BRIDGE CONTRACT No. B-7284

INDEX						
PROJECT	STRUCTURE	TYPE	SPAN	OVER	STATION	CONTRACT NO.
I-465-4 (136)129	I-465-129-2378	CONTINUOUS STEEL BEAM	44'-0" 55'-0" 44'-0"	MONON R.R.	743+24.2	B-7284

SHEET NO.	SHEET DESIGNATION	SUBJECT	B.P.R. APPROVAL
1	ONE SHEET	INDEX AND TITLE SHEET	
2-3	TWO SHEETS Nº 12 & 13	ROAD PLAN AND PROFILE ROAD PROJ. I-465-4(129)127	
4	ONE SHEET Nº 5	TYPICAL SECTION ROAD PROJ. I-465-4(129)127	
5	ONE SHEET	SOIL BORING	
6	S-1	LAYOUT	
7	S-2	GENERAL PLAN	
8	S-3	END BENT DETAILS	
9	S-4	END BENT DETAILS	
10	S-5	END BENT DETAILS	
11	S-6	BENT 2 DETAILS	
12	S-7	BENT 2 DETAILS	
13	S-8	BENT 3 DETAILS	
14	S-9	BENT 3 DETAILS	
15	S-10	FRAMING PLAN	
16	S-11	SUPERSTRUCTURE DETAILS	
17	S-12	SUPERSTRUCTURE BEARING DETAILS	
18	S-13	DECK PLAN AND TRANSVERSE SECTION	
19	S-14	SUPERSTRUCTURE DETAILS	
20	S-15	SUPERSTRUCTURE DETAILS	
21	S-16	SCREED DETAILS	
22	ONE SHEET	SUMMARY	

STATE OF INDIANA

INDIANA STATE HIGHWAY COMMISSION

BRIDGE PLANS

FOR SPANS OVER 20 FEET ON INTERSTATE ROUTE - 465 - SECTION NO. 4

F.A. PROJECT NO. I-465-4(136)129

BEGINNING AT A POINT ON LINE "A" APPROXIMATELY 2508.1 FEET SOUTHEAST OF THE INTERSECTION OF LINE "A" AND THE WEST LINE OF SECTION 12, T-17-N, R-3-E, CLAY TWP., HAMILTON CO. AND ALONG LINE "A" IN A SOUTEASTERLY DIRECTION FOR A DISTANCE OF 625.0 FEET TO A POINT ON LINE "A" APPROXIMATELY 3133.1 FEET SOUTHEAST OF THE ABOVE DESCRIBED INTERSECTION.

BRIDGE LENGTH = 0.028
ROADWAY LENGTH = 0.090
TOTAL LENGTH = 0.118

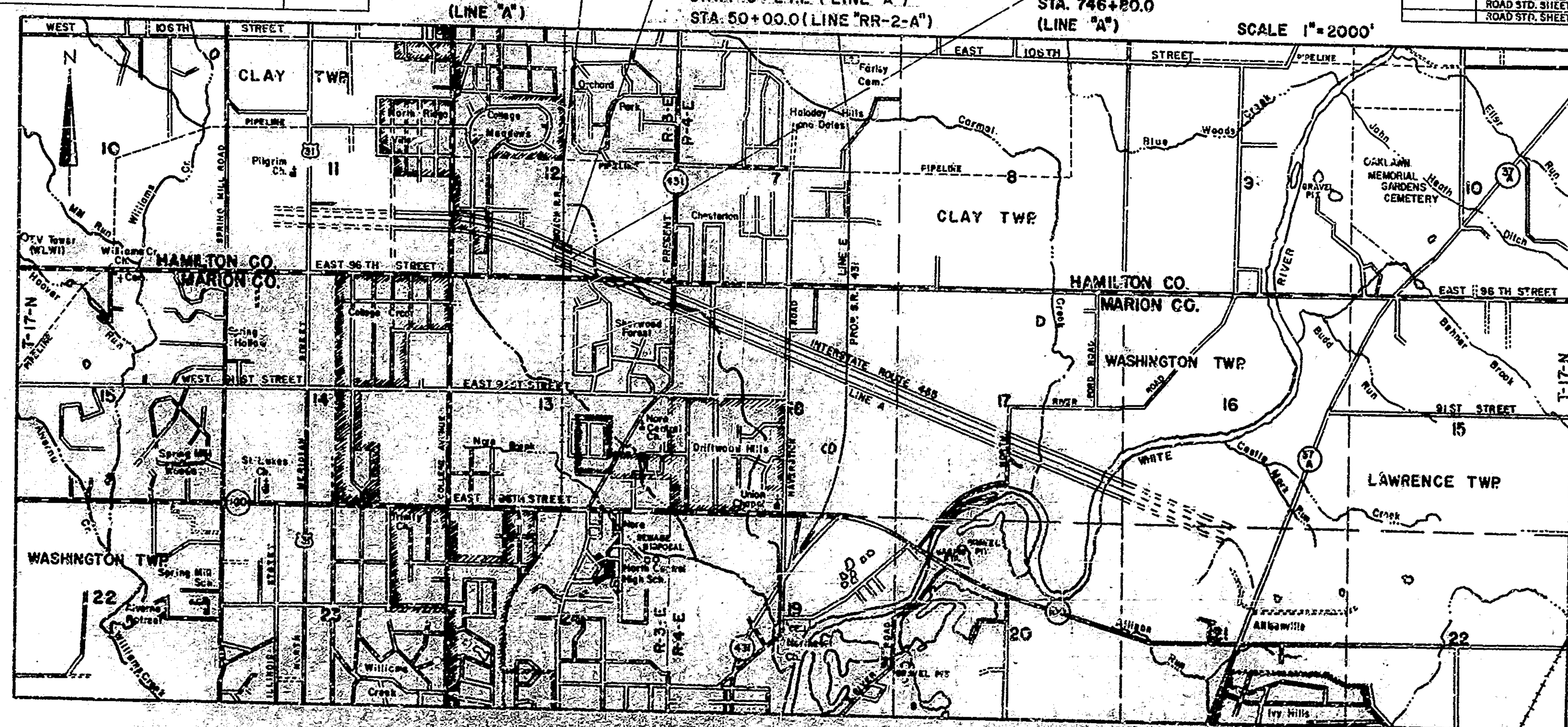
MAX. GRADE = 3.00% (LINE "A" APPROACHES)

BEGIN PROJECT
STA. 740+55.0
(LINE "A")

STRUCTURE NO. I-465-129-2378
3 SPAN 44,55,44
CONT. STEEL BEAM BRIDGE
STA. 743+24.2 (LINE "A")
STA. 50+00.0 (LINE "RR-2-A")

END PROJECT
STA. 746+80.0
(LINE "A")

SCALE 1" = 2000'



BRIDGES OVER 20' SPAN					
PUBLIC ROAD DIVISION NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (136)129	1966	1	37

INDEX CONTINUED
STANDARD DRAWINGS

SHEET NO.	SHEET DESIGNATION	SUBJECT	B.P.R. APPROVAL	ADOPTED "A" REVISION "R"
23	BRIDGE STD. C1	STANDARD MISCELLANEOUS DETAILS		
	BRIDGE STD. C2	STANDARD MISCELLANEOUS DETAILS	8-10-66	R-5-20-66
	BRIDGE STD. D	CASTING DETAILS ROADWAY DRAINS		
	BRIDGE STD. F	ROADWAY DRAIN OUTLET DETAILS		
	BRIDGE STD. GRA	TYPICAL BEAM GUARD RAIL DETAILS		
	BRIDGE STD. H	TYP. DETAILS OF THICK. PAVEMENT & LOC. TOE OF SL. AROUND END BENTS		
	BRIDGE STD. H	TYP. DETAILS OF THICK. PAVEMENT & LOCATING TOE OF SLOPE		
	BRIDGE STD. HS	CONT. STEEL BEAM—TYP. APPROACH DETAILS—TWIN STRUCTURES		
	BRIDGE STD. HS	ST. BEAM & R.C. GIRDER—TYP. APPROACH DETAILS—TWIN STRUCTURES		
	BRIDGE STD. HS21	CONT. STEEL BEAM—TYP. APPROACH DETAILS—TWO-LANE STRUCTURES		
24	BRIDGE STD. M1	MISCELLANEOUS APPROACH DETAILS		
	BRIDGE STD. M2	MISCELLANEOUS APPROACH DETAILS	3-31-66	R-2-4-66
25	BRIDGE STD. M3	R.C. BRIDGE APPROACH		
	BRIDGE STD. M4	R.C. BRIDGE APPROACH TURNOUT DETAILS—12'-6" SHOULDERS	4-17-64	R-8-27-63
~~26~~	BRIDGE STD. M5	SLOPE WALL DETAILS		
~~27~~	BRIDGE STD. J	EXPANSION JOINTS	~~8-1-66~~	~~R-3-15-66~~
	BRIDGE STD. P2	STANDARD CONCRETE PILE DETAILS	~~7-27-66~~	~~R-6-14-66~~
30	BRIDGE STD. R1F	STEEL RAILING —TYPE C		
28	BRIDGE STD. R1C	ALUMINUM RAILING —TYPE 5	6-13-66	R-4-22-66
29	BRIDGE STD. R1E	ALUMINUM RAILING DETAILS	6-13-66	R-4-22-66
31	BRIDGE STD. R2 R	BRIDGE LIGHTING DETAILS	8-12-65	R-4-27-65
	BRIDGE STD. S1	TYPICAL DETAILS FOR PLACING SPECIAL FILLING MATERIAL	8-10-66	R-6-6-66
32	BRIDGE STD. S2	TYPICAL DETAILS FOR PLACING GRADE B SPECIAL BORROW		
	BRIDGE STD. T SHEET A	STANDARD TEMPORARY BRIDGE	3-28-63	R-2-10-63
	BRIDGE STD. T SHEET B	STANDARD TEMPORARY BRIDGE		
	ROAD STD. SHEET A	STANDARD PAVEMENT JOINTS		
33	ROAD STD. SHEET MA	MISCELLANEOUS STANDARDS		
33A	ROAD STD. SHEET MB 2	MISCELLANEOUS STANDARDS	2-8-66	A-July 65
	ROAD STD. SHEET MC	MISCELLANEOUS STANDARDS	9-22-66	A-June 66
	ROAD STD. SHEET MC1	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MD	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MD1	MISCELLANEOUS STANDARDS		
34	ROAD STD. SHEET ME 1	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MF	MISCELLANEOUS STRUCTURE STANDARDS	9-7-66	R-8-11-66
	ROAD STD. SHEET MG	MISCELLANEOUS STRUCTURE STANDARDS		
	ROAD STD. SHEET MH	MISCELLANEOUS PRIVATE DRIVE STANDARDS		
	ROAD STD. SHEET MI	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MJ	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET K	MISCELLANEOUS STANDARDS		
35	ROAD STD. SHEET MN	MISCELLANEOUS STANDARDS		
36	ROAD STD. SHEET MP	MISCELLANEOUS STANDARDS	4-8-66	R-7-27-65
	ROAD STD. SHEET MQ	MISCELLANEOUS STANDARDS		R-2-15-66
	ROAD STD. SHEET MR	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET S	MISCELLANEOUS STANDARDS CENTER DITCH INLETS		
	ROAD STD. SHEET S1	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MT	MISCELLANEOUS STANDARDS		
~~37~~	ROAD STD. SHEET MP1	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET	MISCELLANEOUS STANDARDS		~~R-11-29-65~~
	ROAD STD.	STANDARD STRUCTURE CONNECTIONS FOR EXTENSION		
	ROAD STD.	STANDARD REINF. CONC. BOX CULVERTS		
	ROAD STD.	STANDARD REINF. CONC. BOX CULVERTS—SK. END & WING DETAILS		
	ROAD STD.	STANDARD REINF. CONC. CULVERTS—SLAB TOP TYPE (W.F.)		
	ROAD STD.	STANDARD REINF. CONC. CULVERTS—SLAB TOP TYPE (U.F.)		
	ROAD STD. SHEET GR	STANDARD GUARD RAIL		
	ROAD STD. SHEET GR1	BEAM GUARD RAIL		
	ROAD STD.	STANDARD REINF. CONCRETE ARCH—12' SPAN		
	ROAD STD.	STANDARD HEADWALLS		
	ROAD STD.	STANDARD STRUCTURAL PLATE ARCH		
	ROAD STD.	CONCRETE WINGS FOR STD. STRUCTURAL PLATE ARCHES		
	ROAD STD.	STANDARDS FOR SUPER-ELEVATION & WIDENING OF CURVES		
	ROAD STD. SHEET 1 DETOURS	STANDARD DETOUR SIGNS		
	ROAD STD. SHEET 2 DETOURS	STANDARD DETOUR SIGNS		
	ROAD STD. SHEET 3 DETOURS	STANDARD DETOUR SIGNS		
	ROAD STD. SHEET 4 DETOURS	STANDARD DETOUR SIGNS		

TRAFFIC DATA	
A.D.T. (1964)	34,205 V.P.D.
A.D.T. (1975 PROJECTED)	57,303 V.P.D.
TRUCKS	7 %
DESIGN SPEED	70 M.P.H.
ACCESS CONTROL	FULL

THESE PLANS PREPARED BY
ALDEN E. STILSON & ASSOCIATES LIMITED
CONSULTING ENGINEERS
COLUMBUS, OHIO

BY Tom L. Underwood, P.E. DATE

RIGHT OF WAY FOR THIS PROJECT INCLUDED IN PROJECT I-465-4(28)127

APPROVED 2-1-66
CHIEF ENGINEER—INDIANA STATE HIGHWAY COMMISSION

INDIANA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS DATED 1963 TO BE USED WITH THESE PLANS.

REVISIONS	
DATE	SHEET NO.
10-14-66	1, 6, 7, 10, 16, 19, 23, 31, 34, 36;
	Added 33A; Deleted 26
11-2-66	10, 16, 22
1-30-67	1, 6, 7, 16, 20, 22; 27 Deleted

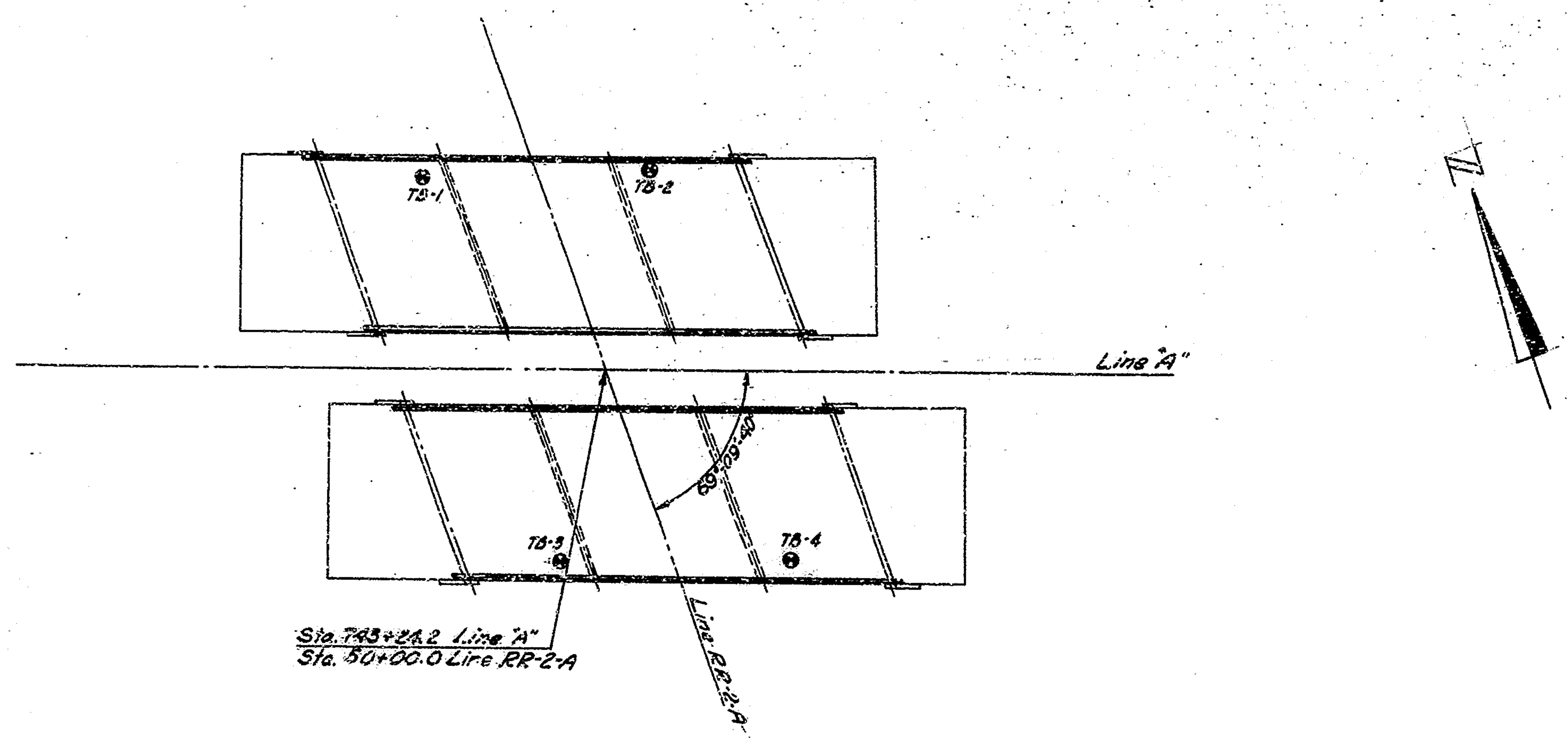
REVISIONS	
DATE	SHEET NO.
2-25-66	[illegible]
	37 Deleted
5/5/66	[illegible] 12, 18, 19, 22
5-20-66	22, 33

RECOMMENDED FOR APPROVAL 1-18-66
C. J. Klingelhoefer
ENGINEER OF PLANS AND SPECIFICATIONS INDIANA STATE HIGHWAY COMMISSION

CARL J. KLINGELHOEFER REGISTERED No. 2420 PROFESSIONAL ENGINEER

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED:-
[redacted] [redacted]
DIVISION ENGINEER DATE

BRIDGE FILE: I-465-129-2378



▲- Denotes Ground Water Table.

N- Denotes the number of blows required to drive a 1⅜" I.D., 2" O.D. split spoon sampler 6" by means of a 140# weight falling 30".

BORING NO.	TB-1	TB-2	TB-3	TB-4
STATION	49+24	49+47	50+50	50+75
OFFSET	35'-Rt.	35'-Lt.	55'-Rt.	35'-Lt.
GROUND ELEV.	806.6	804.2	804.3	804.0

Elevation scale: 810, 805, 800, 795, 790, 785, 780, 775, 770, 765, 760, 755

TB-1

SAMPLE NO.	ELEV.	N	DESCRIPTION
	806.6		Ground Elev.
1		7/6/9	Topsoil (fill), moist-stiff.
	805.6		
2	801.6	8/9/9	Brown sandy clay with some fine gravel, moist-stiff
3	797.6	3/6/4	Brown clayey fine to medium sand with some fine gravel, moist-loose.
4		5/7/10	Brown sandy clay with fine gravel, moist-stiff.
	792.6		
5		6/6/9	Gray sandy clay with fine gravel, moist to very moist-stiff to medium stiff.
6	784.6	5/6/7	
7	781.6	3/5/11	Gray sandy clay with fine gravel and fine sand lenses, very moist-medium stiff.
8		4/12/16	Brown and gray silty fine to coarse sand with fine gravel, wet-medium dense to dense
9	776.6	14/18/32	
10	767.1	17/30/43	Gray sandy clay with fine gravel, moist-hard
11	763.6	22/40/52	Brown and gray clayey fine to coarse sand and gravel, wet-very dense
12		18/32/46	Gray sandy clay with gravel, moist-very stiff
13	756.6	13/20/30	

Depth of Boring - 50'-0"

TB-2

SAMPLE NO.	ELEV.	N	DESCRIPTION
	804.2		Ground Elev.
1	803.2	3/6/8	Topsoil, moist-medium stiff
2			Brown sandy clay with some fine gravel, moist-stiff to very stiff.
3	799.2	4/7/8	
4		6/6/7	Brown sandy clay with fine gravel, moist-stiff.
	795.9		
5		7/8/8	Brown and gray sandy clay with fine gravel, moist-stiff.
	791.2		
6	789.2	4/5	Brown clayey fine to coarse sand with fine gravel, wet-loose.
7	785.7	8	Brown sandy clay with fine gravel, wet-stiff.
▲8		4/4/8	Gray sandy clay with fine gravel, wet-stiff.
9	777.8	9/6/8	
10	776.3	8/6/7/14	Brown and gray silty fine to coarse sand with fine gravel, wet-medium dense.

Depth of Boring - 30'-0"

TB-3

SAMPLE NO.	ELEV.	N	DESCRIPTION
	804.3		Ground Elev.
1	802.3	2/5/9	Topsoil, moist-stiff
2		5/9/10	Brown sandy clay with some fine gravel, moist-stiff to very stiff.
3	799.8	9/11/11	
4		2/6/9	Brown sandy clay with fine gravel, moist-stiff
5	791.8	3/9/12	
6		7/11/12	Gray sandy clay with fine gravel and some fine sand lenses, moist to very moist-stiff. ▲
7	781.8	6/4/5	
8		6/8/11	Brown and gray silty fine to coarse sand with fine gravel, wet-medium dense.
9	774.3	7/6/15	

Depth of Boring - 30'-0"

TB-4

SAMPLE NO.	ELEV.	N	DESCRIPTION
	804.0		Ground Elev.
1	803.0	3/4	Topsoil, moist-medium stiff
2		6	Brown sandy clay with some fine gravel, moist-stiff
3	799.0	6/7/5	
4		5/6/7	Brown sandy clay with fine gravel, very moist-stiff
5	791.0	6/5	
6	786.0	5/7	Brown clayey fine to coarse sand with fine gravel, wet-loose. ▲
7	782.0	5/6/8	Gray sandy clay with fine gravel, wet-stiff.
8	777.8	9/15/18	Gray silty fine sand, wet-dense
9	774.0	14/18	Brown and gray silty fine to coarse sand with fine gravel, wet-medium dense

Depth of Boring - 30'-0"

SOIL BORINGS

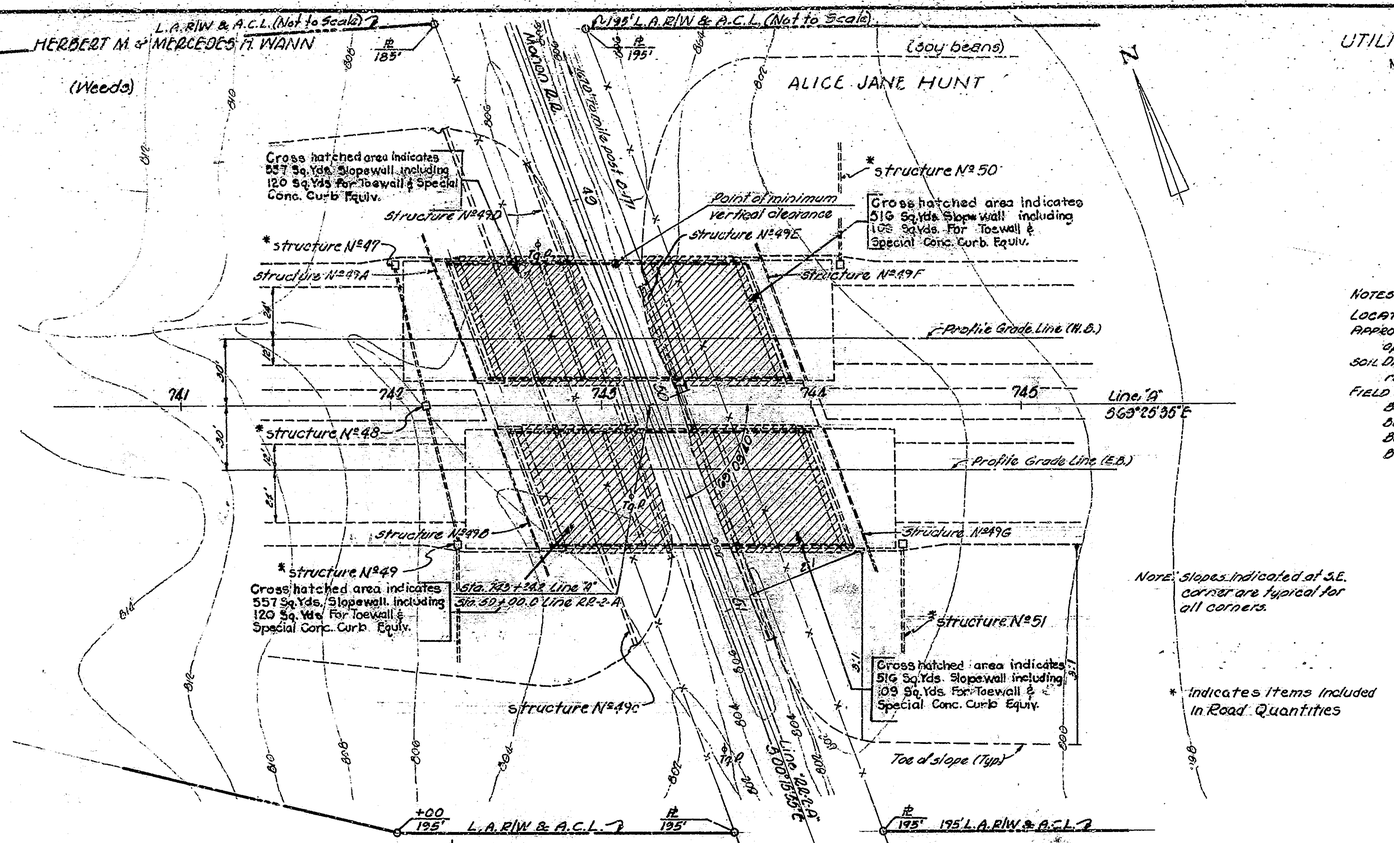
SCALES: HORIZ. 1" = 30'-0", VERT. 1" = 5'-0"
SUBMITTED FOR APPROVAL Tom L. [signature], P.E.
PROJECT I-465-4(156)129
BRIDGE CONTRACT NO. B-7284
BRIDGE FILE I-465-129-2378

November 6, 1961

BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (134)129	1965	6	37

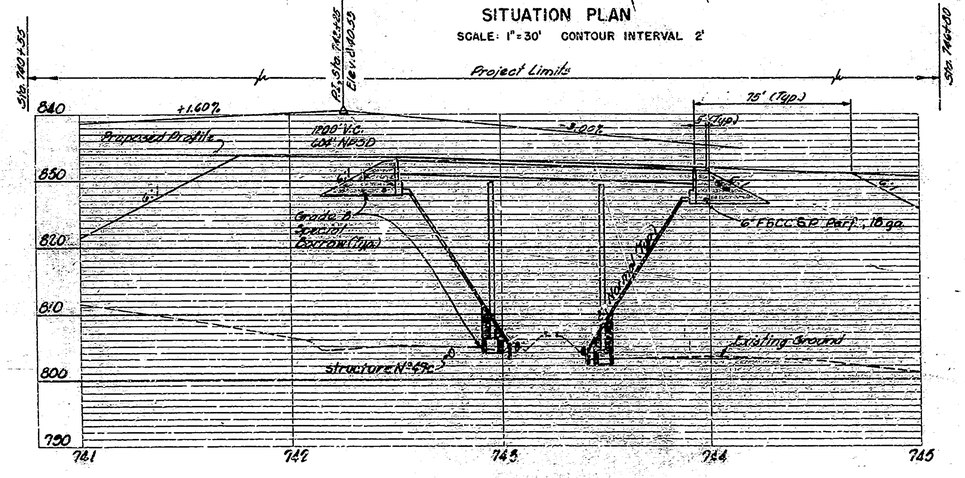
UTILITY OWNER

NONE



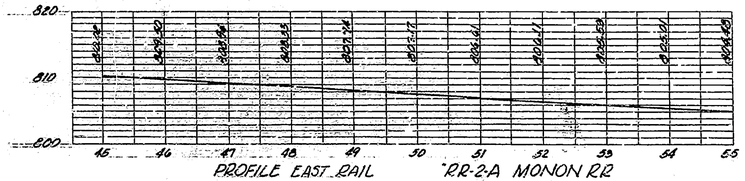
SITUATION PLAN

SCALE: 1" = 30' CONTOUR INTERVAL 2'



PROFILE ON SURVEY ℄ LINE "A"

SCALES: HORIZ. 1" = 30' VERT. 1" = 10'



PROFILE EAST RAIL "RR-2-A MONON RR

Scale: 1" = 100' Horiz.
1" = 10' Vert.

Note: Slopes indicated at S.E. corner are typical for all corners.

* indicates items included in Road Quantities

Earthwork Tabulation

Fill + 20%	92,313 cy.
Common Excavation	372 cy.
Surplus Excavation	414 cy.
Special Borrow	91,527 cy.

Notes

LOCATION: Section 12, Township 17 N, Range 3E, Clay Township, Hamilton County

APPROACH DATA: For bench marks, alignment references and additional approach details see sheet 13, Project I-465-4 (129) 127, Roadway Plans

SOIL DATA: For soil borings see sheet 5. See Article A203 of specifications regarding test pile data.

FIELD NOTES:
Book 8853T, page 19
Book 8854L, pages 23 thru 25
Book 8855T, pages 19 and 20
Book 8856L, page 30

LAYOUT

Twin Continuous Steel Beam Bridges
3 spans @ 44'-0", 55'-0", 44'-0"; 50'-6" Roadways, 9" Curbs
Skew - 20°-50'-30" Left.
Over Monon Railroad on Interstate Route 465

INDIANA STATE HIGHWAY COMMISSION

HAMILTON COUNTY

SCALE:- As noted June 26, 1965

SUBMITTED FOR APPROVAL: Tom L. McQuown R.E.

DRAWING: S-1 OF 16

PROJECT: I-465-4(134)129 (North Leg)

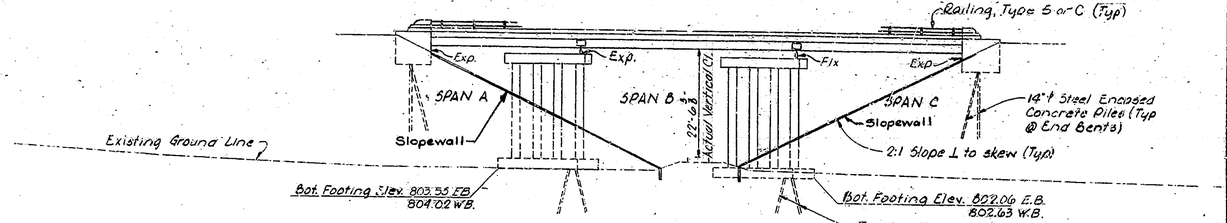
BRIDGE CONTRACT NO. B-7284 Sta. 749+23

BRIDGE FILE: I-465-129-2378 2 Spans @

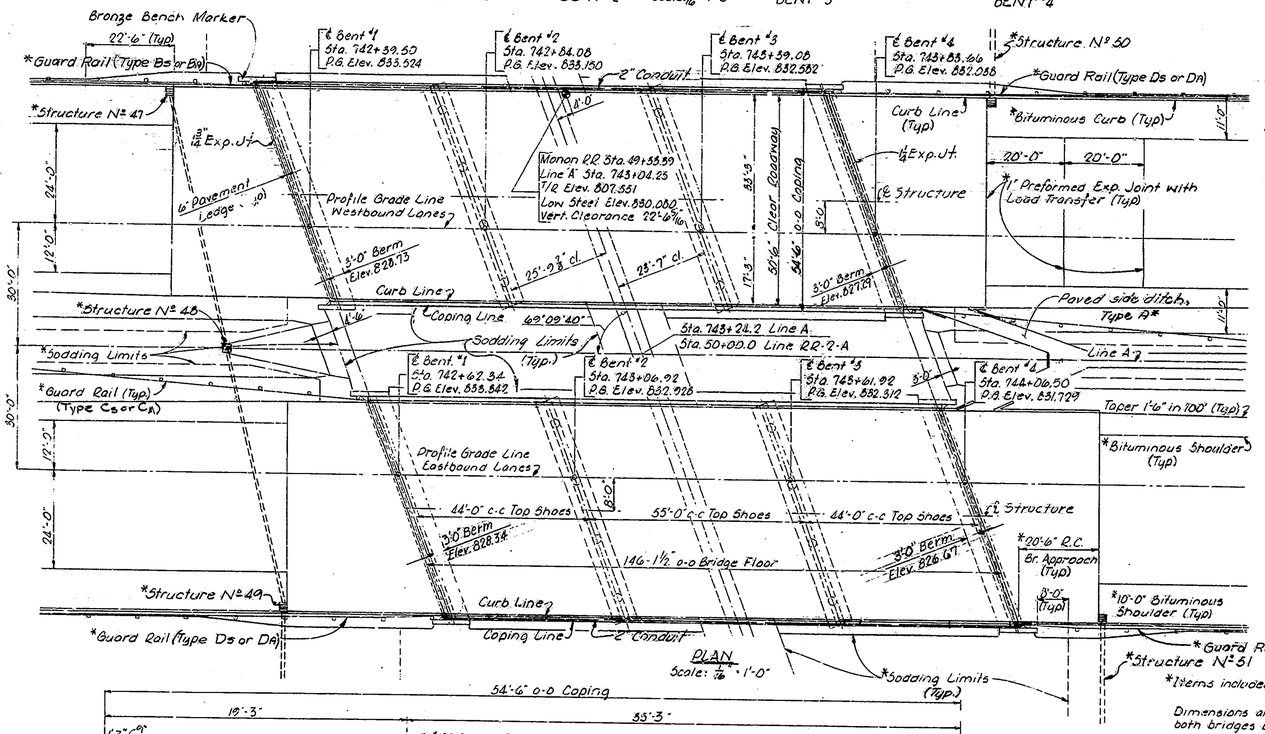
DESIGNED	RWG	CHKD	TLD
DRAWN	TWA	CHKD	TLD
TRACED		CHKD	

Rev. 1-30-67 R/W Shown
Rev. 10-14-66 Slopewall

Structure to be built to a 1200' V.C.



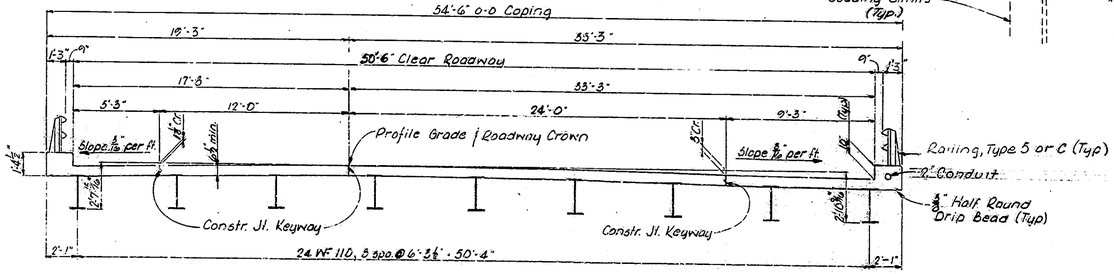
ELEVATION
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"

*Items included in Roadway Contract

Dimensions and details are typical for both bridges unless otherwise shown.



TYPICAL SECTION (Eastbound Lanes)
(Westbound Lanes same by 180° Rotation)
Scale: 1/4" = 1'-0"

The top of Bent caps Nos 1 & 4 shall be sealed with 2 coats of epoxy resin. See Special Provisions.

JOINT LEGEND
1/2" & 3/4" Exp. Joint same as 1" Exp. Jt. shown on Br. Std. C1 except width.

STANDARD DRAWINGS

Bridge	Purpose
C1	Bar bending, test bar samples, reinforcing bar notes, pile splicing, notch in slab at ends of beams, 1" Exp. Jt.
M1	Project limits, Paved Side Ditch
M3	R.C. bridge approach *
R1-C	Aluminum railing (Type S)
R1-E	Aluminum Railing Details
R2-A	Bridge Lighting Details
R1-F	Steel Railing (Type C)
S2	Grade B Special Borrow

Road	Purpose
MA	Miscellaneous Standards Pavement Offsets
MN	Miscellaneous Standards
MP	Miscellaneous Standards
MBZ	Slopewall
ME-1	Headwalls

* Not required in Bridge Contract

BRIDGES OVER 20' SPAN

PUB. ROAD ASSN. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (136)129	1965	7	37

GENERAL NOTES

PILES: Piles shall be driven to elevation necessary to obtain desired bearing.

EXISTING STRUCTURE: No present structure at proposed bridge site.
FOOTING DEPTH: Depth of footing to be extended if found necessary. See Article 601.3.2 (a) of specifications.
PILE CAPACITY AND LENGTH: Piles shall have minimum bearing value shown on detail drawings. Determine pile lengths by Articles 702.3 and 702.8 of specifications.
ENCASED CONCRETE PILES: For details of steel encased concrete piles, see Bridge Standard C-1, the Special Provisions, and applicable articles in the specifications.
REINFORCING STEEL COVERING: Reinforcing steel covering shall be 1½ inches minimum in top and 1" minimum in bottom of floor slabs, 3 inches in footings, except bottom steel which shall be 4 inches, 1½ inches for ties in beams and columns and 2 inches in all other parts unless noted.
SUPERSTRUCTURE CONCRETE: Concrete in superstructure, including railing, to be Class E.
END BENT CONCRETE: Concrete in end bents to be Class "E."
INTERIOR BENT CONCRETE: Concrete in footings to be Class "E." Concrete in columns to be Class "D." Concrete in caps to be Class "E."
MISCELLANEOUS CONCRETE: Concrete in steel-encased concrete piles, and headwalls to be Class "D." Concrete in integral curb to be Class "E." Concrete in slopewalls shall be Class "D."
CONCRETE POURS: Continuous concrete pours shall be required between construction joints as shown on detail plans.
WATERPROOFING: Waterproof backs of mudwalls and wingwalls on end bents in accordance with specifications.
CONCRETE CHAMFER: Bevel forms ¾ inch under copings and chamfer exposed edges 1 inch unless noted.
PILE TOLERANCE: Maximum tolerance in position of pile head is 2 inches for steel encased concrete piles and 1½ inch for treated timber piles.
EXPANSION JOINTS: Three 1 inch expansion joints with load transfer to be placed in the pavement as shown on Bridge Standard M3.
RAILINGS: All railing posts to be constructed perpendicular to grade.
SPECIAL PROVISIONS: See Special Provisions for items included in this contract.
DESIGN DATA: Designed for H 5-20-44 loading in accordance with 1965 AASHO Standard Specifications. Checked for a special loading consisting of 2-24,000 pound axles spaced 4'-0" apart.)
TYPICAL CROSS SECTION: For I-465 typical sections, see Sheet No. 4 Roadway Plans.
SHOP DRAWINGS: The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in conformity with the Engineer's drawings and specifications and shall submit 6 copies of these to the Engineer. See Article 1103.2 of the Specifications.
PAY ITEMS: For pay items covering this structure, see Bridge Summary
CONDUIT: Conduit shall extend 2.5 feet beyond end of bridge floor.

GENERAL PLAN

Twin Continuous Steel Beam Bridges
3 spans @ 44'-0", 55'-0", 44'-0", 50'-6" Roadways, 9° Curbs
Skew - 20°50'20" Left
Over Monon Railroad on Interstate Route 465

INDIANA STATE HIGHWAY COMMISSION

HAMILTON COUNTY

SCALE:- As shown — June 28, 1965

SUBMITTED FOR APPROVAL:- Tom L. Underwood, P.E.

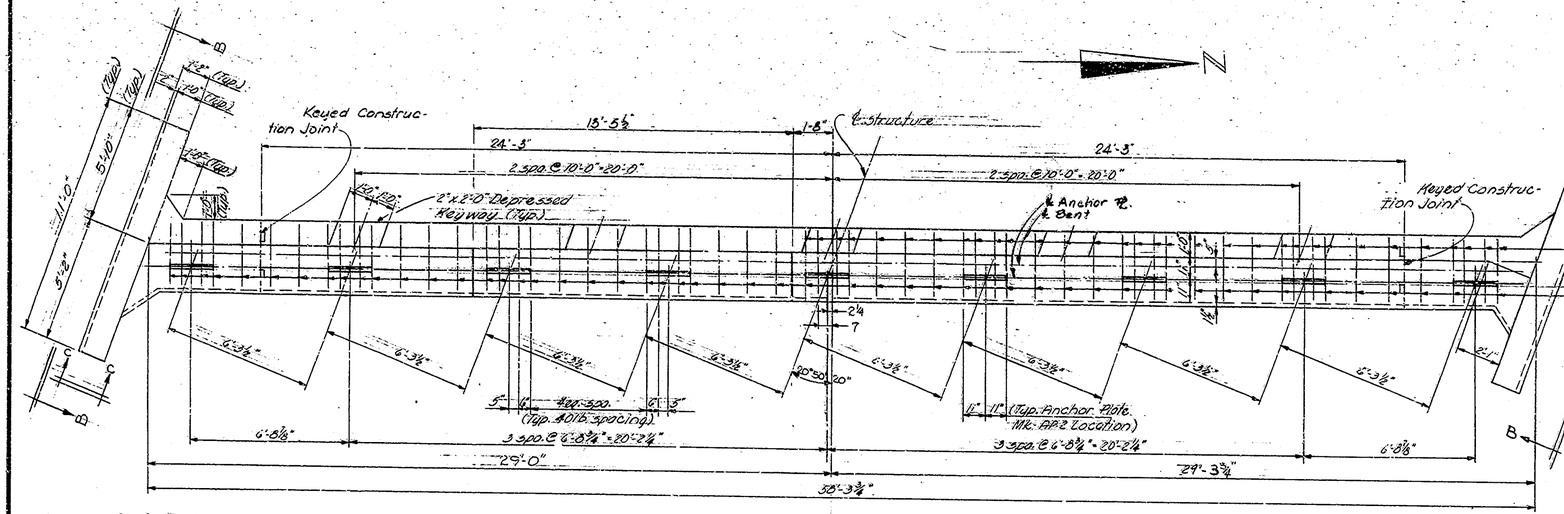
DRAWING:- 52 OF 116
PROJECT:- I-465-4(136) 129
BRIDGE CONTRACT NO. B-7284
BRIDGE FILE:- I-465-129-2378

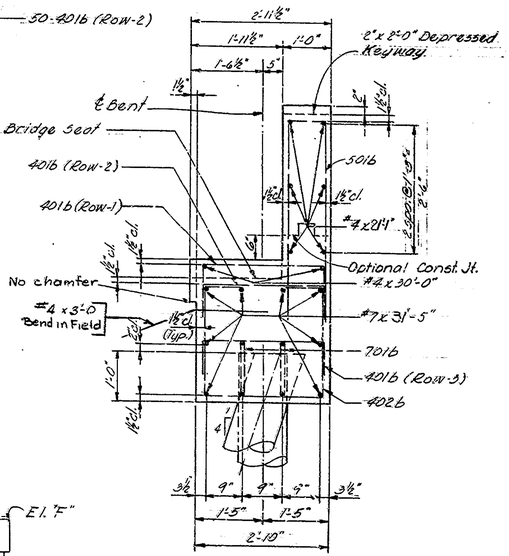
DESIGNED	PNG	C'K'D	GEA
DRAWN	CWC	C'K'D	GEA
TRACED		C'K'D	

Rev. 10-14-66 Guard Rail, Notes, Std. Drwgs.

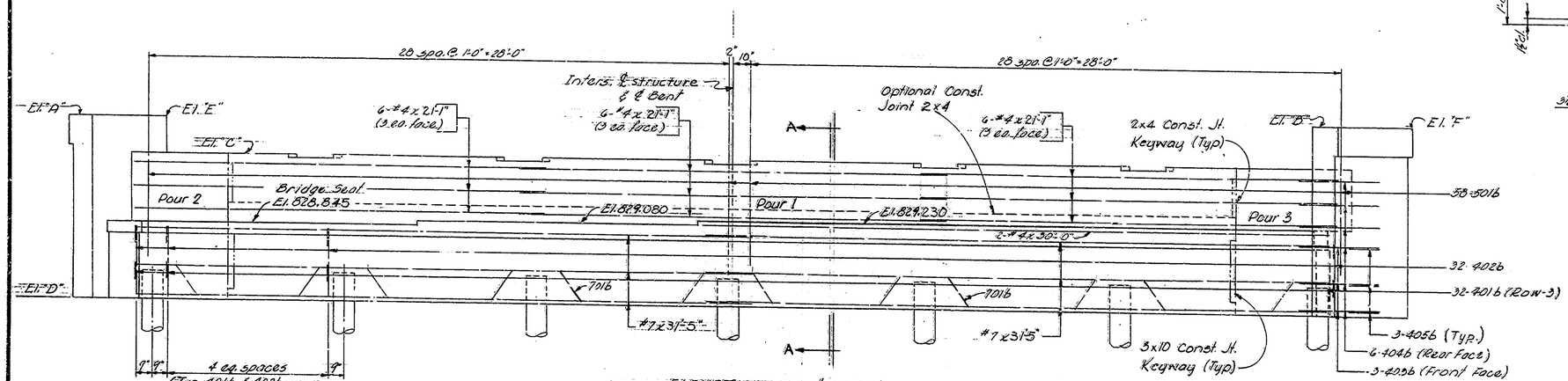
Rev. 1-30-67 Exp. Jts., Std. Drwgs., Notes
Rev. 5/16-66 Relay Dimension
Rev. 2-23-66 Exp. Jts. & Std. Drwgs.

BRIDGES OVER 20' SPAN					
PUB. ROAD SER. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (136)129	1965	8	37





SECTION A-A
Scale: ¾"=1'-0"



ELEVATION (Bent-1 E.B.L.)
Scale: ⅜"=1'-0"

TABLE OF ELEVATIONS

LOCATION	A	B	C	D	E	F	Berm
Bent-1 E.B.L.	833.62	834.02	832.00	826.34	833.71	834.11	828.34
Bent-2 E.B.L.	832.55	832.04	830.29	824.67	832.40	831.88	826.67
Bent-1 W.B.L.	834.09	834.05	832.40	826.73	834.17	834.10	828.73
Bent-2 W.B.L.	832.72	832.66	830.57	825.29	832.58	832.51	827.29

Notes:
GENERAL NOTES: See Drawing S 2 for General Notes
ADDITIONAL DETAILS: For additional notes and details, see Drawings S4 and S5

END BENT DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE:- as noted
June 28, 1965
SUBMITTED FOR APPROVAL:- Tom L. Underwood, P.E.
DRAWING:- S 3 OF 16
PROJECT:- I-465-4(136)129
BRIDGE CONTRACT NO. B-7284
BRIDGE FILE:- I-465-129-2378

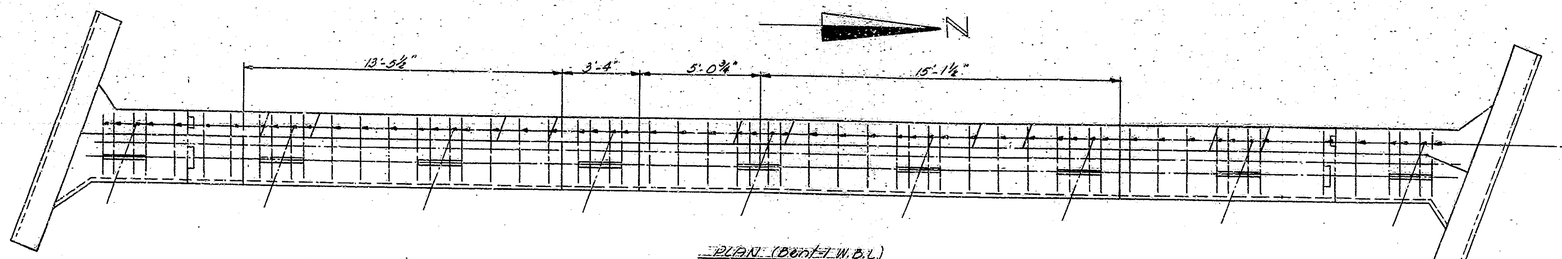
DESIGNED FWG CK'D GEA
DRAWN BMS CK'D GEA
TRACED CK'D

November 6, 1964

PROJECT NO.	CASE	SHEET NO.	TOTAL SHEETS	FILE
I-465-4(136)129	"A"	S	37	I-465-129-2378

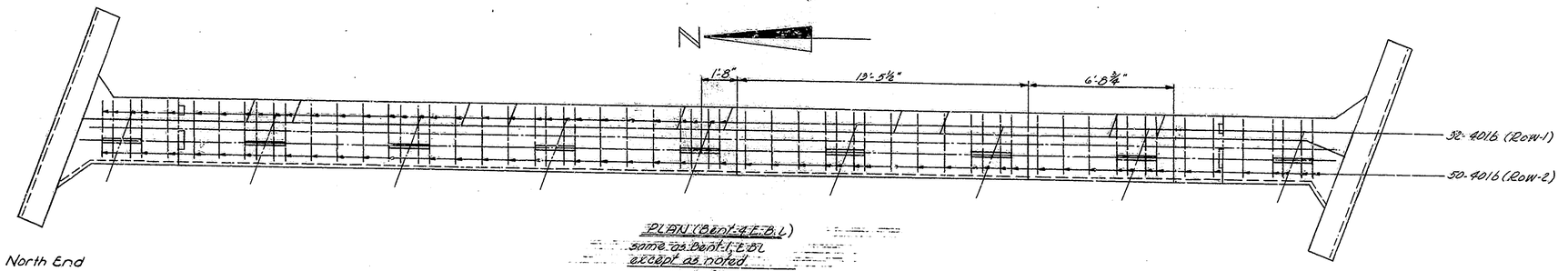
BRIDGES OVER 20' SPAN

FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4(130)129	1965	9	37



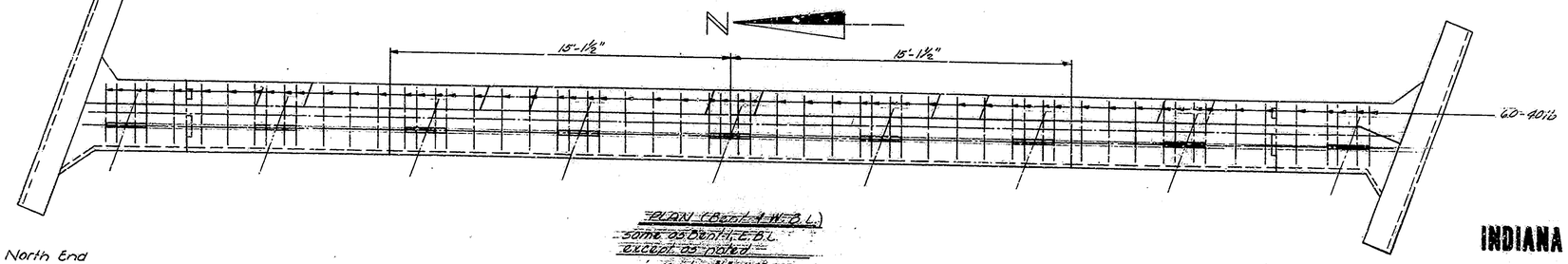
PLAN (Bent-1 W.B.L.)
same as Bent-1 E.B.L.
except as noted
Scale: 3/8"=1'-0"

SEAT ELEVATIONS (Bent-1 W.B.L.)

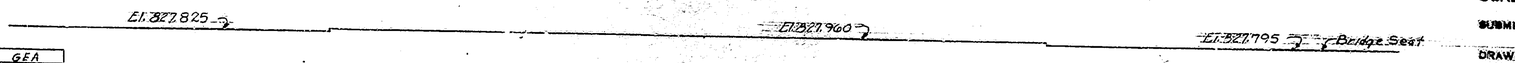


PLAN (Bent-4 E.B.L.)
same as Bent-1 E.B.L.
except as noted
Scale: 3/8"=1'-0"

SEAT ELEVATIONS (Bent-4 E.B.L.)



PLAN (Bent-4 W.B.L.)
same as Bent-1 E.B.L.
except as noted
Scale: 3/8"=1'-0"



SEAT ELEVATIONS (Bent-4 W.B.L.)

Notes:
GENERAL NOTES: See Drawing 52 for General Notes.
ADDITIONAL DETAILS: for additional notes and details, See Drawings 53 & 55

END BENT DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE: 3/8"=1'-0" June 28, 1965

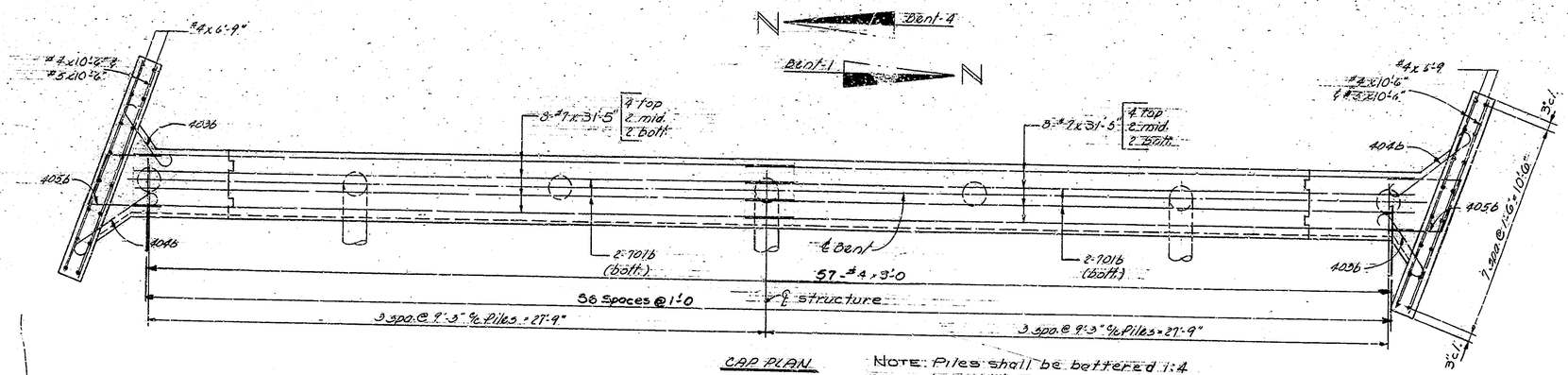
SUBMITTED FOR APPROVAL: Tom L. Underwood, P.E.

DESIGNED EWD C'K'D GEA
DRAWN EWD C'K'D GEA
TRACED C'K'D

DRAWING: 54 OF 104
PROJECT: I-465-4(130)129
BRIDGE CONTRACT NO. B-7284
BRIDGE FILE: I-465-129-2378

November 6, 1961

PROJECTING	LOAD	SHEET NO.	TOTAL SHEETS	YEAR
I-465-4(130)129	20	9	37	I-465-129-2378



CAP PLAN
Scale: 3/8" = 1'-0"

Bent-4

Bent-1

NOTE: Piles shall be battered 1:4 in direction shown

BENT CAP: Bent shall not be poured until after fill has been completed up to approximate elevation of bottom of cap.

PILES: 14"ϕ Steel Encased Concrete, 7 ga. piles to be driven to 40 tons minimum bearing capacity. Approximate pile length is 35 feet.

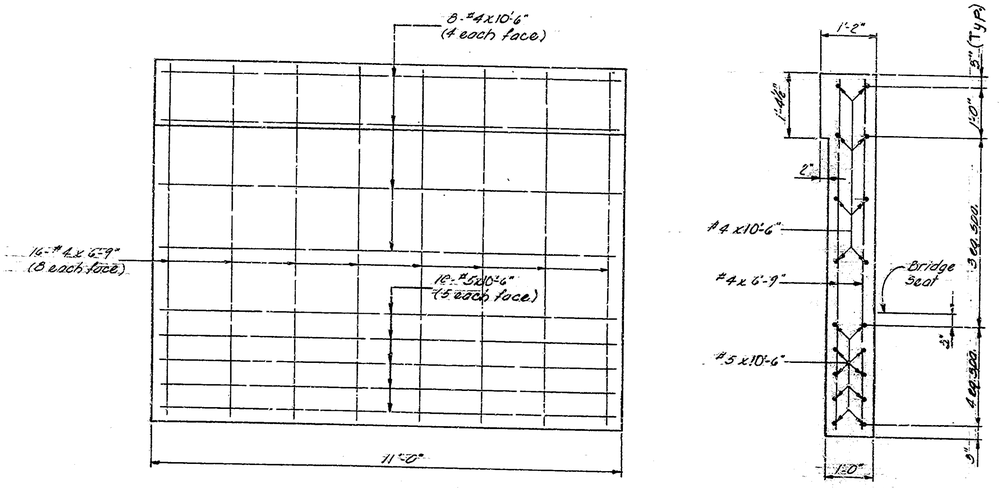
TOP OF MUDWALL: Top of mudwall and top of depressed keyways shall be troweled smooth. Cover horizontal surfaces with one layer of medium weight roofing felt and provide ½ inch expansion joint material along vertical sides of keyways.

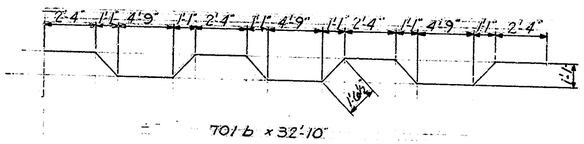
ANCHOR PLATES: Anchor plates Mk AP-2 to be pre-set in the concrete.

REINFORCING STEEL: For reinforcing bar notes, see Bridge Standard C1.

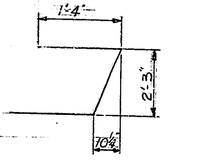
ADDITIONAL DETAILS: For additional details, see Drawings 33 & 34

GENERAL NOTES: See Drawing 32 for General Notes.

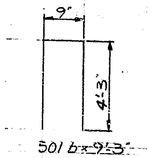




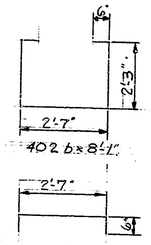
701 b x 32'-10"



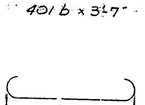
405 b x 5'-1"



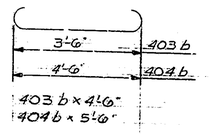
501 b x 9'-3"



402 b x 8'-1"



401 b x 3'-7"



403 b x 4'-6"
404 b x 5'-6"

BRIDGES OVER 20' SPAN

PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (136)129	1965	10	37

BILL OF MATERIALS
Bent 1 EB & Bent 4 EB
Same, Bents 1 & 4 W.B.
Same except as noted

REINFORCING STEEL

SIZE MARK	NO OF BARS	LENGTH	WEIGHT
701 b	4	32-10	208
#7	16	31-5	1027
		Total #7	1295
501 b	58	9-3	560
#5	20	10-6	219
		Total #5	779
451 b	114	3-7	273
402 b	32	8-1	173
403 b	9	4-6	27
404 b	9	5-6	33
405 b	6	5-1	20
#4	16	10-6	112
#4	32	6-9	144
#4	2	30-0	41
#4	18	21-1	255
#4	57	3-0	114
		Total #4	1190
		Total Steel	3265

BENT 1 WB or BENT 4 WB
Same as Bent 1 EB
except delete
2-#4 x 30-0 & 22-401 b x 3-7

Total #4	1096
Total Steel	3170

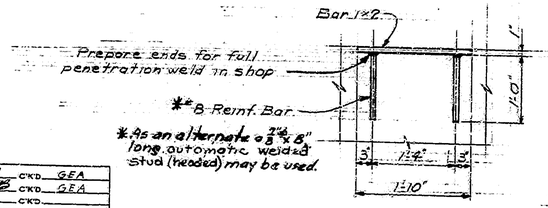
CLASS "E" CONCRETE

Pour # 1	19.5 Cu. Yds.
Pour # 2	5.5 Cu. Yds.
1 Pour # 3	5.3 Cu. Yds.
Total	29.9 Cu. Yds.

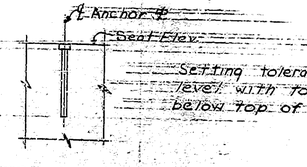
MISCELLANEOUS

Anchor Plates Mk AP-2	9 each
7-14"ϕ, 7 ga. Steel Encased Concrete Piles @ 35'	245 L.F.

VIEW B-B
Scale: 3/4" = 1'-0"



VIEW C-C
Scale: 3/4" = 1'-0"



ANCHOR PLATE MK AP-2 DETAIL
Scale 1" = 1'-0"

Rev. 10-14-66 Anchor # Bill of Matl.
Rev. 11-2-66 Notes
Rev. 2-23-66 Anchor #

November 6, 1961

DESIGNED FNG C'K'D GEA
DRAWN BHP C'K'D GEA
TRACED C'K'D

END BENT DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE:- as noted

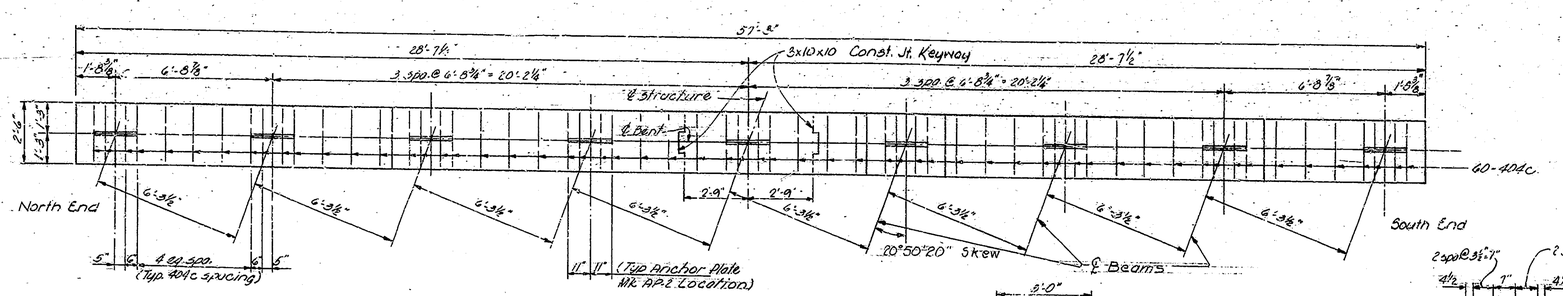
June. 28, 1965

SUBMITTED FOR APPROVAL:- Tom Ellenwood, P.E.

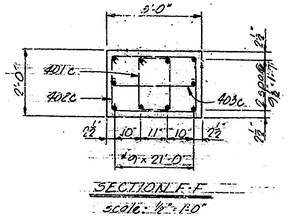
DRAWING:- 33 OF 10.
PROJECT:- I-465-4 (136)129
BRIDGE CONTRACT NO. B-7284
BRIDGE FILE:- I-465-129-2378

PROJECT NO.	LINE	SHEET NO.	TOTAL SHEETS	FILE
I-465-4(136)129	79	10	37	I-465-129-2378

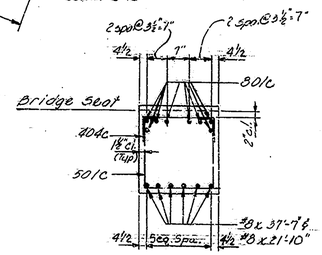
BRIDGES OVER 20' SPAN					
PUB. ROAD DES. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	F 465-4 (136) 129	1965	11	37



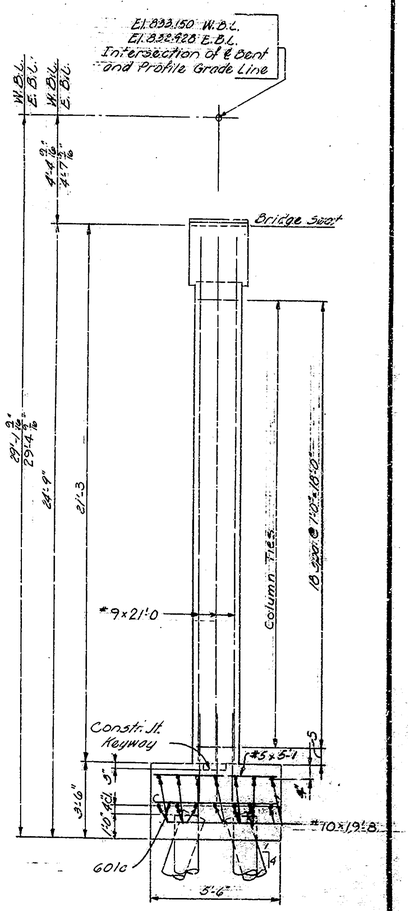
PLAN (W.B.L.)
scale: ⅜"=1'-0"



SECTION F-F
scale: ½"=1'-0"

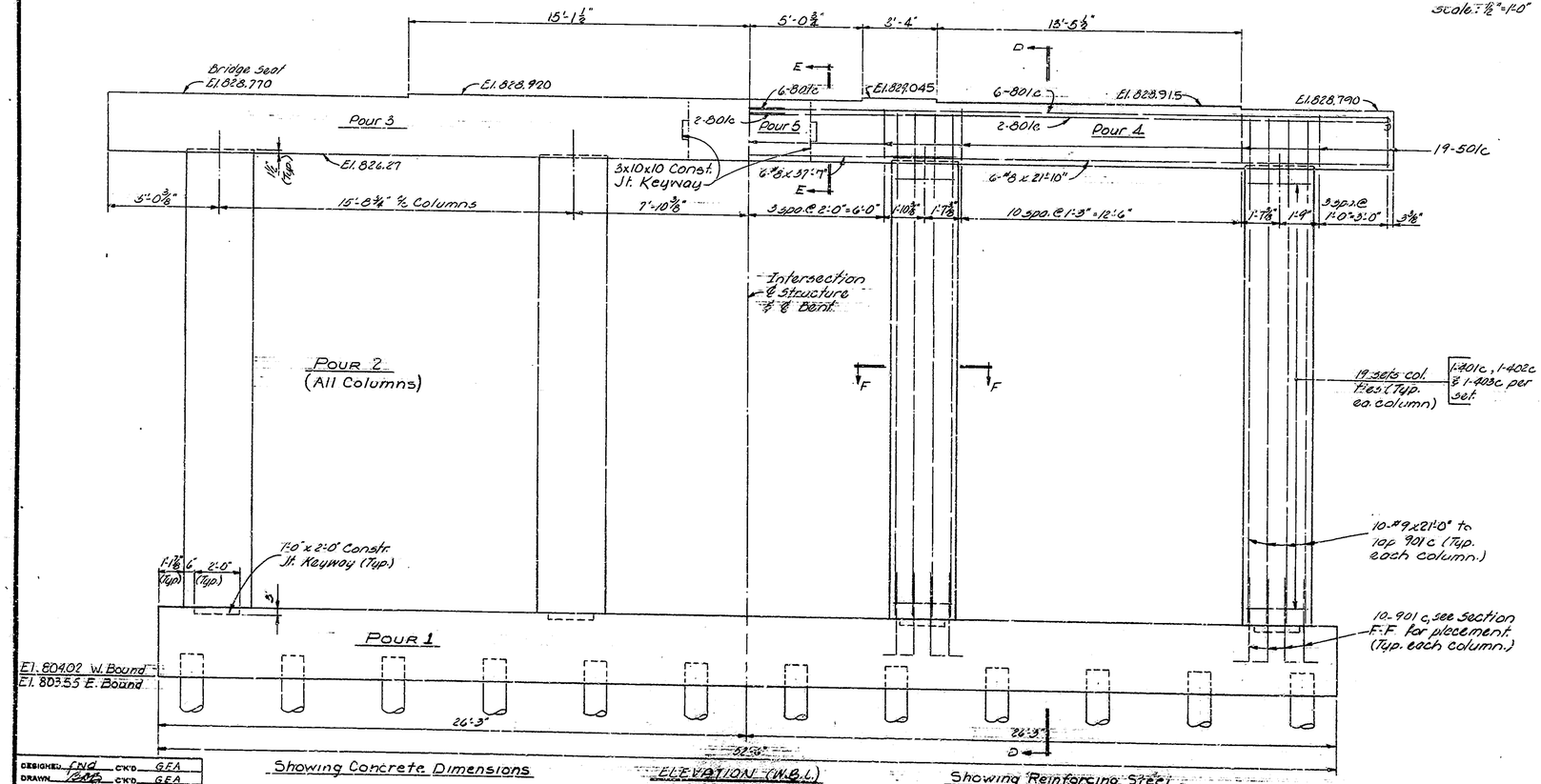


SECTION E-E
scale: ½"=1'-0"



SECTION D-D
scale: ⅜"=1'-0"

Note: For additional details see Drawing 3-7



ELEVATION (W.B.L.)
scale: ⅜"=1'-0"

Showing Concrete Dimensions

Showing Reinforcing Steel

DESIGNED: FND	CK'D. GEA		
DRAWN: [illegible]	CK'D. GEA		
TRACED	CK'D.		

Rev. 5-5-66 Fdg. Steel

November 9, 1961

BENT-2 DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE:- as noted — June 26, 1965

SUBMITTED FOR APPROVAL: [signature illegible], P.E.

DRAWING:- 5G OF 16

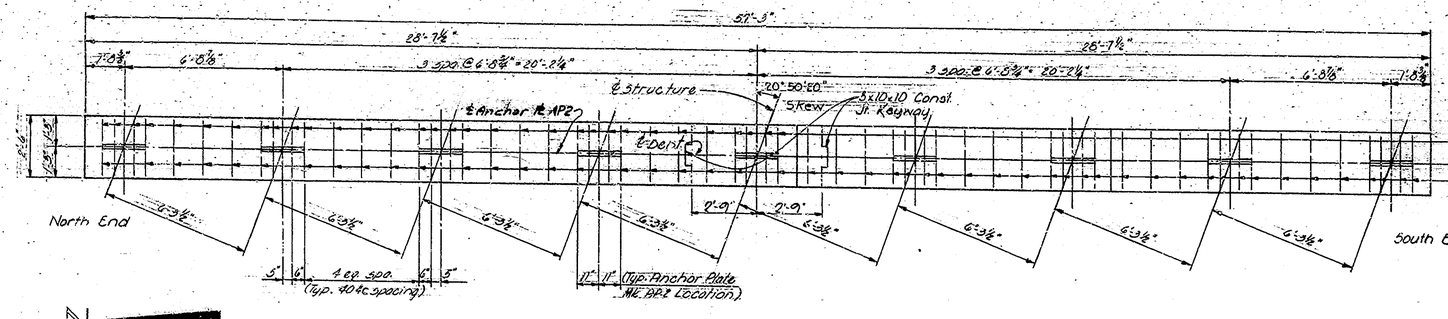
PROJECT:- F-465-4(136)129

BRIDGE CONTRACT NO. B-7284

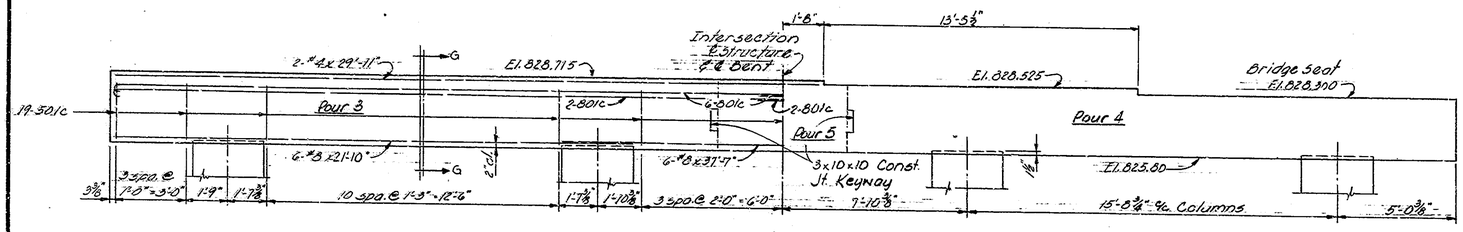
BRIDGE FILE:- I-465-129-2078

PROJECT NO.	LINE	SHEET NO.	TOTAL SHEETS	FILE
I-465-4(136)129	79	11	37	

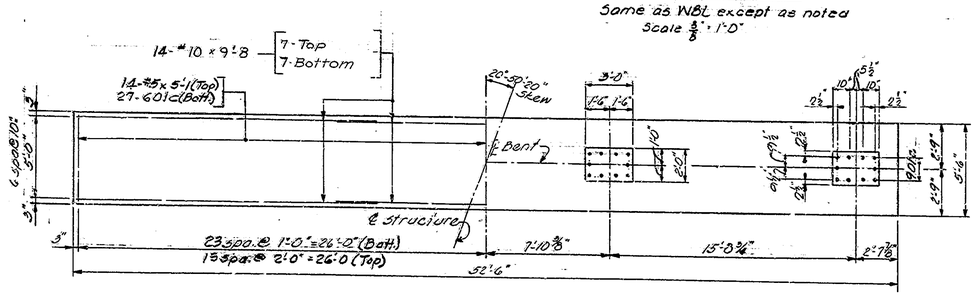
BRIDGES OVER 20' SPAN					
FHWA ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (136) 129	1965	12	37



PLAN (EBL)
Scale: ⅜" = 1'-0"



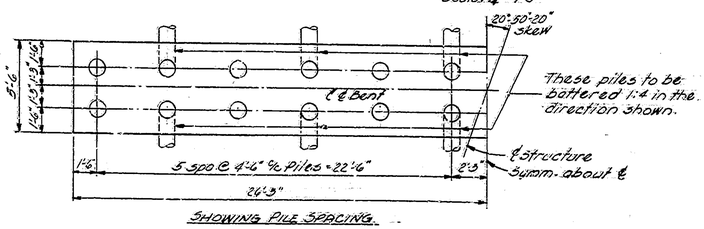
CAP ELEVATION (EBL)
Same as WBL except as noted
Scale ⅜" = 1'-0"



SHOWING REINFORCING STEEL

SHOWING NEAT LINES & REINF. EXTENDING INTO FTG.

FOOTING PLAN
Scale: ½" = 1'-0"



SHOWING PILE SPACING

HALF FOOTING PLAN
Scale: ¼" = 1'-0"

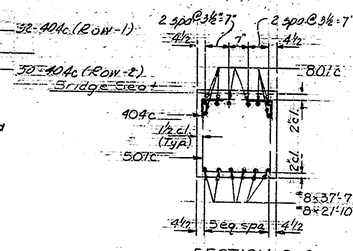
Piles: All piles shall be treated timber piles.

NOTES

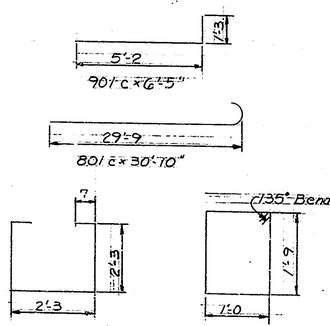
REINFORCING STEEL: For reinforcing bar notes see Bridge Standard C.

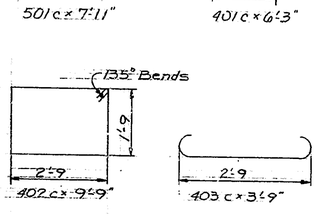
GENERAL NOTES: See Drawing 52 for General Notes.

PILES: Treated timber piles shall be driven to a minimum bearing capacity of 25 tons. Approximate pile length is 25 feet.



SECTION G-G
Scale ½" = 1'-0"





135° Bend for 401c & 402c.

BILL OF MATERIALS
Bent 2 WBL & Bent 2 EBL
same except as noted

REINFORCING STEEL

SIZE & MARK	No. OF BARS	LENGTH	WEIGHT
#10	42	19-8	3554
901c	40	6-5	873
#9	40	21-0	2856
		Total #9	3729
801c	16	30-10	1317
#8	6	37-7	602
#8	6	21-10	350
		Total #8	2269
601c	53	6-5	511
501c	37	7-11	306
#5	27	5-1	143
		Total #5	449
401c	76	6-3	317
402c	76	9-9	495
403c	76	3-9	190
404c	60	3-3	130
		Total #4	1132
		Total Steel	11644

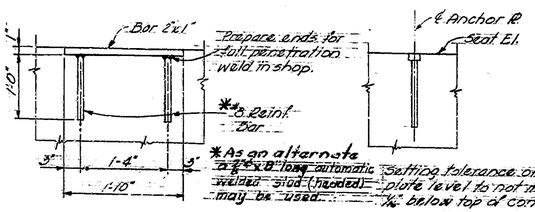
BENT 2 EBL	same as
BENT 2 WBL	except add
22-404c x 3-3 & 2-#4 x 29-11	
Total #4	1220
Total Steel	11,732

CONCRETE

Class "D" Columns	16.7 CYS.
Class "E" Footings	37.4 CYS.
Class "F" Cap	13.8 CYS.
Pour 3	6.2 CYS.
Pour 4	6.2 CYS.
Pour 5	1.4 CYS.
Total Class "F"	13.8 CYS.

MISCELLANEOUS

Anchor Plate MK-AP-2	9 each
24-Treated Timber Piles @ 25'	600 L.F.



*As an alternate a 2"x2"x ¼" automatic welded steel (headed) may be used. Setting tolerance of anchor plate level to not more than ½" below top of concrete.

ANCHOR PLATE MK-AP2 DETAILS
Scale: 1" = 1'-0"

NOTE: Anchor plates to be pre-set in concrete.

Rev. 5-5-66 Ftg. Steel
Rev. 2-23-66 Anchor Pt.

BENT-2 DETAILS.

INDIANA STATE HIGHWAY COMMISSION

SCALE:- as noted — June 28, 1965

SUBMITTED FOR APPROVAL: Tom Rothermund, P.E.

DRAWING 51 OF 106

PROJECT:- I-465-4(136)129

BRIDGE CONTRACT NO. B-7284

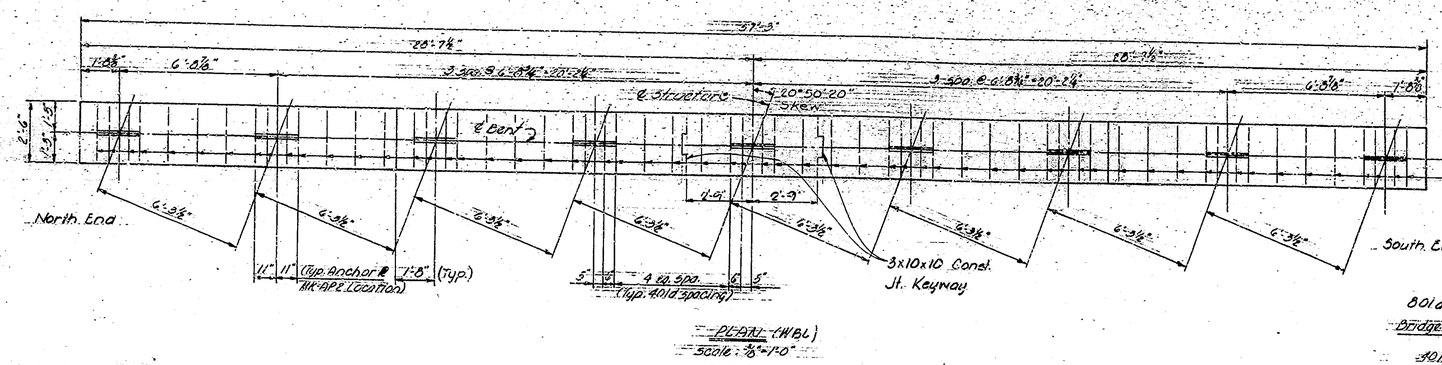
BRIDGE FILE:- I-465-129-2378

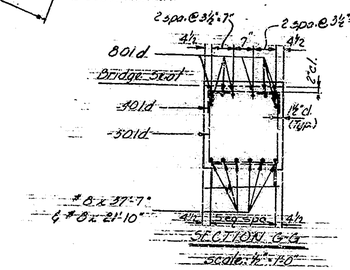
DESIGNED	FND	C'K'D	GEA
DRAWN	RDB	C'K'D	GEA
TRACED		C'K'D	

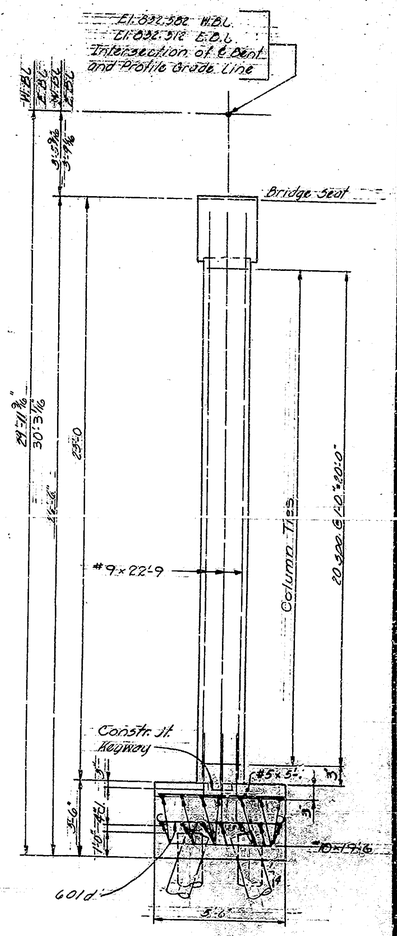
November 5, 1965

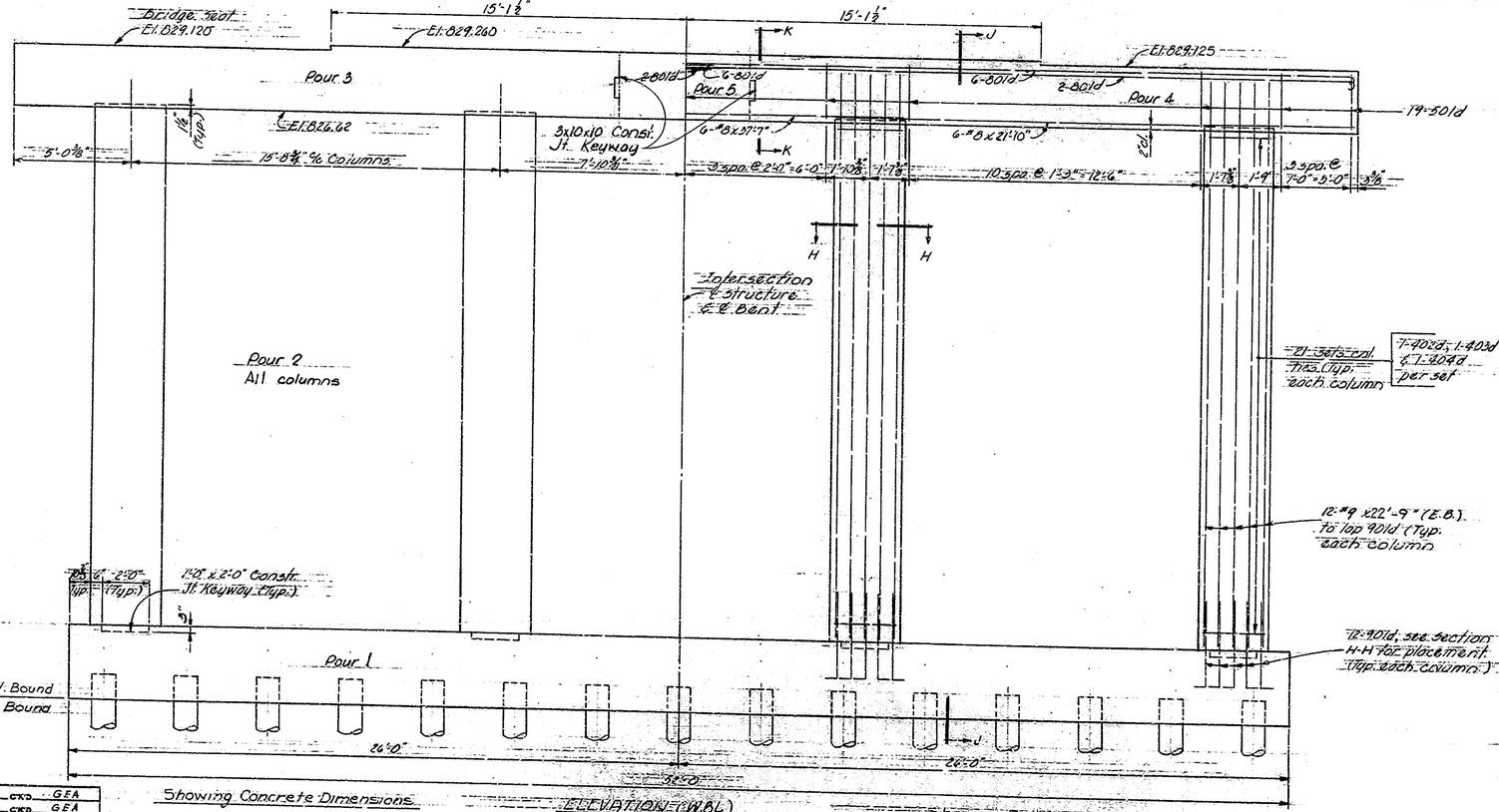
PROJECT NO.	LINE	SHEET NO.	TOTAL SHEETS	FILE
I-465-4(136)129	"A"	12	37	I-465-129-2378

BRIDGES OVER 20' SPAN					
FED. ROAD CLASS.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	F-145-4 (136) 129	1965	13	37









Showing Concrete Dimensions — ELEVATION (WBL) Scale: ½"=1'-0" — Showing Reinforcing Steel

Rev. 5-8-66 F.Hs. Steel

Note: For additional details see Drawing S-9

BENT 3 DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE: as noted — June 28, 1965

SUBMITTED FOR APPROVAL: [signature], PE

DRAWING: 58 OF 16

PROJECT: F-145-4 (136) 129

BRIDGE CONTRACT NO. B-7284

BRIDGE FILE: 145-M-13E

DESIGNED: FHD C'K'D. GEA

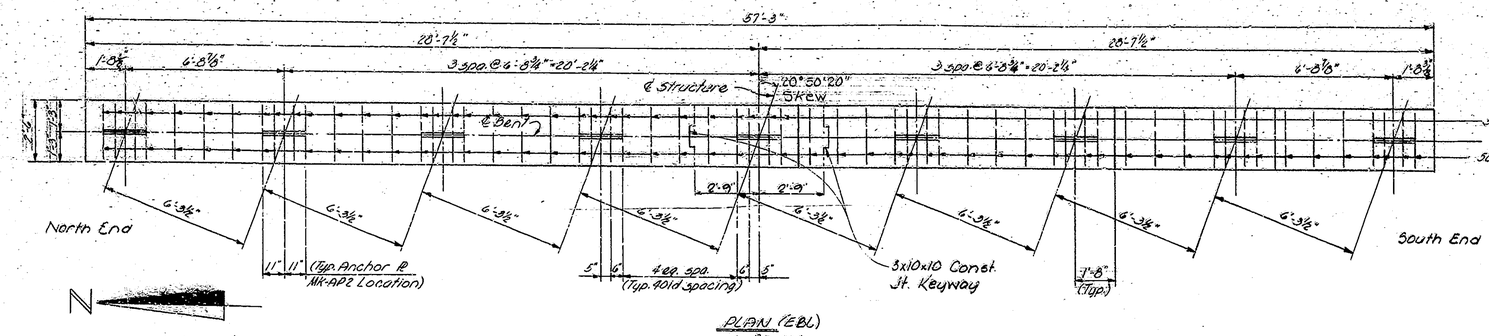
DRAWN: [illegible] C'K'D. GEA

TRACED: C'K'D.

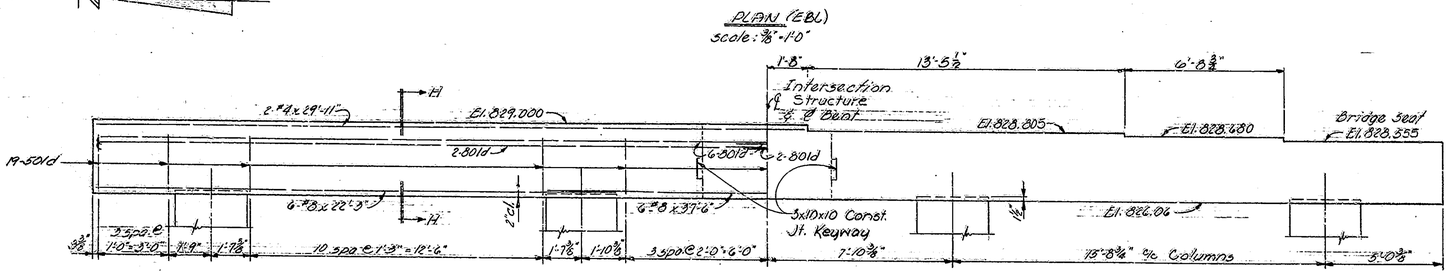
November 6, 1961

PROJECT NO.	LINE				
145-4	9	25	37	45	1

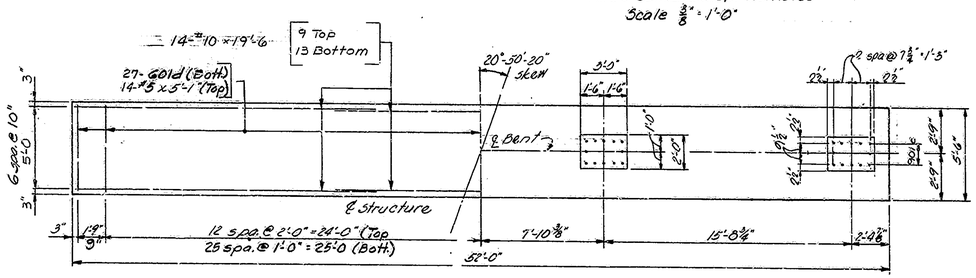
BRIDGES OVER 20' SPAN					
FUR. ROAD SYS. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	F-465-4 (136) 129	1965	14	37



PLAN (EBL)
Scale: ⅜" = 1'-0"



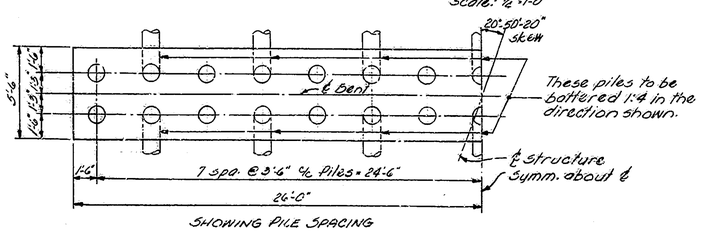
CAP ELEVATION (EBL)
WBL same except as noted
Scale ⅜" = 1'-0"



SHOWING REINFORCING STEEL

SHOWING NEAT LINES & RELNF EXTENDING INTO FTG.

FOOTING PLAN
Scale: ½" = 1'-0"



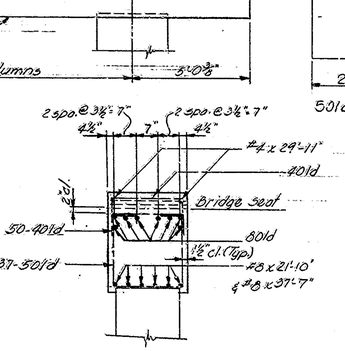
These piles to be battered 1:4 in the direction shown.

SHOWING PILE SPACING

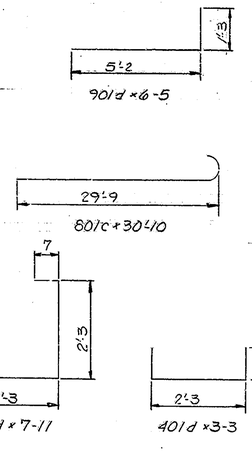
HALF FOOTING PLAN
Scale: ¼" = 1'-0"

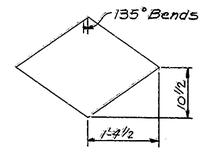
Piles: All piles shall be treated timber piles.

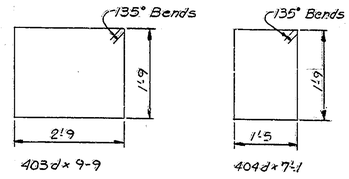
SECTION H-H
Scale: ½" = 1'-0"



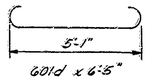
SECTION K-K
Scale: ½" = 1'-0"







See Drawing S7 for detail of 135° Bend



BILL OF MATERIAL
Bent 3 WBL & Bent 3 EBL same except as noted

REINFORCING STEEL

SIZE & MARK	Nº OF BARS	LENGTH	WEIGHT
#10	42	19-6	3524
901d	48	6-5	1047
#9	48	22-9	3713
		Total #9	4760
801d	16	30-10	1317
#8	6	37-7	602
#8	6	21-10	350
		Total #8	2269
601d	58	6-5	511
501d	37	7-11	306
#5	27	5-1	143
		Total #5	449
401d	60	3-3	130
402d	84	7-3	407
403d	84	9-9	547
404d	84	7-1	397
		Total #4	1481
	Total Steel		12,994

Bent 3 EBL	same as
Bent 3 WBL	except add
22-401d x 3-3 & 2-#4 x 29-11	
Total #4	1569
Total Steel	13,082

CONCRETE	
Class "D" Columns	18.2 Cys.
Class "E" Footings	37.0 Cys.
Class "F" Cap	
Pour 3	6.2 CYS
Pour 4	6.2 CYS
Pour 5	1.4 CYS
Total Class "F"	13.8 CYS

MISCELLANEOUS	
Anchor Plate MK-AP-2	9 each
80-Treated Timber Piles @ 25'	750 L.F.

NOTES

ANCHOR PLATES: For Anchor Plate details see Drawing S 7

REINFORCING STEEL: For reinforcing bar notes see Bridge Standard C1.

GENERAL NOTES: See Drawing S 2 for General Notes.

PILES: Treated timber piles shall be driven to a minimum bearing capacity of 25 tons. Approximate pile length 15.25 feet.

Rev. 5-5-66 Fty. Steel

DESIGNED FWO CK'D GEA
DRAWN [illegible] CK'D G.E.h.
TRACED CK'D

BENT-3 DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE:- as noted June 20, 1965

SUBMITTED FOR APPROVAL: [signature] P.E.

DRAWING S 9 OF 16

PROJECT: F-465-4 (136) 129

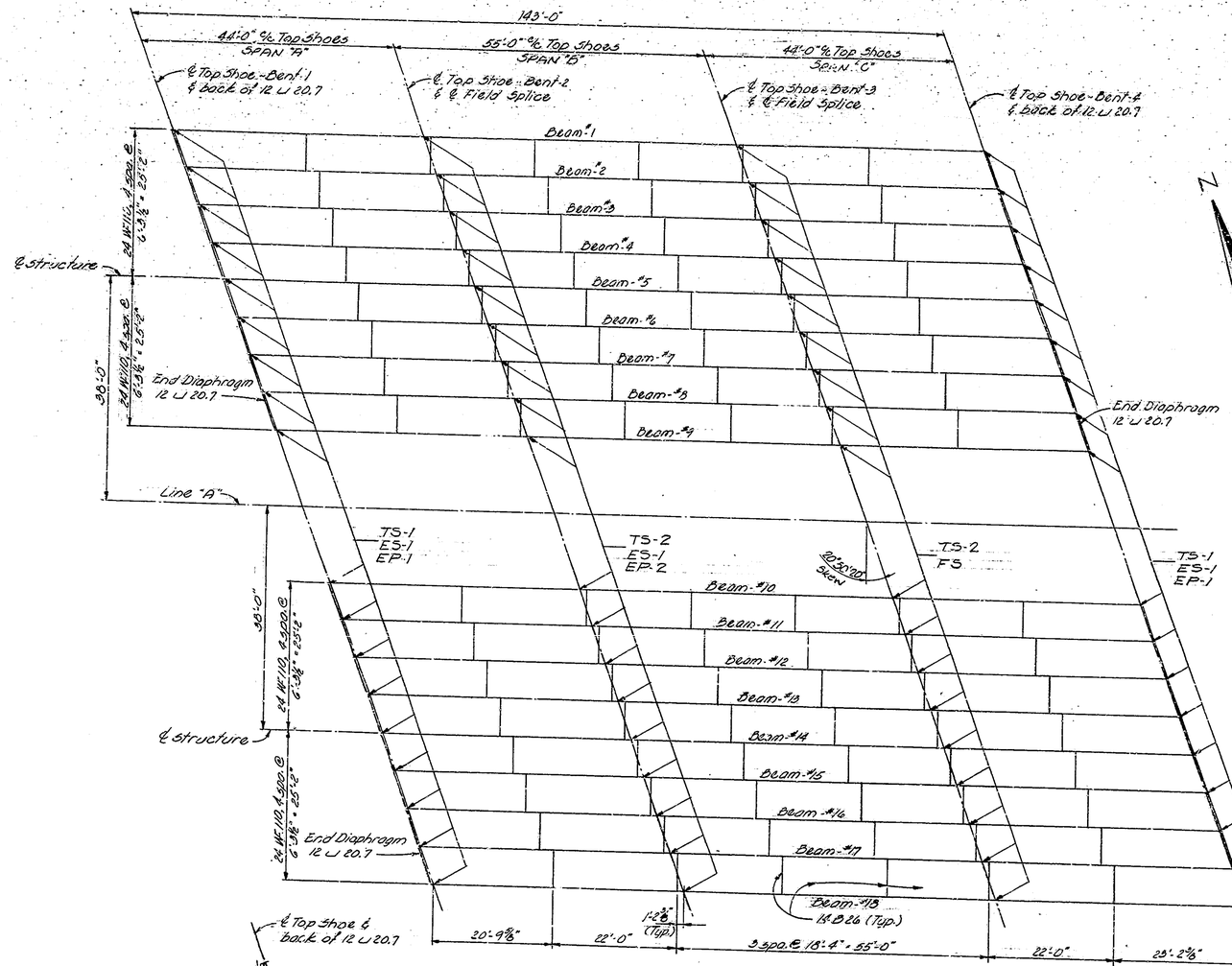
BRIDGE CONTRACT NO. B-7284

BRIDGE FILE: F-465-(2)-1939

November 6, 1961

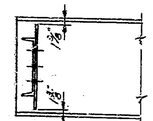
PROJECT NO.	LINE	SHEET NO.	TOTAL SHEETS	FILE
F-465-4(136)129	"D"	14	37	F-465-(2)-1939

BRIDGES OVER 20' SPAN					
PUB. ROAD SYST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	F-145-4 (136)129	1965	15	37

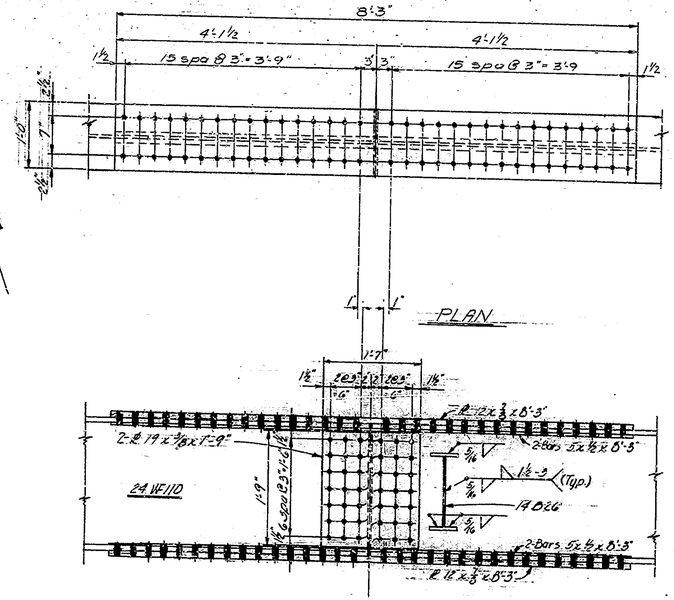


FRAMING PLAN
scale: ⅛" = 1'-0"

PLAN



ELEVATION
END DIAPHRAM DETAIL
scale: ¾" = 1'-0"



PLAN

SPLICE DETAILS
scale: 1" = 1'-0"

NOTES

HOLES FOR BEAM SPLICES: Holes for beam splices shall be subpunched or subdrilled and reamed to size while assembled. See Article E1103.18(d) of the Specifications.

FLANGE SPLICE BARS: Flange splice bars shall have planed or rolled edges and holes in bars shall be subdrilled and reamed or drilled full size while assembled.

GENERAL NOTES: See Drawing E-311 for Superstructure General Notes.

TABLE OF SHIMS (inches)

Beam	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	#17	#18
Bent-1	0	1/16	0	1/16	1/16	0	1/16	1/16	1/16	0	1/16	1/16	1/16	1/16	1/16	0	1/16	0
Bent-2	0	1/16	0	1/16	1/16	0	1/16	1/16	1/16	0	1/16	1/16	1/16	1/16	1/16	0	1/16	0
Bent-3	0	1/16	0	1/16	1/16	1/16	1/16	1/16	0	1/16	1/16	1/16	1/16	1/16	1/16	0	0	0
Bent-4	0	1/16	0	1/16	1/16	1/16	1/16	0	1/16	1/16	1/16	1/16	1/16	1/16	1/16	0	0	0

DESIGNED End C'K'D. GEA
DRAWN Tabb C'K'D. GEA
TRACED C'K'D.

November 6, 1961

FRAMING PLAN
INDIANA STATE HIGHWAY COMMISSION

SCALE:- as noted June 26, 1965

SUBMITTED FOR APPROVAL:- [signature], P.E.

DRAWING:- 5 OF 16
PROJECT:- F-145-4 (136) 129
BRIDGE CONTRACT NO. B-7284
BRIDGE FILE:- F-145-129-2878

PROJECT NO.	LINE	SHEET NO.	TOTAL SHEETS	FILE

BRIDGES OVER 20' SPAN					
FED. ROAD REF. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	3465-4 (136)129	1965	16	39

SUPERSTRUCTURE GENERAL NOTES

STRUCTURAL STEEL: All structural steel shall conform to ASTM A36.

High Strength Bolts shall be ¾ inch diameter and holes 13/16 inch diameter, unless noted.

TOP SHOE CONNECTION: Diameter of holes in all material connecting top shoes to beam flanges shall be ⅛ inch larger than the diameter of the at the bolts.
Bolts connecting beam flange to top shoe shall extend into top shoe a minimum of 1 inch.

REAMING: The Shop Plans shall indicate whether reaming or drilling is to be done in shop or field. If shop reaming or drilling is used, the beams may be reamed with webs either in a horizontal or vertical position. If the beams are reamed with the webs vertical, they shall be supported relative to their final erection position. If they are reamed with the webs horizontal, a minimum of one line of beams shall be shop assembled with webs vertical and inspected for fit.

SHOP DETAILS: The shop details shall show a plan of match-marking for all reamed pieces.

SPLICE PLATES: All splice plates to be removed, cleaned and painted after reaming. Splice plates shall not extend beyond the end of beam after bolting for shipment.

CAMBER: Beams in Span B are to be cambered to a smooth curve. Camber must be checked while beams are supported in such a way as to have no bending moment in direction of camber. Beams in Spans A & C are to be straight within a tolerance of 3/8 inch at center. If camber exists, layout beams with camber up. Beams shall be checked for camber while supported in such a way as to have no bending moment in the direction of camber.

SHIMS: Shims between beams and top shoes may be built up. No shim shall be less than ⅛ inch in thickness.

ERECTION MARKS: Eastbound and Westbound structures shall have separate erection marks.

PAINTING: All paint shall be in accordance with current State Highway Specifications.
Shop Paint, Field Paint } Basic Lead Silico Chromate. (See Special Provisions)
As soon as the Engineer has approved the field welds, all welds and any surface from which the shop coat has been omitted or becomes worn off or has otherwise become defective shall be thoroughly cleaned of all charred paint or any foreign matter and completely covered with one coat of shop paint.

FLAME CUTTING: Structural carbon steel may be flame cut if the flame cutting equipment is mechanically guided. Hand flame cutting shall be used only when approved, and the surface is further treated by milling, grinding or chipping and grinding.

WELDING: All welding shall conform to the current AWS Specifications for Welded Highway and Railway Bridges unless otherwise noted.

NOTE:
Rivets shall not be used in the assembly of Structural Steel.

*STRUCTURAL STEEL: Estimated weight of structural steel ASTM-A36, 354,000 pounds.
*The weight of High Strength Bolts is not included in the estimated weight of Structural Steel. The cost of these bolts shall be included in the cost of Structural Steel.

GENERAL NOTES: See Drawing S 2 for General Notes.

DATA USED FOR DESIGN and DETAILS

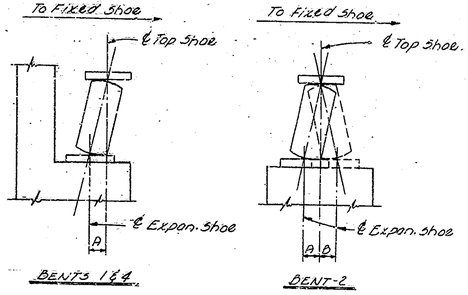
LIVE LOAD: H S 20-44 loading with impact and distribution of loads in accordance with 1965 AASHO specifications. Checked for special loading consisting of 2-24,000 pound axles spaced 4'-0" apart.

DEAD LOAD: Actual weight plus 35 pounds per square foot of roadway to provide for future wearing surface.

SLAB: Designed for 16,000 pound wheel plus impact and with 1/2 " monolithic wearing surface.

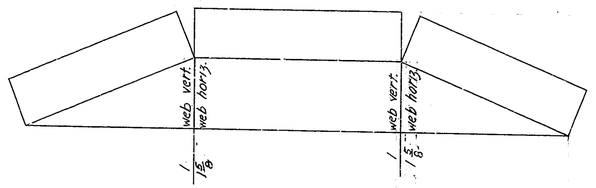
UNIT STRESSES (Structural Steel)

Bending; Tension or Compression A36	20,000 #/sq.in.
Shear in Fillet Welds A36	12,000 #/sq.in.
Shear on High Strength Bolts (Friction Type)	13,500 #/sq.in.
Structural Steel Bearing	22,000 #/sq.in.
Bearing Steel on Concrete (Including Overturning and Eccentric Loading)	1,500 #/sq.in.
Reinforcing Steel (Tension)	20,000 #/sq.in.
Concrete (Compression)	1,200 #/sq.in.



BENTS 1 & 4 — BENT-2

SHOE SETTING DETAILS
No Scale



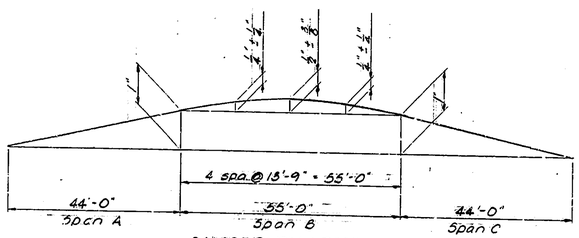
BLOCKING DIAGRAM

TABLE OF SHOE SETTINGS AT BENTS 1 & 4 (inches)								
Temperature		0°	20°	40°	60°	80°	100°	120°
Bent-1	Dim. "A"	15/16	11/16	3/8	1/2	3/8	3/16	1/16
Bent-4	Dim. "A"	1 1/16	5/8	1/16	1/2	7/16	3/8	5/16

TABLE OF SHOE SETTINGS AT BENT 2 (inches)							
Temperature	0°	20°	40°	60°	80°	100°	120°
Dim. "A"	1/4	3/16	1/16	0			
Dim. "B"				0	1/16	3/16	1/4

DIAPHRAGM CONNECTIONS: Diaphragm connections to beams may be bolted in lieu of field welded connections. If the Contractor elects to use connections other than those shown on the contract plans he shall submit details to the Engineer for approval. The Contractor shall assume full responsibility for layout of all diaphragm connections and for the accuracy of all fitted parts. No increase in pay weight will be permitted.

The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect, and construct all parts of the work in conformity with the Engineer's drawings and specifications and shall submit 6 copies of these to the Engineer. See Article E 1103.2 of the Specifications.



CAMBER DIAGRAM

TABLE OF MOMENTS and REACTIONS										
	Max. Pos. Mom. @ 0.44 Pt. Spans A & C, kip ft.		Max. Pos. Mom. @ 0.50 Pt. Span B, kip ft.		Max. Neg. Mom. @ Bents 249 kip ft.		Reaction @ Bents 178 kips		Reaction @ Bents 289 kips	
	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam
Dead Load	119.9	149.4	134.9	158.9	196.8	246.2	13.2	17.1	45.2	35.1
Live Load	239.8	256.7	261.9	230.8	213.4	210.8	56.2	24.3	42.8	31.8
Impact	71.0	70.1	67.9	64.4	47.4	47.0	10.5	7.2	11.3	8.0
Total	430.7	450.2	464.1	453.5	458.0	504.0	58.9	48.6	99.3	74.9

Rev. 1-30-67 Notes, Design Data.
Rev. 11-7-66 Paint Note
Rev. 10-14-66 Allowable shear on rivets, Notes

DESIGNED FWO C'K'D GEA
DRAWN BBE C'K'D GEA
TRACED C'K'D

November 6, 1961

SUPERSTRUCTURE DETAILS
INDIANA STATE HIGHWAY COMMISSION

SCALE:- None — June 28, 1965

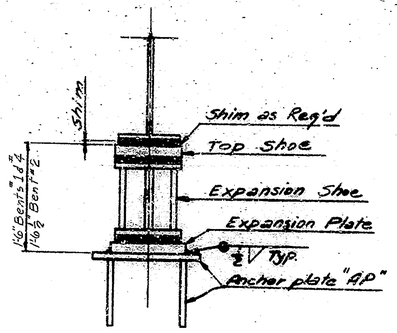
SUBMITTED FOR APPROVAL:- Tom L. Wilson, P.E.

DRAWING:- 5 11 OF 16
PROJECT:- ~~3465-4~~ (136) 129
BRIDGE CONTRACT NO. B-7284
BRIDGE FILE:- ~~3465-129-3270~~

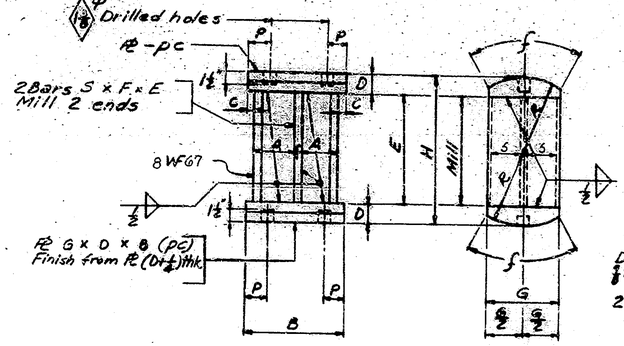
PROJECT NO.	LAC	SHEET NO.	TOTAL SHEETS	FILE
3465-4 (136) 129	-19-	16	39	~~3465-129-3270~~

BRIDGES OVER 20' SPAN					
DIST. ROAD SYS. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND	I-465-4 (129)123	1965	17	37

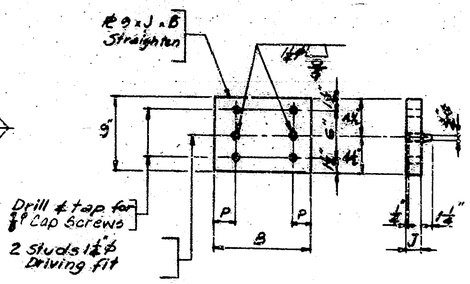
NOTE: Curved surfaces of shoes to be machined after weldments have been completed.



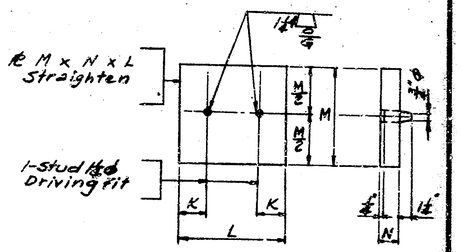
EXPANSION SHOE ASSEMBLY - TYPICAL



EXPANSION SHOE
ES



TOP SHOE
TS

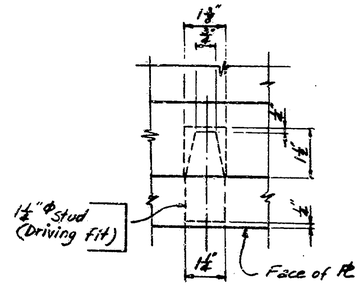


EXPANSION PLATE
EP

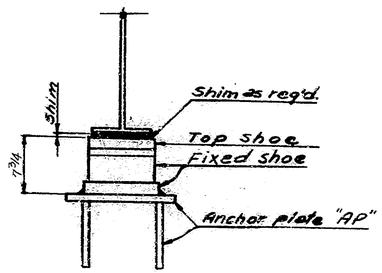
EXPANSION SHOE DIMENSIONS (inches)											
MARK	A	B	C	D	E	F	G	H	P	R	S
ES-1	4	12	1½	2	11	1	8¼	15	2½	7½	3½

TOP SHOE DIM. (in.)			
MARK	B	J	P
TS-1	12	1½	2½
TS-2	12	1¾	2½

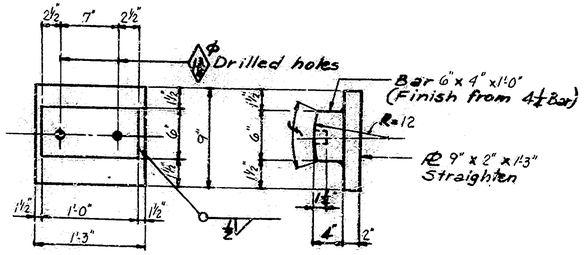
EXPANSION ℄ DIM. (in)				
MARK	K	L	M	N
EP-1	4	15	9	1½
EP-2	4	15	9	1¾



STUD DETAIL



FIXED SHOE ASSEMBLY - TYPICAL



FIXED SHOE
FS

See Drwg 52 for General Notes

SUPERSTRUCTURE BEARING DETAILS
INDIANA STATE HIGHWAY COMMISSION

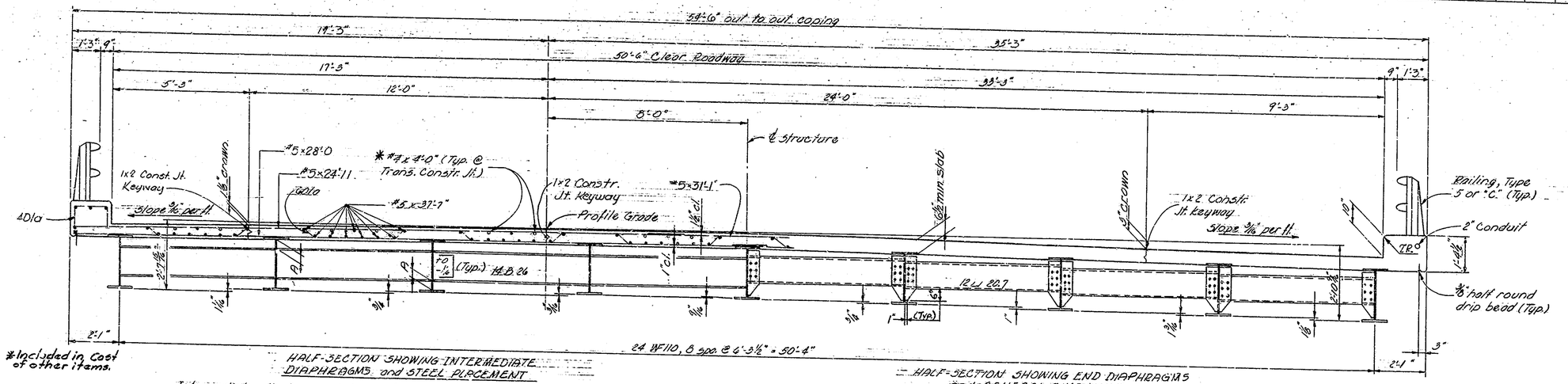
SCALE:- No Scale June 28, 1965

SUBMITTED FOR APPROVAL:- Tom Richardson RE

DRAWING:- 51 2 OF 16
PROJECT:- I-465-4 (136) 129
BRIDGE CONTRACT NO. B-7284
BRIDGE FILE:- I-465-129-2578

DESIGNED		CK'D	GEA
DRFT'D	FWS	CK'D	GEA
TRACED		CK'D	

BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (136) 129	1965	18	37



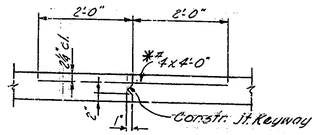
*Included in Cost of other items.

HALF-SECTION SHOWING INTERMEDIATE DIAPHRAGMS and STEEL PLACEMENT

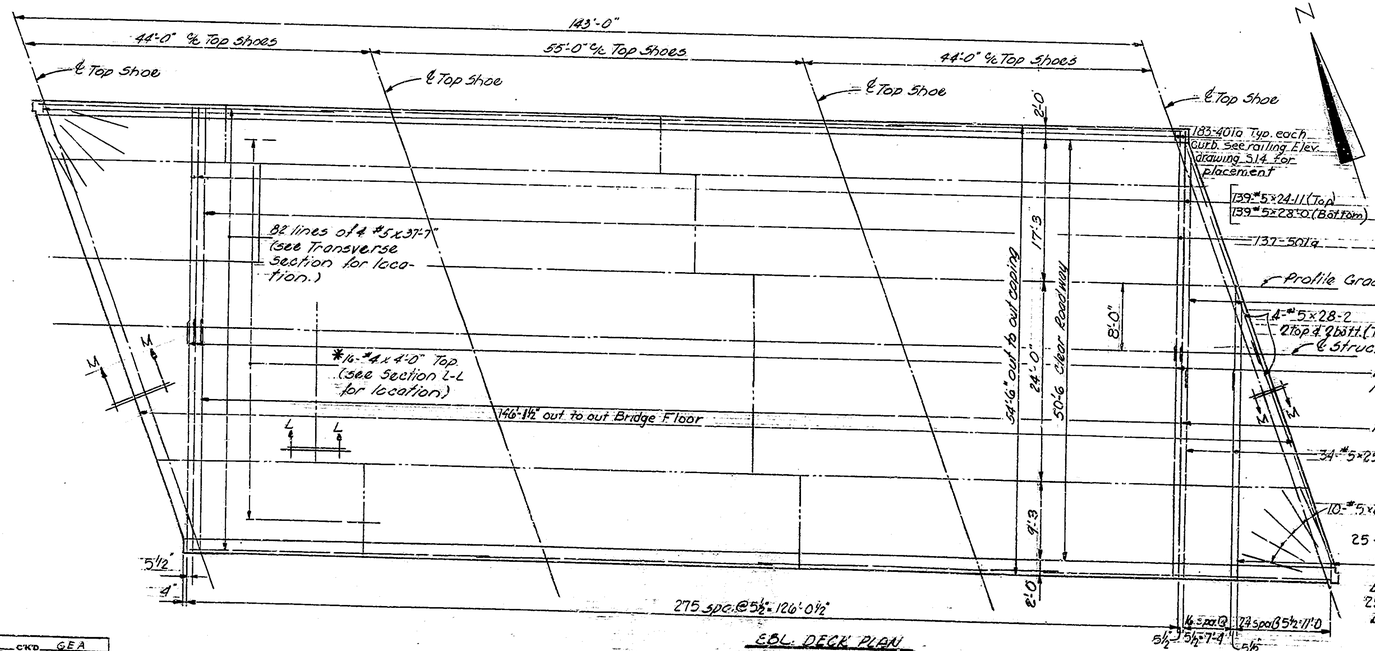
Intermediate diaphragms to be erected so that dimension "A" is equal top and bottom (2'-1")

HALF-SECTION SHOWING END DIAPHRAGMS and GENERAL DIMENSIONS

TRANSVERSE SECTION
Scale: ½"=1'-0"
(EBL shown. WBL same by 180° rotation)



SECTION L-L
Scale: ¾"=1'-0"



EBL DECK PLAN
WBL Structure Same by 180° rotation except pours
Scale 6"=1'-0"

NO. 5

CORNER DETAILS: For corner details, see Drawing 515

REINFORCING STEEL: For reinforcing bar notes see Bridge Standard C.

CONCRETE FORMS: After the structural steel has been erected, concrete forms shall not be blocked against the expansion end of the steel in making pours adjacent to the steel spans.

GENERAL NOTES: See Drawing 52 for General Notes.

ADDITIONAL DETAILS: For additional details, see Drawings 514 & 515

CONDUIT: For location of conduit, see General Plan and Bridge Standard R_{2A}

DECK PLAN and TRANSVERSE SECTION

INDIANA STATE HIGHWAY COMMISSION

SCALE:- as shown

June 28, 1965

SUBMITTED FOR APPROVAL: Tom L. Underwood, P.E.

DRAWING:- 513 OF 16

PROJECT:- I-465-4 (136) 129

BRIDGE CONTRACT NO. B-7284

BRIDGE FILE:- I-465-129-2978

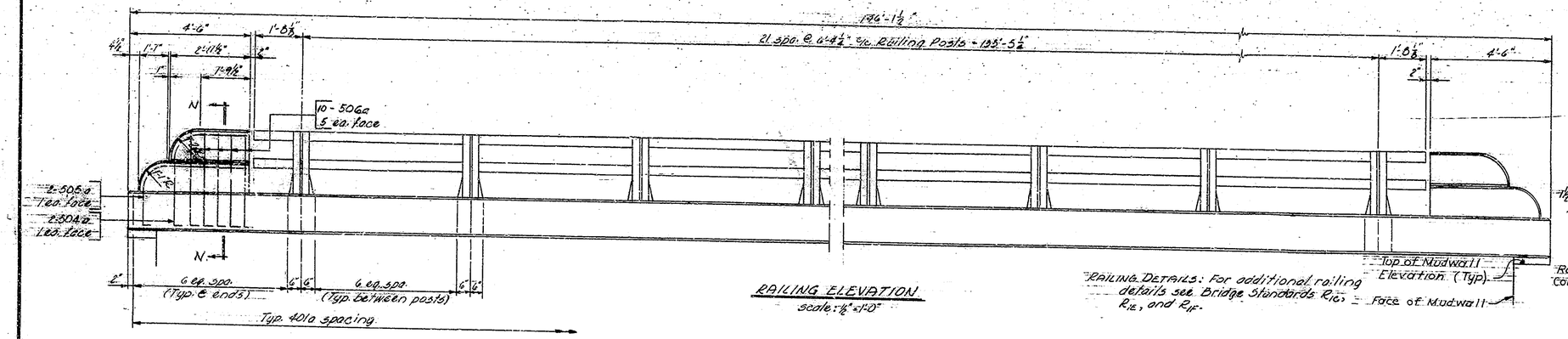
DESIGNED FWD C'K'D GEA
DRAWN MAB C'K'D GEA
TRACED C'K'D

November 6, 1961

Rev. 10-14-66 Plan
Rev. 2-23-66 Diaph. Conns. & Note

PROJECT NO.	I.S.C.	SHEET NO.	TOTAL SHEETS	FILE
I-465-4 (136) 129	5	13	37	

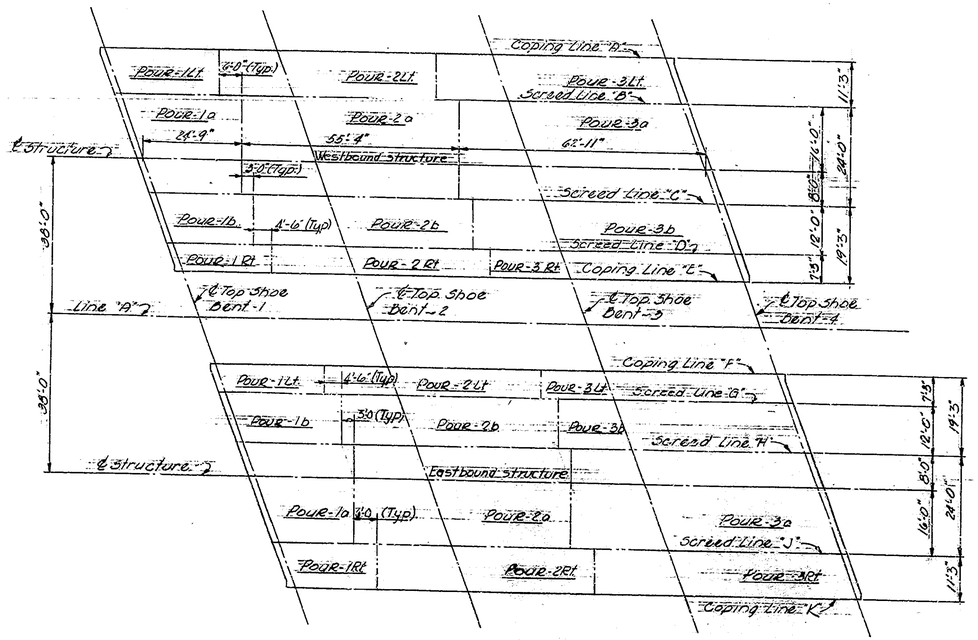
BRIDGES OVER 20' SPAN					
FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	FAS-4 (136) 129	1965	19	37



RAILING ELEVATION
Scale: ½"=1'-0"

RAILING DETAILS: For additional railing details see Bridge Standards R16, R12, and R1F.

SECTION N-N
Scale: ½"=1'-0"



POUR DIAGRAM
Scale: ⅛"=1'-0"

N

Pour SEQUENCE: Sequence of pours to be made in the order of pour numbers. All construction joints in floor slab are optional and pours may be continuous provided the pour terminates at a construction joint indicated on the plan.

For additional details and notes see Drawings 513 & 515

SUPERSTRUCTURE DETAILS
INDIANA STATE HIGHWAY COMMISSION

SCALE:- as shown — June 28, 1965

SUBMITTED FOR APPROVAL:- [illegible]

DRAWING:- 514 OF 16
PROJECT:- F-145-4(136)129
BRIDGE CONTRACT NO. 8-7284
BRIDGE FILE:- F-145-1492976

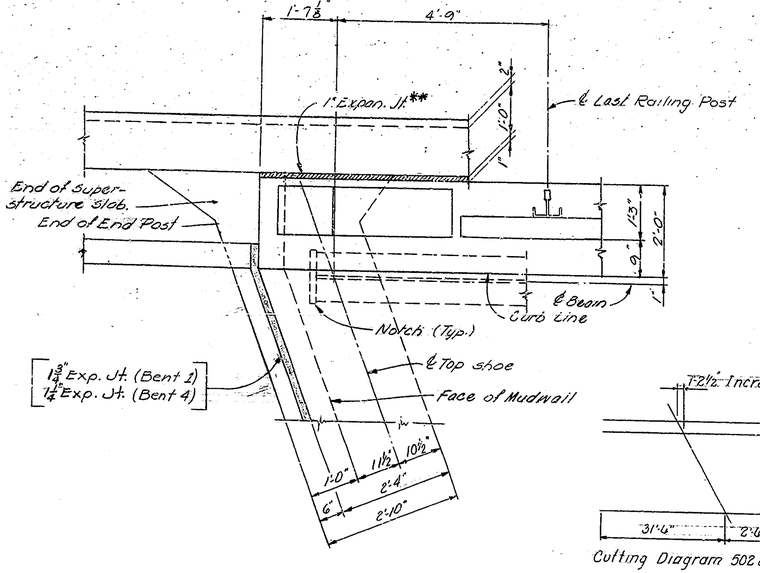
DESIGNED FNC C'K'D GEA
DRAWN [illegible] C'K'D GEA
TRACED C'K'D

November 6, 1961

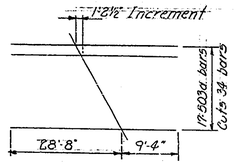
Rev. 10-19-66: Waterstop bars

PROJECT NO.	LOC.	SHEET NO.	TOTAL SHEETS	FILE
145-4(56)121	A	19	37	[illegible]

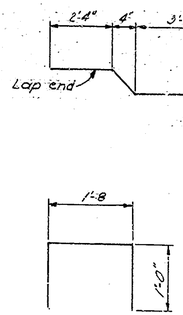
BRIDGES OVER 20' SPAN					
PUB. ROAD REQ. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (136)129	1965	20	37



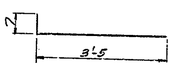
Cutting Diagram 502a



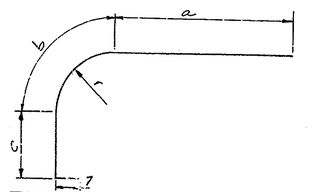
Cutting Diagram 503a



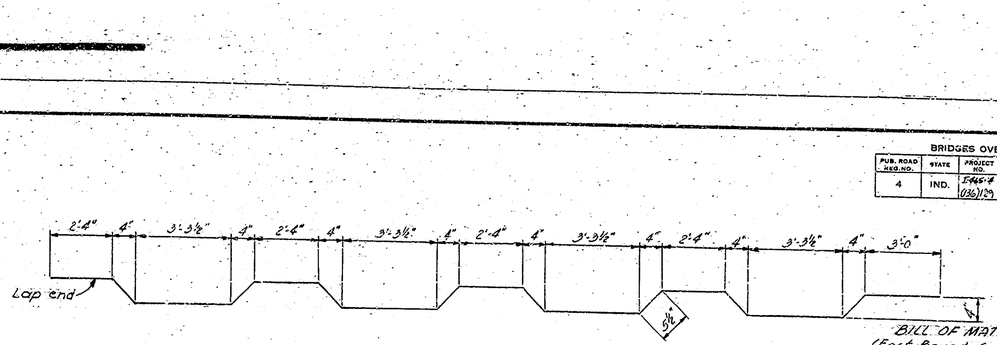
401a x 3'-8"



506a x 4'-0



№	a	b	c	r	Length
502a	1'-8	1'-7	2'-4	1'-0	6'-2
505a	2'-11	1'-9	1'-3	0'-11	6'-2



501a x 29'-2"

BILL OF MATERIAL
(East Bound Superstructure)
(West Bound Superstructure same)

REINFORCING STEEL

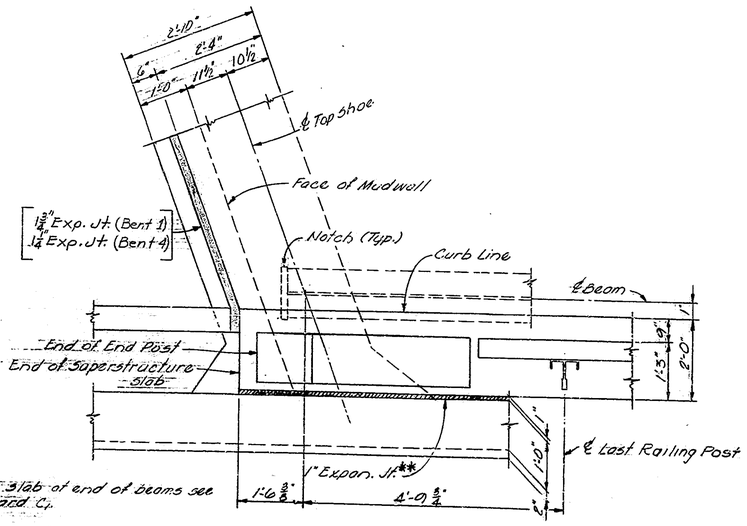
SIZE # MARK	№ OF BARS	LENGTH	WEIGHT	
501a	274	29-2	8335	
502a	50	34-0	1773	
503a	34	38-0	1348	
504a	8	6'-2	51	
505a	8	6'-2	51	
#5	328	37-7	12,857	
#5	20	8-0	167	
#5	68	25-0	1773	
#5	139	24-11	3612	
#5	139	31-1	4506	
#5	278	28-0	8119	
#5	8	28-2	235	
506a	40	4'-0	161	
		Total #5	42,934	
401a	366	3-6	896	
		Total Steel	43,830	
** #4	32	4-0	86a	

MISCELLANEOUS

Eastbound, Westbound same	
Aluminum Railing (Type S) or Steel Railing (Type C)	273.50 LF.
2" Steel Conduit	150.1 LF.
** 1" Expansion Joint	24 LF.

CONCRETE

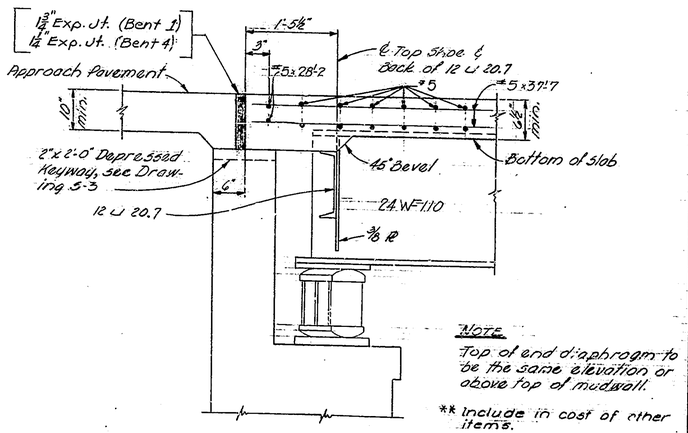
Class "F" Superstructure	
Eastbound	
Pour 1 (Rt.)	16.9 Cys.
Pour 2 (Rt.)	16.0 Cys.
Pour 3 (Rt.)	19.4 Cys.
Pour 1a	12.3 Cys.
Pour 2a	26.4 Cys.
Pour 3a	32.1 Cys.
Pour 1b	16.9 Cys.
Pour 2b	13.3 Cys.
Pour 3b	16.0 Cys.
Pour 1 (Lt.)	5.8 Cys.
Pour 2 (Lt.)	11.5 Cys.
Pour 3 (Lt.)	13.1 Cys.
Total Class F except railing	178.9 Cys.
Railing Concrete 480.03	1.2 Cys.
Westbound	
Pour 1 (Lt.)	8.3 Cys.
Pour 2 (Lt.)	16.0 Cys.
Pour 3 (Lt.)	18.0 Cys.
Pour 1a	13.8 Cys.
Pour 2a	26.6 Cys.
Pour 3a	30.6 Cys.
Pour 1b	8.8 Cys.
Pour 2b	13.3 Cys.
Pour 3b	16.1 Cys.
Pour 1 (Rt.)	5.2 Cys.
Pour 2 (Rt.)	11.5 Cys.
Pour 3 (Rt.)	13.7 Cys.
Total Class F except railing	178.9 Cys.
Railing Concrete 480.03	1.2 Cys.



NOTE
For notch in slab of end of beams see Bridge Standard C.

For Joint Details see Bridge Standard C.

CORNER DETAILS
scale: ¾" = 1'-0"



NOTE
Top of end diaphragm to be the same elevation or above top of mudwall.

** Include in cost of other items.

SECTION M-M
scale: 1" = 1'-0"

SUPERSTRUCTURE DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE:- as shown

June 28, 1965

SUBMITTED FOR APPROVAL: Tom L. Underwood, P.E.

DRAWING:- S-150F16

PROJECT:- I-465-4(136)129

BRIDGE CONTRACT NO. B-7284

BRIDGE FILE:- I-465-129-2378

DESIGNED	FWD	C'K'D	GEA
DRAWN	FWD	C'K'D	GEA
TRACED		C'K'D	

Rev. 1-30-67 Exp. Jts., Bill of Matls.
Rev. 10-14-66 Waterfull steel, Bill of Materials
Rev. 2-25-66 Exp. Jts.

November 6, 1961

PROJECT NO.	LINE	SHEET NO.	TOTAL SHEETS	TITLE
I-465-4 (136)129	"4"	20	37	I-465-129-2378

BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (136) 129	1965	21	37

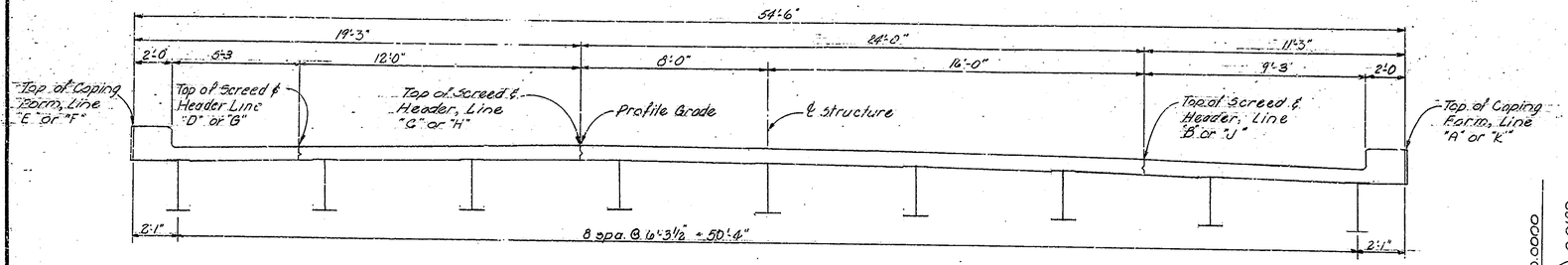
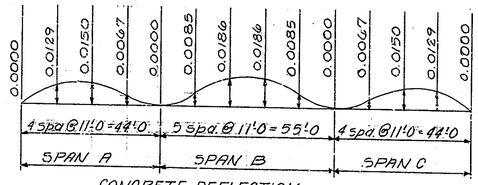


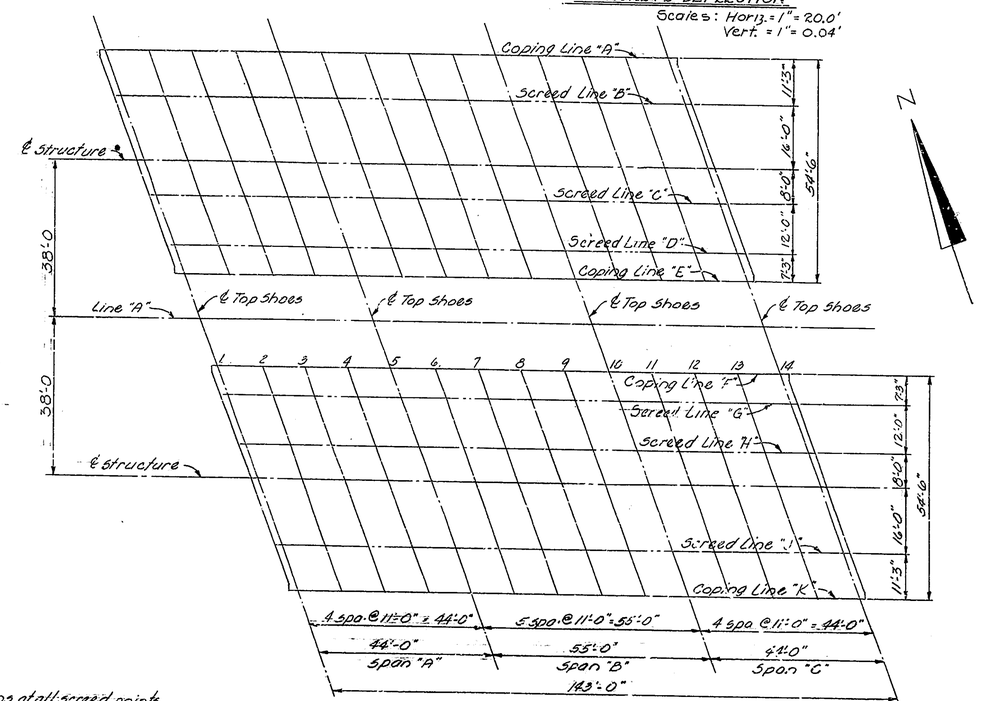
TABLE OF SCREED ELEVATIONS

Line	POINT	SPAN "A" 1	2	3	4	5	SPAN "B" 6	7	8	9	10	SPAN "C" 11	12	13	14
	Elev. at top of coping form	834.055	833.790	833.905	833.810	833.710	833.620	833.525	833.415	833.295	833.170	833.055	832.935	832.800	832.655
A	Elev. at top of beam														
	Dist. top of beam to top of coping														
	Elev. at top of coping form	833.335	833.270	833.185	833.085	832.930	832.890	832.795	832.685	832.560	832.435	832.315	832.195	832.060	831.910
B	Elev. at top of beam														
	Dist. top of beam to top of coping														
	Elev. of top of coping form	833.520	833.445	833.360	833.255	833.150	833.055	832.955	832.840	832.715	832.580	832.460	832.335	832.200	832.045
C	Elev. at top of beam														
	Dist. top of beam to top of coping														
	Elev. at top of screed	833.390	833.315	833.225	833.120	833.015	832.915	832.815	832.700	832.570	832.435	832.315	832.185	832.045	831.890
D	Elev. at top of beam														
	Dist. top of beam to top of screed														
	Elev. at top of screed	834.120	834.040	833.955	833.845	833.735	833.640	833.535	833.420	833.290	833.155	833.030	832.905	832.760	832.605
E	Elev. at top of beam														
	Dist. top of beam to top of screed														
	Elev. at top of coping form	834.055	833.975	833.880	833.770	833.655	833.555	833.460	833.330	833.195	833.055	832.930	832.800	832.655	832.495
F	Elev. at top of beam														
	Dist. top of beam to top of coping														
	Elev. at top of coping form	833.280	833.200	833.105	832.995	832.880	832.775	832.670	832.550	832.415	832.275	832.145	832.015	831.865	831.705
G	Elev. at top of beam														
	Dist. top of beam to top of coping														
	Elev. at top of screed	833.335	833.255	833.155	833.045	832.930	832.820	832.715	832.590	832.455	832.310	832.160	832.050	831.900	831.735
H	Elev. at top of beam														
	Dist. top of beam to top of screed														
	Elev. at top of screed	833.010	832.920	832.820	832.705	832.585	832.475	832.360	832.225	832.095	831.950	831.815	831.675	831.525	831.355
J	Elev. at top of beam														
	Dist. top of beam to top of screed														
	Elev. of top of coping form	833.440	833.370	833.265	833.150	833.025	832.915	832.800	832.670	832.530	832.380	832.245	832.105	831.955	831.785
K	Elev. at top of beam														
	Dist. top of beam to top of coping														

CROSS SECTION FOR SCREEDS (E&L)
scale 3/8"=1'0"
(W.B.L. opposite-hand)



CONCRETE DEFLECTION



PLAN OF SCREEDS
scale: 1/16"=1'-0"

SUPERSTRUCTURE GENERAL PROCEDURE

1- After the structural steel is erected, adjust the superstructure longitudinally so that the distance from the centerline of top shoe to the face of mudwall is equal at bents 1 and 4.

2- With the superstructure in the adjusted position called for in (1) above, weld the anchor plates for the fixed shoes at bent number 3.

3- Adjust the expansion plates under each expansion shoe in accordance with Dimension "A" or "B" shown on Drawing 511 for prevailing temperature. Note that Dimension "A" is always the distance from a vertical line through the centerline of top shoe in a direction away from the fixed shoe. Weld the anchor plates.

4- After the shoes are set, take elevations of all screed points on top of the adjacent beams. Enter these elevations in the "Table of Screed Elevations". Subtract these elevations from the tabulated elevations and use the resulting dimension as the height for setting the screed or coping form above that point. This dimension remains constant regardless of how much or in what order the concrete is poured. Do not set screeds or coping forms by leveling.

5- No concrete in the floor is to be poured until the above operations are completed.

GENERAL NOTES - See Drawing S. 11 for General Notes.

Rev 10-14-66, Cross-Section

DESIGNED END C'K'D. GEA
DRAWN TMB C'K'D GEA
TRACED C'K'D

November 6, 1961

SCREED DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE:- as noted

June 28, 1965

SUBMITTED FOR APPROVAL:- Tim E. Underwood, P.E.

DRAWING:- 516 OF 16
PROJECT:- I-465-4 (136) 129
BRIDGE CONTRACT NO. B-7284
BRIDGE FILE:- I-465-129-2516

PROJECT NO.	LINE	SHEET NO.	TOTAL SHEETS	FILE
I-465-4(136) 129	"A"	21	37	I-465-129-2378

BRIDGE FILE

STRUCTURE QUANTITIES

ITEM	CONCRETE CLASS F CU. YDS.	CONCRETE CLASS D CU. YDS.	CONCRETE CLASS E ABOVE FTG CU. YDS.	CONCRETE CLASS E IN FTG. CU. YDS.	RAILING CONCRETE CLASS F CU. YDS.	RAILING CONCRETE CLASS F LIN. FT.	REINFORCING STEEL (1968 STD. WTS) #11 LBS.	#10 LBS.	#9 LBS.	#8 LBS.	#7 LBS.	#6 LBS.	#5 LBS.	#4 LBS.	#3 LBS.	FOR SPIRALS ** LBS.	TOTALS LBS.	STRUCTURAL STEEL *** LBS.	BRONZE BEARING PLATES LBS.	ANCHOR PLATES MK-AP-2 EACH	ANCHOR RODS MK-AR EACH	CAST IRON LBS.	ALUMINUM RAILING (TYPE 5 or C) LIN. FT.	PILES UNTREATED TIMBER No. LIN. FT.	PILES TREATED TIMBER No. LIN. FT.	PILES STEEL ENCASED CONCRETE No. LIN. FT.	STEEL H BEARING No. LIN. FT.	6" ø STEEL CONDUIT
Eastbound Structure																													
Superstructure	178.9				1.2								42,996	896			43,890	177,000					275.58						151.1
Substructures																													
Bent 1	29.9										1295		779	1190			3264			9									
Bent 2	13.8	16.7		37.4			3554	3729	2269			511	449	1220			11,732			9						7	245		
Bent 3	13.8	18.2		37.0			3524	4760	2269			511	449	1649			13,082			9					24 600				
Bent 4	29.9										1295		779	1190			3264			9					20 750				
																										7	245		
Westbound Structure																													
Superstructure	178.9				1.2								42,996	896			43,890	177,000					275.58						151.1
Substructures																													
Bent 1	29.9										1295		779	1036			3170			9									
Bent 2	13.8	16.7		37.4			3556	3729	2269			511	429	1182			11,644			9					24 600				
Bent 3	13.8	18.2		37.0			3524	4760	2269			511	449	1481			12,994			9					20 750				
Bent 4	29.9										1295		779	1096			3170			9						7	245		
SPLICE BARS																													
Reinf. Steel for Approach Structures																													
Reinf. Steel for R.C. Bridge Approaches																													
Reinf. Steel for Lip Gutter, Pvmt. Tapers, etc																													
TOTALS	552.6	69.8		148.8	2.4		14,156	16,978	9076	5180	2044	2044	30,808	11,766				354,000		72			547.16		168 2700	28 960		301.2

364,000

APPROACH STRUCTURES

STRUCT Nº	LOCATION	DESCRIPTION SIZE	DESCRIPTION KIND	LENGTH LIN. FT.	CL. D CONC IN STRUCTS CU. YDS.	REINF. STEEL LBS.	CAST IRON LBS.	REMARKS
49A	Sta. 742+34 P.O. Line NB	6"	F.B.C.P.C.S. Pipe (18 ga)	75				Grade B Special Borrow Drain (Cap End)
49B	Sta. 742+56 P.O. Line EB	6"	F.B.C.P.C.S. Pipe (18 ga)	75				Grade B Special Borrow Drain (Cap End)
49C	Sta. 742+76 Line "A"	24"	Group A Pipe①	253	8.8			2- Culvert Headwalls Req'd., constr. on 20° skew
49D	Sta. 743+07 Line "A"	18"	Group A Pipe ①	190	2.3			2- Culvert Headwalls Req'd., constr. on 20° skew
49E	Sta. 743+40 Line "A"	18"	Group A Pipe①	185	2.3			2- Culvert Headwalls Req'd., constr. on 20° skew
49F	Sta. 743+92 P.O. Line WB	6"	F.B.C.P.C.S. Pipe (18 ga)	75				Grade B Special Borrow Drain (Cap End)
49G	Sta. 744+14 P.O. Line EB	6"	F.B.C.P.C.S. Pipe (18 ga)	75				Grade B Special Borrow Drain (Cap End)
			TOTALS		8.4			Total of Reinforcing Steel carried to "Structure Quantities"

① F.B.C.C.S.P. w/Pl. Gr. #16.

BILL OF SPLICE BARS

REINFORCING STEEL — BRIDGE FILE

SIZE	LENGTH LIN. FT.	WEIGHT EACH	Nº PIECES	WEIGHT LBS	Nº PIECES	WEIGHT LBS	Nº PIECES	WEIGHT LBS	TOTAL WEIGHT LBS
#11	11'-0"	38.4							
#10	10'-6"	45.2	1	45					45
#9	9'-6"	32.3	1	32					32
#8	8'-2"	18.4	1	18					18
#7	8'-0"	16.2	1	16					16
#6	7'-6"	11.3	3	34					34
#5	6'-9"	7.0	7	49					49
#4	6'-0"	4.0	3	12					12
#3	5'-6"	2.1							
TOTAL SPLICE BARS			211						211

NOTE: For Test Bar Samples see Bridge Std. C1.

COMPUTED FWD CKD. GEA
TRACED FWD CK'D. GEA

BILL OF MATERIALS FOR R.C. BRIDGE APPROACHES

REINFORCING STEEL — BRIDGE FILE

SIZE & MARK	NUMBER PIECES	LENGTH LIN. FT	WEIGHT LBS.	WEIGHT LBS.	WEIGHT LBS.	TOTAL WEIGHT LBS.

Drawing Not Legible

BARRICADES, BARRIERS, TRAFFIC SIGNS AND LIGHTS

ITEM	UNIT	QUANTITY	ASSEMBLY	BRIDGE FILE	TOTALS
TYPICAL SIGN STANDARDS	Each		Signs XW-1 Signs XW-2 Signs XW-3 Signs XM-2 Signs W-4B, W-35A		
STANDARD BARRICADES (TYPE A)	Each		Torches Barricades (Type A) Signs XR-1 Signs M-20A		
STANDARD BARRICADES (TYPE B)	Each		Lanterns Barricades (Type B) Signs XR-1		
STANDARD SIGNS	Each		Lanterns Signs W-11 Signs W-35A		
SUITABLE BRIDGE BARRIERS	Each		Torches * Suitable Barriers * Lanterns or Torches		
CONSTRUCTION IDENTIFICATION SIGNS	Each		* Signs XM-6 * Signs XM-7 * Signs XM-8		

* Not a Pay Item. Place as directed by the Engineer. "W-35A" safe speed to be determined by the Engineer. When sign standards are used in unpaved areas the contractor may use two posts set (3) three feet in the ground. Directional, advisory or warning signs shall be right hand or left hand as the location of the sign requires.

** Weight of spirals includes weight of 1½ extra turns top and bottom. Spacers and ½ turns at laps included in cost of spiral.

*** The weight of structural steel is approximate only, and it shall be the contractors responsibility to determine the weight on which he bases his bid. **The weight of High Strength Bolts is not included in the estimated weight of Structural Steel. The cost of these bolts shall be included in the cost of Structural Steel.**

Rev. 1-30-67 Items 45,46 Deleted, Str. Steel Note.
Rev. 11-2-66 Items 43,45,46.
Rev. 10-14-66 Items 6, 18, 35 Deleted 14
Rev. 3-30-66 Item 6
Rev. 5-5-66 Item 6
Rev. 2-23-66 Items 42, 45, 46, 48

BRIDGES OVER 20' SPAN

FED. ROAD PROJ. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-2 (136) 129	1965	22	37

SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITIES BRIDGE FILE	TOTALS
1	Class F Concrete	Cu.Yds.	552.6	
2	Class D Concrete	Cu.Yds.	69.8	
3	Class E Concrete above Footings	Cu.Yds.		
4	Class E Concrete in Footings	Cu.Yds.	148.8	
5	Railing Concrete	Cu.Yds.	2.4	
6	Reinforcing Steel	Lbs.	30,808	
7	Structural Steel	Lump Sum	1	
8	Anchor Plates (MK-AP-2)	Each	72	
9	Cast Iron	Lbs.		
10	Aluminum Railing (Type)	Lin.Ft.		
11	Untreated Timber Piles Furnished	Lin.Ft.		
12	Untreated Timber Piles Driven	Lin.Ft.		
13	Steel Pile Shells Furnished & Driven (14")	Lin.Ft.	980	
14				
15	Furnishing Equipment for Driving Piles	Lump Sum	1	
16	Wet Excavation	Cu.Yds.		
17	Waterway Excavation	Cu.Yds.		
18	Common Excavation	Cu.Yds.		
19	Special Borrow	Cu.Yds.	91527	
20	Grade B Special Borrow	Cu.Yds.	2037	
21	Sodding	Sq.Yds.	1120	
22	Mulched Seeding	Sq.Yds.		
23	Plain Cement Concrete Pavement (")	Sq.Yds.		
24	Reinforced Cement Concrete Pavement (")	Sq.Yds.		
25	Aggregate for Compacted Aggregate Base	Tons		
26	Compacted Aggregate Shoulder	Tons		
27	Subbase	Cu.Yds.		
28	Removal Present Structure	Lump Sum		
29	Temporary Bridge and Approaches	Lump Sum		
30	Typical Sign Standards	Each		
31	Standard Barricades (Type A)	Each		
32	Standard Barricades (Type B)	Each		
33	Standard Signs	Each		
34	R/W Markers	Each		
35	Slopewall	Sq.Yds	2146	
36	1" Expansion Joint	Lin.Ft.		
37	Straight Beam Guard Rail	Lin.Ft.		
38	Class D Concrete in Structures	Cu.Yds.	6.4	
39	Railing, Type 5 or C	Lin.Ft.	547	
40	Treated Timber Piles, Furnished	Lin.Ft.	2700	
41	Treated Timber Piles, Driven	Lin.Ft.	2700	
42	18" Group A Pipe①	Lin.Ft.	375	
43	Foundation Excavation, Unclassified	Cu.Yds.	105	
44	2" ø Steel Conduit	Lin.Ft.	302	
45				
46				
47	6" ø F.B.C.C.S. Pipe, Perf. (18 ga)	Lin.Ft.	300	
48	24" Group A Pipe①	Lin.Ft.	253	
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				
76				
77				

D STR

SUMMARY
INDIANA STATE HIGHWAY COMMISSION

June 28, 1965

SUBMITTED FOR APPROVAL: Tom L. Underwood, PE

PROJECT:- I-465-4(136) 129
BRIDGE CONTRACT NO. B-7284
BRIDGE FILE:- I-465-170-2378