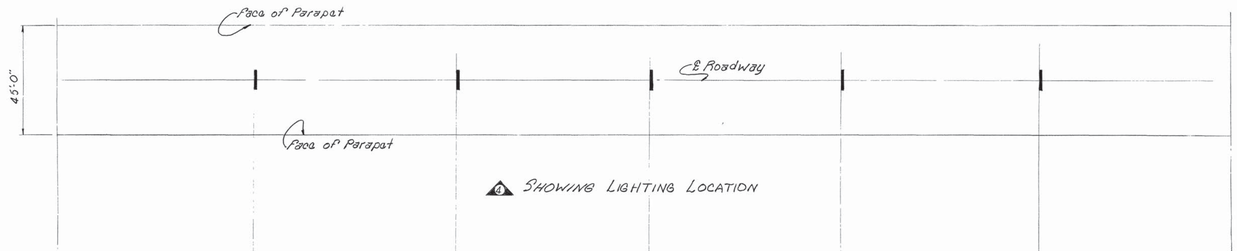
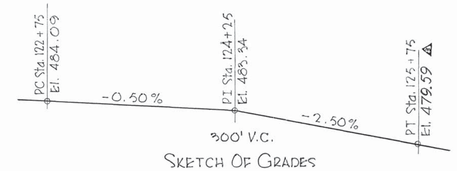
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	19151-3207-04	19		

REVISIONS

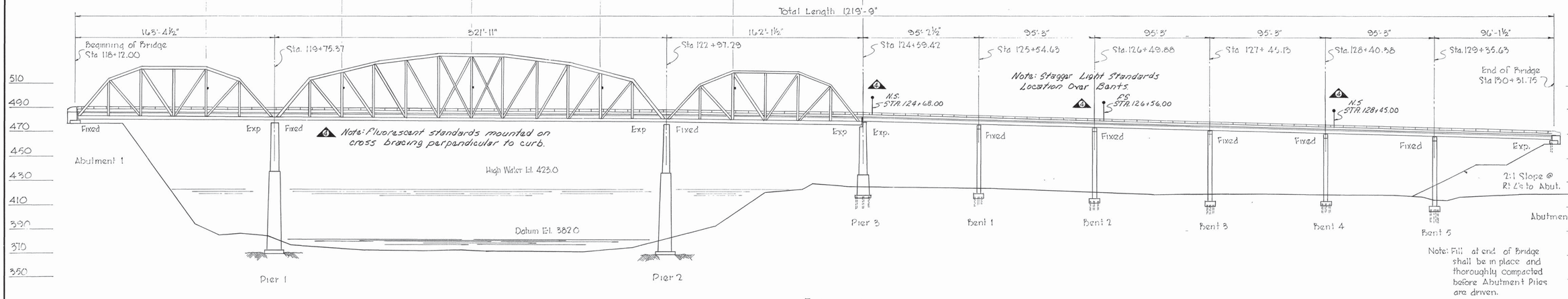
NO.	DATE	BY	BRIEF DESCRIPTION
1	8 Feb 68	JDC	Steel Quantities
2	21 Mar 68	JDC	" "
3	31-Dec-68	R&D	P.T. Elev. Changed
4	17-JULY-69	TC	Lighting Location & Standard Lighting Details Sheet Added.
5	20 July 71	R.M.D.	Dwg. No's added to dwg. no. list





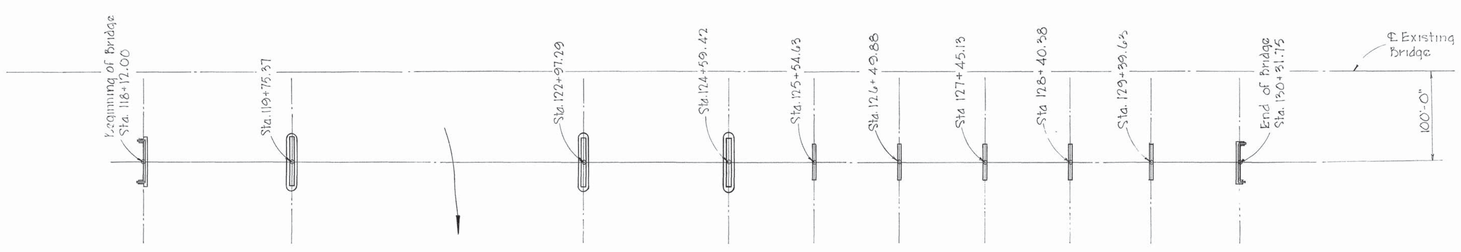
SKETCH OF GRADES
Elevations Based on Finished Grade

Note: N.S. = Near Side
F.S. = Far Side



Note: Fill at end of Bridge shall be in place and thoroughly compacted before Abutment Piles are driven.

ELEVATION



PLAN

ESTIMATED QUANTITIES

Item	Excavation Cu. Yds			Concrete Class "A" Cu. Yds. 5	Reinforcing 5 Steel 4 Lbs. 4	Steel Structures *	Steel Piles Lin. Ft. 10BP 42	Linseed Oil Treatment Sq. Yds **	Parapet Railing Lin. Ft.	Prestressed Box Beams 94'-6" x 42" x 36"	Rock Drilling Lin Ft.
	Wet	Dry	Rock								
Superstructure				1280.8	458,236						
Abutment No. 1		8	8	40.2	3911						
Pier No. 1	242	73	73	1595.6	182,118						
Pier No. 2	774	73	73	1801.2	195,938						
Pier No. 3		303		647.1	70,186						
Bent No. 1		98		78.4	33,844						
Bent No. 2		98		79.8	34,524						
Bent No. 3		98		79.8	34,524						
Bent No. 4		98		78.4	33,844						
Bent No. 5		98		79.1	34,184						
Abutment No. 2				29.9	2995						
Total	1016	947	154	5790.3	1,085,304	* Lump Sum	6,246	11,284	2435	36	60

* Lump Sum for Steel Structures - 2080,900 lbs. ASTM A242 Corrosion Resistant Steel (Roadway Expansion Device, bearings & Roadway drains - 46,200 lbs ASTM A36 - 2034,700 lbs. includes ASTM A235 Pins, High Strength Bolts, Lead Plates for Bearing Devices and 15½ lbs. Bronze.
NOTE: Cost of Cofferdams to be included in the cost of other items bid on.
** Special Provision for Linseed Oil does not apply to decks.
NOTE: Cost of Bituminuous fiber joint, 6" ø perforated pipe & underdrain, porous backfill material & guardrail anchor bolts to be included in items bid on.

HYDRAULIC DATA

Drainage Area	12,000	Sq. Mi.
Discharge	122,000	cfs.
Approximate Area Provided	22,000	Sq. Ft.
Velocity	5.5	fps.

LIST OF DRAWINGS

	DRAWING NO.
General Notes	K-72-12
Superstructure Spans 1 & 3	K-72-13
Truss Geometry Spans 1 & 3	K-72-14
Truss Geometry Span 2	K-72-15
Truss Connections Spans 1 & 3	K-72-16
Truss Connections Span 2	K-72-17
Truss Connections Span 2	K-72-18
Gusset Details North Truss	K-72-19
Gusset Details South Truss	K-72-20
Gusset Details Top Chords	K-72-21
Miscellaneous Details	K-72-22
Navigation Lighting & Camber Diagrams	K-72-23
Bearing Devices Spans 1-3	K-72-24
Superstructure Spans 4-9	K-72-25
Prestressed Box Beam Details	K-72-26
Abutment No. 1	K-72-27
Abutment No. 2	K-72-28
Piers 1 & 2	K-72-29
Pier 3	K-72-30
Bents 1-5	K-72-31
Sounding Data	K-72-32 & 33
Bill of Steel	K-72-34
Parapet Railing	K-38-154
Roadway Expansion Device (See Note on K-72-12)	K-56-34
Bearing Device (See Note on	K-15-60
Steel Piles	K-56-34
4 Standard Lighting Details	K-72-12A
5 Geometry & Stresses	K-72-12B, 12C, 12D

42'-0" ROADWAY WITH SAFTY CURBS

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

LAYOUT OF BRIDGE

STATE ROUTE 45 OVER CUMBERLAND RIVER
STATION 118+12.00
DAVIDSON COUNTY
1967

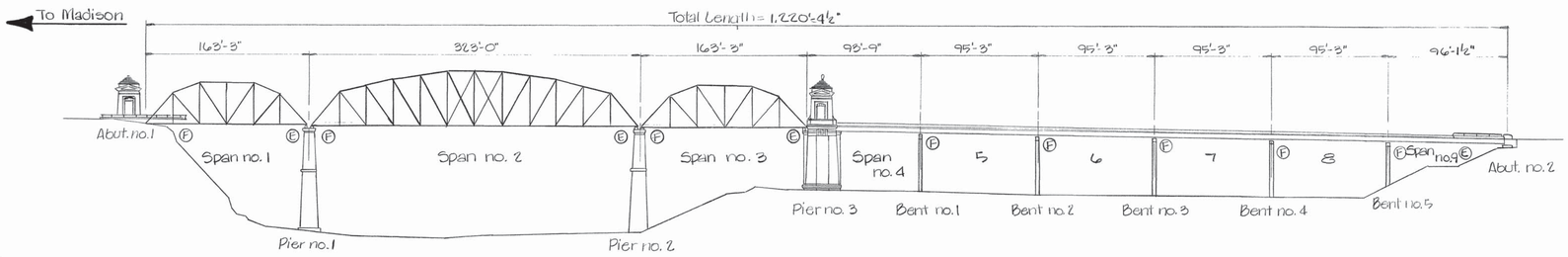
CORRECT: [signature] BRIDGE ENGINEER
APPROVED: [signature] STATE HIGHWAY ENGINEER

K-72-11

N

BRIDGE DEPARTMENT OF HIGHWAYS DIVISION

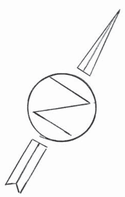
DESIGNED BY R. Dishner DATE
DRAWN BY R. Chester DATE
TRACED BY DATE
CHECKED BY DATE

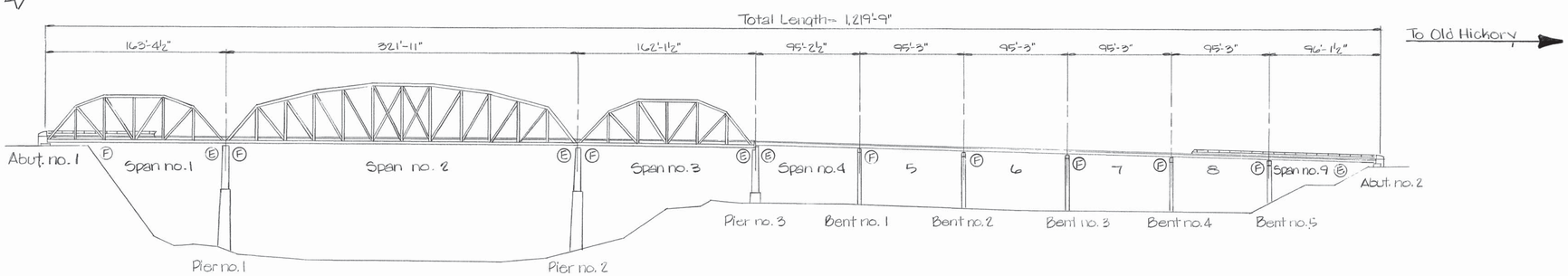


Ⓔ denotes: expansion bearing
Ⓕ denotes: fixed bearing

ELEVATION
LEFT LANE

Westbound Traffic





ELEVATION
RIGHT LANE

Eastbound Traffic

GENERAL SCOPE OF WORK (Items No. 1 & 2 Typical For Right & Left Lane Bridges)

1) Existing bridge deck to be scarifyed 1" deep, deteriorated concrete removed, and then a new 4½" lift of 4,500 p.s.i. concrete with epoxy coated reinforcing bars added for the complete bridge deck area. See special provision 604 A and details on these plans.
2) Existing structural steel to be brush cleaned and then painted with the top coat only using System "A" Silico Chromate.
3) Left lane bridge only – Existing roadway expansion joints at piers no. 1, 2, 3, & Abut. No. 2 to be removed and replaced as shown on dwg. no. K-72-11B.
4) Existing six (6) roadway drains to be raised, left lane bridge only. See details on dwg. no. K-72-11D.
5) Right lane bridge only – Existing roadway expansion joints at piers 1, 2, 3, and abutment no. 2 to have steel bars and channel added as shown on dwg. no. K-72-11C.

LIST OF SPECIAL PROVISIONS

PROVISION NO.	REGARDING	LAST REV. DATE
105 A	Approval of Shop Drawings	9-8-81
907 A	Epoxy Coated Reinforcing Steel	9-8-81

Special Note:

At least one (1) twelve foot traffic lane shall be maintained on each bridge at all times.

DESIGNED BY _____ DATE _____
DRAWN BY Denise White DATE 2/83
SUPERVISED BY W.M. Whitnoff DATE 2/83
CHECKED BY W.M. Whitnoff & R. Gourley DATE 2/83

Painting of Existing Steel Structures: All structural steel on the left and right lane structures shall be cleaned of all foreign materials such as dirt, rust, grease, or loose paint, by hand or power tools as specified in section 605 (a) of the Tennessee Standard Specifications. A light blast cleaning may be substituted for the hand or power tool cleaning.

After the surfaces have been cleaned to the satisfaction of the Engineer, those areas that have been cleaned to the metal must be primed with first field coat primer. All steel shall then be painted with third field coat (color coat) of system "A" as specified in section 603.14 of the Tennessee Standard Specifications. Color of final coat to be bright green.

PROJECT NO.	YEAR	SHEET NO.
19042-4241-04	1983	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	7-26-83	W.M.M.	ADDED REFERENCE DWG. & REVISED STRUCTURAL STEEL QUANTITIES
2	12-1-83	WMM	Revised Reinforcing Steel Quantity

GENERAL NOTES:

Specifications: Standard specifications for road and bridge construction of the Tennessee Department of Transportation. (March, 1981 edition)

Reinforcing Steel: To be ASTM A615 Grade 60. Standard ORSI hook details apply unless otherwise noted. Bending dimensions shown are based on Grade 60. Spacing dimensions are center to center unless otherwise noted on detail drawings. The suffix E, for bars so marked, denotes epoxy coated reinforcement. See special provision no. 907A.

Welding: See special provision no. 602.

Structural Steel: Shall conform to AASHTO M-183 (ASTM A36) unless otherwise noted.

Concrete: Concrete to be High Early Strength F'c = 3,000 p.s.i. unless otherwise noted.

Bridge Deck Concrete: Class "A" concrete for bridge decks shall be in accordance with Special Provision No. 604 A. Forms supporting full depth slab repair may be removed after five (5) days. No traffic or other loading will be allowed on the bridge deck until the test specimens have attained a compressive strength of 4,500 p.s.i. and ten (10) days have elapsed from the date removal of forms is permitted. All slab surfaces which will become traffic lanes shall be textured by the formation of transverse grooves. See Standard Specification Article 604.23 for finishing slab surfaces for pavements.

Shop Drawings: See special provision no. 105 A.

ESTIMATED QUANTITIES — RIGHT AND LEFT LANE BRIDGES

ITEM NO.	ITEM	UNIT	QTY
1 602-10.06	Structural Steel	Lbs.	6,840
603-02.01	Repainting Existing Steel Structures	L.S.	1
604-01.12	Class "A" Concrete (Bridge Decks)	C.Y.	1,295
2 604-02.03	Epoxy Coated Reinforcing Steel	Lbs.	206,619
604-10.30	Bridge Deck Repairs (Full Depth of Slab)	S.Y.	39
604-10.32	Expansion Joint Repair	L.F.	146
604-10.50	Bridge Deck Repairs (Partial Depth of Slab)	S.Y.	1,705
604-10.51	Scarifying	S.Y.	10,327
403-01	Bituminous Material for Tack Coat	Ton	1
411-01.01	Min. Aggr. for Asphaltic Conc. Surface, Grading "D"	Ton	160
411-01.02	Asphalt Cement for Asphaltic Conc. Surf., Grading "D"	Ton	10
411-02.01	Min. Aggr. for Asphaltic Conc. Surface, Grading "E"	Ton	66
411-02.02	Asphalt Cement for Asphaltic Conc. Surf., Grading "E"	Ton	5
712-01	Traffic Control	L.S.	1
712-05.01	Warning Lights (Type A)	Each	4
712-05.03	Warning Lights (Type C)	Each	25
712-06	Signs (Construction)	S.F.	60
712-07.01	Temporary Barricades (Type I)	L.F.	50
712-08.01	Arrow Board (Type A)	Each	1
716-05.01	Painted Pavement Marking (Line)	L.Mi.	1.04
717-01	Mobilization	L.S.	1

LIST OF DRAWINGS:

DRAWING	DWG. NO.	LAST REV. DATE
Bridge Repair & Estimated Quantities	K-72-11A	
Bridge Repair Details - Left Lane	K-72-11B	
Bridge Repair Details - Right Lane	K-72-11C	
Bridge Repair Details	K-72-11D	

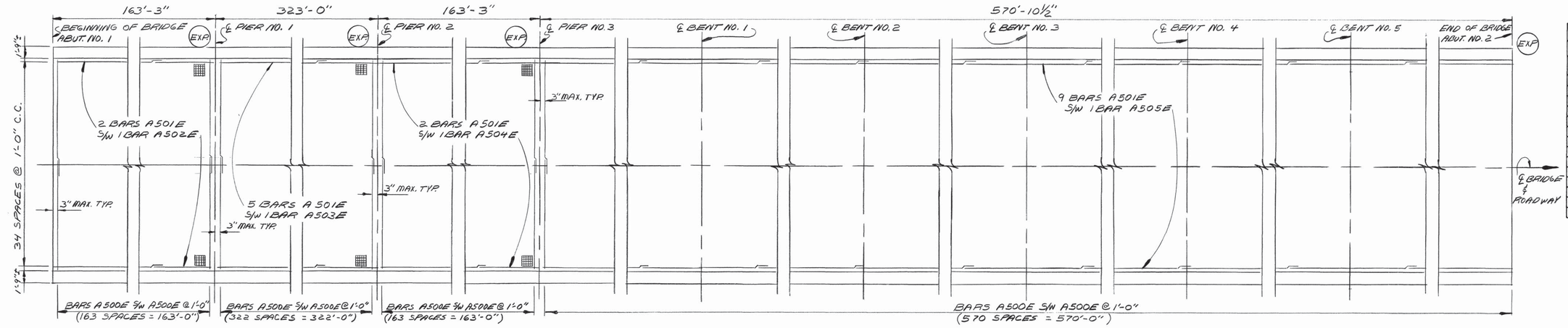
Reference Drawings: K-80-127, K-56-34, K-96-1, 2 & 6, K-72-11, 12, 13, & 15
2 K-72-22

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

Bridge Repair Details and Estimated Quantities
State Route 45 over Cumberland River
Bridge No. 19-9R045-2.03
Davidson County
1983

CORRECT Gilliam L. Terrell
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

K-72-11A



PROJECT NO.	YEAR	SHEET NO.
19042-4241-04	1983	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

Slab Plan – Left Lane

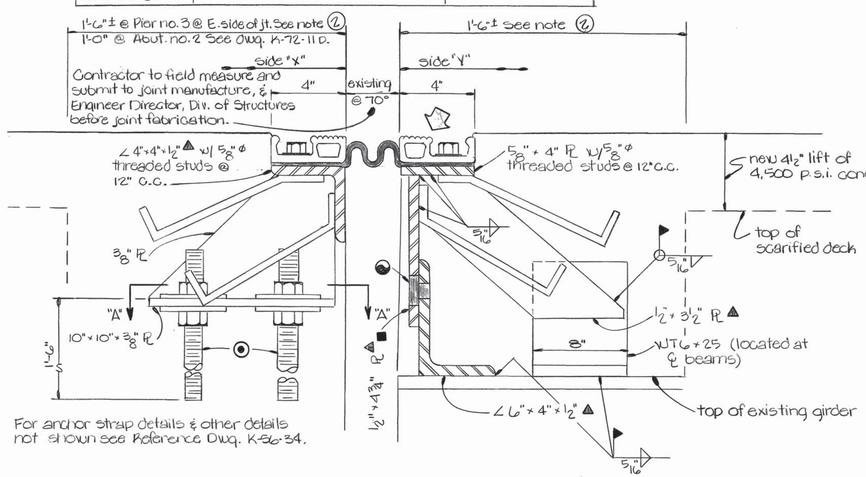
NOTE: SHOWING REINFORCING STEEL SPACING FOR NEW SLAB, AND LOCATION OF EXPANSION JOINTS.

(EXP) DENOTES LOCATIONS OF EXPANSION JOINTS.

▦ DENOTES LOCATIONS OF DECK DRAINS, CONTRACTOR TO FIELD CUT NEW REINFORCING STEEL IN AREA OF DRAINS. SEE DRAIN DETAILS ON DWG. NO. K-72-11D.

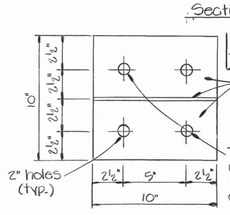
Table of Rdwy. Expansion Joints

Location	Use Detail Shown For:	Total Movement Req'd
Abut. no. 2, E. side of joint	side "X"	3½"
Abut. no. 2, W. side of joint	side "X" except omit 7/8"φ threaded rods and 3/8" thick plates	
Pier no. 3, E. side of joint	side "X" except omit 7/8"φ threaded rods and 3/8" thick plates	4½"
Pier no. 3, W. side of joint	side "Y"	
Pier no. 2, E. and W. side of joint	side "Y"	4½"
Pier no. 1, E. and W. side of joint	side "Y"	3½"



Section View Showing New Rdwy. Exp. Joints @ Pier No. 1, 2, 3, and Abut. No. 2

See table above for anchorage required and total movement required



Section A-A
(bolts & washers not shown)

Note: New membrane, extrusion, and hold down anchorage as recommended by joint manufacturer shall run 1'-0" up the face of concrete parapets. 3/8" plate

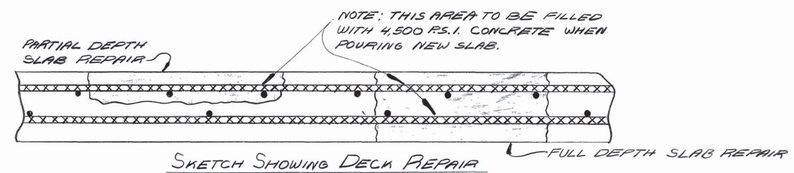
The Contractor has the option of using these two (2) holes per leveling bolt assembly, or the opposite two (2) holes.

■ Contractor to verify height of plate (4¾") before submittal of shop drawings for expansion joint

▲ Roadway expansion device shall be fabricated in two (2) sections (34'-6" total length) * in order to maintain at least one (1) traffic lane at all times. The two sections are to be connected with a full penetration butt weld.

Note: On-Flex 240: Membrane with aluminum hold down panel is shown in details. Acme Strip Seal, Fel-Pro, Pro-Span, Watson Bowman Watso All-Strip or D.S. Brown DeElastoflex may be substituted.

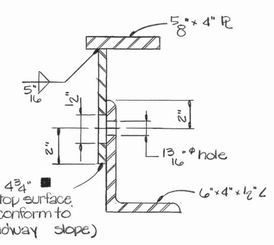
⊙ Note: Drill and epoxy grout 7/8"φ threaded rods. (2 hex nuts & 2-3½"×3½"×¼" sq. washers per rod. Two rods reqd. at each beam location.



Sketch Showing Deck Repair

REMOVE CONCRETE IN ALL DELAMINATED AREAS TO A DEPTH OF 3/4" BELOW THE TOP MAT OF REINFORCING STEEL. ALL REINFORCING STEEL IN AREAS OF DECK REPAIR SHALL BE BLAST CLEANED. AREAS OF CONCRETE REMOVAL SHALL BE DESIGNATED BY PERSONNEL FROM THE DIVISION OF STRUCTURES. DECK REPAIR WILL BE PAID FOR UNDER ITEM NO. 604-10.50, BRIDGE DECK REPAIR (PARTIAL DEPTH OF SLAB), SQ. YD. IF DETERIORATED CONCRETE IS ENCOUNTERED WHICH APPEARS TO RUN FULL DEPTH IN THE SLAB, THEN THE ENGINEER MAY DESIGNATE THESE AREAS TO BE REPAIRED UNDER ITEM NO. 604-10.30, BRIDGE DECK REPAIR (FULL DEPTH OF SLAB), SQ. YD.

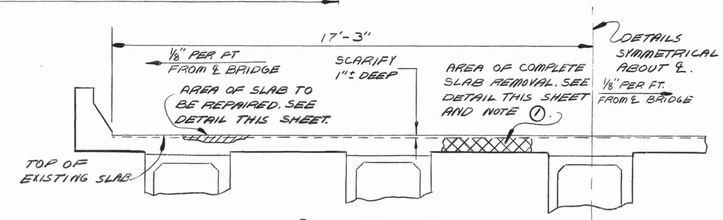
NOTE: ITEMS 604-10.30 AND 604-10.50 SHALL BE BID WITH THE CONTINGENCY THAT THESE ITEMS MAY BE INCREASED, DECREASED, OR ELIMINATED AS DIRECTED BY THE ENGINEER.



◉ Detail Showing ½" PL Connected to 6" × 4" × ½" ∠

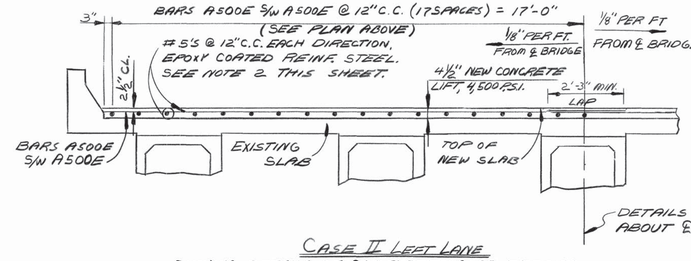
✳ Note: Contractor to field verify total length shown above (Typ. at all new joint locations.)

Note ②: The Contractor shall remove 1'-6"± of existing slab for full width of roadway surface on the deck in order to place anchorage for new joint. Care shall be taken to preserve all existing reinforcing steel. If the Engineer determines that additional reinforcing steel is reqd in joint repair areas, the Contractor shall provide the additional reinforcing steel at no additional cost to the State. The Contractor may use high early strength concrete or the 4,500 p.s.i. Class "A" deck concrete when repouring the ends of deck. Item no. 604-10.32, Expansion Joint Repair, Lin. Ft., includes all concrete removal, concrete repouring, all structural steel anchorage, membrane, extrusions, and incidental items necessary for repairing the joints complete and in place.



Case I Left Lane

SHOWING SLAB REPAIR, COMPLETE SLAB REMOVAL & DETAILS OF SLAB TO BE SCARIFIED



Case II Left Lane

SHOWING DETAILS OF COMPLETED SLAB REPAIRS

NOTE: EXISTING RDWY. X-SLOPE OF ⅛" PER FT. FROM ℄ BRIDGE TO BE VARIFIED BY THE CONTRACTOR BEFORE FABRICATING NEW ROADWAY EXPANSION JOINTS OR POURING NEW 4½" LIFT OF CONCRETE.

NOTE ①: IN AREAS WHERE THE SLAB IS REMOVED FULL DEPTH, EXTREME CARE SHALL BE TAKEN SO AS NOT TO DAMAGE EXISTING REINFORCING STEEL. THESE AREAS TO BE REPOURED WHEN POURING 4,500 P.S.I. CONCRETE FOR NEW SLAB.

NOTE ②: WHEN POURING NEW SLAB, TRAFFIC IS TO BE MAINTAINED IN ONE LANE AT ALL TIMES. THE MINIMUM LAP FOR #5'S S/W #5'S TO BE 2'-3".

NOTE: NEW 4½" LIFT OF CONCRETE DECK TO BE PROFILED IN TO GRADE ℄ X-SLOPE.

Bill Of Steel

BAR	SIZE	NO. REQD.	LENGTH
A500E	5	2452	18'-3"
A501E	5	630	60'-0"
A502E	5	35	47'-5"
A503E	5	35	34'-0"
A504E	5	35	47'-5"
A505E	5	35	48'-6"
A400E	4	72	1'-2"

"E" DENOTES EPOXY COATED REINF. STEEL

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

BRIDGE REPAIR DETAILS LEFT LANE
STATE ROUTE 45 OVER CUMBERLAND RIVER
BRIDGE NO. 19-SR045-2.03
DAVIDSON COUNTY
1983

DESIGNED BY
DRAWN BY GREG ROSS
SUPERVISED BY McINTURFF
CHECKED BY McINTURFF & GENTRY
DATE 3-83
DATE 3-83
DATE 3-83
DATE 3-83

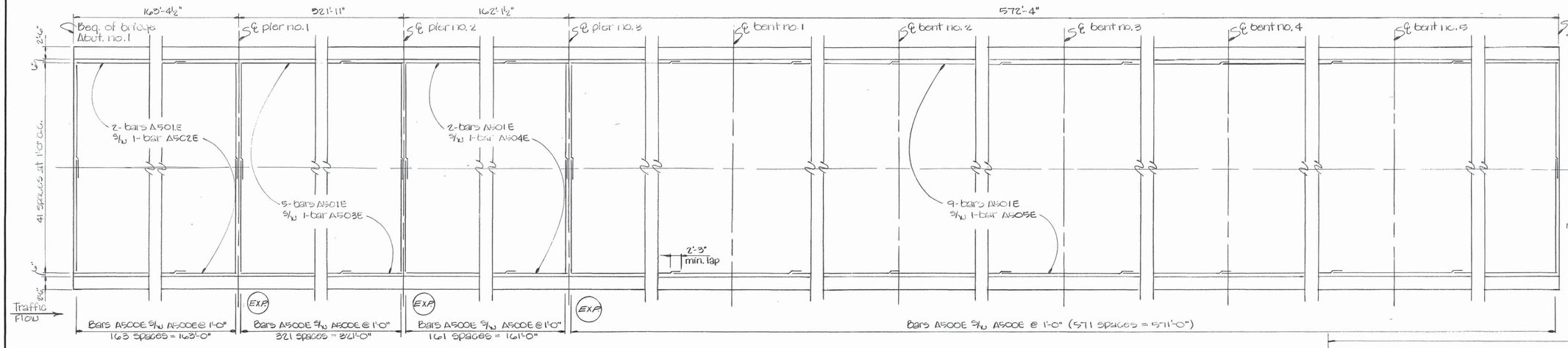
CORRECT Coleman L. Fowler
ENGINEER OF STRUCTURES
APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

K-72-11B

PROJECT NO.	YEAR	SHEET NO.
19042-4241-04	1983	

REVISIONS

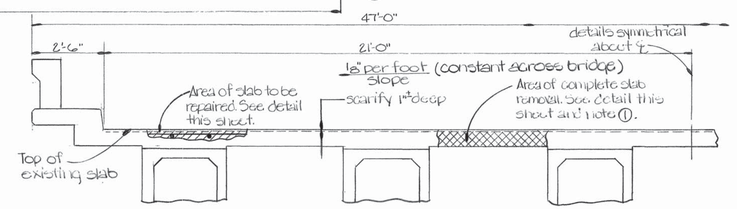
NO.	DATE	BY	BRIEF DESCRIPTION
1	12-1-83	WMM	Revised Bill of Steel and Cross Section



SLAB PLAN - RIGHT LANE

Note: Showing reinforcing steel spacing for new slab, and location of expansion joints.

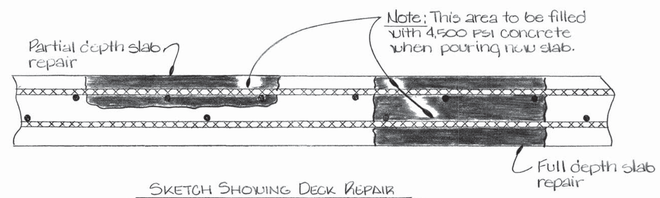
(EXP) Denotes: Expansion Joint.



CASE I

showing slab repair, complete slab removal, & details of slab to be scarified

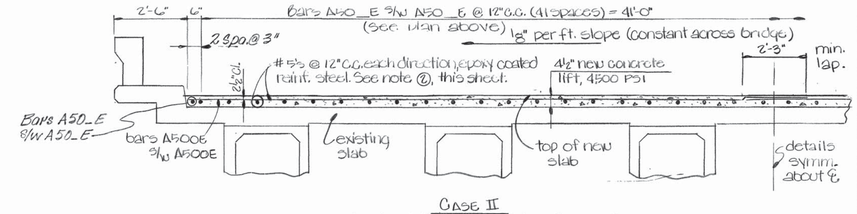
RIGHT LANE



SKETCH SHOWING DECK REPAIR

Remove concrete in all delaminated areas to a depth of ¾" below the top mat of reinforcing steel. All reinforcing steel in areas of deck repair shall be blast cleaned. Areas of concrete removal shall be designated by personnel from the Division of Structures. Deck repair will be paid for under item no. 604-10.50, Bridge Deck Repair (partial depth of slab), sq. yd. If deteriorated concrete is encountered which appears to run full depth in the slab, then the engineer may designate these areas to be repaired under item no. 604-10.30, Bridge Deck Repair (full depth of slab), sq. yd.

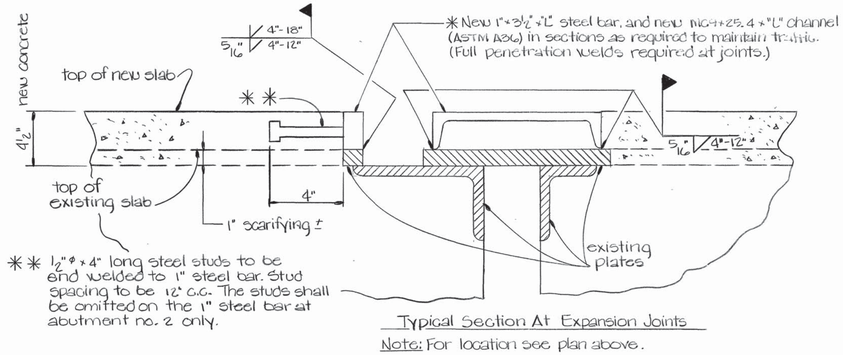
Note: Items 604-10.30 and 604-10.50 shall be bid with the contingency that these items may be increased, decreased, or eliminated as directed by the engineer.



CASE II

showing details of completed slab repairs

RIGHT LANE



Typical Section At Expansion Joints

Note: For location see plan above.

Note: Cost of furnishing and installing steel bar, studs and steel channels for raising grade of pavement shall be included under item no. 602-10.06.

✱ Denotes: "L" varies, the contractor shall field measure the expansion joint before ordering 1" steel bars, and MC9×25.4 channel for raising joints.

(EXP) DENOTES LOCATIONS OF JOINTS TO BE RAISED AS SHOWN IN DETAIL ABOVE. SEE SLAB PLAN THIS SHEET FOR JOINT LOCATION.

Note ①: In areas where the slab is removed for full depth, extreme care shall be taken so as not to damage existing reinforcing steel. These areas to be repaired, when pouring 4,500 PSI concrete for new slab.

Note ②: When pouring new slab, traffic is to be maintained in one lane at all times. The minimum lap for #5 bars S/W #5's to be 2'-3".

Note: New 4½" lift of concrete deck to be profiled in to grade and x-slope.

BILL OF STEEL

BAR	SIZE	NO. REQ'D.	LENGTH
A500E	5	2,440	22'-0"
A501E	5	198	60'-0"
A502E	5	44	47'-6"
A503E	5	44	32'-10"
A504E	5	44	46'-4"
A505E	5	44	52'-3"

"E" Denotes Epoxy Coated Reinf. Steel

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

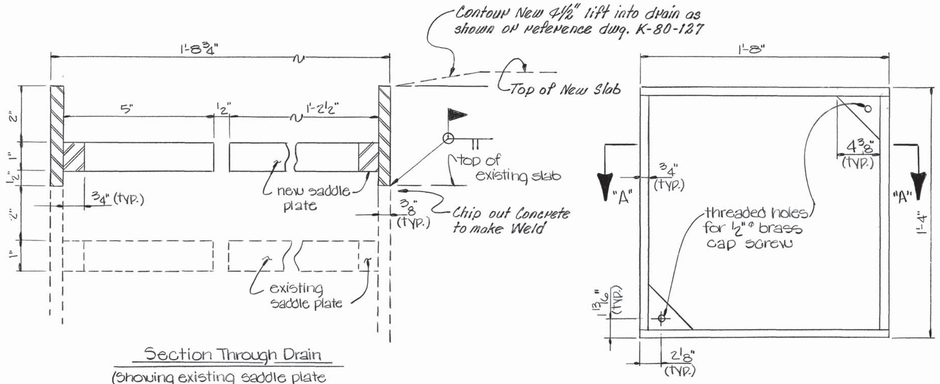
BRIDGE REPAIR DETAILS RIGHT LANE
STATE ROUTE 45 OVER CUMBERLAND RIVER
BRIDGE NO. 19-SR045-2.03
DAVIDSON COUNTY
1983

DESIGNED BY		DATE	
DRAWN BY	D. White	DATE	2/83
SUPERVISED BY	W. McIntyre	DATE	2/83
CHECKED BY	W. McIntyre & R. Gentry	DATE	2/83

CORRECT Clellon L. Farrell
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

K-72-11c

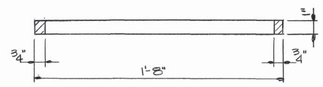


Section Through Drain
(Showing existing saddle plate and new saddle plate)

Plan-Showing Plates and Bars for Raising of Grates

Note: Existing drains to be cleaned out, cost to be included in item no. 602-10.06.

Note: 6 drains required. Each for westbound and eastbound bridges.



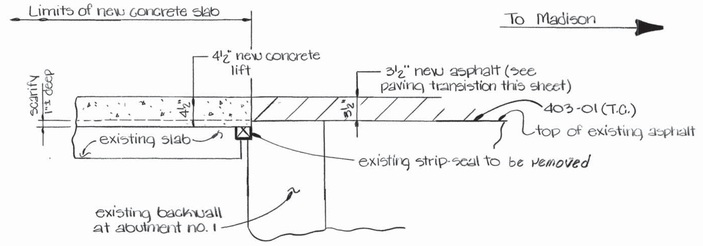
Section A-A

DETAILS FOR RAISING EXISTING GRATE PLATES

★ 12 REQUIRED

Note: The cost of raising existing grate plates, including steel bars, plates, welding, all miscellaneous materials, and labor to be included in item no. 602-10.06, Structural Steel, lbs.

Note: Existing grate plate and 1½"φ brass cap screws to be re-used. The above details are for raising the saddle plates to top of new slab. For additional details see dwg no. K-80-127 & K-72-22.



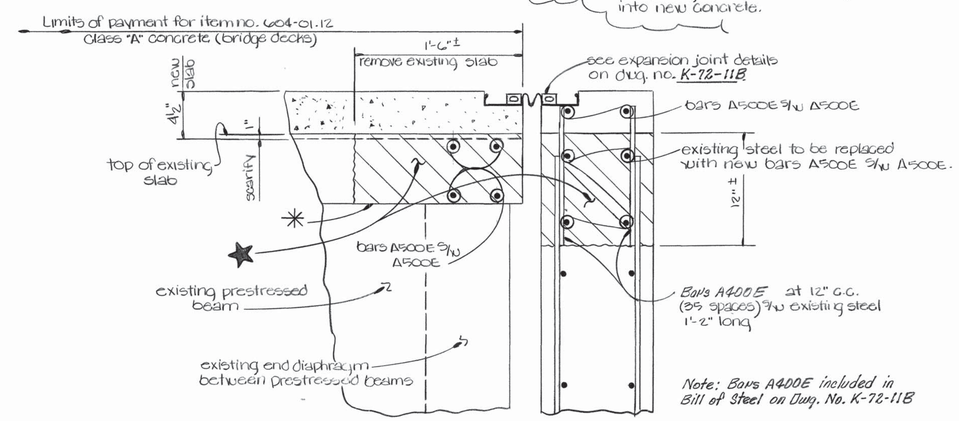
Beginning of Slab Details
Abutment No. 1 Left Lane

PROJECT NO.	YEAR	SHEET NO.
19042-4241-04	1983	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	7-25-83	W.M.M.	ADDED REFERENCE DWG. & NO. REQ. OF GRATE PLATES FOR RAISING DRAINS

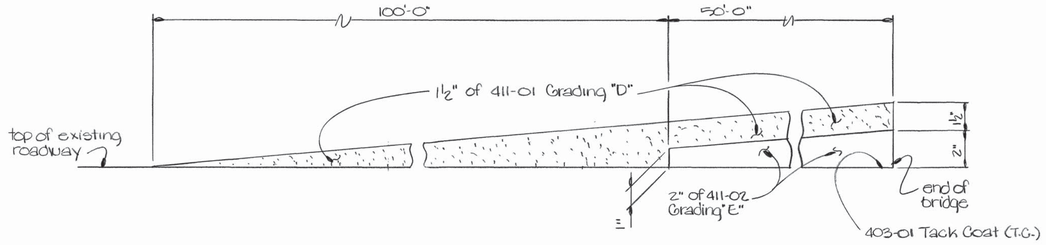
Note: Extreme care shall be taken when removing existing concrete so as not to damage existing reinforcing steel. Existing reinforcing steel shall be incorporated into new concrete.



Section At Abutment No. 2
Left Lane Bridge

★ Denotes: Existing deteriorated concrete in end of slab and top of abutment backwall to be removed and repoured. Contractor has the option of using 4,500 p.s.i. Concrete or High Early Strength concrete. Typical for full width of roadway surface from face of parapet to face of parapet.

✳ Note: Care shall be taken when removing existing slab so as not to damage the tops of the existing prestressed beams. Cost of removing existing end of slab and top of existing backwall and repouring of same to be included in item no. 604-10.32, Expansion Joint Repair, Lin.Ft.



Paving Transistion Detail
(For beginning & end of bridge, right & left lanes.)

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

Bridge Repair Details
State Route 45 over Cumberland River
Bridge No. 19-SR045-2.03
Davidson County
1983

DESIGNED BY		DATE
DRAWN BY	Denise White	DATE 3/83
SUPERVISED BY	W.M. McInturff	DATE 3/83
CHECKED BY	W.M. McInturff & R. Gentry	DATE 3/83

CORRECT Clellon L. Farrell
ENGINEER OF STRUCTURES

APPROVED Lewis Evans
DIRECTOR OF HIGHWAYS

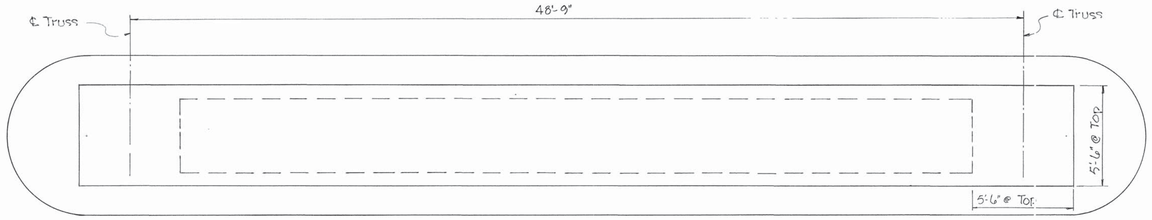
K-72-110

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	19159-3207-04	19		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	23 Feb 68	J.R.C.	Section BB - Show Void
2	21 Mar 68	J.R.C.	Steel Quant's.

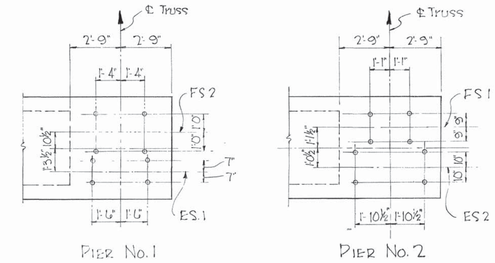
Note: When pouring Piers, provisions shall be made for setting anchor bolts for bearing plates.



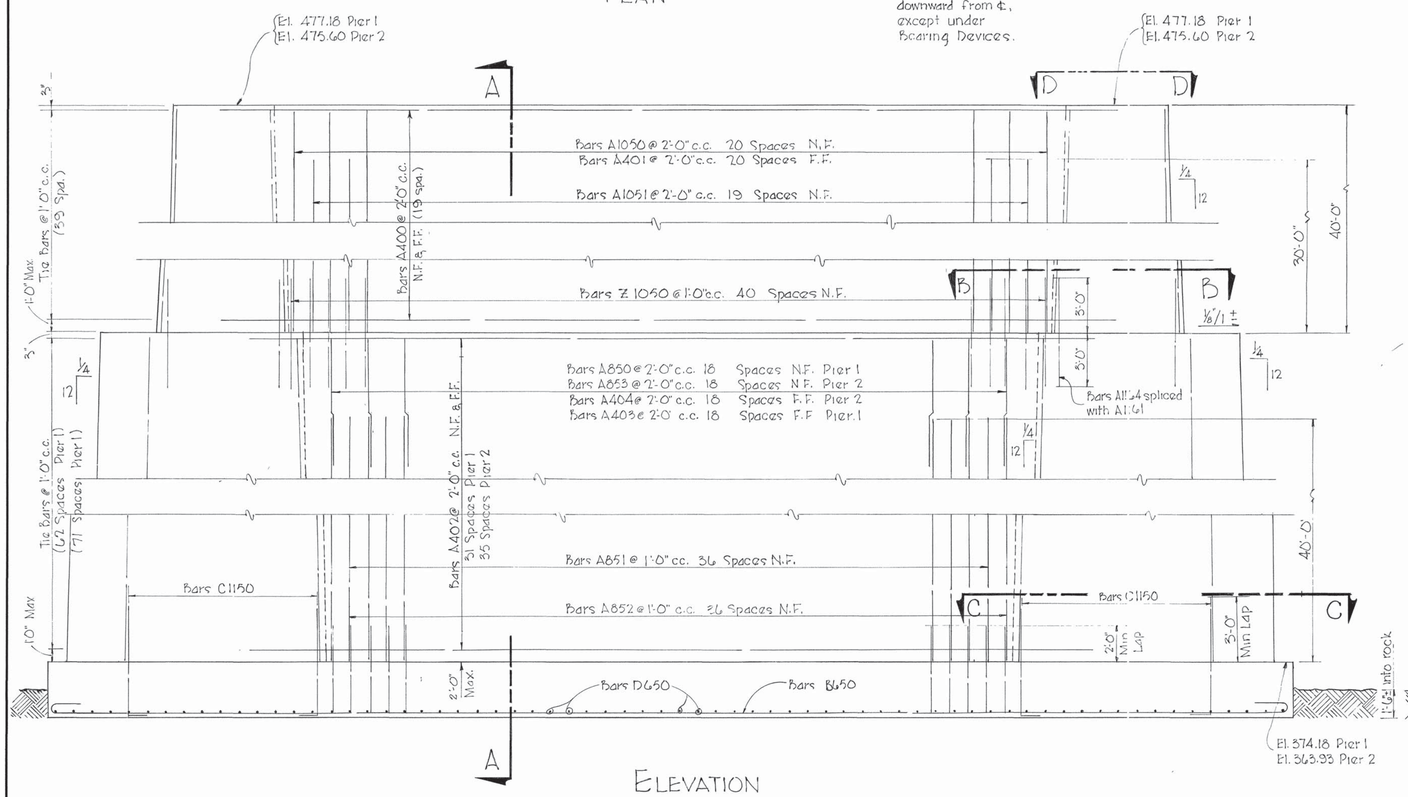
PLAN

ANCHOR BOLT PROJECTION

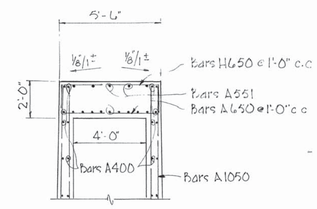
Bearing	Projection
ES1	7"
ES2	7½"
FS1	6"
FS2	6"

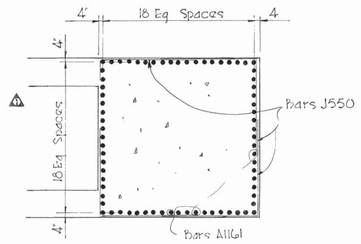


ELEVATION D-D

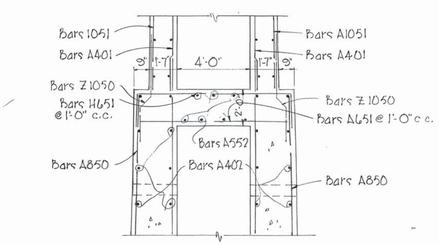


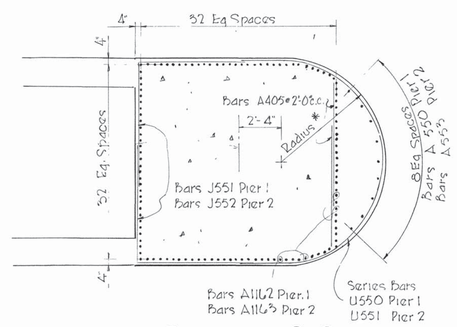
ELEVATION





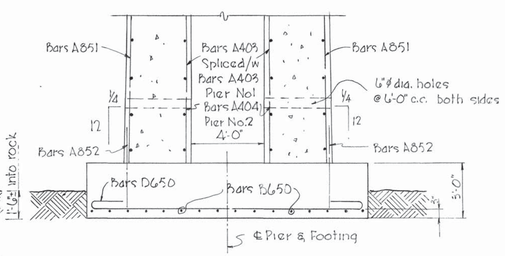
SECTION B-B



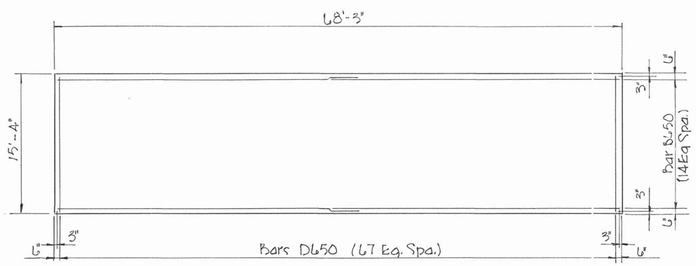


SECTION C-C

* Radius - 4'-4" at El. 437.18 Pier 1 & El. 435.60 Pier 2. Radius increases ½" per 1 Foot of Pier height.



SECTION A-A



PLAN OF FOOTING

ESTIMATED QUANTITIES ②

	Class "A" Concrete Cu. Yds.	Reinforcing Steel Lbs.
Pier 1	1595.0	182,118
Pier 2	1801.0	195,938

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

PIERS No. 1 & 2

STATE ROUTE 45 OVER CUMBERLAND RIVER

STATION 118+12.00

DAVIDSON COUNTY

1967

CORRECT: [signature] BRIDGE ENGINEER

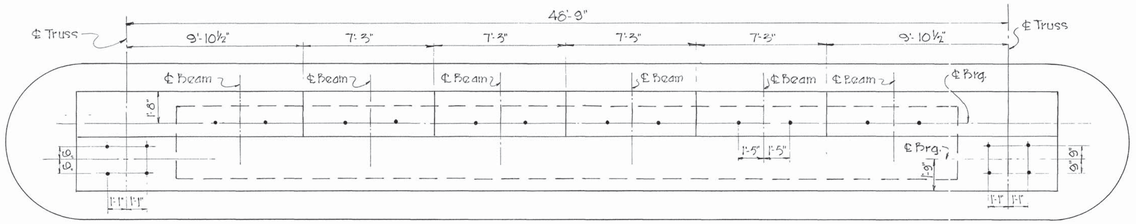
APPROVED: [signature] STATE HIGHWAY ENGINEER

K-72-29

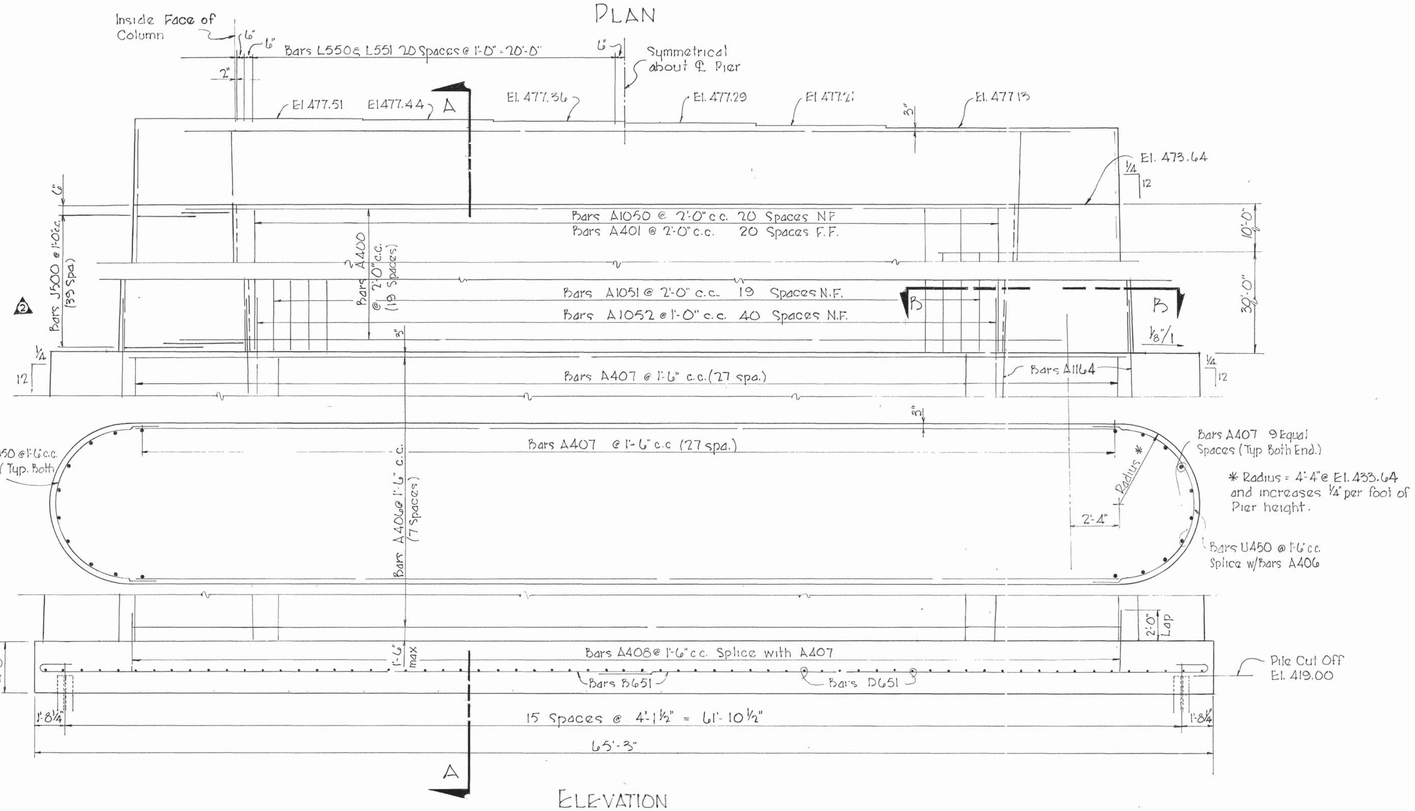
DESIGNED BY R Dishner DATE
DRAWN BY R Chester DATE Oct '67
TRACED BY DATE
CHECKED BY DATE

ADOPTED

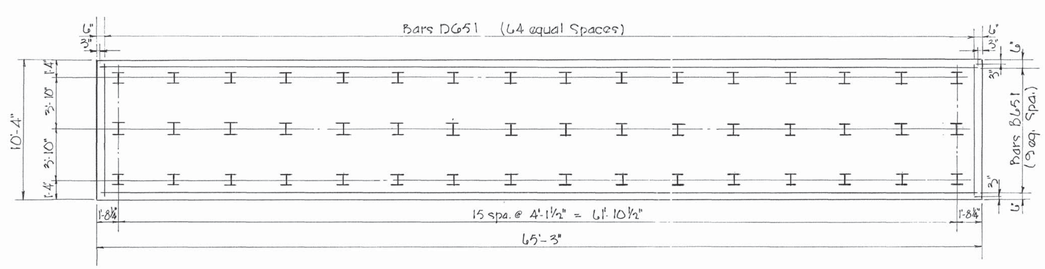
Note: When pouring pier cap, provisions shall be made for setting anchor bolts for bearing plates. Bolt projection for Brg. E6 = 3½". Bolt projection for Truss Brg. = 7".



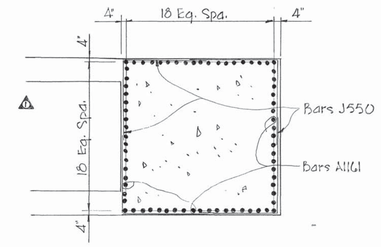
PLAN



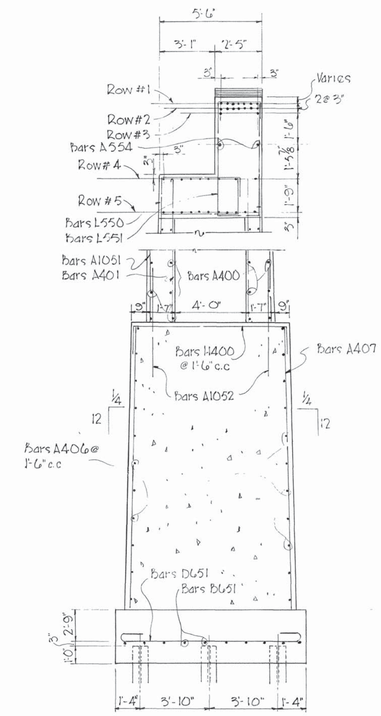
ELEVATION



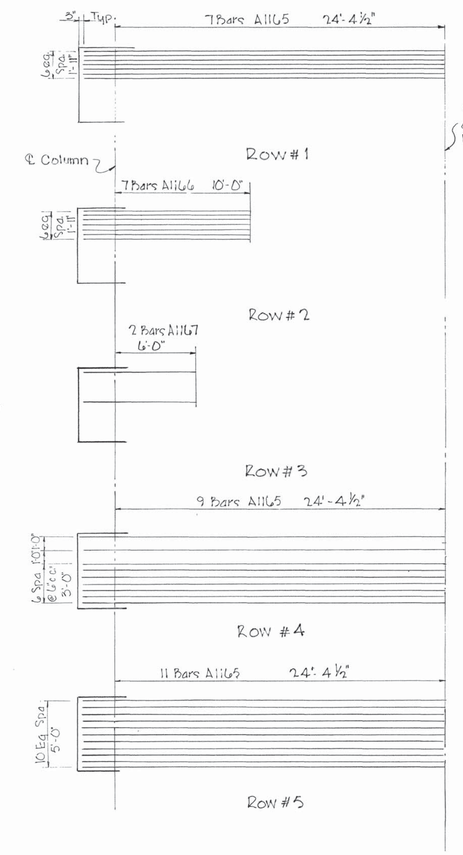
FOOTING PLAN



SECTION B-B



SECTION A-A



PLAN SHOWING REINFORCEMENT IN CAP SECTION

ESTIMATED QUANTITIES
Class "A" Concrete 647.1 Cu Yds
Reinforcing Steel 70,186 Lbs.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	19159-3207-04	19		

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION
1	23 Feb 68	J.R.C.	Section B-B Show Vert
2	21 Mar. 68	J.R.C.	Show J Bar Spacing

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

PIER NO. 3
STATE ROUTE 45 OVER CUMBERLAND RIVER
STATION 118+12.00
DAVIDSON COUNTY
1967

DESIGNED BY R. Dishner DATE Nov. '67
DRAWN BY R. Chester DATE Nov. '67
TRACED BY DATE
CHECKED BY DATE

CORRECT BRIDGE ENGINEER
APPROVED STATE HIGHWAY ENGINEER

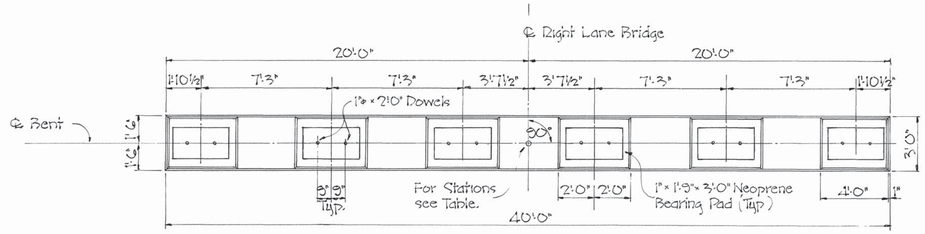
K-72-30

MICROFILMED

FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
3	TENN	1959-3207-04	19		

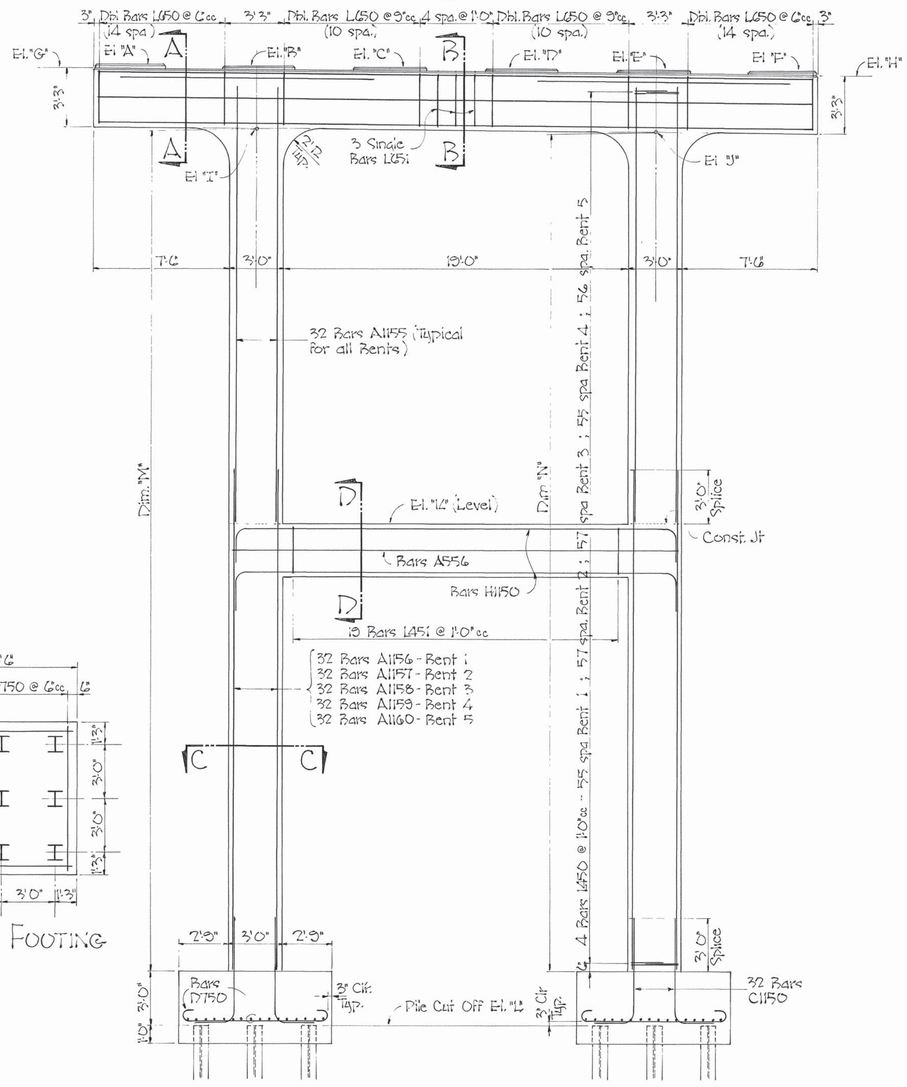
REVISIONS

NO	DATE	BY	BRIEF DESCRIPTION
1	2/8/68	JWS	Reinforcement Quantities
2	3/27/68	JWS	Elevations

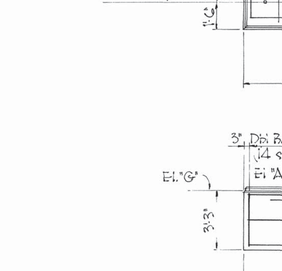


PLAN

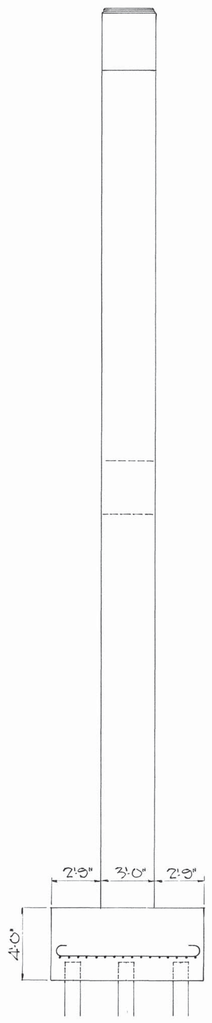
NOTE: When pouring Cap Beam provisions shall be made for setting dowel bars for bearing pads. Dowel bar projection 1'-0".



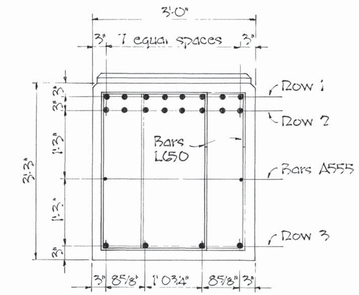
FRONT ELEVATION
Looking Forward On Survey.



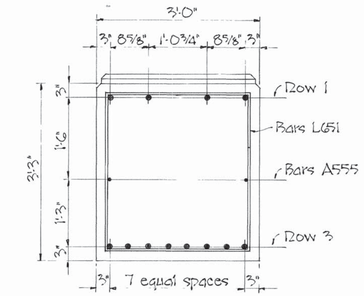
PLAN OF FOOTING



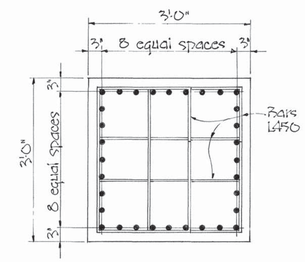
SIDE ELEVATION



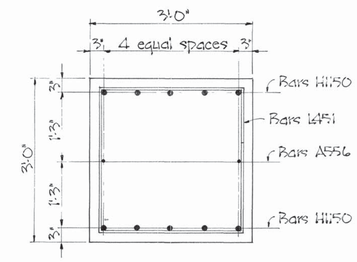
SECTION A-A



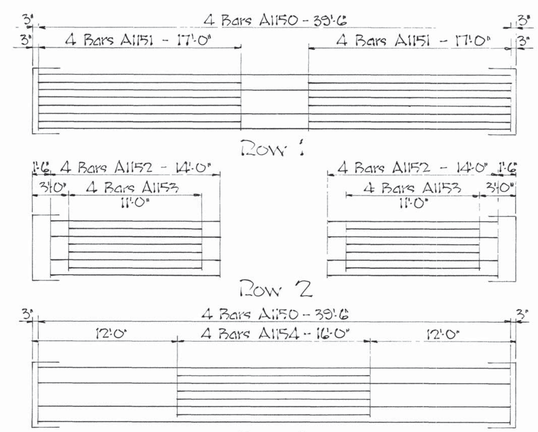
SECTION B-B



SECTION C-C



SECTION D-D

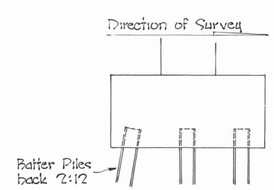


MAIN REINFORCEMENT - CAP BEAM

		Bent 1	Bent 2	Bent 3	Bent 4	Bent 5
Stations		125+54.63	126+40.88	127+45.13	128+40.38	129+35.63
Elevations	'A'	475.92	473.55	471.17	468.79	466.40
	'B'	475.85	473.48	471.10	468.72	466.33
	'C'	475.77	473.40	471.02	468.64	466.25
	'D'	475.70	473.33	470.95	468.57	466.18
	'E'	475.62	473.25	470.87	468.48	466.10
	'F'	475.54	473.17	470.79	468.41	466.02
	'G'	475.47	473.40	470.64	468.64	466.25
	'H'	475.35	472.98	470.60	468.22	465.83
	'I'	472.43	470.06	467.67	465.30	462.51
	'J'	472.19	469.82	467.44	465.06	462.67
	'K'	447.19	444.82	442.44	440.06	437.67
	'L'	416.19	411.82	410.44	408.06	405.67
Dim "M"		53'-2¾"	55'-2¾"	55'-2¾"	53'-2¾"	54'-2¾"
Dim "N"		53'-0"	55'-0"	55'-0"	53'-0"	54'-0"

ESTIMATED QUANTITIES

Item	Bent 1	Bent 2	Bent 3	Bent 4	Bent 5
Class 'A' Conc - Cu.Yds	78.4	79.8	79.8	78.4	79.1
Reinforcing Steel - Lbs	33,844	34,524	34,524	33,844	34,184



SIDE ELEVATION
Bent No 5 Only.

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

BENTS NO. 1, 2, 3, 4 & 5 - RIGHT LANE
STATE ROUTE 45 OVER CUMBERLAND RIVER
STATION 118+12.00
DAVIDSON COUNTY
1967

DESIGNED BY JWSutherland DATE
DRAWN BY (JWS) DATE
TRACED BY DATE
CHECKED BY DATE

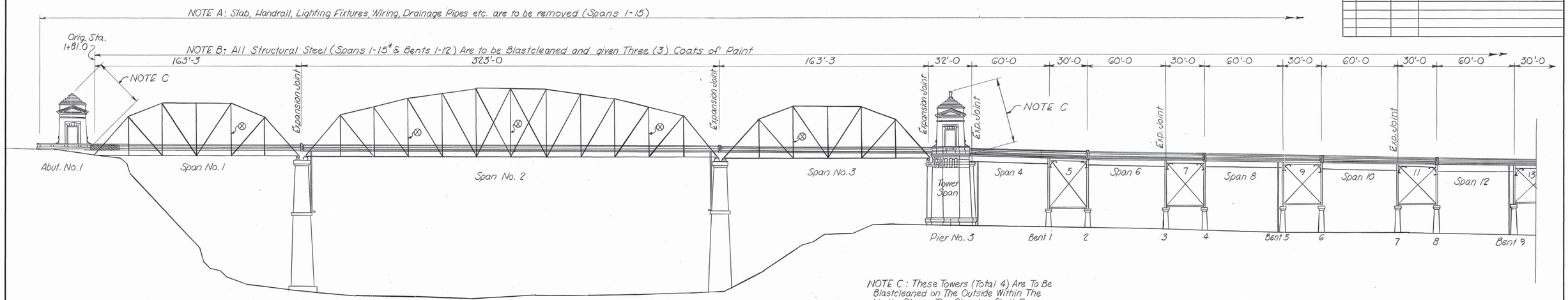
CORRECT — BRIDGE ENGINEER
APPROVED — STATE HIGHWAY ENGINEER

K-72-31

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.		19		

REVISIONS

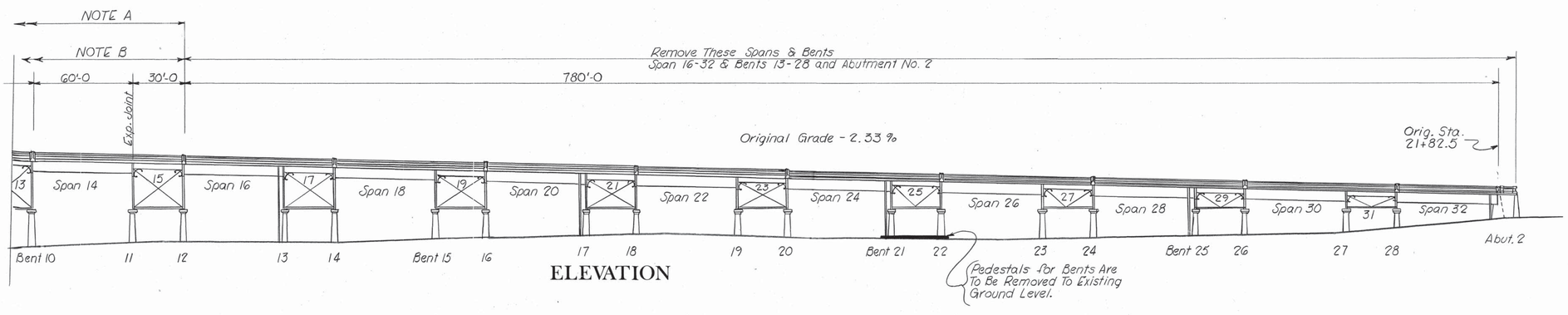
NO.	DATE	BY	BRIEF DESCRIPTION



NOTE C: These Towers (Total 4) Are To Be Blastcleaned on The Outside Within The Limits Shown. The Cleaning Shall Remove All Stains, Signs Of Weathering, Etc.

ELEVATION

* Includes Tower Span



Pedestals for Bents Are To Be Removed To Existing Ground Level.

ELEVATION

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

GENERAL DRAWING
BRIDGE NO. 19-45-2.03
STATE ROUTE NO. 45 OVER CUMBERLAND RIVER
DAVIDSON COUNTY
1969

BY	Wm. P. Greer	DATE	4-69
DRAWN BY		DATE	
TRACED BY	G.P.M.	DATE	4-69
CHECKED BY	WPG	DATE	

CORRECT H. W. Derthick
BRIDGE ENGINEER

APPROVED [signature]
STATE HIGHWAY ENGINEER

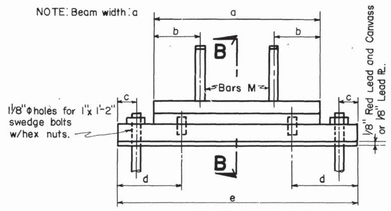
K-80-122

MICROFILMED

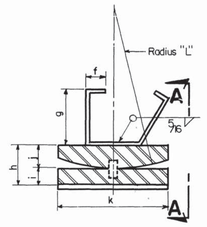
DRAFTING MEDIA GRAPHIC CONTROLS CORPORATION Brooklyn, New York Printed in U.S.A. ASTROFILM N605.4

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.
3	TENN.			1(1) 353

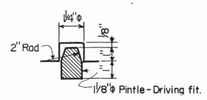
NOTE: Beam width: a



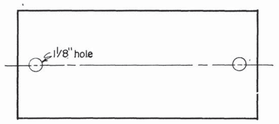
ELEVATION A-A



SECTION B-B



PINTLE DETAIL

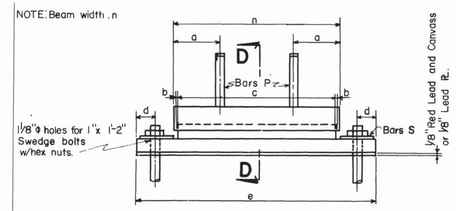


STANDARD FIXED BEARINGS

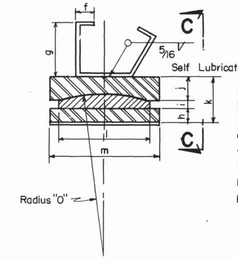
TABLE OF DIMENSIONS AND ESTIMATED QUANTITIES

TYPE	DIMENSIONS													STRUCTURAL STEEL
	a	b	c	d	e	f	g	h	i	j	k	L	Bars M	Lbs.
Type F1	1'-6"	5"	2"	7"	2'-2"	2"	6"	4 1/2"	2"	2 1/2"	1'-0"	1'-6"	1"x 3/8"x 2'-0"	322
Type F2	1'-2"	4"	2"	7"	1'-10"	2"	6"	4 1/2"	2"	2 1/2"	1'-0"	1'-6"	1"x 3/8"x2'-0"	265
Type F3	1'-6"	5"	1 1/2"	6"	2'-0"	2"	6"	4 1/2"	2"	2 1/2"	1'-0"	1'-6"	1"x 3/8"x 2'-0"	308
Type F4	2'-2"	5"	2"	7"	2'-10"	2"	6"	4 1/2"	2	2 1/2"	1'-0"	1'-6"	1"x 3/8"x 2'-0"	451
Type F5	2'-0"	5"	2"	7"	2'-8"	2"	6"	4 1/2"	2"	2 1/2"	1'-2"	1'-6"	1"x 3/8 x2'-0	482

NOTE: Beam width: n

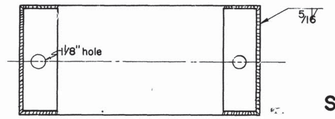


ELEVATION C-C



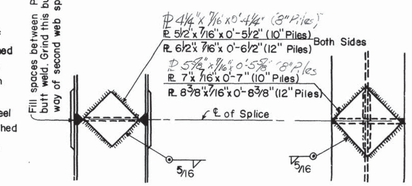
NOTE: Surfaces of Steel PLs opposing Self Lubricating PLs to be given a plain machined finish, approx. 125° microinch rms. No paint or grease shall be on these surfaces or on the surfaces of the Expansion PL. At the time of assembly these surfaces of the steel PLs shall be coated with a lubricant furnished by the manufactuer of the Expansion PL.

SECTION D-D



STANDARD EXPANSION BEARINGS

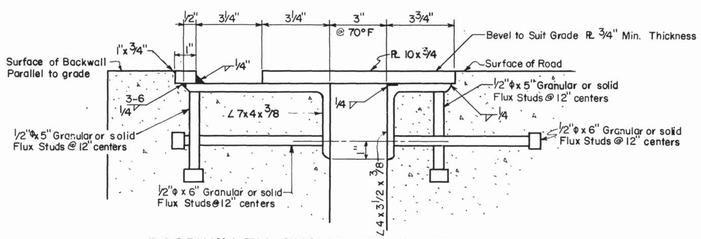
NOTE: STRUCTURAL STEEL CONFORMING TO ASTM A-7 OR ASTM A-36-62T WILL BE ACCEPTABLE.



STANDARD PILE SPLICE DETAIL

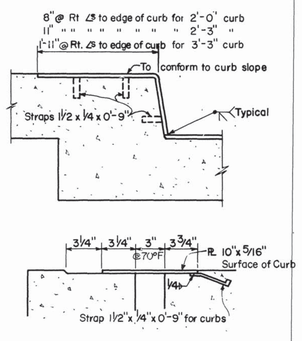
TABLE OF DIMENSIONS AND ESTIMATED QUANTITIES

TYPE	DIMENSIONS																	STRUCTURAL STEEL	BRONZE
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	Bars P	Bars S	Lbs.	Lbs.
Type E1	5"	1/16"	17	2"	2'-2"	2"	6"	1 1/2"	1"	2 1/2"	5"	10"	1'-0"	1'-6"	1'-6"	1"x 3/8"x 2'-0"	1/2"x 4"x 0'-11"	286	83
Type E2	4"	1/16"	13	2"	1'-10"	2"	6"	1 1/2"	1"	2 1/2"	5"	10"	1'-0"	1'-2"	1'-6"	1"x 3/8"x 2'-0"	1/2"x 4"x 0'-11"	238	62
Type E3	5"	1/16"	23"	2"	2'-8"	2"	6"	1 1/2"	1"	2 1/2"	5"	10"	1'-2"	2'-0"	1'-6"	1"x 3/8"x 2'-0"	1/2"x 4"x 0'-11"	425	110
Type E4	5"	1/16"	21"	2"	2'-6"	2"	6"	1 1/2"	1"	2 1/2"	5"	10"	1'-0"	1'-10"	1'-6"	1"x 3/8"x 2'-0"	1/2"x 4"x 0'-11"	347	104
Type E5	5"	1/16"	25"	2"	2'-10"	2"	6"	1 1/2"	1"	2 1/2"	5"	10"	1'-0"	2'-2"	1'-6"	1"x 3/8 x 2'-0"	1/2"x 4"x 0'-11"	400	110
Type E6	5"	1/16"	29"	2"	3'-2"	2"	6"	1 1/2"	1"	2 1/2"	5"	10"	1'-0"	2'-6"	1'-6"	1"x 3/8"x 2'-0"	1/2"x 4"x 0'-11"	432	126
Type E7	5"	1/16"	19"	2"	2'-4"	2"	6"	1 1/2"	1"	2 1/2"	5"	10"	1'-0"	1'-8"	1'-6"	1"x 3/8"x 2'-0"	1/2"x 4"x 0'-11"	313	94



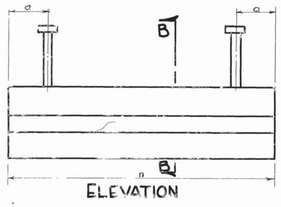
ROADWAY EXPANSION DEVICE TYPE A
SECTION AT RT. ANGLE TO JOINT

NOTE: Fabricate to fit slope of Roadway and Skew of Bridge as required.
NOTE: See also Abutment Drawings.

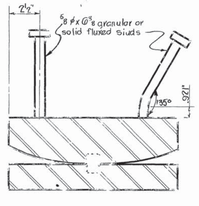


DETAIL OF CURB EXPANSION DEVICES

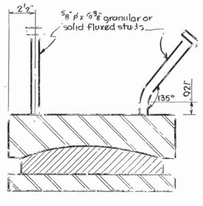
Required one at each end of roadway expansion device



ELEVATION



SECTION B-B



SECTION B-B

Note All studs shall be granular or solid flared studs

STANDARD FIXED BEARINGS

STANDARD EXPANSION BEARINGS

ALTERNATE
BEARING ANCHORAGE DETAILS

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

STANDARD BRIDGE DETAILS
EXPANSION DEVICES
BEARING DEVICES
PILE SPLICE
1962

CORRECT: Fred Gieri — BRIDGE ENGINEER

APPROVED: Ellis Long — STATE HIGHWAY ENGINEER

K-15-60

3 Copies

DESIGNED BY _____ DATE _____
DRAWN BY _____ DATE _____
TRACED BY Naasley DATE 6-13-62
CHECKED BY _____ DATE _____

Revised Type E7 added - 4-25-67
Revised Type F5 added - 11-9-66
Revised Type E5 added - 4-24-63
Revised Type E4 added - 3-26-63

Revised Type E6 added - 10-23-63
Revised: Curb Plates - 11-6-63

Bal. 8" Pile Splice added 9-29-65 K-15
Revised Type E1 & Sec. T-16 66
Revised: Added Alternate Bearing Anchorage Details - 12-28-66