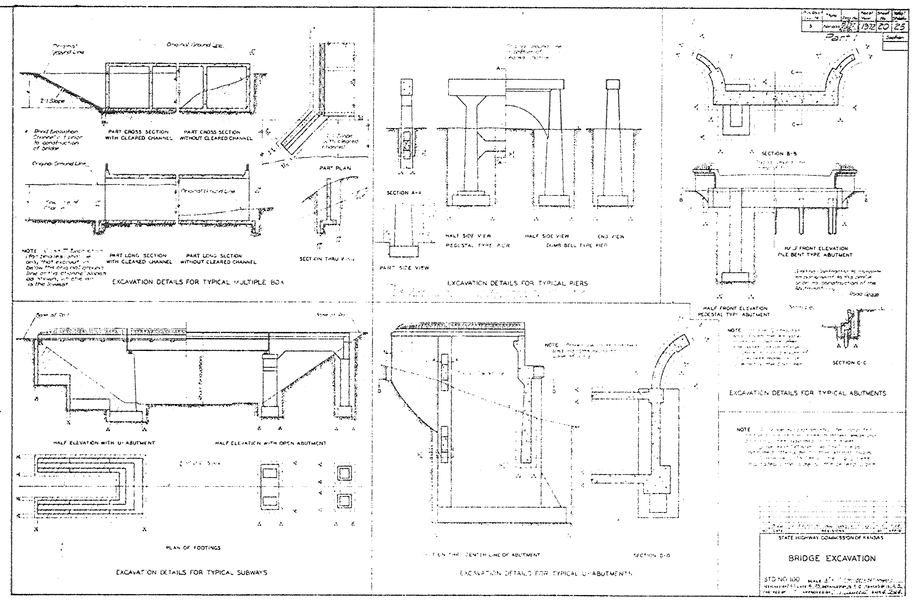
STATE HIGHWAY COMMISSION OF KANSAS

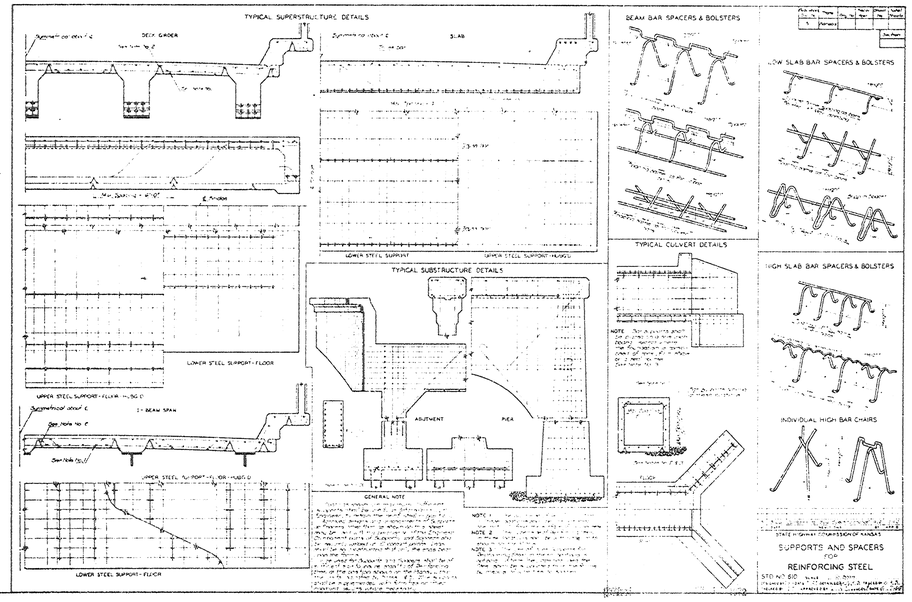
STANDARD PILE DETAILS

STD. NO. 102

SHEET NO 19 OF 25 SCALE APP'D
DESIGNED DETAILED QUANTITIES TRACED
DESIGN CK DETAIL CK QUAN. CK TRACE CK


Stub 2" rigid steel conduit out at each corner of Bridge to allow future extension of Roadway Lighting Circuits. Seal end of conduits and mark terminations with Concrete Markers. (Typ. 4 places)
Stairs
Outside Edge of Bridge
Standard 4'Square, Code Gauge Steel, Junction Box w/Blank Cover Plate, Recessed mounted in under side of slab for future walkway lighting. (Typ. 3 places)
Expansion Coupling Appleton XJ200-4 or approved equal. (Typ. 4 places)
Sidewalk
Abutment #1
Abutment #2
E.W.S.
Ret. Wall
Note: The furnishing and installation of the Junction Boxes, Expansion Couplings, 3/4" electrical conduit, & Termination Markers shall not be paid for directly but will be subsidiary to the 2" electrical conduit. See Sh. No. 6.
To Bridge Light Fixture Bases. (Typ. 4 places)
Cast Junction Box (Typ. 4 places) See Sh. No. 6.
WALKWAY LIGHTING DETAIL


EXCAVATION DETAILS FOR TYPICAL MULTIPLE BOX
EXCAVATION DETAILS FOR TYPICAL PIERS
EXCAVATION DETAILS FOR TYPICAL ABUTMENTS
EXCAVATION DETAILS FOR TYPICAL SUBWAYS
EXCAVATION DETAILS FOR TYPICAL U-ABUTMENTS
BRIDGE EXCAVATION

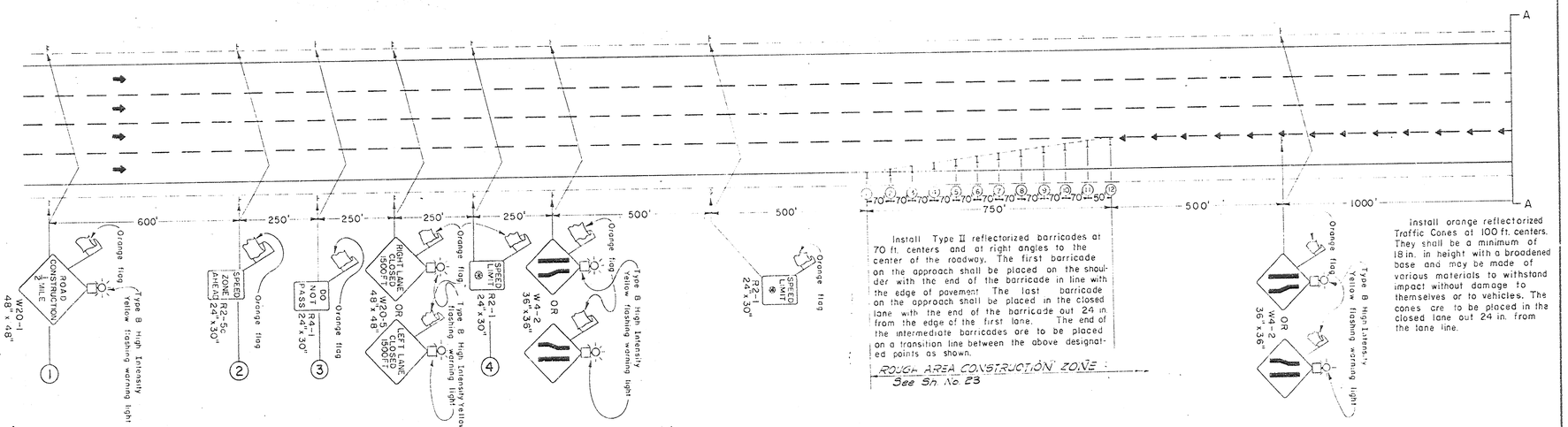

TYPICAL SUPERSTRUCTURE DETAILS
TYPICAL SUBSTRUCTURE DETAILS
BEAM BAR SPACERS & BOLSTERS
LOW SLAB BAR SPACERS & BOLSTERS
TYPICAL CULVERT DETAILS
HIGH SLAB BAR SPACERS & BOLSTERS
INDIVIDUAL HIGH BAR CHAIRS
SUPPORTS AND SPACERS FOR REINFORCING STEEL

FHWA REG.	STATE	PROJECT NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
7	KANSAS	875-228(11)	1972	21	25

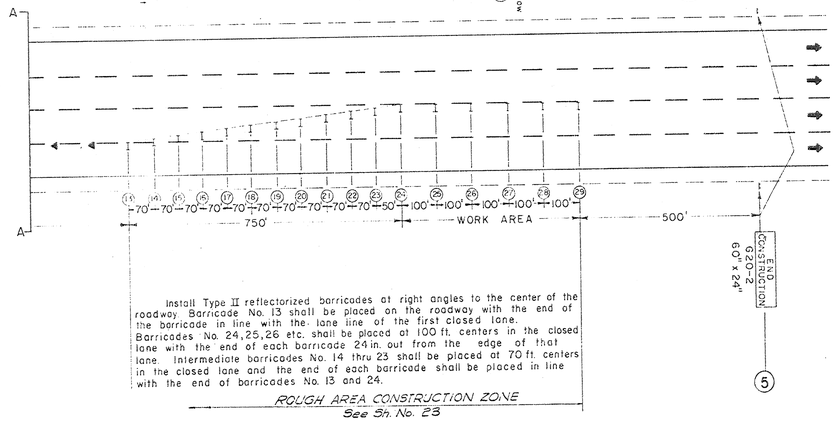
Part 1

TRAFFIC CONTROL SIGNING *

FOR TRAFFIC MOVEMENT THROUGH CONSTRUCTION
ON A MULTI-LANE HIGHWAY



Install Type II reflectorized barricades at 70 ft. centers and at right angles to the center of the roadway. The first barricade on the approach shall be placed on the shoulder with the end of the barricade in line with the edge of pavement. The last barricade on the approach shall be placed in the closed lane with the end of the barricade out 24 in. from the edge of the first lane. The end of the intermediate barricades are to be placed on a transition line between the above designated points as shown.



Install Type II reflectorized barricades at right angles to the center of the roadway. Barricade No. 13 shall be placed on the roadway with the end of the barricade in line with the lane line of the first closed lane. Barricades No. 24, 25, 26 etc. shall be placed at 100 ft. centers in the closed lane with the end of each barricade 24 in. out from the edge of that lane. Intermediate barricades No. 14 thru 23 shall be placed at 70 ft. centers in the closed lane and the end of each barricade shall be placed in line with the end of barricades No. 13 and 24.

ROUGH AREA CONSTRUCTION ZONE
See Sh. No. 23

NOTE

All traffic control devices shall comply to (1) Section A7 of the 1966 Edition of the Standard Specification and to any Supplemental Specification to this section and (2) the Manual on Uniform Traffic Control Devices For Streets and Highways dated November 13, 1970.

Lights placed on advance warning signs shall be Type B High Intensity with a 7" minimum diameter lens, regulated to flash 55 to 75 times per minute. The flash duration shall not be less than 8% of time.

Each barricade shall have one yellow steady burning warning light on top of each barricade at night. One orange flag shall be in place on the end of each barricade day and night.

(S) Posted speed limit to be determined by the ENGINEER.

All existing permanent speed limit signs are to be covered with an opaque waterproof material or removed as directed by the ENGINEER.

Due to existing conditions the ENGINEER may require a decrease in the spacing between barricades, cones and or signs.

All signs and barricades shall be reflectorized.

When no work is in progress all equipment shall be removed from the recovery area and placed or parked at the extreme limits of the right of way or at sites approved by the ENGINEER.

Temporary traffic control signs when not in use shall be either covered with an opaque weatherproof material or removed from the recovery area as approved by the ENGINEER.

* See Sh. No 23 for construction traffic control devices and locations through ROUGH AREA CONSTRUCTION ZONE.

NO	DATE	REVISIONS	BY	APP'D
3				
2				
1				

STATE HIGHWAY COMMISSION OF KANSAS

CONSTRUCTION TRAFFIC CONTROL DEVICES AND LOCATIONS FOR A MULTI-LANE HIGHWAY

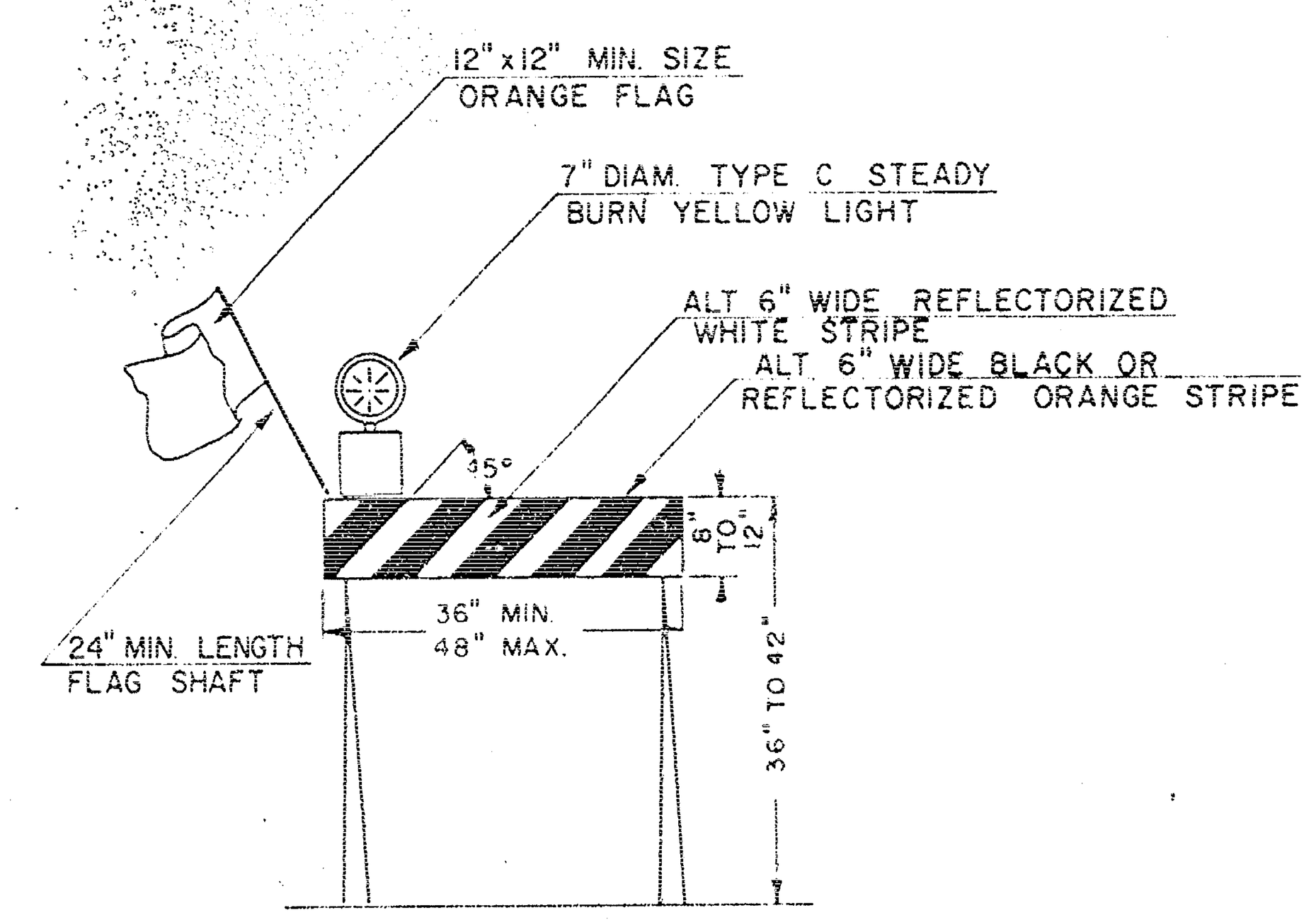
STD. 745 Sheet 1 of 2

SHEET NO. 21 of 25	SCALE	APP'D	
DESIGNED AFT	DETAILED GM	QUANTITIES	TRACED GM
DESIGN CK. GM	DETAIL CK AFT	QUAN. CK	TRACE CK AFT

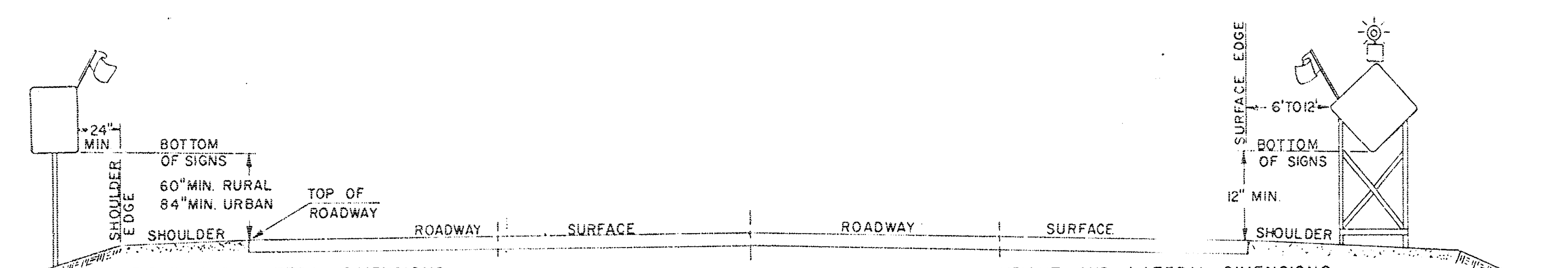
TRAFFIC CONTROL DEVICES
FOR TRAFFIC MOVEMENT THROUGH CONSTRUCTION
ON A MULTI-LANE HIGHWAY

FHWA REG.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	875-428 (11)	1972	22	25

Part 1



TYPE II BARRICADE WITH ONE YELLOW STEADY BURN LIGHT AND ONE ORANGE FLAG



HEIGHT AND LATERAL DIMENSIONS FOR SIGNS MOUNTED ON SIGN POSTS

HEIGHT AND LATERAL DIMENSIGNS FOR SIGNS MOUNTED ON SKIDS OR OTHER MOVABLE MOUNTS

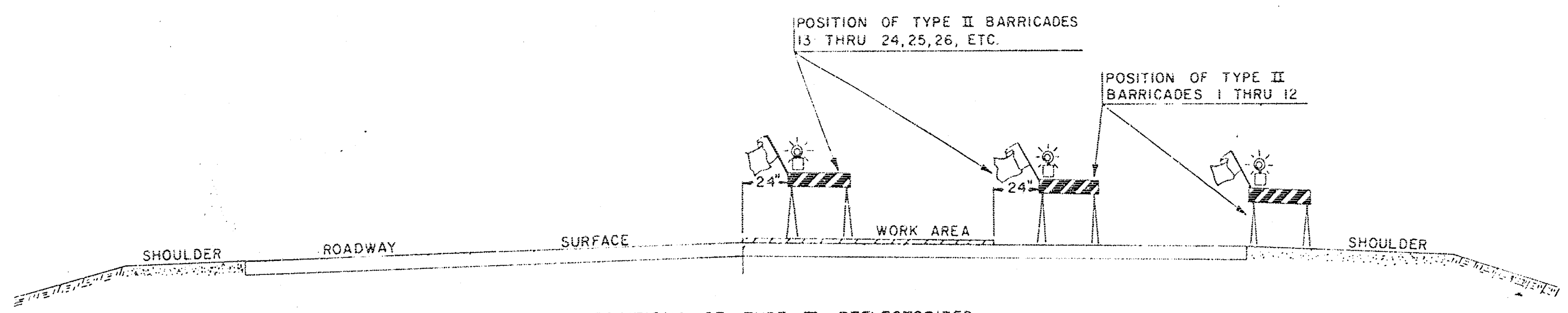
NOTE:

All traffic control devices shall comply to (1) Section A7 of the 1966 Edition of the Standard Specification and to any Supplemental Specification to this section and (2) the Manual on Traffic Control Devices For Streets and Highways dated November 13, 1970.

The yellow barricade lights shall be Type 'C' steady burn with a 7" minimum diameter lens.

All signs, barricades, lights and orange flags shall be securely erected and maintained in good condition at all times.

The alternate orange and white or black and white stripes shall not be intermixed within the same project.



POSITIONS OF TYPE II REFLECTORIZED BARRICADES WITH ONE YELLOW STEADY BURN LIGHT AND ONE ORANGE FLAG

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

STATE HIGHWAY COMMISSION OF KANSAS

CONSTRUCTION TRAFFIC CONTROL DEVICES AND LOCATIONS FOR A MULTI-LANE HIGHWAY

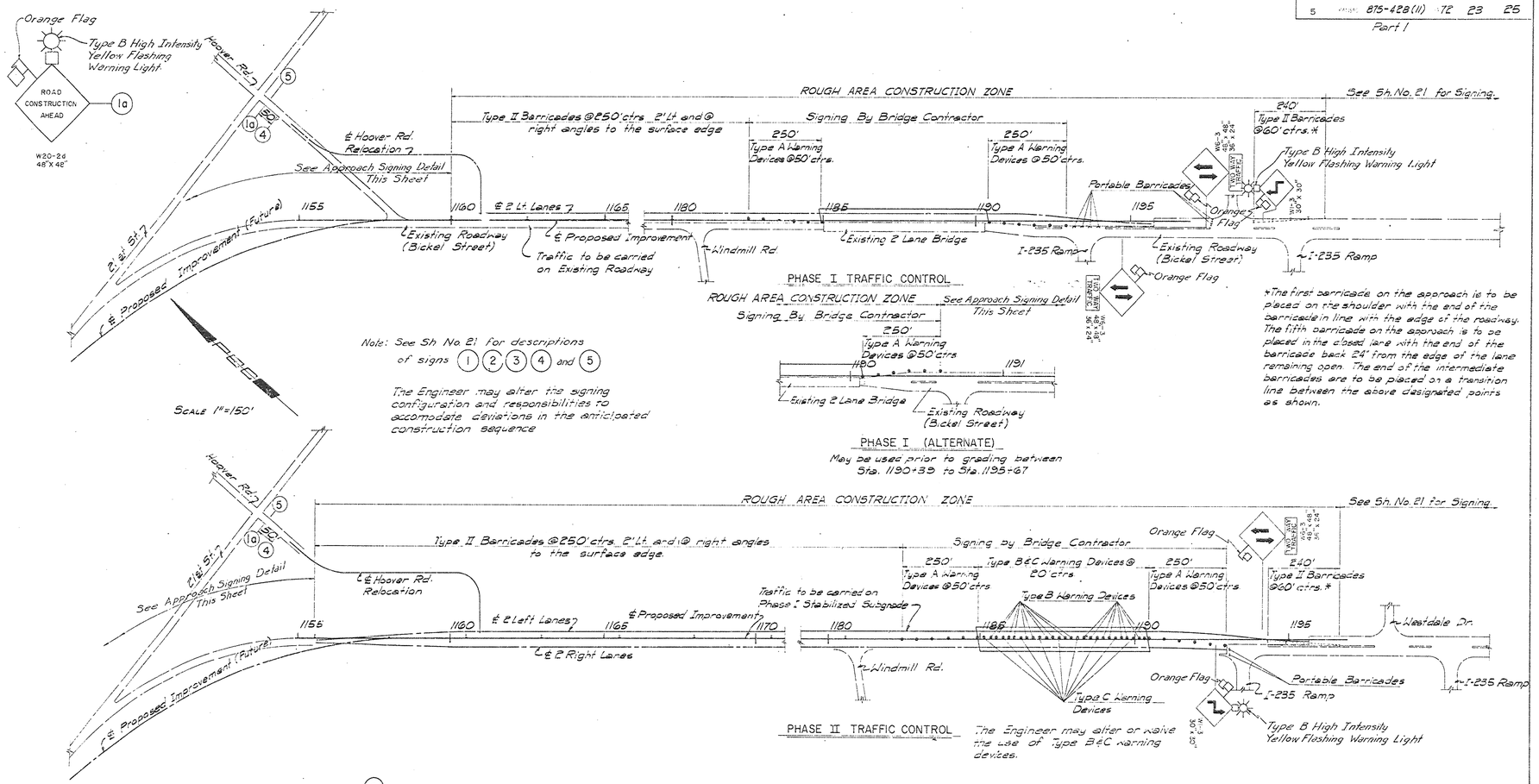
STD. 745A — Sheet 2 of 2

SHEET NO. 22 OF 25	SCALE	APP'D [illegible]	
DESIGNED AFT	DETAILED GM	QUANTITIES	TRACED GM
DESIGN CK. GM	DETAIL CK. AFT	QUAN. CK	TRACE CK. AFT

1972

SHEET NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
5	KANSAS	815-428(11)	12	23 25

Part I



SEDGWICK COUNTY HIGHWAY DEPARTMENT
G.C. McLURE, JR., P.E. COUNTY ENGINEER

ADDITIONAL CONSTRUCTION TRAFFIC CONTROL DEVICES & LOCATION

SEDGWICK COUNTY PROJECT 87S-SU-1570(1)

PROFESSIONAL ENGINEERING CONSULTANTS

Designed	K.E.	Checked	
Drawn	L.F.	Date	Mar. 72
		Job No.	71027