BRIDGE CONTRACT No. 5212

INDEX

PROJECT	STRUCTURE	TYPE	SPAN	OVER	STATION	CONTRACT NO.
I-465-4 (77) 155	I-70-73-4647	R.C. GIRDER & CONT. STL. BEAM	4 SPANS: 37'-0 @ 30'-0, 37'-0	INTERSTATE I-465	TWIN STRUCTURES @ 160+00, SK 29° RT.	5212
	I-70-73-4647 DRN	R.C. SLABEX & CONT. STL. BEAM	4 SPANS: 36'-0 @ 29'-0, 37'-0	INTERSTATE I-465	22+51.08 ONE L.F. SQUARE	

SHEET NO.	SHEET DESIGNATION	SUBJECT	
1		INDEX & TITLE SHEET	
2	ROAD. STD.	STD. DIVIDED LANE SECTIONS FOR F.A. INTERSTATE PROJ. REV. 2-4-60	
3	ROAD. SHEET N#6	TYPICAL CROSS SECTION - PROJ. I-70-3(47)72	
4	ROAD. STD.	STANDARD 10 INCH RAMP SECTION REV. 4-25-59	
5	ROAD. SHEET N#9	PLAN & PROFILE LINE "I-70" STA. 145+00 TO 176+00 PROJ. I-70-3(47)72	
6-7	ROAD. SHEET N#14 & N#15	PLAN & PROFILE LINE "N" STA. 40+00 TO 70+00 & STA. 70+00 TO 100+00 PROJ. I-465-4(77)155	
8	ROAD. SHEET N#14	INTERCHANGE GEOMETRICS - PROJ. I-70-3(47)72	
9	ROAD. SHEET N#15	INTERCHANGE RIGHT OF WAY - PROJ. I-70-3(47)72	
10	ROAD. SHEET N#16	INTERCHANGE DRAINAGE - PROJ. I-70-3(47)72	
11	ROAD. SHEET N# 22	RAMP "N.E.L." TRANSITIONS & GRADES - PROJ. I-70-3(47)72	
12	BRIDGE SHEET	SOIL BORING LOG	(I-70-73-4647)
13	S1	LAYOUT	(" " ")
14	S2	GENERAL PLAN	(" " ")
15	S3	BENTS N#1 & N#5 DETAILS	(" " ")
16-17	S4 & S5	BENTS N# 2 & N#4 DETAILS	(" " ")
18	S6	BENT N#3 DETAILS	(" " ")
19	S7	SPAN "A" & SPAN "D" W.B. DETAILS	(" " ")
20	S8	SPAN "A" W.B. & SPAN "D" E.B. DETAILS	(" " ")
21	S9	SPAN "A" & SPAN "D" DETAILS	(" " ")
22	S10	FRAMING PLAN SPANS "B" & "C"	(" " ")
23-27	S11 THRU S15	SUPERSTRUCTURE DETAILS - SPAN N# "B" & "C"	(" " ")
28	S16	SCREEDS	(" " ")
29	BRIDGE SHEET	SUMMARY	(I-70-73-4647)
30	BRIDGE SHEET	SOIL BORING LOG	(I-70-73-4647 DRN)
31	S1	LAYOUT	(" " ")
32	S2	GENERAL PLAN	(" " ")
33	S3	FRAMING PLAN & GEOMETRICAL LAYOUT	(" " ")
34	S4	BENT N#1 DETAILS	(" " ")
35	S5	BENT N#2 DETAILS	(" " ")
36	S6	BENT N#3 DETAILS	(" " ")
37	S7	BENT N#4 DETAILS	(" " ")
38	S8	BENT N#5 DETAILS	(" " ")
39	S9	SUPERSTRUCTURE DETAILS - SPAN "A"	(" " ")
40	S10	SUPERSTRUCTURE DETAILS - SPAN "D"	(" " ")
41	S11	SUPERSTRUCTURE DETAILS - SPANS "A" & "D"	(" " ")
42	S12	FRAMING PLAN SPANS "B" & "C"	(" " ")
45-47	S13 THRU S17	SUPERSTRUCTURE DETAILS - SPANS "B" & "C"	(" " ")
48	S18	SCREEDS FOR SPANS "B" & "C"	(" " ")
49	BRIDGE SHEET	SUMMARY	(I-70-73-4647 DRN)
50-51	2 BRIDGE SHEETS	BOX CULVERT DETAILS (STRUCTURE N# 1121)	
52	BRIDGE SHEET	R.C. BRIDGE APPROACH DETAILS	(I-70-73-4647)
153	BRIDGE SHEET	R.C. BRIDGE APPROACH DETAILS	(I-70-73-4647 DRN)

STATE OF INDIANA
STATE HIGHWAY DEPARTMENT

BRIDGE PLANS

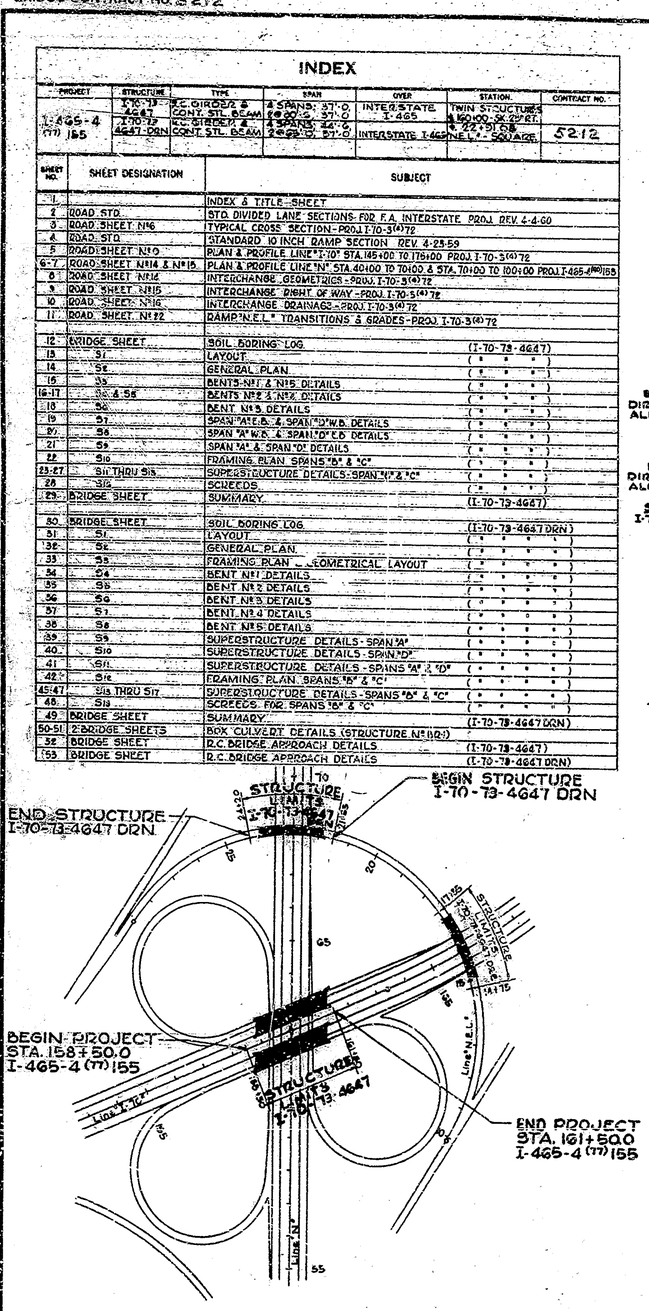
FOR SPANS OVER 20 FEET
ON
INTERSTATE ROUTE NO. 70 SECTION 3
F. A. PROJECT NO. I-465-4(77)155

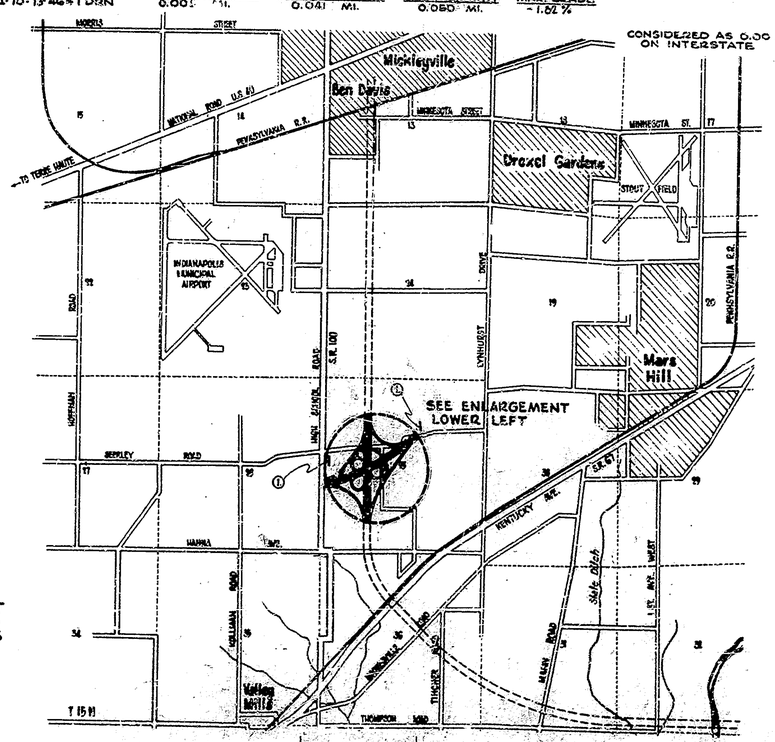
BEGINNING AT A POINT APPROXIMATELY 1562.8 FEET EAST OF THE WEST LINE OF SECTION 25 AND EXTENDING IN AN EASTERLY DIRECTION A DISTANCE OF 300 FEET TO A POINT APPROXIMATELY 1862.8 FEET EAST OF THE WEST LINE OF SECTION 25, ALL BEING IN SECTION 25, T15N, R2E, WAYNE TOWNSHIP, MARION COUNTY, INDIANA.

STRUCTURE NO.	ROADWAY LENGTH	BRIDGE LENGTH	TOTAL LENGTH	MAX. GRADE	
I-70-73-4647	0.010 MI.	0.046 MI.	0.056 MI.	+0.62 %	CONSIDERED AS 0.00 MI. ON I-465

BEGINNING AT A POINT APPROXIMATELY 1731.9 FEET EAST OF THE WEST LINE OF SECTION 25 AND EXTENDING IN AN EASTERLY DIRECTION A DISTANCE OF 265 FEET TO A POINT APPROXIMATELY 1996.9 FEET EAST OF THE WEST LINE OF SECTION 25, ALL BEING IN SECTION 25, T15N, R2E, WAYNE TOWNSHIP, MARION COUNTY, INDIANA.

STRUCTURE NO.	ROADWAY LENGTH	BRIDGE LENGTH	TOTAL LENGTH	MAX. GRADE
I-70-73-4647 DRN	0.001 MI.	0.041 MI.	0.050 MI.	-1.62 %





① = INTERSTATE SYSTEM SIGNS N# X-18

TRAFFIC DATA	I-70	I-465
A.D.T. (1959)	19,288 V.P.D.	31,725 V.P.D.
A.D.T. (1980 PROJECTED)	50,807 V.P.D.	85,657 V.P.D.
TRUCKS	G %	G %
DESIGN SPEED	M.P.H.	70 M.P.H.
ACCESS CONTROL	FULL	FULL

STRUCTURES OVER 20' SPAN

FED. AID PROJECT NO.	STATE	DISTRICT PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	F-465 (77)155	1961	1	61

INDEX CONTINUED
STANDARD DRAWINGS

SHEET NO.	SHEET DESIGNATION	SUBJECT	E.F.F. APPROVAL	ADOPTED & EFFECTIVE DATE
		STANDARDS		
54-55	2 SHEETS	CROSS SECTIONS (COMBINED)		
56	BRIDGE STD. C1	STANDARD MISCELLANEOUS DETAILS	1-18-60	8-12-58
	BRIDGE STD. C2	STANDARD MISCELLANEOUS DETAILS		
	BRIDGE STD. D	CASTING DETAILS ROADWAY GRAINS		
	BRIDGE STD. F	CASTING DETAILS (FOOTING DRAIN OUTLET) DETAILS		
	BRIDGE STD. H	TYP. DETAILS OF THICK PAVEMENT & LOC. TOE OF SL.		
	BRIDGE STD. I1	TYP. DETAILS OF THICK PAVEMENT & LOCATING TOE OF SLOPE		
57	BRIDGE STD. M1	MISCELLANEOUS APPROACH DETAILS		
	BRIDGE STD. M2	MISCELLANEOUS APPROACH DETAILS	11-25-60	8-8-58-60
	BRIDGE STD. M3	MISCELLANEOUS APPROACH DETAILS		
58	BRIDGE STD. P2	STANDARD CONCRETE PILE DETAILS		
	BRIDGE STD. R1	ALUMINUM RAILING DETAILS		8-8-58-60
59	BRIDGE STD. S1	TYPICAL DETAILS FOR PLACING SPECIAL FILLING MATERIAL		
	BRIDGE STD. S2	TYPICAL DETAILS FOR PLACING SPECIAL FILLING MATERIAL		8-8-58-60
	BRIDGE STD. T-SHEET A	STANDARD TEMPORARY BRIDGE		
	BRIDGE STD. T-SHEET B	STANDARD TEMPORARY BRIDGE		
60	ROAD STD. SHEET A	STANDARD PAVEMENT JOINTS		
	ROAD STD. SHEET MA	MISCELLANEOUS STANDARDS		8-7-11-60
	ROAD STD. SHEET MB	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MC	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MD	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET ME	MISCELLANEOUS STANDARDS		
61	ROAD STD. SHEET MF	MISCELLANEOUS STANDARDS		8-15-14-60
62	ROAD STD. SHEET MG	MISCELLANEOUS STRUCTURE STANDARDS	1-26-60	8-11-11-58
	ROAD STD. SHEET MH	MISCELLANEOUS FENCE & GUARD RAIL STANDARDS		
	ROAD STD. SHEET MI	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MJ	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MJ-1	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET ML	MISCELLANEOUS STANDARDS		
63	ROAD STD. SHEET MP	MISCELLANEOUS STANDARDS		A-OCT.-1960
	ROAD STD. SHEET MR	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MS	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MT	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MU	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET	MISCELLANEOUS STANDARDS		
	ROAD STD.	STANDARD STRUCTURE CONSTRUCTIONS FOR EXTENSION		
	ROAD STD.	STANDARD REINF. CONC. SIN CULVERTS		
	ROAD STD.	STANDARD REINF. CONC. BOX CULVERTS - SK. END & WING		
	ROAD STD.	STANDARD REINF. CONC. CULVERTS - SLAB TOP TYPE (M.F.		
	ROAD STD.	STANDARD REINF. CONC. CULVERTS - SLAB TOP TYPE (U.F.		
	ROAD STD. SHEET GR	STANDARD GUARD RAIL		
	ROAD STD. SHEET GP	STEEL BEAM GUARD RAIL		
	ROAD STD.	STANDARD REINF. CONCRETE ARCH - 17' SPAN		
	ROAD STD.	STANDARD REINFORCING		
	ROAD STD.	STANDARD STRUCTURAL PLATE ARCH		
	ROAD STD.	CONCRETE STRIPS FOR R.C. STRUCTURAL PLATE ARCHES		
	ROAD STD.	STATEMENTS FOR SUPERSLAB (TOP & PARAPET) CONC.		
64	ROAD STD. SHEET 1 DETOURS	STANDARD DETOUR SIGNS		
	ROAD STD. SHEET 2 DETOURS	STANDARD DETOUR SIGNS		A-OCT.-1960
	ROAD STD. SHEET 3 DETOURS	STANDARD DETOUR SIGNS		
64-A	ROAD STD. SHEET 4 DETOURS	STANDARD DETOUR SIGNS		A-OCT.-1960

APPROVED AND ADOPTED Jan. 25, 1961
BY STATE HIGHWAY DEPARTMENT OF INDIANA.
CHAIRMAN—STATE HIGHWAY DEPARTMENT OF INDIANA
APPROVED 1-18-61
CHIEF ENGINEER—STATE HIGHWAY DEPARTMENT OF INDIANA

DATE JANUARY 10, 1961
CERTIFIED [signature]
DESIGNING STRUCTURAL ENGINEER

REVISIONS	
DATE	SHEET NO.
3-23-61	14

RECOMMENDED FOR APPROVAL 1-13-61
[signature]
STATE BRIDGE ENGINEER

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

STATE HIGHWAY DEPARTMENT OF INDIANA.
STANDARD SPECIFICATIONS DATED 1957
TO BE USED WITH THESE PLANS.

BRIDGE FILE I-70-73-4647
I-70-73-4647 DRN

BRIDGES OVER 20' SPAN

FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (17)155	1961	12	[illegible]

SOIL BORING LOG

BORING NO.	1	2	3	4	5
STATION	158+90	159+50	160+00	160+53	161+13
OFFSET	70' RT.	70' LT.	℄	70' RT.	70' LT.
SURFACE ELEV.	735.3	733.9	737.2	736.9	742.2
GROUNDWATER ELEV.	—	—	—	—	—

ELEV.	Sample No.	Sample Elev.	N	Description
740				
735				
730	1	730.3	31	Brown moist medium dense clayey SILT with some Sand.
725	2	725.3	38	
720	3	720.3	60	
715	4	715.3	110	Gray moist hard Silty CLAY with traces of fine to medium Sand.
710	5	710.3	112	
705				Bottom of Test Hole - 26.5'
700				

Sample No.	Sample Elev.	N	Description
1	733.9	30	Brown moist hard Silty CLAY with traces of fine to medium Sand.
2	728.9	40	
3	723.9	56	Gray moist hard Silty CLAY with traces of fine to coarse Sand.
4	718.9	114	
5	713.9	127	
			Bottom of Test Hole - 26.5'

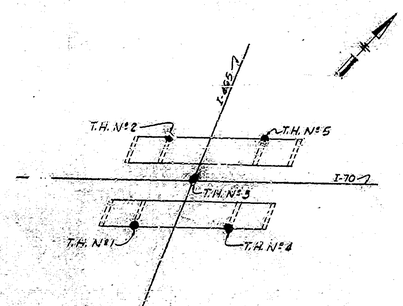
Sample No.	Sample Elev.	N	Description
1	732.2	33	Brown moist dense Clayey SILT with traces of fine to medium Sand.
2	728.2	36	
3	723.2	58	
4	718.2	107	Gray moist very dense Clayey SILT with a little fine to coarse Sand. (Hardpan)
5	713.2	122	
			Bottom of Test Hole - 26.5'

Sample No.	Sample Elev.	N	Description
1	731.9	34	Brown moist dense Clayey SILT with traces of fine to medium Sand.
2	726.9	33	
3	721.9	56	
4	716.9	117	Gray moist very dense Clayey SILT with some fine to coarse Sand. (Hardpan)
5	711.9	122	
			Bottom of Test Hole - 26.5'

Sample No.	Sample Elev.	N	Description
1	737.2	29	Brown moist very stiff Clayey SILT with traces of fine to medium Sand.
2	732.2	40	
3	727.2	66	Gray moist hard Silty CLAY with traces of fine to medium Sand.
4	722.2	114	
5	717.2	122	
			Bottom of Test Hole - 26.5'

Note: All holes were bored 10.0 feet into 100 blows per foot material and then terminated.

"N" = Relative Density - Number of blows required to drive a 2" O.D. Sample Spoon 12" with a 140# weight falling 30".



PLAN OF BORINGS
Not to Scale

SOIL BORING LOG
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- NONE

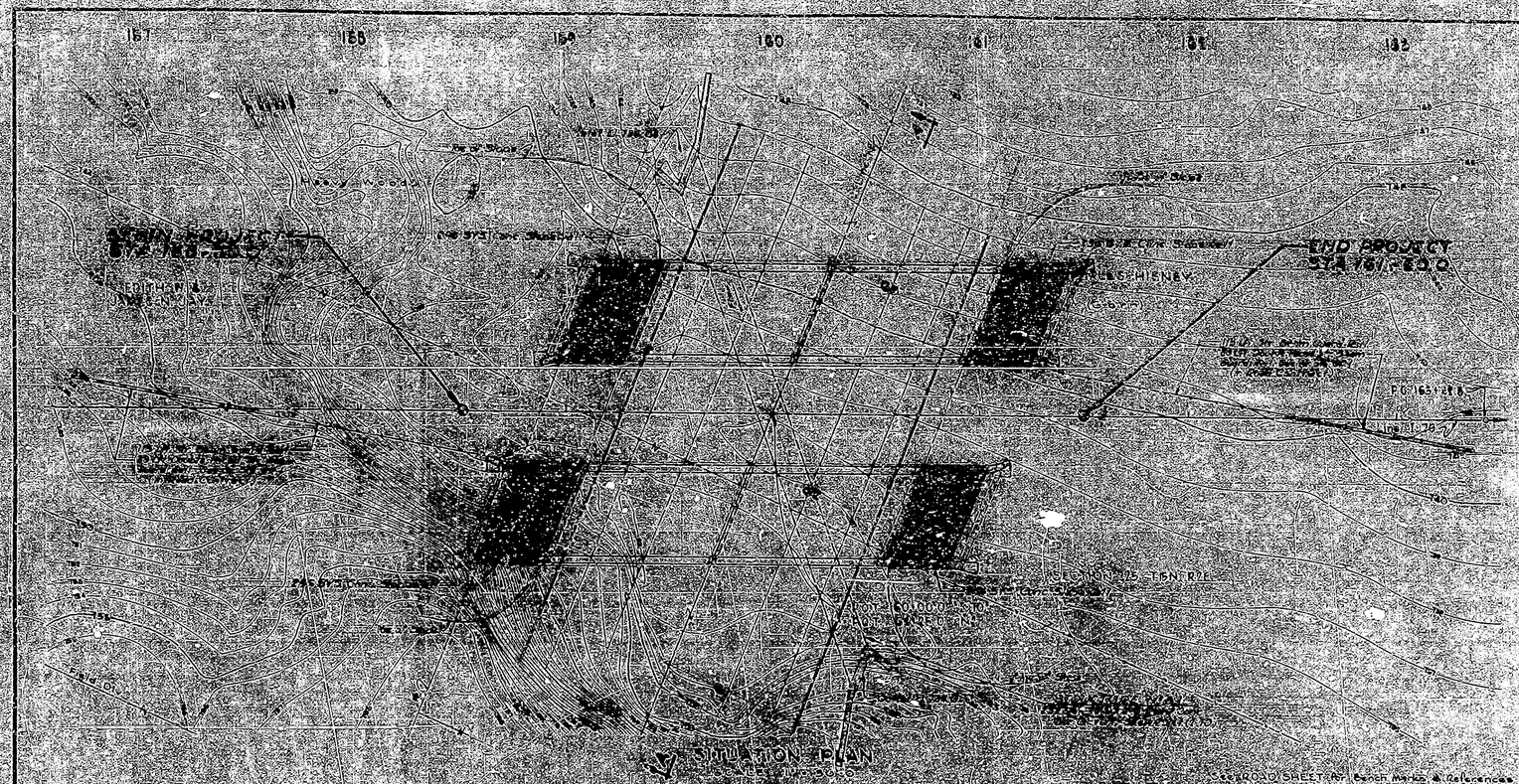
JANUARY 10 1961

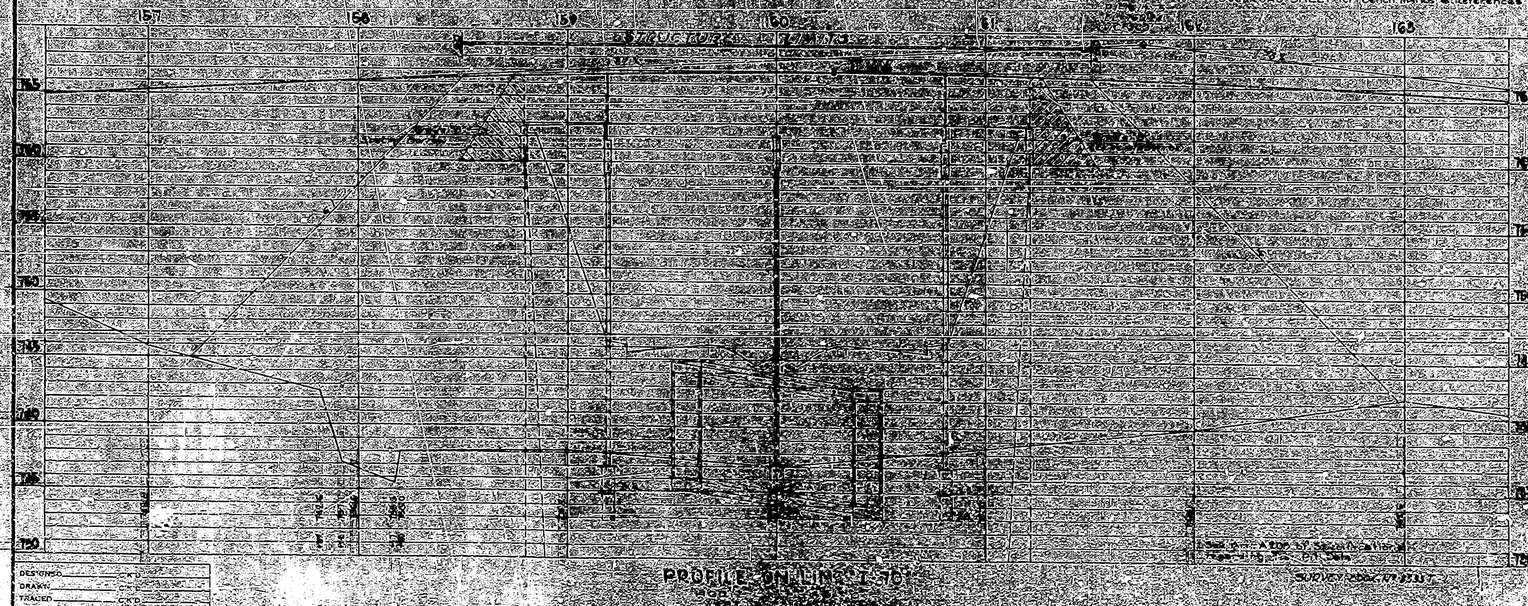
Walter M. Bean

PROJECT:- I-465-4 (17)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-7-[illegible]

DESIGNED _____ CHK'D _____
DRAWN _____ CHK'D _____

BRIDGES OVER 20' SPAN					
PUB. ROAD DESIG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465 4(77)155	1961	13	641

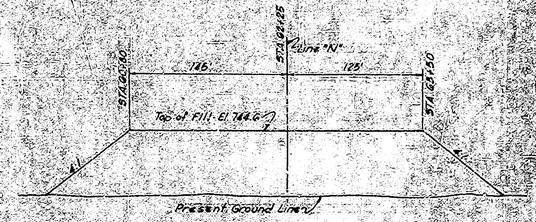




PROFILE ON LINE "I-70"

EARTHWORK SUMMARY

Fill - Line "I-70"	46,010 CYS
" - Line "A"	8,720 "
" - Channel Change	1,125 "
Total Fill	61,855 CYS
Grade "B" + 25%	1,623 "
	60,260 CYS
Fill + 20%	72,310 CYS
Common Excavation	9,450 "
Surplus Foundation Excav.	340 "
Special Borrow	62,520 CYS



SECTION "A-A" PARALLEL TO LINE "N"
Not to Scale

LAYOUT
R.C. GIRDER & CONTINUOUS STEEL BEAM

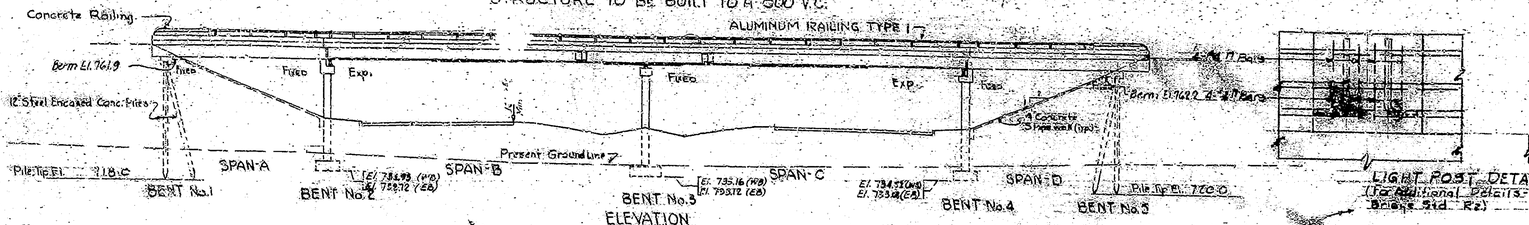
4 SPANS: 37'-0, 28'-0, 3 37'-0 TWIN STRUCTURES
39'-0 ROADWAYS 2 2'-0 CURBS SKEW 25° RT.
I-70 OVER I-465

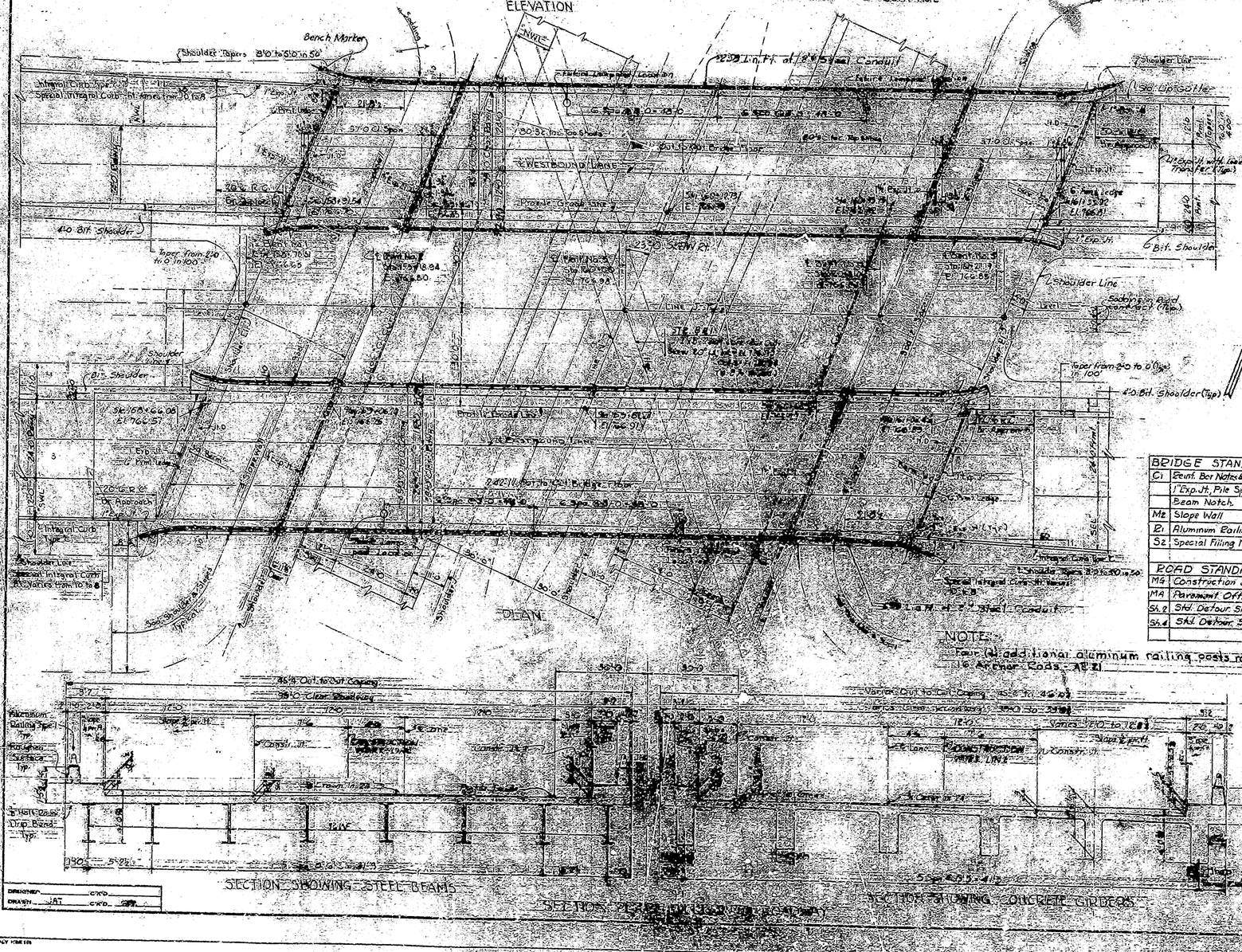
STATE HIGHWAY DEPARTMENT OF INDIANA
MARION COUNTY

SCALE: AS NOTED JANUARY 10, 1961

DRAWING: S1 OF 16 STA 160+00.0 I-70
PROJECT: I-465-4(77)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE: I-70-18-4647

STRUCTURE TO BE BUILT TO A 800 V.C.

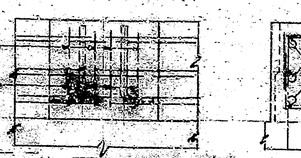


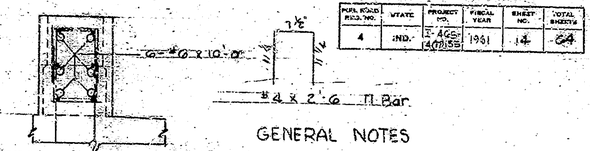


NOTE:
Four (4) additional aluminum railing posts req'd for lighting
1" Anchor Rods, A.S.T.M.

BRIDGE STANDARDS	
C1	Reinf. Bar Notes & Details, 1" Exp. Jt., Pile Splice, Beam Notch.
Mz	Slope Wall
R1	Aluminum Railing
S2	Special Filling Material

ROAD STANDARDS	
MA	Construction Joints
MA	Pavement Offsets
Sh.2	Std. Detour Signs
Sh.4	Std. Detour Signs





BRIDGES OVER 20' SPAN

FOR ROAD & PROJ. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4(7)155	1961	14	64

GENERAL NOTES

No present structure at proposed bridge site.
Depth of footings to be extended if found necessary. See Art. B403.2(a) of Specifications.
Piles shall have minimum bearing value shown on detail drawings. Determine pile lengths by Art. F203 of Specifications.
For details of steel encased concrete piles see Bridge Standard C1, the Special Provisions, and applicable articles in the Specifications.
Piles shall be driven to elevation shown on plans or below if necessary to obtain desired bearing.
Reinforcing steel covering shall be 1 inch min. in floor slabs, 3 inches in footings, except bottom steel which shall be 4 inches, and 2 inches in all other parts unless noted.
Concrete in footings and collision walls to be Class "E".
Concrete in superstructure, including parapet and concrete railing, bent caps to be Class "F".
Concrete in structure not noted above, in steel encased concrete piles, concrete slopewall to be class "D".
Continuous concrete pours shall be required between construction joints as shown on detail plans.
Bevel forms ¾ inch under copings; and chamfer exposed edges 1 inch unless noted.
Construct slopewall at locations as shown on Plans in accordance with Special Provisions.
Tolerance in position of pile head, maximum 2 inches.
3-1 inch Exp. Jts. with Load Transfer to be placed at end of R.C. Br. Appr. - See Br. Std. M3.
All railings to be constructed perpendicular to grade.

See special provisions for items included in this contract.

DESIGN DATA

Designed for H20-S16-44 loading in accordance with 1957 AASHO Specifications, except slab designed for 16,000 lb. wheel load. Main carrying members checked for Live Load for Bridges on Interstate System.

JOINT LEGEND

Joint "D" indicates ½" Preformed Joint Filler placed under front 6" of girder bearing area at End Bents.
1" Expansion Joint - See Bridge Standard C1.
1½" Exp. Joint - Same as 1" Exp. Jt. except thickness - see Br. Std. C1

TYPICAL CROSS SECTION

Std. Divided Lane Section for F.A. Interstate Projects - Rev. 4-1-60

NOTE:
The following items are not in the Bridge Contract
1" Expansion Joint
1" Exp. Jt. with Load Transfer
R.C. Bridge Approach
Standard Lighting
Bituminous Shoulders
Integral Curbs

Additional Paint Steel Req'd for Lighting

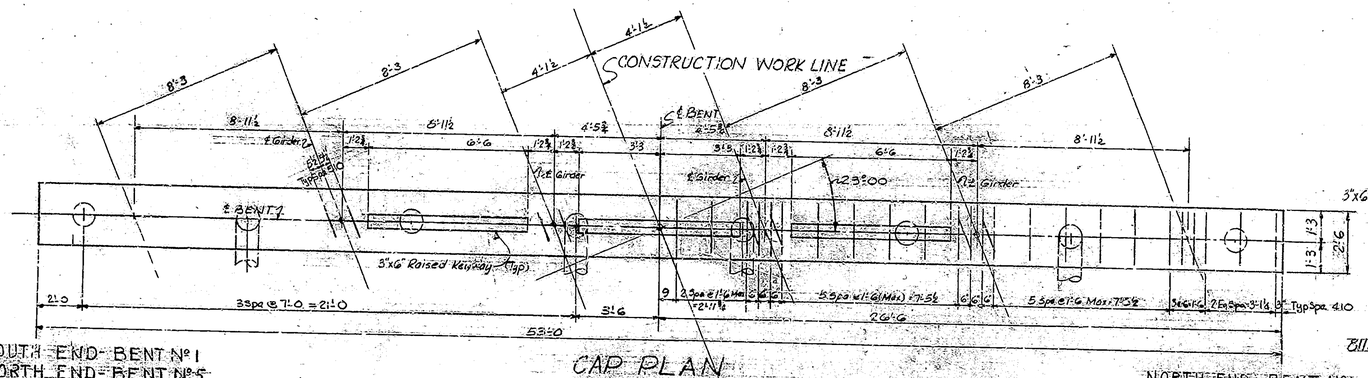
Mark or Type	No. of Pieces	Length	Weight
C	24	10'-0"	456
#4 T	42	2'-6"	53
			99

GENERAL PLAN
R.C. GIRDER & CONTINUOUS STEEL BEAM BRIDGE
4 SPANS, 87'-0", 2 @ 99'-3", 87'-0" SKEW STRUCTURE
59'-0" ROADWAY, SKEW 75°-21' 20 GIRDERS
I-70 OVER I-465
STATE HIGHWAY DEPARTMENT OF INDIANA
MARION COUNTY
SCALE: 1/4" = 1'-0" UNLESS NOTED JANUARY 10, 1961

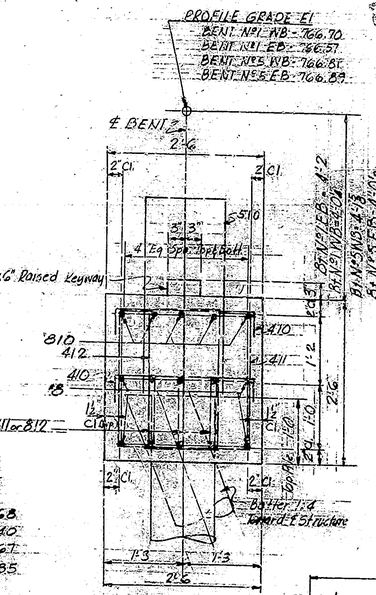
DRAWN JAT CHKD.
DRAWN CHKD.

DRAWING 52 OF 98
PROJECT I-465-4(7)155
BRIDGE CONTRACT NO 5212
BRIDGE FILE 70-52-47

BRIDGES OVER 20' SPAN					
FUS. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-3 (17) 155	1961	13	64



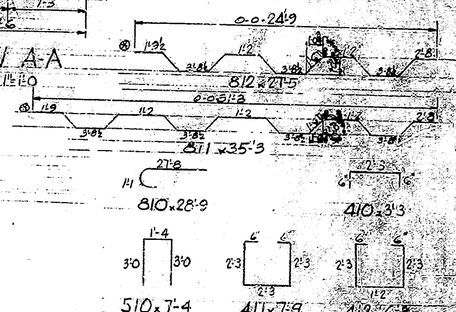
NORTH END - BENT N°1
SOUTH END - BENT N°5
BRIDGE SEATS
BENT N°1 WB EL. 762.68
BENT N°1 EB EL. 762.40
BENT N°5 WB EL. 762.67
BENT N°5 EB EL. 762.85



SECTION A-A
Scale: 1½"=1'-0

BILL OF MATERIAL
BENT N°1 EB
(BENT N°1 WB & BENT N°5 EB & WB SAME)

MARK OR SIZE	N° of Bars	Length	Weight
810	10	25'-9	
811	3	35'-3	
812	3	27'-3	
#3	4	11'-8	
#8	4	24'-3	
-	Total	#8	1362
510	8	7'-4½	61
410	37	3'-3	
411	41	3'-3	
412	41	6'-8	
	Total	#4	605
	Total	#5	2-28
CONCRETE			
Class F			178 C.Y.
Miscellaneous			
8-Steel Piles			
Shells @ 48#			3400 Lbs.



BAR BENDING DIAGRAMS
1½" to Scale

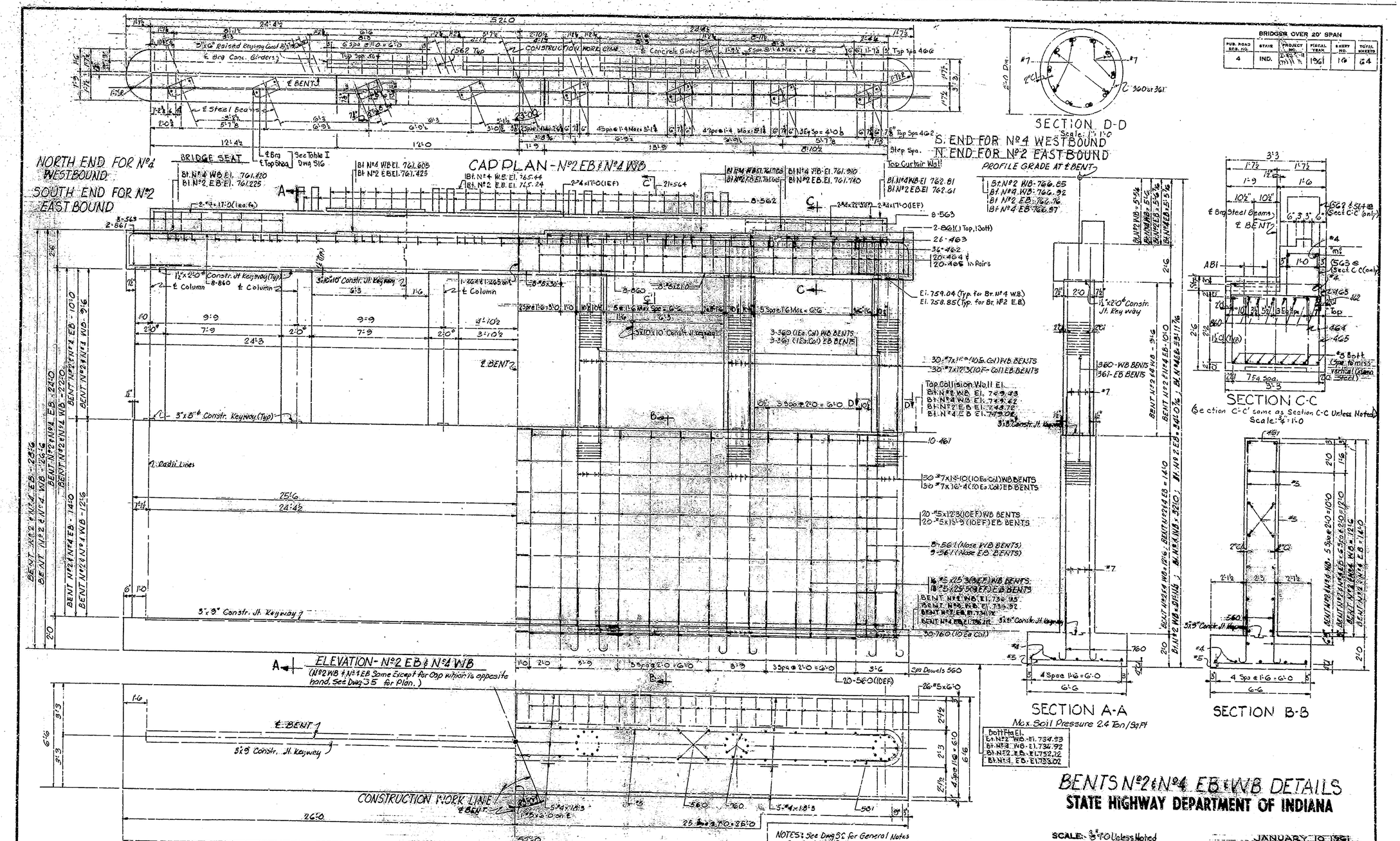
NOTES: See 8r 3rd Cl. for Reinforcing bar notes
See Dwg. S2 for General Notes
Bent cap is not to be poured until the fill has been completed up to the approximate elevation of the bottom of the cap.
8-Steel-encased Concrete Piles Required at each End
Minimum Bearing - 40 Tons/Pile

BENTS N°1 & N°5 EB END DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: 3/4"=1'-0 Unless Noted — JANUARY 10, 1961
Walter McCoy

DESIGNED RHM CHKD RGM
DRAWN RGM CHKD WEG
TRACED CHKD

DRAWING S-8 OF ●
PROJECT I-465-3 (17) 155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE 5-10-13-4647



BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-4-5-4 (7) 155	1961	16	64

BENTS No 2 & No 4 EB & WB DETAILS

STATE HIGHWAY DEPARTMENT OF INDIANA

NOTES: See Dwg 52 for General Notes
See Dwg 55 for Bending Diagrams, Bill of Materials & Spiral Notes.
Holes for Anchor Bolts AB1 are to be drilled. See Dwg 511 for Final location of drilled holes.
Anchor bolts to be furnished with structural steel.
The center portion of cap concrete to be placed after side pours have their initial set.
Dimensions shown for locating Anchor Bolts are for checking field clearance between reinforcing steel and Anchor Bolts.
Reinforcing steel shall be adjusted to maintain 1½" clearance.

SCALE: 3/8" = 1'-0 Unless Noted

JANUARY 10, 1961

Walter M. Beam

DRAWING: 54 OF 16
PROJECT: I-4-5-4 (7) 155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE: I-70-73-4647

DESIGNED: RRH CK'D: WFG
DRAWN: RRH CK'D: RHM
TRACED: CK'D:

HARRAUGH ENG. SUPPLY-NO. 108

BRIDGES OVER 20' SPAN					
FED. ROAD RFG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (11) 155	1961	17	64

CAP PLAN - N°2 WB & N°4 EB
Scale: ⅜" = 1'-0

NORTH END FOR BT. N°4 EASTBOUND
SOUTH END FOR BT. N°2 WESTBOUND

SOUTH END FOR BT. N°4 EASTBOUND
NORTH END FOR BT. N°2 WESTBOUND

CAP ELEVATION - N°2 WB & N°4 EB
Scale: ⅜" = 1'-0

BILL OF MATERIALS

BENT N°2 EB
(BT. N°4 EB SAME EXCEPT AS NOTED)

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
860	16	29'-5	
861	4	9'-11	
#8	8	30'-9	
#8	8	21'-0	
	Total	#8	2468
760	60	4'-10	
#7	60	16'-4	
#7	60	12'-3	
	Total	#7	4098
560	40	3'-11	
561	18	6'-7	
562	8	12'-4	
563	16	6'-7	
564	21	12'-3	
#5	36	25'-3	
#5	40	12'-3	
#5	53	6'-0	
	Total	#5	2559
461	20	2'-11	
462	36	4'-0	
463	26	4'-10	
464	41	7'-6	
465	41	8'-6	
#4	2	22'-3	
#4	15	18'-3	
#4	6	17'-0	
	Total	#4	938
361	6	24'-2	1743
	Total Steel		11811
CONCRETE			
Class "F" - Cap			
Bt. N°2 EB			20.1 CY
Bt. N°4 EB			19.9 CY
Class "D" - Columns			7.1 CY
Class "E" Above Ftg.			58.9 CY
Class "E" - Footing			25.0 CY

BENT N°2 WB
(BT. N°4 WB SAME).

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
860	16	29'-5	
861	4	9'-11	
#8	8	30'-9	
#8	8	21'-0	
	Total	#8	2468
760	60	4'-10	
#7	60	14'-10	
#7	60	11'-9	
	Total	#7	3853
560	40	3'-11	
561	16	6'-7	
562	8	12'-4	
563	16	6'-7	
564	21	12'-3	
#5	32	25'-3	
#5	40	12'-3	
#5	53	6'-0	
	Total	#5	2440
461	20	2'-11	
462	36	4'-0	
463	26	4'-10	
464	41	7'-6	
465	41	8'-6	
#4	2	22'-3	
#4	15	18'-3	
#4	6	17'-0	
	Total	#4	938
360	6	22'-2	1666
	Total Steel		11305
CONCRETE			
Class "F" - Cap			13.9 CY
Class "D" - Columns			6.7 CY
Class "E" Above Ftg.			52.6 CY
Class "E" - Footing			25.0 CY

BENT N°3 EB

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
962	20	28'-1	
963	6	9'-5	
#9	8	30'-0	
#9	8	20'-6	
	Total	N°9	3475
760	60	4'-10	
#7	60	16'-1	
#7	60	13'-0	
	Total	#7	4160
560	40	3'-11	
561	18	6'-7	
#5	56	24'-9	
#5	40	13'-6	
#5	102	8'-0	
	Total	#5	2651
461	20	2'-11	
466	1	6'-1	
467	64	7'-9	
468	64	6'-9	
469	35	3'-3	
470	14	4'-1	
471	10	4'-5	
#4	21	17'-9	
#4	2	15'-0	
#4	2	8'-5	
	Total	#4	1087
363	6	24'-8	1784
	Total Steel		13137
CONCRETE			
Class "F" - Cap			12.7 CY
Class "D" - Columns			7.6 CY
Class "E" Above Ftg.			56.5 CY
Class "E" - Footing			30.1 CY

BENT N°3 WB

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
962	20	28'-1	
963	6	9'-5	
#9	8	30'-0	
#9	8	20'-6	
	Total	N°9	3415
760	60	4'-10	
#7	60	[illegible]	
#7	60	[illegible]	
	Total	#7	[illegible]
560	40	3'-11	
561	18	[illegible]	
#5	[illegible]	[illegible]	
#5	[illegible]	[illegible]	
#5	[illegible]	[illegible]	
	Total	#5	[illegible]
461	20	2'-11	
466	1	6'-1	
467	64	7'-9	
468	64	6'-9	
469	[illegible]	3'-3	
470	14	4'-1	
471	10	4'-5	
#4	21	17'-9	
#4	2	15'-0	
#4	2	8'-5	
	Total	#4	1087
362	6	22'-8	1642
	Total Steel		12676
CONCRETE			
Class "F" - Cap			12.7 CY
Class "D" - Columns			7.4 CY
Class "E" Above Ftg.			49.5 CY
Class "E" - Footing			32.1 CY

1- Any lap made in spiral - weld or 1½ turns lapped
2- Spiral to be made of ⅜ cold drawn wire.
3- Three spacers are required for each spiral. The cost of spacers is to be included in the cost of spiral.

BAR BENDING DIAGRAM
Not to Scale

BAR BENDING DETAILS

MARK	LENGTH	TYPE	A	B	C	D	E	F	G	H	J	O	R
962	28'-1	20		26'-3	1-10								
963	9'-5	10	3'-0	3'-5	3'-0							2'-2	1-1
860	29'-5	20		27'-3	2'-2								
861	9'-11	10	2'-8	4'-7	2'-8							2'-11	1-5½
760	4'-10	1	10	4'-0							7		
360	24'-1	1	7	3'-4							5		
561	6'-7	10	1'-8	3'-5	1'-8							1'-9½	10½
562	12'-4	S10		5'-6	1'-4	5'-6							
563	6'-7	S10		2'-8	1'-3	2'-8							
461	2'-11	S10		6	1'-11	6							
462	4'-0	S10		6	3'-0	6							
463	4'-10	S10		11	3'-0	11							
464	7'-6	S6	6	2'-3	2'-0	2'-3			6				
465	8'-6	S6	6	2'-3	3'-0	2'-3			6				
466	6'-1	10	1'-4	3'-5	1'-4							2'-2	1-1
467	7'-9	S6	6	2'-3	2'-3	2'-3			6				
468	6'-9	S6	6	2'-3	1'-3	2'-3			6				
469	3'-3	S10		6	2'-3	6							
470	4'-1	S10		11	2'-3	11							
471	4'-5	S10		1'-1½	2'-3	1'-1½							

NOTES:
Holes for Anchor Bolts are to be drilled
See Drg. S16 for final location of drilled holes.
Anchor Bolts are to be furnished with the Structural Steel.
The center portion of the cap is to be placed after the side pours have their initial set.
Dimensions shown for Anchor Bolts are for checking field clearance between reinforcing steel and Anchor Bolts. Reinforcing steel to be adjusted to maintain 1½" clearance
See Br. Std C1 for Reinforcing Bar Notes
See Dwg S2 for General Notes
See Dwg S4 & S6 for Additional Details

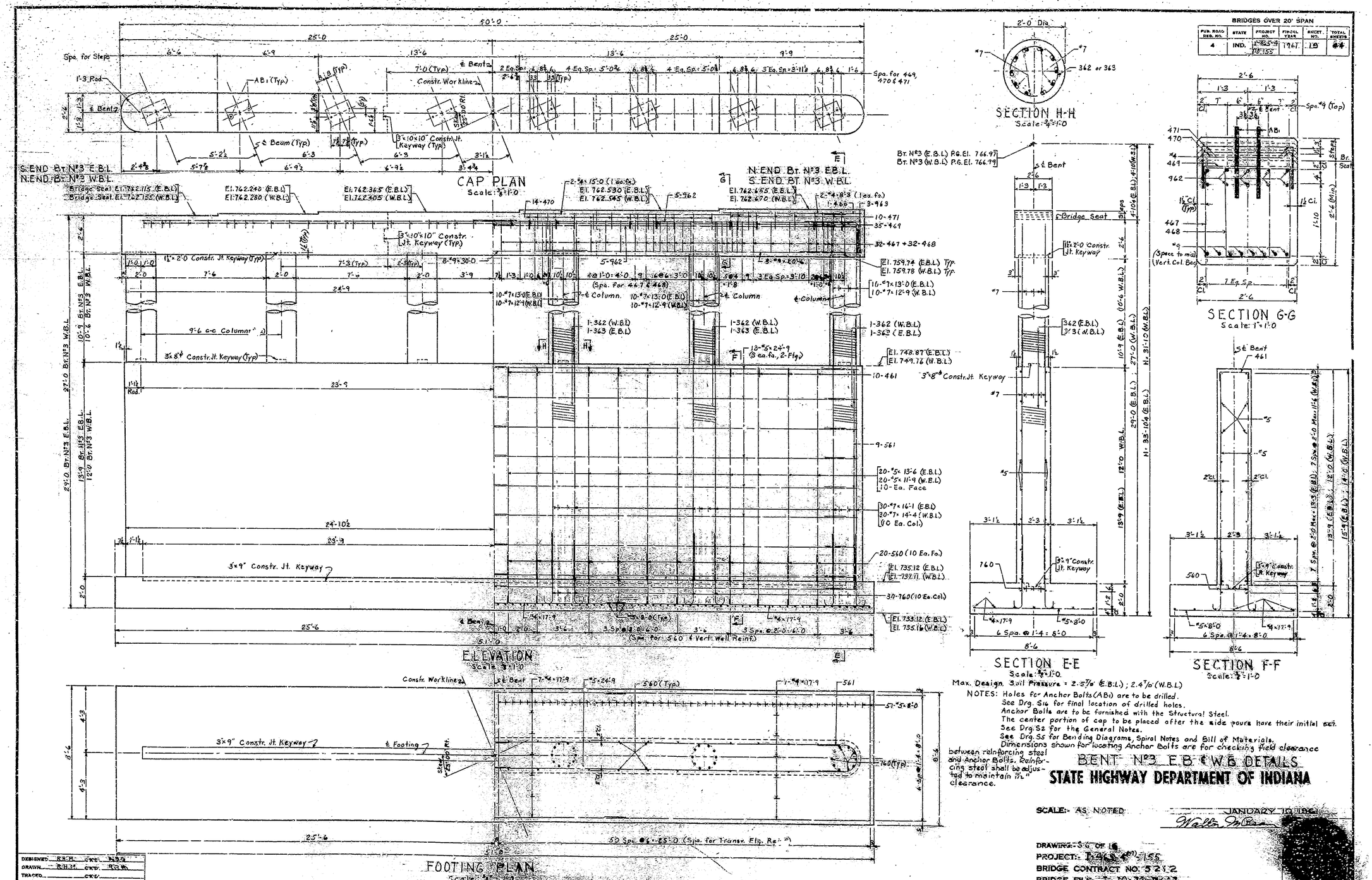
BENT N°2 WB & N°4 EB DETAILS & BILL OF MATERIAL
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted
JANUARY 10 1961
Walter G. Bean

DRAWING:- S5 OF 16
PROJECT:- I-465-4 (11) 155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-78-4647

DESIGNED RHM CKD RRD
DRAWN RRD CKD RHM
TRACED CKD

MARBAUGH ENG. SUPPLY-NO. 186



BRIDGES OVER 20' SPAN

PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (77) 155	1961	19	44

BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (77) 155	1961	19	68

WING "B"

WING SECTION SHOWING (SEC. H-H)

BOTTOM GIRDER STEEL

Scale: ¼"=1'-0

SLAB PLAN - SPAN "A" E.B. & "D" W.B.*

Scale: ¼"=1'-0

*Except as noted.

"WING "A" SPAN "A" E.B.

"WING "E" SPAN "D" W.B. (See Dwg. S9 for Corner Detail)

ELEVATION

Scale: ¼"=1'-0

SECTION A-A

Scale: ¾"=1'-0

SECTION B-B

Scale: ¾"=1'-0

V-CONSTRUCTION JOINT

Scale: 1½"=1'-0

SECTION C-C

Scale: ¾"=1'-0

SECTION D-D

Scale: ¾"=1'-0

(See D-D same except as noted)

SECTION E-E

Scale: ¾"=1'-0

SECTION F-F

Scale: ¾"=1'-0

SECTION G-G

Scale: ¾"=1'-0

DESIGN DATA:

UNIT STRESSES: f_s = 20,000 #/in², f_c = 1200 #/in²

LIVE LOAD: H 20-S16-44 with impact and distribution of load in accordance with 1957 A.A.S.H.O. Specifications except for floor slab which was designed for a 16000 lb wheel load.

DEAD LOAD: Increased 35#/ft² of roadway for future wearing surface. Slab designed with ¼ inch wearing surface.

Max. Dead Load Deflection = 1/2"

NOTE:

See Dwg S9 for SEC. E-E

See Dwg S2 for General Notes

See Bridge Std. (E) for Aluminum Railing Details

See Dwg S18 for Section thru Mudsill & Basewall

See Dwg S19 for WING "E" Details for SPAN "D" W.B.

SPAN "A" E.B. & SPAN "D" W.B.* DETAILS

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: As Noted

JANUARY 10, 1961

Walter W. Brown

DESIGNED R.H.M. CK'D. R.A.G.

DRAWN R.D.H. CK'D. W.E.Q.

TRACED CK'D.

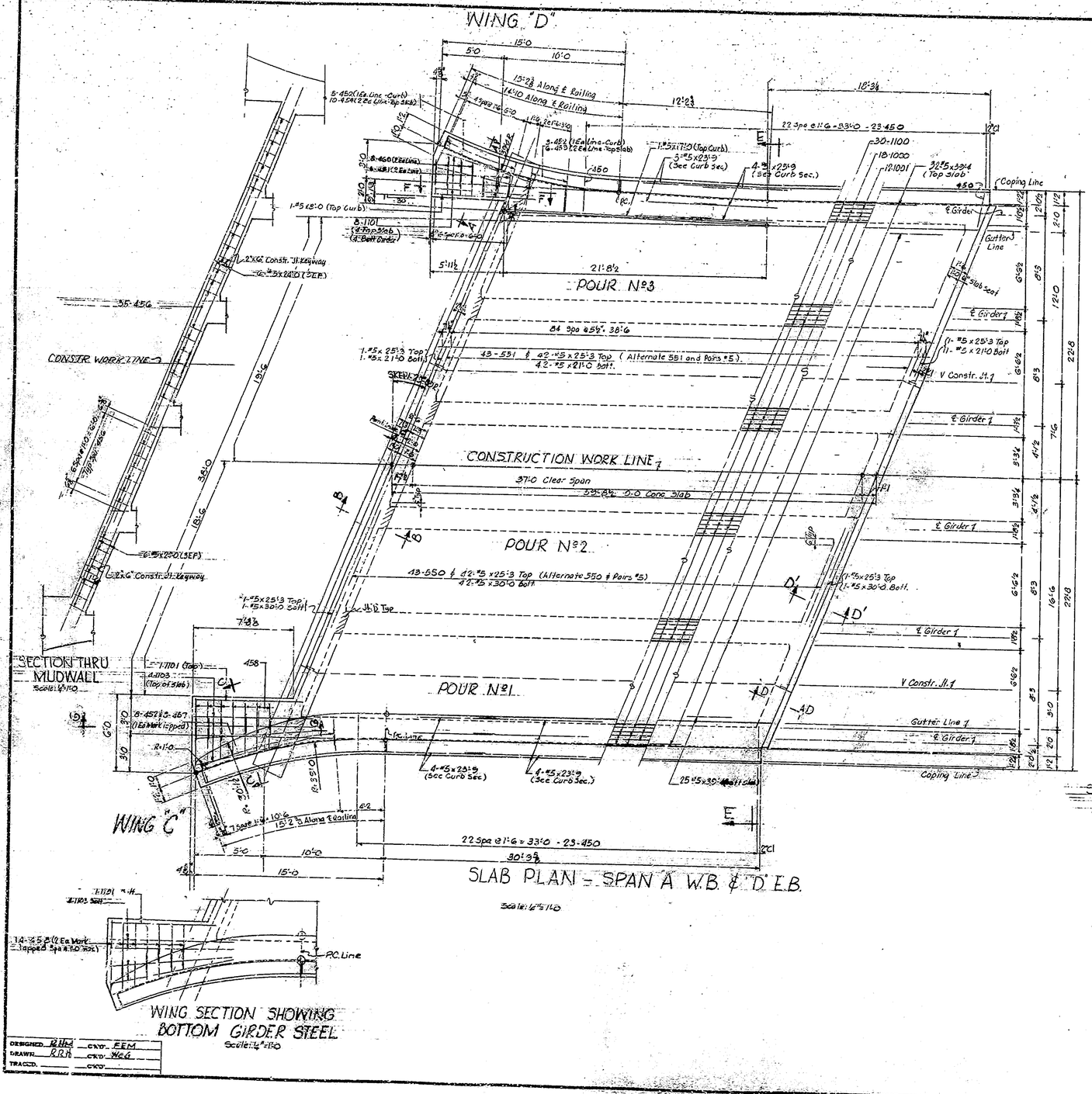
DRAWING: S7 OF 16

PROJECT: I-465-4 (77) 155

BRIDGE CONTRACT NO. 5212

BRIDGE FILE: I-70-73-4647

MARBAUGH ENG. SUPPLY NO. 106



BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (77) 155	1961	80	64

BILL OF MATERIAL
SPAN "A" WESTBOUND LANE
(SPAN "D" EASTBOUND LANE - SAME)

MARK OR SIZE	No. of Bars	Length	Weight lbs.
1100	30	43'-3	
1101	10	10'-4	
1103	8	11'-4	
	Total	#11	17923
1000	18	43'-4	
1001	12	44'-3	
	Total	#10	2691
550	43	31'-9	
551	43	22'-6	
#5	57	39'-4	
#5	44	30'-0	
#5	88	25'-3	
#5	24	24'-0	
#5	15	23'-9	
#5	44	21'-0	
#5	1	17'-0	
#5	1	8'-0	
	Total	#5	10428
450	46	4'-9	
451	6	7'-10	
452	16	4'-9	
453	6	2'-4	
454	10	3'-2	
455	64	5'-10	
456	49	6'-3	
457	8	3'-10	
458	14	10'-3	
459	228	9'-2	
460	8	9'-6	
461	4	5'-2	
462	4	4'-0	
#4	26	3'-6	
	Total	#4	2361
#3	12	12'-0	
#3	4	14'-6	
#3	4	13'-10	
#3	4	12'-8	
#3	12	11'-11	
#3	26	2'-3	
	Total	#3	219
	Total	Steel	26572

CONCRETE	
POUR No 1	22.2 CY
POUR No 2	50.0 CY
POUR No 3	41.1 CY
Total Class "F"	113.3 CY
Railing Concrete Cl. "F"	5.5 CY
MISCELLANEOUS	
Type 1 Aluminum Railing	61.2 LF

Notes: See Dwg S7 for Sec. A-A, B-B, C-C, D-D, F-F & G-G
See Dwg S9 for Bar bending diagrams, elevations & Longitudinal girder section & SEC. EE & SEC. D'-D'
See Br. Std C1 for Reinforcing bar notes.
See Br. Std R1 for Aluminum Railing Details.
See Dwg S2 for General Notes

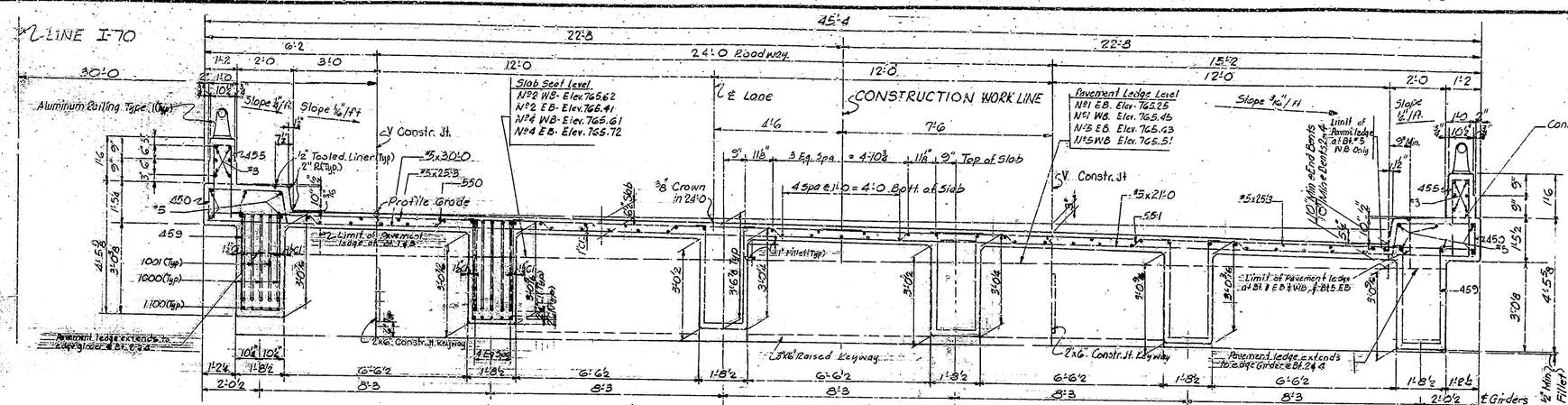
SPAN "A" WB & SPAN "D" EB DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

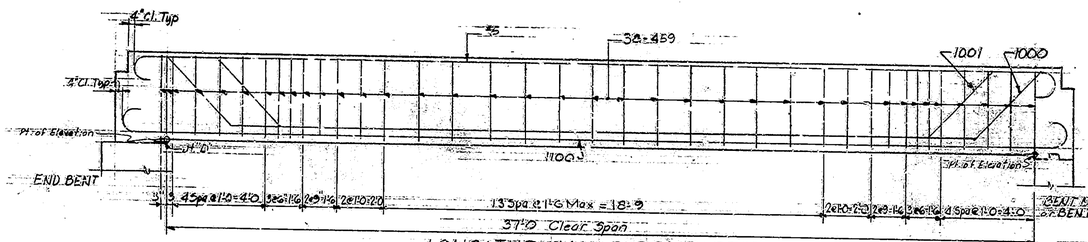
SCALE: As Noted — JANUARY 10, 1961

Walter M. Pearson

DRAWING: S8 OF 16
PROJECT: I-465-4 (77) 155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE: I-70-73-4647

DESIGNED RHM — CK'D FEM
DRAWN RRH — CK'D WEG
TRACED — CK'D





LONGITUDINAL GIRDER SECTION
Scale: ⅜"=1'-0

BILL of MATERIAL
SPAN "D" WESTBOUND LANE

MARK or SIZE	N° OF Bars	LENGTH	WEIGHT lbs.
1100	30	43'3	
1101	8	10'4	
1102	2	7'0	
1103	8	11'4	
1104	2	9'7	
	Total #	11	7991
1000	18	42'4	
1001	12	44'3	
	Total	#10	564'
550	43	3'9	
551	43	22'6	
#5	57	39'4	
#5	44	30'0	
#5	88	22'3	
#5	22	22'0	
#5	16	23'9	
#5	44	21'0	
	Total	#5	10427
450	46	4'9	
451	16	7'0	
455	64	2'0	
456	49	6'3	
457	16	5'10	
458	12	10'3	
459	228	9'2	
461	4	5'2	
462	8	4'0	
463	14	6'4	
#4	24	4'6	
	Total	#4	2383

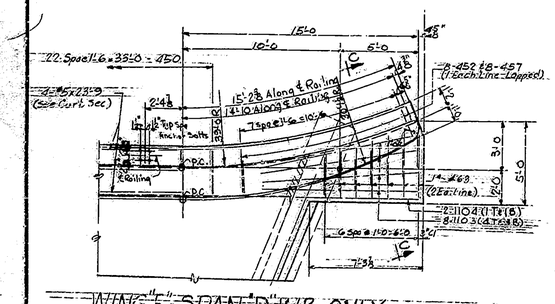
MARK or SIZE	N° OF Bars	LENGTH	WEIGHT lbs.
#3	12	18'0	
#3	4	14'6	
#3	4	13'0	
#3	4	10'8	
#3	12	11'11	
#3	26	24'3	
	Total #3		219
TOTAL STEEL			26661

CONCRETE

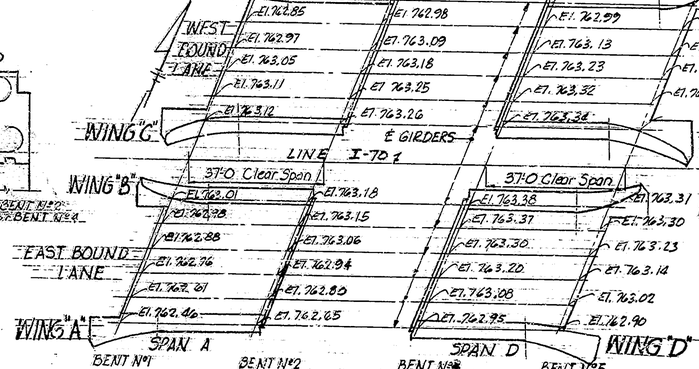
POUR N°1	22.2 CY
POUR N°2	50.0 CY
POUR N°3	39.7 CY
TOTAL CL"E"	111.9 CY
Railing Concrete CL"F"	5.5 CY

MISCELLANEOUS

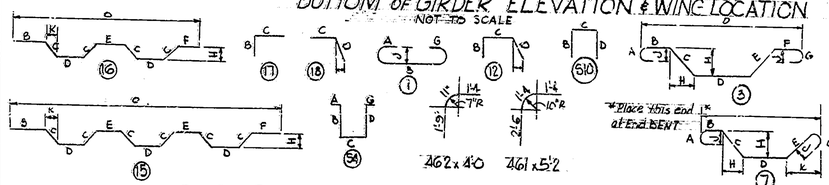
Type I Aluminum Railing =	61.5 LF



WING "F" - SPAN "D" WB ONLY
Scale: ½"=1'-0



BOTTOM of GIRDER ELEVATION & WING LOCATION
NOT TO SCALE



BAR BENDING DIAGRAM

MARK	LENGTH	TYPE	A	B	C	D	E	F	G	H	J	O	K
1100	43'3	1	1'-7	40'-1					1'-7		1'-6		
1000	43'-4	7	1'-1	1'-3	4'-6	5'-6	4'-3		1'-7		5	5'-10	5'-9
1001	44'-3	5	1'-6	9'-3	2'-9	7'-11	2'-11	2'-9	1'-5	2'-11	10'-2	5'-10	
550	3'-9	15			2'-11	6	4'-5	5'-10	2'-11		4'-6	5'-10	4'-6
551	22'-6	16			5'-11	6	4'-5	5'-10	2'-11		4'-6	2'-11	4'-6
#5	4'-9	12		4'-1	2'-8	1'-10							
#5	7'-10	5'-10		3'-10	4'-2	1'-10							
#5	3'-9	5'-10		1'-10	1'-8	1'-10							
#5	3'-4	17		6	7'-8								
#5	3'-2	18		6	2'-8								
#5	5'-10	5'-10		2'-10	2'-6	2'-6							
#5	6'-3	5'-10		2'-6	1'-5	2'-6							
#5	5'-10	13			4'-10	2'-10							5"
#5	7'-3	5'-10		5'-6	2'-3	3'-6							
#5	9'-2	5'-10		3'-9	1'-5	3'-7			6'-6				
#5	9'-4	5'-10		3'-11	1'-5	3'-8							
#4	4'-3	5'-10		2'-6	0'-8	2'-6							

See Dwg S2 for General Notes.
See Br. Std. C1 for Reinforcing Bar Notes
See Br. Std R1 for Aluminum Railing Details
See Dwg S15a for SEC. E-E

SPAN "A" EB & SPAN "D" WB DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted

JANUARY 10, 1961

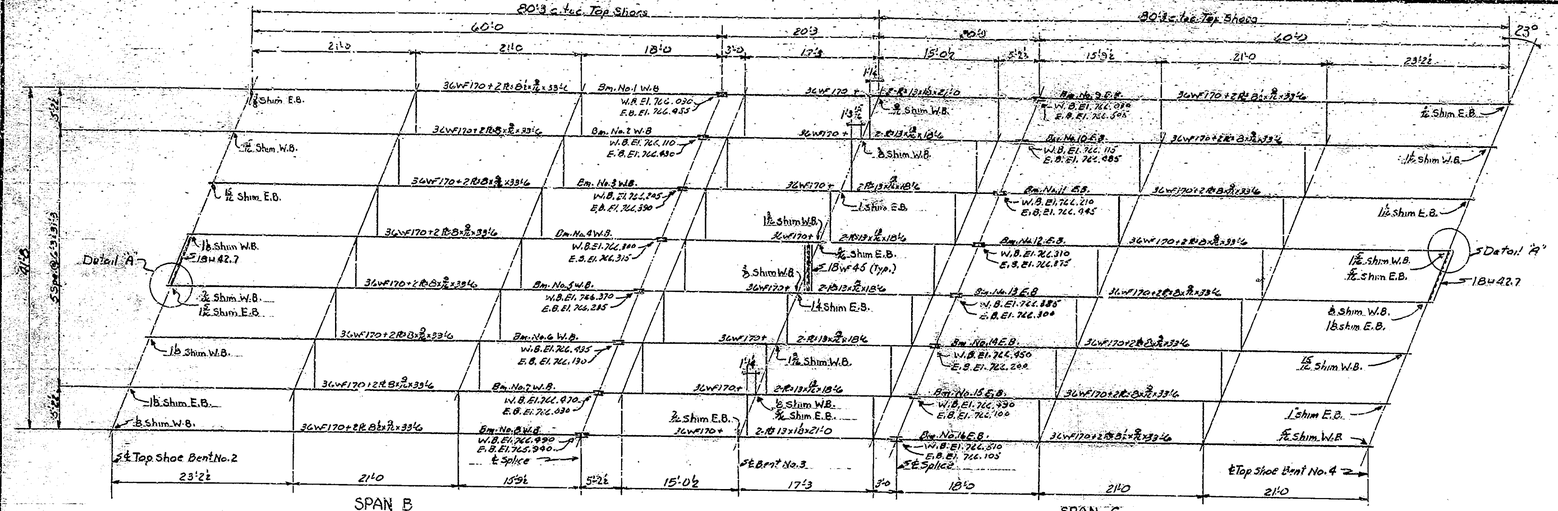
Walter M. Bacon

DRAWING:- S9 OF 16
PROJECT:- I-465-4 (77) 155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-75-4647

DESIGNED RHM CKD. FEH
DRAWN RJP CKD. RHM
TRACED CKD.

MARSHALL KING SUPPLY NO. 186

BRIDGES OVER 20' SPAN					
FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YR.	SHEET NO.	TOTAL SHEETS
4	IND.	I-265-4 (77)155	1961	22	64



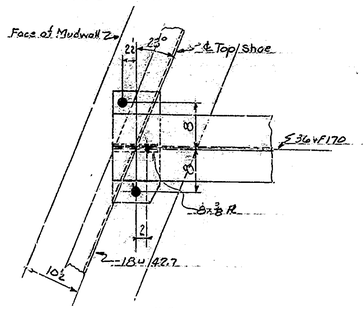
FRAMING PLAN

Scale 1" = 10'

EAST BOUND AND WEST BOUND STRUCTURAL STEEL HAVE DIFFERENT ERECTION MARKS

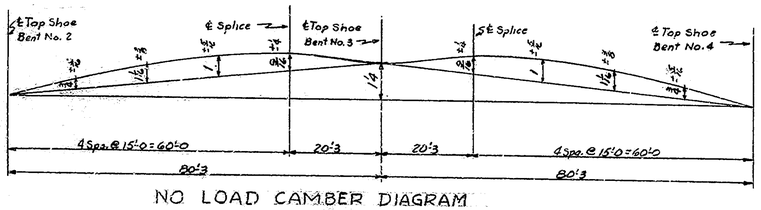
TABLE OF MOMENTS AND REACTIONS

	Moment @ ℄ Span B or C Sq. c. to c. K.		Moment @ ℄ 2 K.		Reaction 2 & 2c K.		Reaction P1 K.	
	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.
DEAD LOAD	419.0	543.3	809.9	1089.5	28.61	37.87	91.98	129.47
LIVE LOAD	329.1	442.1	472.5	602.8	39.17	49.83	55.03	35.42
IMPACT	128.6	101.4	118.2	57.5	3.52	4.82	13.87	8.66
TOTAL	1076.7	1086.8	1399.2	1550.2	77.30	62.12	160.38	173.55



DETAIL "A"

Scale 1" = 1'0



NO LOAD CAMBER DIAGRAM

NO SCALE

CAMBER NOTE:

Beams shall be cambered for no load camber as shown in camber diagram.

GENERAL NOTES

Rivets:- ⅞" ℄ Unless noted.
Open Holes:- 15/16" ℄ Unless noted.
Diameter of holes in all materials connecting top shoes to beam flange shall be 1/16" less than the nominal diameter of the rivet.
Bolts connecting beam flange to top shoe shall extend into or thru shoe a minimum of ½".
Beams must 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 the direction of camber.
Holes for beam splices shall be subpunched or subdrilled and reamed to size while assembled. See Article E-1105-1A(a) of the Specifications.
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 shall be assembled in accordance with the No Load Camber Diagram.
If the beams are shop reamed or drilled, full size drift pins shall be used in erection.

The shop details shall show a plan of match marking for all reamed plates.
All splice plates are to be removed, cleaned, and painted, after reaming splice plates shall not extend beyond the end of beam after bolting for shipment.
Flange splice bolts shall have planed or rolled edges and holes in web shall be subdrilled and reamed or drilled full size while assembled.
Ribbed bolts may be substituted for field rivets in diaphragm connections. See Specifications.
All structural steel shall be erected and beams adjusted to proper elevation before driving rivets in beam splices.
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 3 copies of these to the Engineer. See Article E-1103.2 of the Specifications.
Shims between beams and top shoes may be built up. No shim shall be less than ⅛ inch thickness.
Weld on cover plates shall conform to specifications "Welded Highway and Railway Bridges". See Article E-1103.28 of the Specifications.
All structural steel on which welding is used shall be made from steel conforming to ASTM Specifications A 373-36T.

Note: See Dwg. S 2 For General Notes.
See Dwg. S 1a For Shoe Setting Diagram.
See Dwg. S 11 For Splice and Shoe Details.
See Dwg. S 11 For Interior Diaphragm Conn's.
See Dwg. S 13 & S 14 For End Diaphragm Conn's.

DATA USED FOR DESIGN AND DETAILS

LIVE LOAD: H 20-S 16-44 loading with impact and distribution of loads in accordance with 1957 AASHO Specifications.
DEAD LOAD: 1. Actual weight plus 35 pounds per Sq. Ft. of roadway to provide for future wearing surface.
SLAB: Designed for 16000 lb wheel plus impact and with 7 inch monolithic wearing surface.

UNIT STRESSES

Structural Steel Bending (Tension)	18,000 #/sq. in.
Shear on Rivets	13,500 #/sq. in.
Structural Steel Bearing (Including Rivets)	27,000 #/sq. in.
Bearing Steel on Concrete (Including overturning and Eccentric Loading)	1000 #/sq. in.
Reinforcing Steel (Tension)	20,000 #/sq. in.
Concrete (Compression)	1,000 #/sq. in.

PAINTING STRUCTURAL STEEL

All Paint shall be in accordance with current State Highway Specifications.
SHOP PAINT: One coat Red Lead Type 1 or 2 except as noted.
FIELD PAINT: 2 Coats of Aluminum.

NOTE: Aluminum Railing including Anchor Bolts and Post Castings to be paid for as cost per lineal foot.

NOTE: * Estimated Weight of Structural Steel = 282,900 (ONE LANE)

* Weight of Structural Steel shown is approximate only and it shall be the Contractor's responsibility to determine the weight on which he bases his bid.

DESIGNED PRH CK'D. FEM
DRAWN J&T CK'D. FEM
TRACED CK'D.

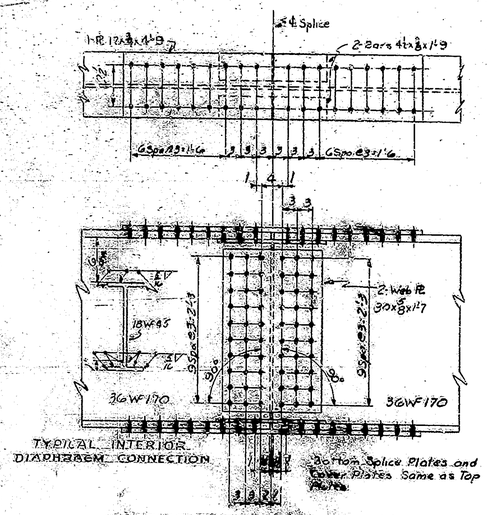
FRAMING PLAN
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- AS NOTED JANUARY 10, 1961

Walter S. Olsen

DRAWING:- S10 OF 16
PROJECT:- I-265-4(77)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-73-46.47

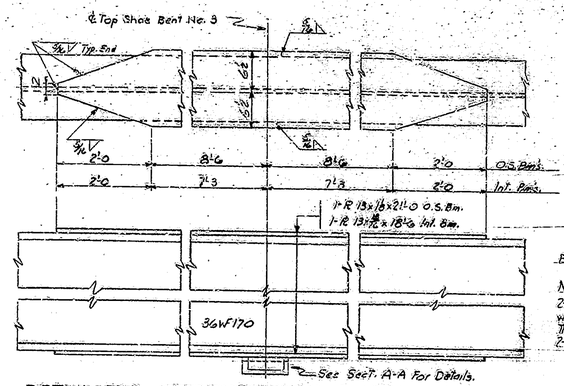
KINGSLEY ENG. SUPPLY CO. 1-56



TYPICAL INTERIOR DIAPHRAGM CONNECTION

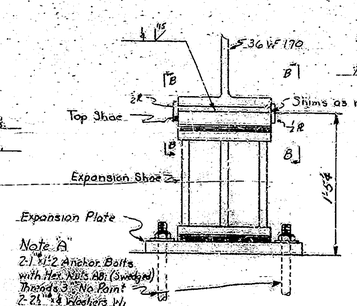
SPLICE DETAILS FOR ALL BEAMS

Scale 1"=1'-0



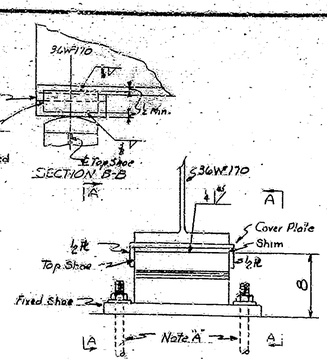
DETAIL FOR NEGATIVE COVER PLATES ALL BEAMS

No Scale



SHOE ASSEMBLY @ BENTS 2 & 4

Scale 1½"=1'-0

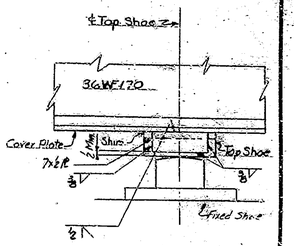


SHOE ASSEMBLY @ BENT 3

Scale 1½"=1'-0

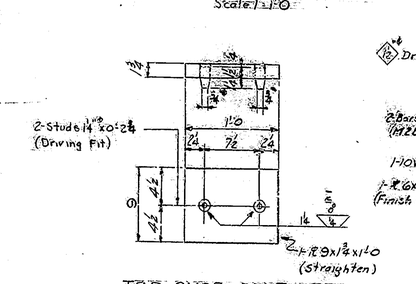
BRIDGES OVER 20' SPAN

PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	136 (77) 165	1961	23	36



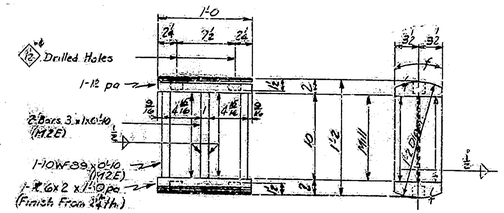
SECTION A-A

Scale 1½"=1'-0



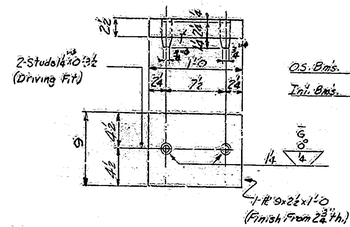
TOP SHOE @ BENTS 2 & 4

Scale 1½"=1'-0



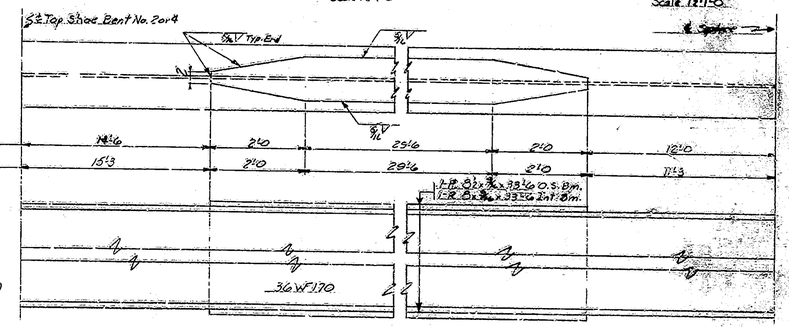
EXPANSION SHOE @ BENTS 2 & 4

Scale 1½"=1'-0



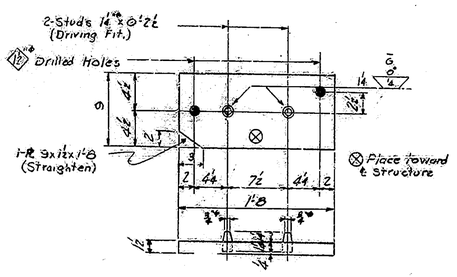
TOP SHOE @ BENT 3

Scale 1½"=1'-0



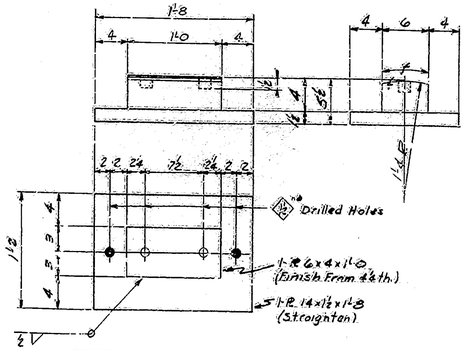
DETAIL FOR POSITIVE COVER PLATES ALL BEAMS

No Scale



EXPANSION PLATE @ BENTS 2 & 4

Scale 1½"=1'-0



FIXED SHOE @ BENT 3

Scale 1½"=1'-0

NOTES:
Rivets ⅞" ø
Open Holes 15/16" ø Unless noted
See Dwg. S10 For General Notes and Location of Details.

SUPERSTRUCTURE DETAILS SPANS B & C

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: As Noted — JANUARY 19[illegible]

Walter Sly Bom

DRAWING: S11 OF 16

PROJECT: [illegible]

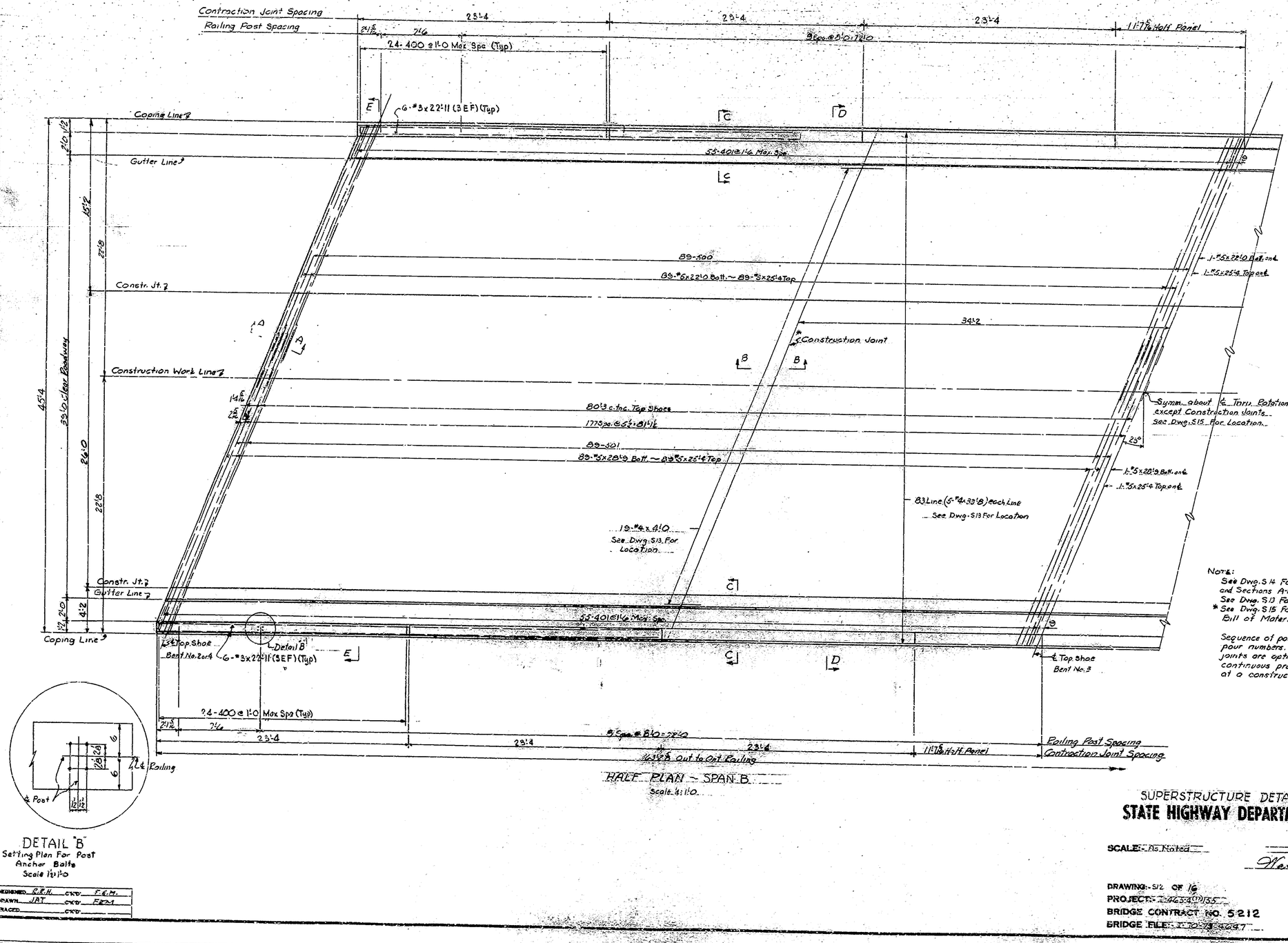
BRIDGE CONTRACT NO. 5212

BRIDGE FILE: [illegible]

DESIGNED	E.B.H.	CK'D.	E.E.M.
DRAWN	J.A.T.	CK'D.	E.E.M.
TRACED		CK'D.	

REARRANGED STD. SUPPLY-NO. 186

BRIDGES OVER 20' SPAN						
PUB. ROAD SYS. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	1465-4 (7)155	1961	12	64



DETAIL "B"
Setting Plan For Post Anchor Bolts
Scale 1½"=1'-0"

Note:
See Dwg. S 14 For Typical Corner Details and Sections A-A, B-B & C-C
See Dwg. S 13 For Sections D-D & E-E
* See Dwg. S 15 For Pour Diagram and Bill of Materials.

Sequence of pours to be made in order of pour numbers. Transverse construction joints are optional and pours may be continuous provided the pour terminates at a construction joint indicated on the plan.

SUPERSTRUCTURE DETAILS SPANS B and C
STATE HIGHWAY DEPARTMENT OF INDIANA

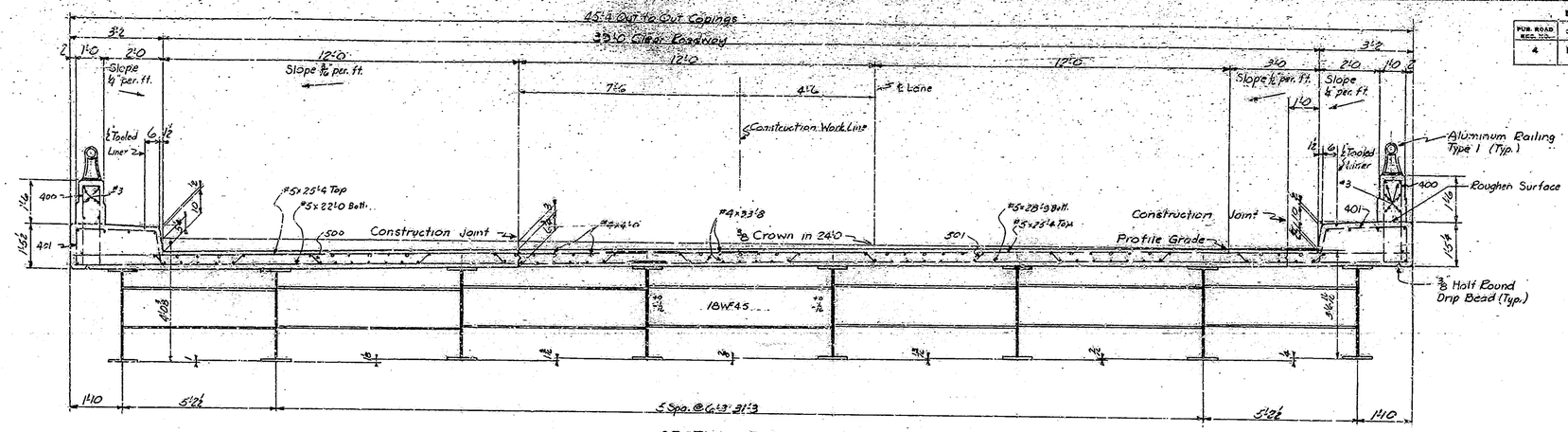
SCALE: As Noted — JANUARY 10, 1961
Walter M. Peat

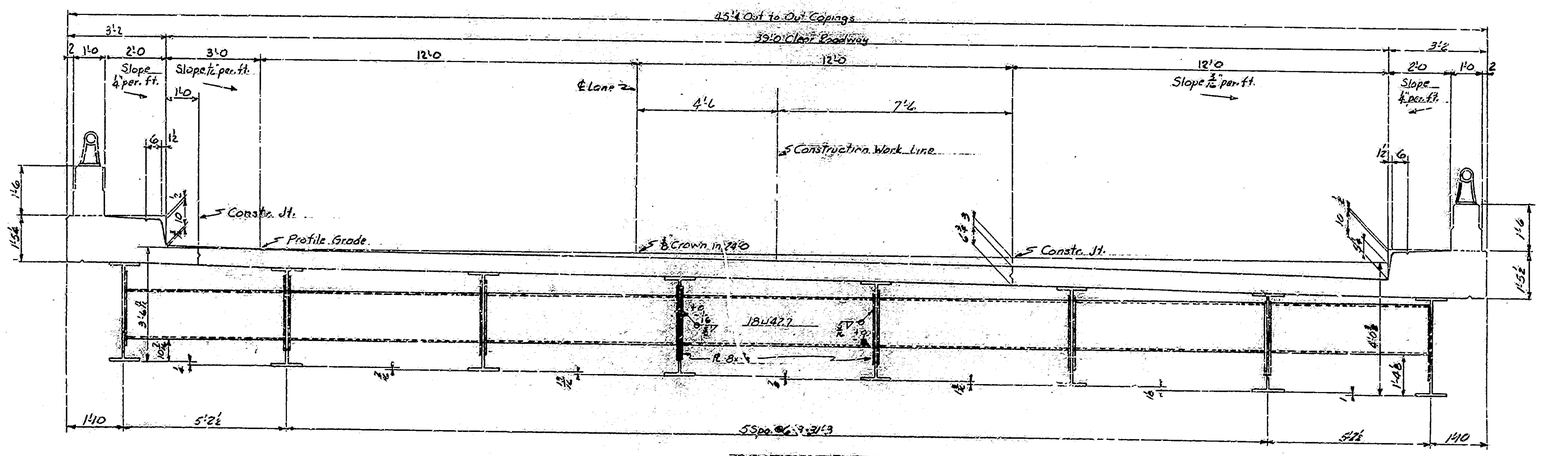
DRAWING: S12 OF 16
PROJECT: 1465(7)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE: 7-10-78-0097

DESIGNED	C.R.H.	CKD.	F.E.M.
DRAWN	J.A.T.	CKD.	F.E.M.
TRACED		CKD.	

BOOSALOON ENG. SUPPLY CO. 1961

BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	BRIDGE NO.	TOTAL SHEETS
4	IND.	I-465-2 (77)155	1961	25	64





Note:
See Dwg. S12 For Location of Sections
See Dwg. S11 For Interior Diaphragm Conns.
See Dwg. S14 For End Diaphragm Conns.

SUPERSTRUCTURE DETAIL SPANS B & C

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: 1"=1'-0"

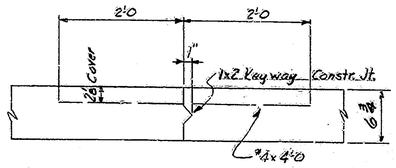
JANUARY 19 1961

DESIGNED R.P.H. CK'D F.E.M.
DRAWN J.B.T. CK'D E.C.M.
TRACED CK'D

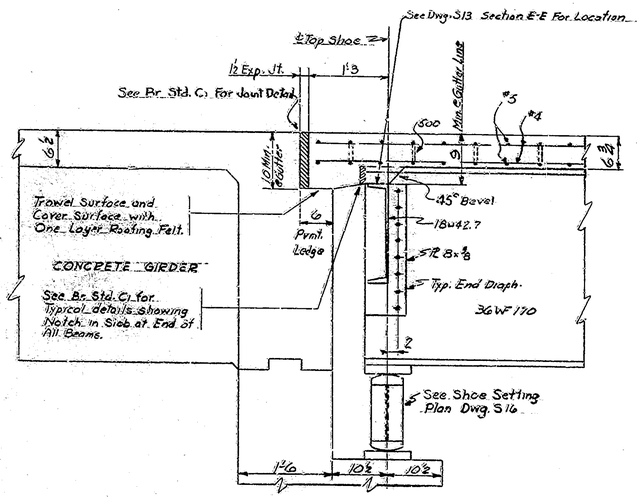
DRAWING - S13 OF 16
PROJECT - I-465-4(77)155
BRIDGE CONTRACT NO. S 212
BRIDGE FILE: I-70-M-4247

MARCAUGH BRO. SUPPLY-IND. 175

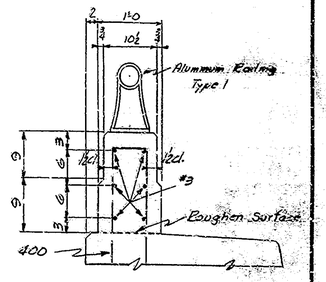
BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-46-4 (77)155	1961	26	64



SECTION B-B
Scale 1½"=1'-0

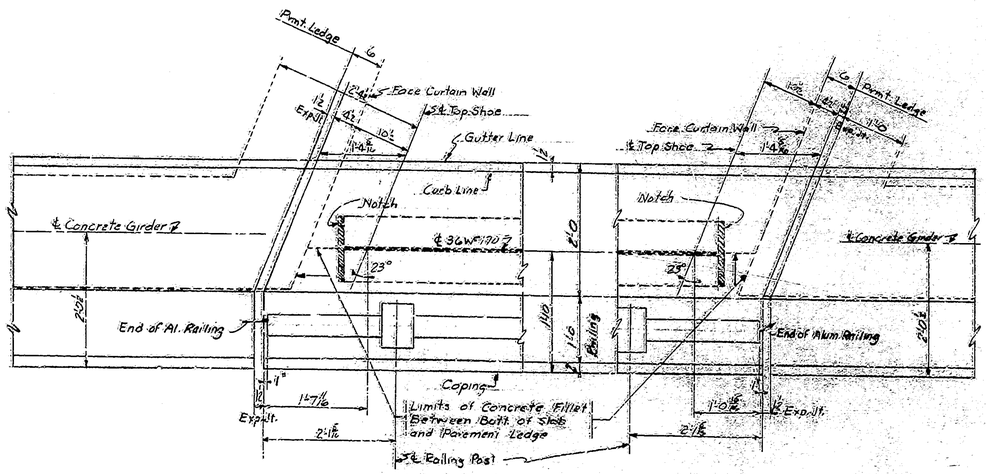


SECTION A-A
Scale 1"=1'-0



SECTION C-C
Scale 1"=1'-0

NOTE:
See Dwg. S12 For Location of Details.
See Br. Std. C1 For Reinforcing Bar Note.



TYPICAL CORNER DETAILS
Scale 1"=1'-0

SUPERSTRUCTURE DETAILS SPANS B and C.
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted.

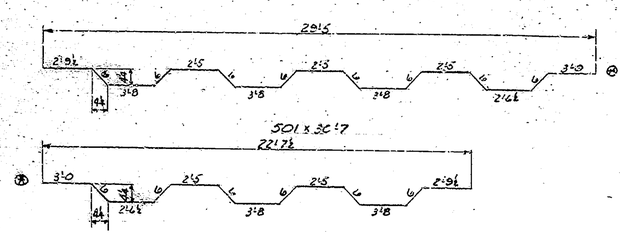
JANUARY 10, 19[illegible]

Walter M. [illegible]

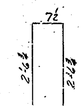
DRAWING:- S14 OF 16
PROJECT:- I-46-4 (77)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-78-4647

DESIGNED	R.R.H.	CK'D	F.E.M.
DRAWN	J.A.T.	CK'D	F.E.M.
TRACED		CK'D	

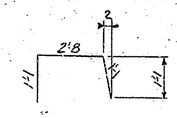
BRIDGES OVER 20' SPAN					
FUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (77) 155	1961	27	64



Note: Place ⊛ end at Coping



400 x 5'9



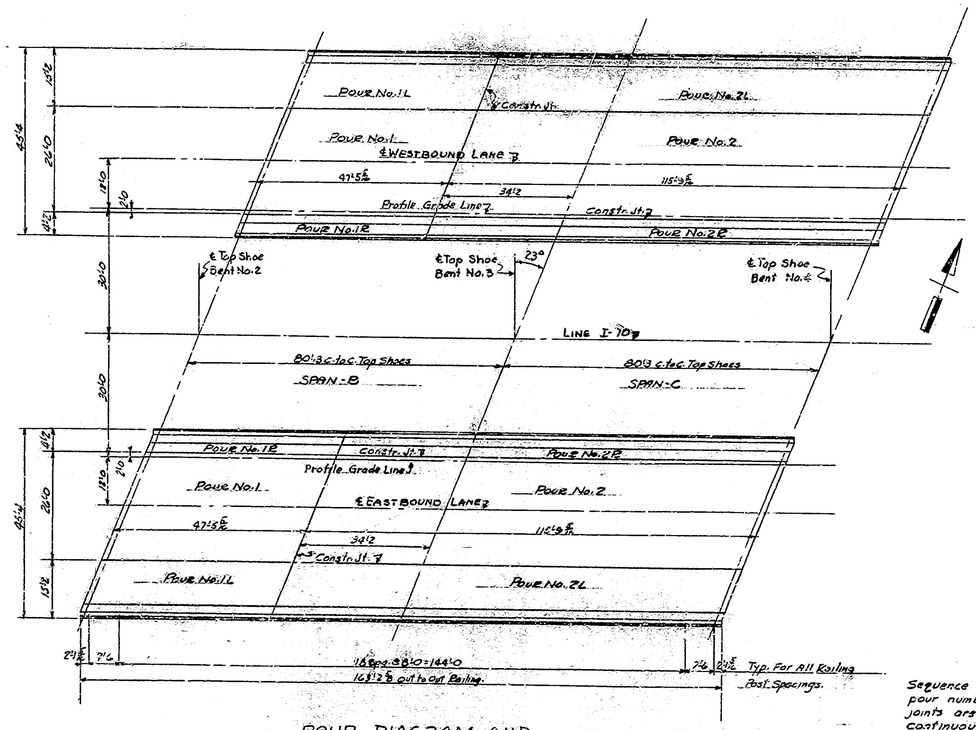
401 x 4'10

BILL OF MATERIALS
(ONE LANE ONLY)

MARK OR SIZE	No. OF BARS	LENGTH	WEIGHT (lbs)
500	178	23'6	
501	178	30'7	
#5	179	28'9	
#5	179	22'0	
#5	358	25'4	
	Total	#5	28975
400	336	5'9	
401	220	4'10	
#4	415	33'8	
#4	19	4'0	
	Total	#4	11335
#3	84	22'11	
	Total	#3	784
Total Steel			41084

CONCRETE

Pour No.	Cu. Yds.
1	26.4
1R	8.9
1L	19.8
2	63.3
2R	21.6
2L	[illegible]
Class "F"	[illegible]
Railing Concrete	17.0 c.y.
Aluminum Railing	
Type 1	326 [illegible] L.F.



POUR DIAGRAM AND RAILING POST SPACING
Scale 1/16 = 1'0

Sequence of pours to be made in order of pour numbers. Transverse construction joints are optional and pours may be continuous provided the pours terminates at a construction joint indicated on the plans.

NOTE:-
See Dwg. S12 For Slab Details
See Br. Std. C1 For Reinforcing Bar Note.

SUPERSTRUCTURE DETAILS SPANS B and C
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted
JANUARY 10, 1961
Walter M. Baum

DRAWING:- S15 OF 16
PROJECT:- I-465-4 (77) 155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-73-4647

DESIGNED P.R.H. CK'D F.E.M.
DRAWN J.F.T. CK'D D.R.M.
TRACED CK'D

DARBROOK ENG. SUPPLY—NO. 100

BRIDGES OVER 30' SPAN

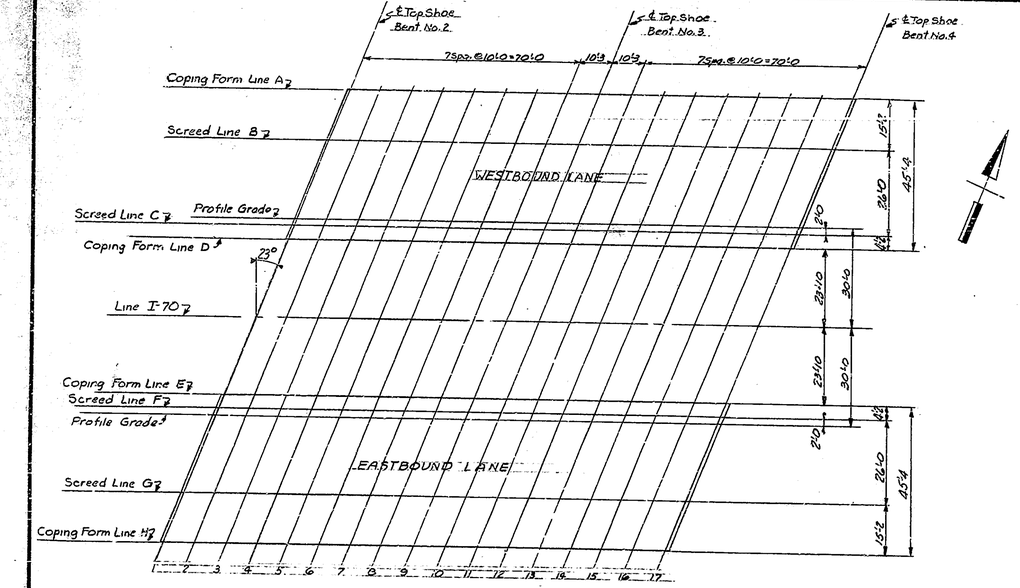
PUB. ROAD RTE. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (17) 155	1961	28	54

WESTBOUND LANE
TABLE OF ELEVATIONS

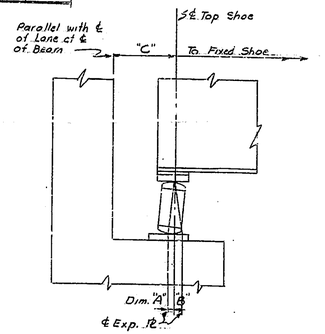
POINT	LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A	Elev. Top of Coping Form	767.335	767.380	767.420	767.495	767.655	767.765	767.830	767.895	767.930	767.935	767.945	767.955	767.930	767.890	767.810	767.670	767.380
	Elev. Top of Outside Beam																	
	Dist. Top of A to Top Coping Form																	
B	Elev. Top of Screed	766.630	766.680	766.710	766.745	766.760	766.765	766.785	766.795	766.795	766.795	766.790	766.760	766.770	766.770	766.740	766.715	766.720
	Elev. Top of Beam																	
	Dist. Top of Beam to Top of Screed																	
C	Elev. Top of Screed	766.935	766.910	766.955	766.983	767.005	767.010	767.085	767.090	767.090	767.090	767.010	767.045	767.040	767.035	767.030	767.010	766.980	766.935
	Elev. Top of Beam																	
	Dist. Top of Beam to Top of Screed																	
D	Elev. Top of Coping Form	767.730	767.785	767.830	767.860	767.980	767.985	767.985	767.980	767.880	767.850	767.905	767.920	767.915	767.920	767.895	767.865	767.820
	Elev. Top of Outside Beam																	
	Dist. Top of Beam to Top Coping Form																	

EASTBOUND LANE
TABLE OF ELEVATIONS

POINT	LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
E	Elev. Top of Coping Form	767.665	767.720	767.770	767.810	767.835	767.850	767.850	767.865	767.860	767.850	767.900	767.920	767.915	767.935	767.920	767.890	767.835
	Elev. Top of Outside Beam																	
	Dist. Top of Beam to Top Coping Form																	
F	Elev. Top of Screed	766.775	766.835	766.885	766.925	766.950	766.965	766.970	766.970	766.980	767.000	767.080	767.090	767.055	767.055	767.040	767.015	766.980
	Elev. Top of Beam																	
	Dist. Top of Beam to Top of Screed																	
G	Elev. Top of Screed	766.930	766.935	766.890	766.850	766.820	766.815	766.815	766.820	766.805	766.785	766.780	766.775	766.770	766.775	766.785	766.765	766.740
	Elev. Top of Beam																	
	Dist. Top of Beam to Top of Screed																	
H	Elev. Top of Coping Form	767.725	767.795	767.850	767.895	767.930	767.965	767.955	767.945	767.930	767.920	767.930	767.925	767.930	767.925	767.875	767.835	767.928
	Elev. Top of Outside Beam																	
	Dist. Top of Beam to Top Coping Form																	



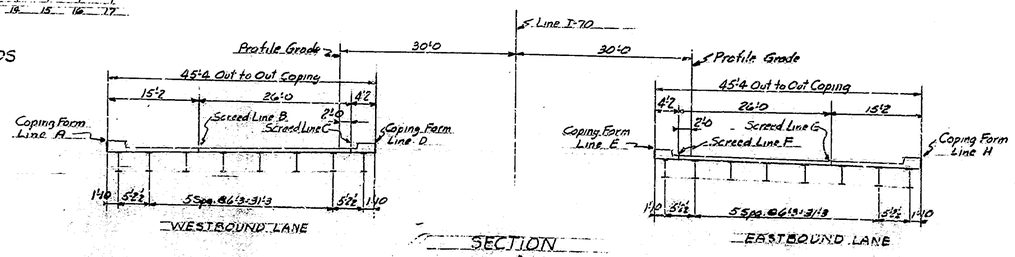
PLAN OF SCREEDS
Scale 1:20'-0



BENT No. 2 or No. 4
No Scale

TABLE No. I

	Dim. A			Dim. B			
Temperature	0	20	40	60	80	100	120
℄ Top Shoe To ℄ Exp. 12 @ Bent 2 or 4	3/8	1/4	1/8	0	1/8	1/4	3/8



SECTION
Scale 3/32" = 1'-0"

NOTES:
Purpose:
"PLAN OF SCREEDS" shows location of screeds.
"TABLE OF ELEVATION" shows data for setting screeds and coping forms, so that the slab and copings will be at the final grade elevations after all concrete has been poured.
TABLE I, shows data for setting expansion plates.

GENERAL PROCEDURE

1. After rivets and welding have been Completed, adjust the superstructure longitudinally so that dimension "C" from the ℄ Top Shoe to the face of the mudwall at Bent No. 2 and Bent No. 4 are equal.
2. With the superstructure in the adjusted position called for in No. 1, set the anchor bolts for the fixed shoe at Bent No. 3.
3. Adjust the expansion plate under each expansion shoe in accordance with dimension "A or B" in TABLE I for the prevailing Temperature. Note that dimension "A" is always the distance from a vertical line through the ℄ of Top Shoe in a direction away from the Fixed Shoe. Set anchor bolts.
4. After the shoes are set, take elevations at all screed points on top of adjacent beam. Enter these elevations in "TABLE OF ELEVATIONS". Subtract these elevations from the tabulated elevations and use the resulting dimension as the height for setting the screed or coping form above the form. 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 is to be poured until the above operations are Completed.

Note:
See Dwg. S10 For General Notes.

DESIGNED PRH CK'D. PRH
DRAWN JAT CK'D. RAH
TRACED CK'D.

SCREEDS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: As Noted
JANUARY 1961
Walter M. Bass

DRAWING: S16 OF 16
PROJECT: I-465-4(17)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE: I-70-75.42A7

MCMEAKIN PRINT SUPPLY—IND. 106

STRUCTURE QUANTITIES

ITEM	CONCRETE CLASS F CU. YDS.	CONCRETE CLASS D CU. YDS.	CONCRETE CLASS E ABOVE FTG. CU. YDS.	CONCRETE CLASS E FTG. CU. YDS.	RAILING CONCRETE CLASS F CU. YDS.	RAILING CONCRETE CLASS F LIN. FT.	REINFORCING STEEL (1934 STD. W.P.) #11 (1½") LBS.	#10 (1¼") LBS.	#9 (1") LBS.	#8 (⅞") LBS.	#7 (¾") LBS.	#6 (¾") LBS.	#5 (⅝") LBS.	#4 (½") LBS.	#3 (⅜") LBS.	#2 (¼") LBS.	TOTALS LBS.	STRUCTURAL STEEL LBS.	CAST IRON LBS.	STEEL PILE SHELLS NO.	STEEL PILE SHELLS LIN. FT.	ALUMINUM RAILING TYPE I LIN. FT.
WEST BOUND LANE																						
Abut. #1	12.4									1,625			91	605			2,321			8	560	
Pier #1	19.3	6.7	52.6	25.0					2,448	5,853			2,659	938	1,806		13,704					
Pier #2	13.7	7.4	49.3	32.1				5,475		3,914			2,659	1,087	1,642		14,777					
Pier #3	19.3	9.7	52.6	25.0					2,448	5,853			2,440	938	1,606		13,285					
Abut. #4	12.4								1,862				91	605			2,558			8	560	
Slopewall	113.5				55		7,923	5,641					10,428	2,361	819		27,172					61.2
Parapet	188.2				170								28,975	11,385	724		41,084	282,900				326.4
Railing	111.9				66		7,991	5,641					10,427	2,355	819		27,241					61.5
TOTALS WEST BOUND LANE	490.7	203	154.5	82.1	280		16,914	11,282	5,475	8,660	11,620		67,900	20,250	6,015		154,609	282,900		16	720	449.1
EAST BOUND LANE																						
Abut. #1	12.4									1,862			91	605			2,558			8	560	
Pier #1	19.1	7.1	58.9	25.0					2,448	4,096			2,659	938	1,746		11,841					
Pier #2	12.7	7.6	56.9	32.1				5,475		4,190			2,651	1,087	1,788		15,157					
Pier #3	19.9	7.1	58.9	25.0					2,448	4,092			2,659	938	1,740		11,811					
Abut. #4	12.4								1,862				91	605			2,558			8	560	
Slopewall	113.9				56		7,589	5,641					10,428	2,447	819		26,924					61.5
Parapet	188.2				170								28,975	11,385	724		41,084	282,900				326.4
Railing	111.9				66		7,991	5,641					10,428	2,361	819		27,240					61.2
TOTALS EAST BOUND LANE	490.9	21.8	174.5	82.1	280		15,812	11,282	5,475	8,660	12,356		57,702	20,266	6,442		155,995	282,900		16	720	449.1
Railing (Parapet) Wall								749		18,699	20,645		7,476	22,058			69,654					
Railing (Railing) Wall							117	90	32	47	49		63	24	6		426					
TOTALS	981.6	42.6	328.8	164.2	560		31,843	23,403	6,982	36,073	44,670		122,651	62,570	12,464		340,586	565,800		32	2,440	898.2

BILL OF SPLICE BARS

REINFORCING STEEL

Mark	Number of Pieces	Length	Weight
#11	2	11'-0"	117
#10	2	10'-0"	69
#9	10	9'-6"	92
#8	9	8'-3"	47
#7	5	8'-0"	49
#6	9	5'-9"	45
#4	6	6'-0"	14
#3	8	5'-6"	6
		Total Weight	428

Note: For Test Bar Samples see Dr. Std. "C"

BILL OF MATERIALS FOR R.C. BRIDGE APPROACH

REINFORCING STEEL

Size Mark	No. Pcs.	Length	No. Pcs.	Length	No. Pcs.	Length	Weight

See Sheet No. 5E

APPROACH STRUCTURES

STRUCT. No.	LOCATION	DESCRIPTION SIZE	DESCRIPTION KIND	LENGTH	CL "D" CONC. IN STRUCTS. CU. YDS.	REINF. STEEL LBS.	CAST IRON LBS.	REMARKS
B-1	Sta. 621+25.0 "N"	12'x8'	Reinf. Conc. Box Culvert	239'-0"	599.2			Skew 47° Lt. Line "N"
				TOTALS	599.2			Total of Reinf. Steel in all Structure Quantities

SUBMITTED _____ CKD. _____

TRACED _____ CKD. _____

BARRICADES, BARRIERS, TRAFFIC SIGNS, & LIGHTS

ITEM	UNIT	QUANTITY	ASSEMBLY	
WARNING SIGNS	Each		Signs 150 R	
			" 123 R	
			" 124 R	
			" 115 R	
			Torches	
STD. BARRICADES (TYPE A)	Each		Barricades (Type A)	
			Signs 115 R	
			" W11 R	
			" 117	
			Lanterns	
STD. SIGNS (TYPE C)	Each		Signs 113	
BRIDGE END BARRIERS	Each	2 *	Suitable Pennants	2
		2 *	Lanterns or Torches	4
STD. BARRICADES (TYPE B)	Each		Barricades (Type B)	
			Signs 119	
			Lanterns or Torches	
TYPICAL SIGN STANDARDS	Each		Signs 118 R	
			" W11 R	
			" 117	
			Lanterns	
CONSTRUCTION IDENTIFICATION SIGNS	Each	2 **	Signs X-16	2

* Not a pay item

** The weight of Structural Steel shown is approximate only and it shall be the Contractor's responsibility to determine the weight on which he bases his bid.

*** Not a pay item and to be placed as directed by The Engineer.

BRIDGES OVER 125' SPAN

PUB. BOARD REC.	STATE	PROJECT No.	FEDERAL No.	BRIDGE No.	TOTAL SHEETS
	IND.	I-465-4 (77) 155	1961	29	68

SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITY
1	Class "F" Concrete	Cu. Yds.	981.6
2	Class "D" Concrete	Cu. Yds.	42.6
3	Class "E" Concrete above Footings	Cu. Yds.	328.8
4	Class "E" Concrete in Footings	Cu. Yds.	164.2
5	Railing Concrete	Lin. Ft.	
6	Reinforcing Steel	Lbs.	340,586
7	Structural Steel	Lbs.	
8	Cast Iron	Lbs.	
9	Untreated Timber Piles Furnished	Lin. Ft.	
10	Untreated Timber Piles Driven	Lin. Ft.	
11	Furnishing Equipment for Driving Piles	Lump Sum	1
12	Wet Excavation	Cu. Yds.	
13	Waterway Excavation	Cu. Yds.	
14	Common Excavation	Cu. Yds.	9,450
15	Special Borrow	Cu. Yds.	22,920
16	Grade D Special Borrow	Cu. Yds.	1,625
17	Sodding	Sq. Yds.	1,680
18	Mulched Seeding	Sq. Yds.	4,800
19	Cement Concrete Pavement	Sq. Yds.	
20	Reinforced Cement Concrete Pavement	Sq. Yds.	
21	Thickened Reinf. Cement Concrete Pavement	Sq. Yds.	
22	Aggregate for Compacted Aggregate Base	Tons	
23	Removal Present Structure	Lump Sum	
24	Temporary Bridge and Approaches	Lump Sum	
25	Warning Signs	Each	
26	Std. Barricades (Type A)	Each	
27	Class "D" Concrete in Structures	Cu. Yds.	599.2
28	D/W Markers	Each	
29	Steel Pile Shells Furnished (16")	Lin. Ft.	1,440
30	Steel Pile Shells Driven (16")	Lin. Ft.	1,440
31	Foundation Excavation (Unclassified)	Cu. Yds.	575
32	4" Concrete Slopewall	Sq. Yds.	945
33	Structural Steel (4647) **	Lump Sum	1
34	Railing Concrete	Cu. Yds.	56.0
35	Structural Steel (4647 DGN) **	Lump Sum	
36	Aluminum Railing (Type I)	Lin. Ft.	898.2
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SUMMARY

STATE HIGHWAY DEPARTMENT OF INDIANA

JANUARY 10, 1961

Walter M. Peo

PROJECT I-465-4(77)155

BRIDGE CONTRACT No 5212

BRIDGE FILE I-10-73-4647

BRIDGES OVER 20' SPAN

FOR ROUTE REF. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4(7)155	1961	30	64

SOIL BORING LOG

BORING NO.	1	2	3	4	5	6
STATION	68+25	68+80	69+25	166+08	166+25	166+85
OFFSET	60' Lt.	On ℄	66' Rt.	62' Lt.	On ℄	62' Rt.
SURFACE ELEV.	758.4	757.8	789.5	789.6	749.8	746.4
GROUNDWATER ELEV.	749.4	747.8	—	—	717.8	722.4

ELEV.	Sample No.	Sample Elev.	N	Description
760				
		758.4		
755				Brown moist stiff clayey sandy SILT.
	1	753.4	4/6	
750				746.4
	2	748.4	6/6	
745				Gray wet dense fine to medium SAND with some silt.
	3	743.4	6/6	
740				741.4
	4	738.4	12/12/12	
735				Gray moist hard clayey SILT with some fine gravel.
	5	733.4	12/12/12	
730				
	6	728.4	8/10/10	
726				726.0
				Bottom of Boring 31.5'
720				NOTE: Free ground water was noted 9.0' below the existing ground surface.
715				
710				
705				

ELEV.	Sample No.	Sample Elev.	N	Description
		757.8		
				Brown moist loose SANDY SILT with a trace of fine gravel.
	1	752.8	4/6	
				747.8
	2	747.8	3/10	
				Brown wet medium dense fine to coarse SAND with a trace of clay.
				743.8
	3	742.8	11/14/16	
	4	737.8	13/18/18	Gray moist very stiff CLAYEY SILT with some fine sand and gravel. (Hardpan)
	5	732.8	12/14/19	
	6	727.8	10/11/16	
	7	722.8	14/17/20	
	8	717.8	16/23/23	NOTE: Free ground water was noted 10.0' below the existing ground surface.
	9	712.8	13/19/19	
	10	707.8	12/16/18	
				709.3
				Bottom of Boring 51.5'

ELEV.	Sample No.	Sample Elev.	N	Description
		789.6		
	1	784.5	9/11	Brown moist very stiff CLAYEY SILT with some fine sand and a trace of fine gravel.
				747.5
	2	746.5	8/14/16	
	3	741.5	12/16/21	
	4	736.5	14/18/20	Gray moist hard CLAYEY SILT with some fine gravel. (Hardpan)
	5	731.5	10/17/20	
	6	726.5	16/20/24	
				726.0
				Bottom of Boring 31.5'
				NOTE: No free ground water was noted.

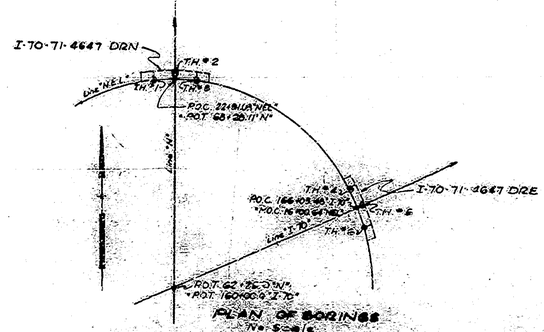
ELEV.	Sample No.	Sample Elev.	N	Description
		753.4		
	1	748.4	7/10	Brown moist medium dense SANDY SILT with a little fine gravel.
	2	743.4	8/10/12	
				740.4
	3	738.4	11/15/16	
	4	733.4	21/24/26	Gray moist hard CLAYEY SILT with some fine sand and fine gravel.
	5	728.4	17/20/26	
	6	723.4	12/15/18	
				721.9
				Bottom of Boring 31.5'
				NOTE: No free ground water was noted.

ELEV.	Sample No.	Sample Elev.	N	Description
				Brown moist medium dense SANDY SILT with a trace of fine gravel.
				742.8
	1	744.8	9/11	
	2	739.8	9/10/12	
				737.8
	3	734.8	11/15/16	Hard moist grey clayey SILT with a trace of sand.
	4	729.8	17/24/28	
	5	724.8	12/16/20	
	6	719.8	9/10/12	
				717.8
				Gray dense wet fine to coarse SAND
	7	714.8	9/11/11	
				712.8
				Hard Gray moist CLAYEY SILT with a trace of fine gravel. (Hardpan)
	8	709.8	12/16/20	
	9	704.8	11/16/21	
	10	699.3	21/50/100	696.8
				Bottom of Boring 51.0

NOTE: Free ground water was noted 52.0' below the existing ground surface.

ELEV.	Sample No.	Sample Elev.	N	Description
	1	741.4	9/11	Brown very stiff moist CLAYEY SILT with some fine sand.
				739.2
	2	736.4	8/10/12	Gray very stiff CLAYEY SILT with some fine gravel.
	3	731.4	9/11/12	
	4	726.4	16/19/21	
				722.4
	5	721.4	13/19/21	Gray very dense moist sandy CLAYEY SILT (Hardpan)
	6	716.4	43/50/100	Gray very hard moist sandy CLAYEY SILT (Hardpan)
				715.6
				Bottom of Boring 31.0'

NOTE: "N" - Relative Density - Number of blows required to drive a 2" O.D. Sample Spoon 0' with a 140# weight falling 30". First number represents blow count thru disturbed soil and is not to be used.



PLAN OF BORINGS
No Scale

DESIGNED _____ CHK'D _____
DRAWN _____ CHK'D _____

SOIL BORING LOG

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:

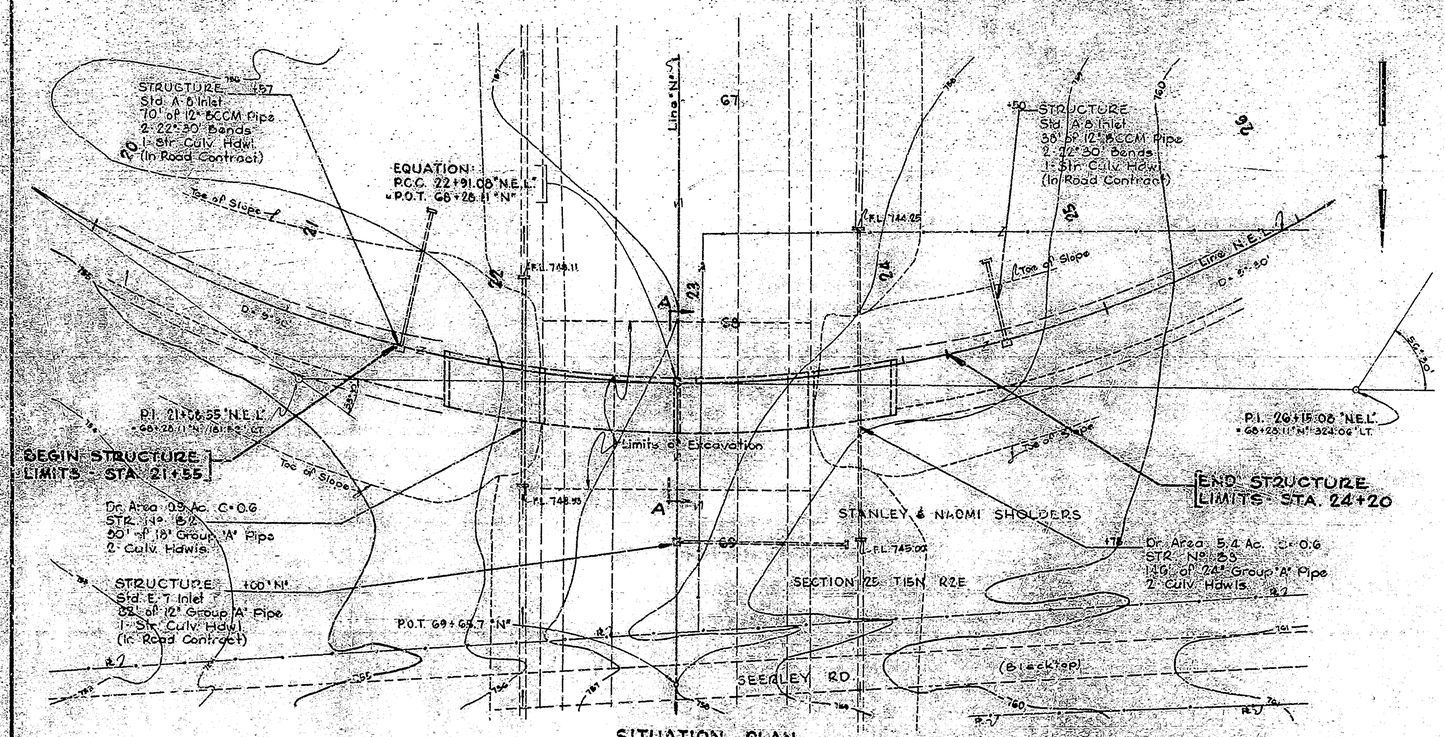
JANUARY 10, 1961

Walter J. Beam

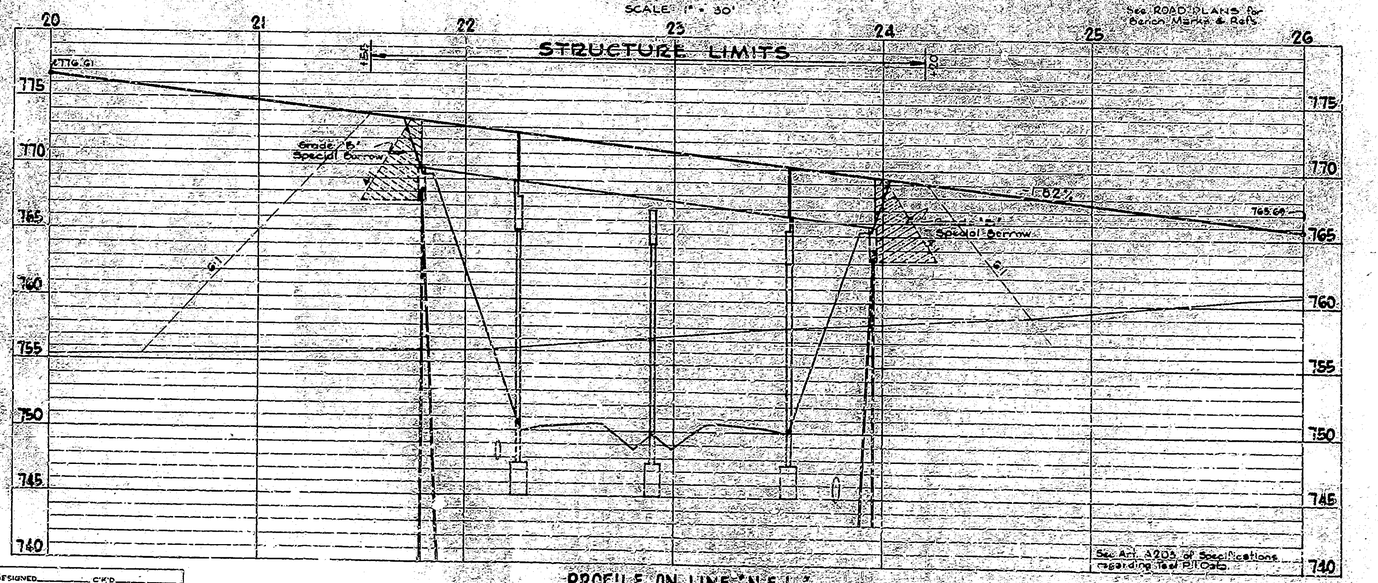
DRAWING: GF
PROJECT: I-465-4(7)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE: I-70-71-4647 DRN

KLEINSCHMIDT ENGINEERING SUPPLY KANKAKEE

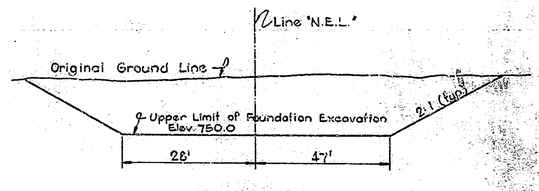
BRIDGES OVER 20' SPAN					
FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4(17)155	1967	31	64



SITUATION PLAN
SCALE: 1" = 50'



PROFILE ON LINE "N.E.L."
HORIZ. 1" = 50'
VERT. 1" = 5'



SECTION "A-A"
No Scale

EARTHWORK SUMMARY

Fill	6405 Cys.
- Grade 'B' Spl. Borrow + 25%	- 205 Cys.
	6200 Cys.
Fill + 20%	7440 Cys.
- Common Excavation	- 3415 Cys.
- Surplus Foundation Excavation	- 36 Cys.
Special Borrow	3990 Cys.

DESIGNED _____ C'K'D. _____
DRAWN _____ C'K'D. _____
TRACED _____ C'K'D. _____

LAYOUT

R. C. GIRDER & CONTINUOUS STEEL BEAM BRIDGE
4 SPANS; 44'-6", 2 @ 65'-0", 37'-0" SQUARE
19'-0" ROADWAY 2-1'-6" CURBS

STATE HIGHWAY DEPARTMENT OF INDIANA

MARION COUNTY

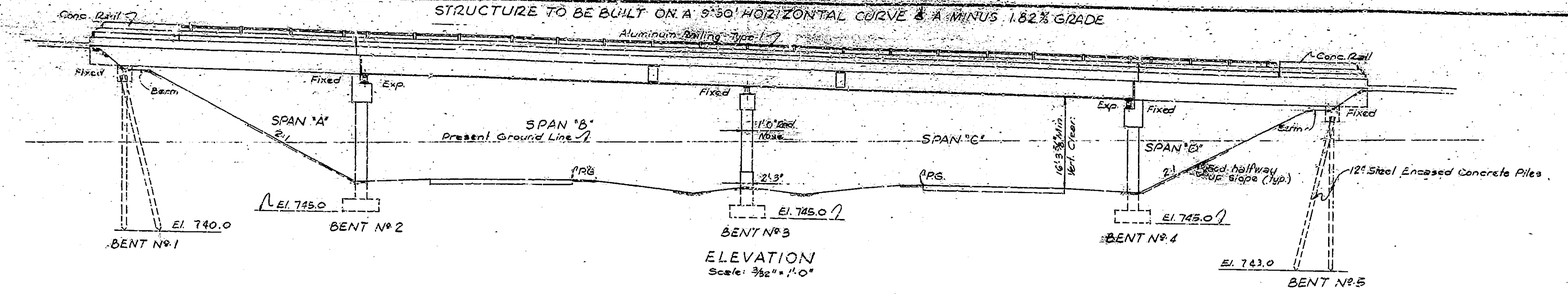
SCALE:- As Noted

JANUARY 10, 19__

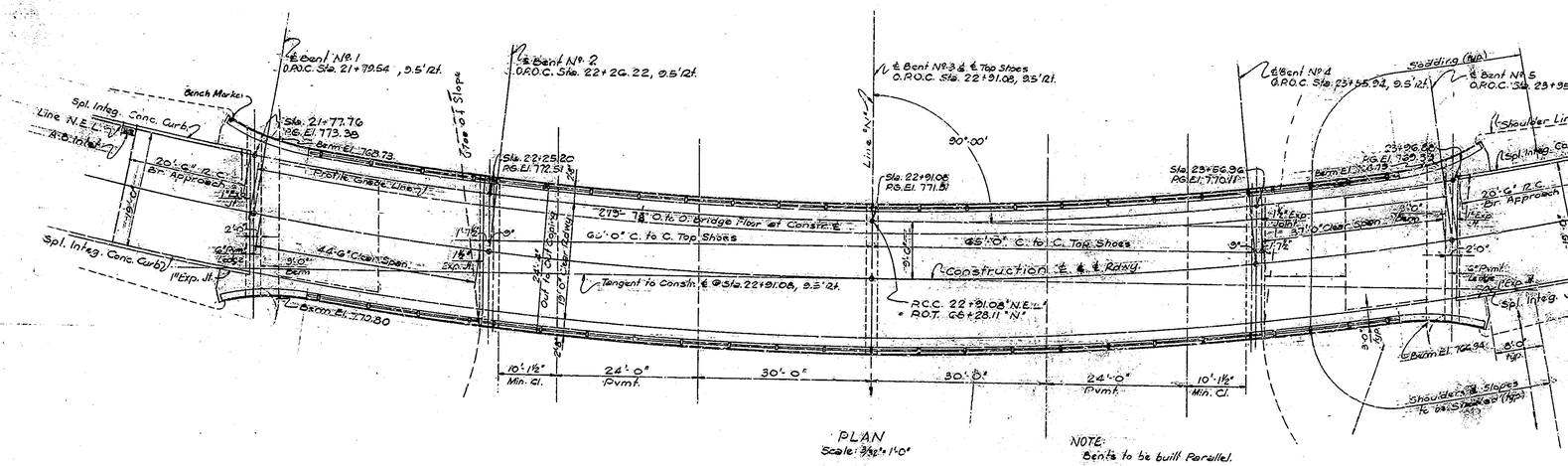
Walter M. Bowen

DRAWING:- 31 OF 18
PROJECT:- I-465-4(17)155 & STA. 22+91.08
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-71-4647 DRN

STRUCTURE TO BE BUILT ON A 9°30' HORIZONTAL CURVE & A MINUS 1.82% GRADE



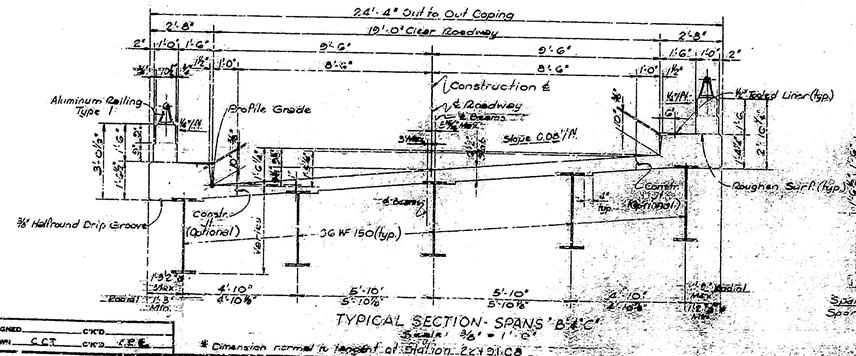
ELEVATION
Scale: 3/32" = 1'-0"



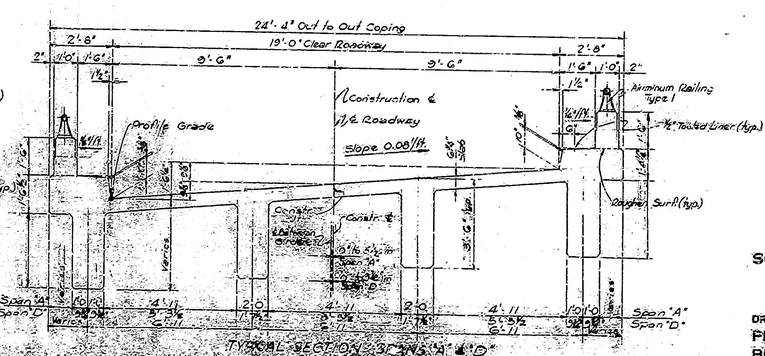
PLAN
Scale: 3/32" = 1'-0"

NOTE:
Bents to be built Parallel.

NOTE:
The following items are not in this Contract
Guard Beam & Guard Rail
Splitting Concrete Curb
R.C. Bridge Approach
1" Exp. Joint
1" Exp. Joint with Load Transfer



TYPICAL SECTION - SPANS "B" & "C"
Scale: 3/8" = 1'-0"



TYPICAL SECTION - SPANS "A" & "D"
Scale: 3/8" = 1'-0"

DESIGNED ____ C'K'D ____
DRAWN C.C.T. C'K'D L.E.E.

BRIDGES OVER 20' SPAN

FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4(15)18	1964	32	64

STANDARD DRAWINGS

BRIDGE	
C1	Reinforcing Bar Notes & Details. Splicing Pile Shells in Field. 1½" Expansion Joint. Beam Notch.
R1	Aluminum Railing Type 1
ROAD	
ME	Headwalls
MP	Pipes
Sht. 2	Std. Detour Signs
Sht. 4	Std. Detour Signs

GENERAL NOTES.
No present structure at proposed bridge site.
Depth of footings to be extended if found necessary. See Art. B-203.2(a) of the Specifications.
Piles shall have minimum bearing value shown on detail drawings.
Determine pile lengths by Art. 702.03 of the Specifications.
For details of steel encased concrete piles see Br. Standards, the Standard Provisions and applicable articles in the Specifications.
Piles shall be driven to elevations shown on plans or below if necessary to obtain desired bearing.
Reinforcing steel covering shall be minimum as follows: 3" in footings, except bottom mat, which shall be 4" and 2" in all other parts unless noted.
Concrete in railings and curbs shall be the same as Class "A" Concrete in superstructure including railing and bent caps to be Class "A" Concrete in structure not noted above, in steel encased concrete piles to be Class "B".
Continuous concrete pours shall be required between construction joints as shown on detail plans.
Bevel forms ¾" under copings and chamfer exposed edges 1" unless noted.
Tolerance in position of steel encased concrete pile heads maximum of 3".
3-1" Pref. Exp. Jts. with Load Transfer to be placed in Appr. Pvmt. See Br. Std. M3.
All railing to be constructed perpendicular to grade.
See Special Provisions for items included in this Contract.

DESIGN DATA
Designed for H20-S16-44 loading in accordance with 1957 A.A.S.H.O. Specifications except slab designed for 16,000 # wheel load.
Main carrying members checked for Live Load for Bridges on Interstate System.

JOINT LEGEND
1" Expansion Joint - See Br. Std. C1.
1" Expansion Joint with Load Transfer - See Br. Std. M3

TYPICAL CROSS SECTION
Line "N.E.L." See Sheet No. 2
Line "N" Standard Divided Lane Section for Federal Aid Interstate Projects - Revised 4-4-60
See Sheet No. 14 for Curve Data.

GENERAL PLAN
R.C. GIRDER & CONTINUOUS STEEL BEAM BRIDGE
4 SPANS; 44'-0", 2@65'-0", 37'-0" SQUARE.
19'-0" CL. RDWY. - 2-1'-6" WALKS

STATE HIGHWAY DEPARTMENT OF INDIANA
MARION COUNTY

SCALE:- As Noted — JANUARY 10, 1964

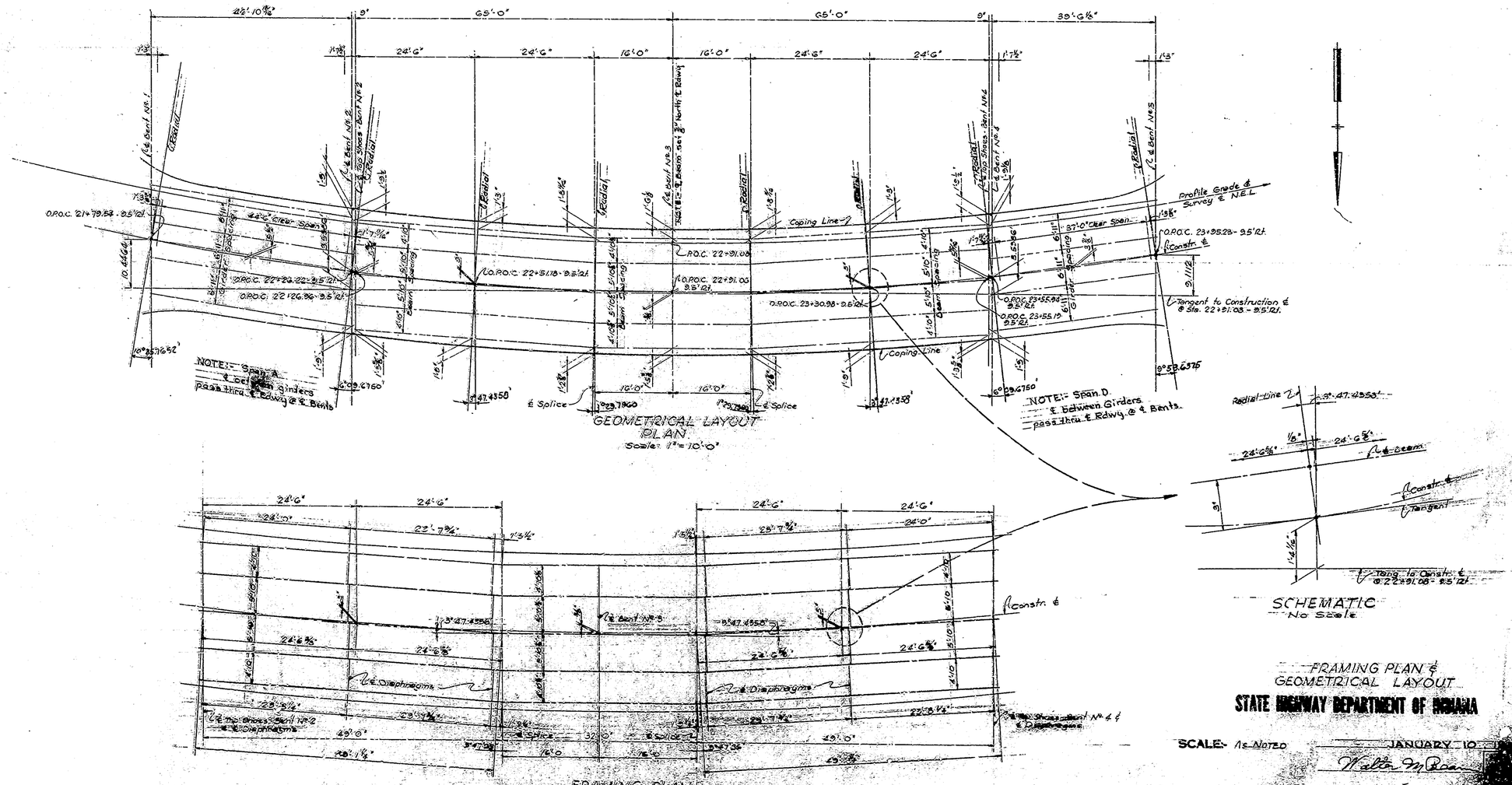
Walter M. Bowman

DRAWING 32 OF 18 — ℄ STA. 22+91.08
PROJECT:- I-465-4(15)18
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-C. 73-4(47) DRN

MARSH-KLEIN ENGINEERING SUPPLY KEE IN

BRIDGES OVER 20' SPAN

FUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465 4177 135	1961	33	64



FRAMING PLAN &
GEOMETRICAL LAYOUT

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted JANUARY 10

Walter M Bean

DRAWING:- 53 OF 18

PROJECT:- I-465-4177 135

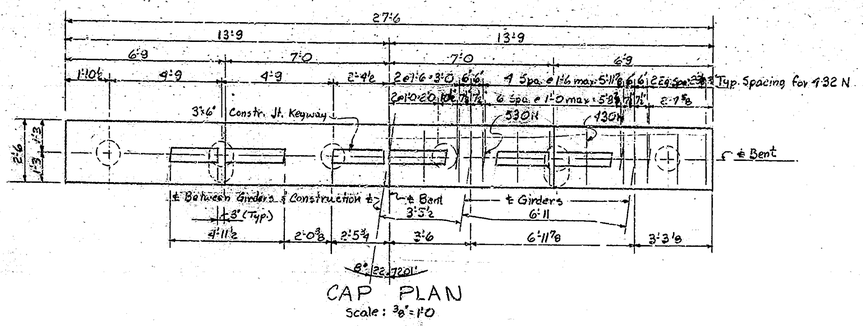
BRIDGE CONTRACT NO. 5212

BRIDGE FILE: I-70 [illegible] DRN

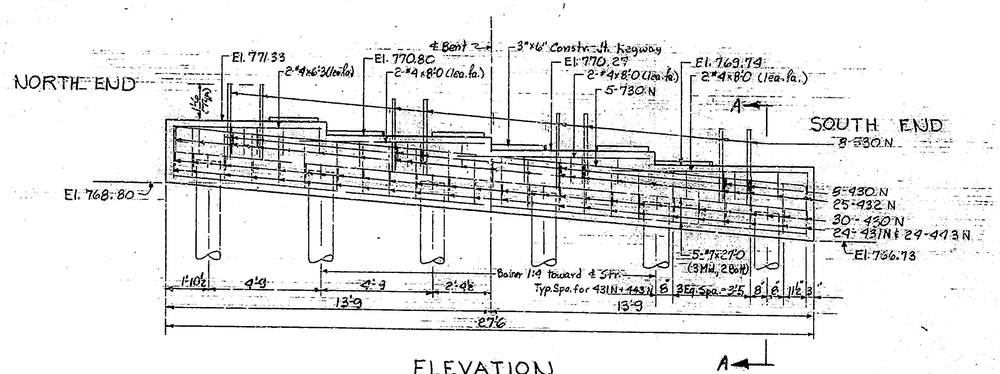
DESIGNED CKD

DRAWN CCT CKD CRE

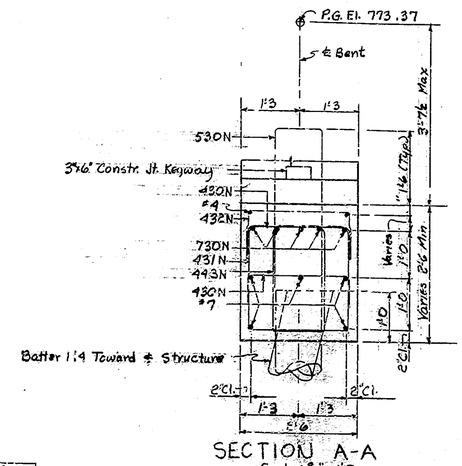
BRIDGES OVER 20' SPAN					
SUB. ROAD ROUTE NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465 4(17)55	1961	34	64



CAP PLAN
Scale: ⅜"=1'0



ELEVATION
Scale: ⅜"=1'0

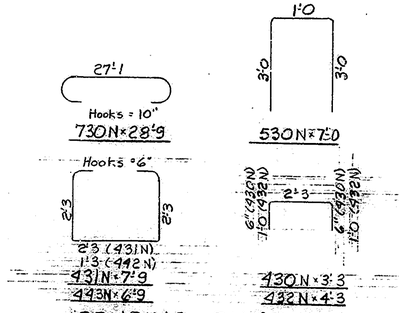


SECTION A-A
Scale: ¾"=1'0

NOTE: The bent cap is not to be poured until the fill has been completed to the approximate elevation of the bottom of the cap.
6-12.9×.7 Ga. Steel Pile Shells are required.
Minimum bearing = 35 Tons/pile
See Br. Std. C1 for reinforcing bar notes.
See Drg. S2 for General Notes.

BILL OF MATERIALS
BENT Nº1

SIZE & MARK	Nº OF BARS	LENGTH	WEIGHT (Lbs.)
730N	5	28'9"	
" 7"	5	27'0	
	Total	Nº 7	570
530N	8	7'0	58
430N	38	3'3	
431N	29	7'9	
432N	25	4'3	
443N	29	6'9	
#4	6	8'0	
#4	2	6'3	
	Total	Nº 4	726
	Total Steel		1,039
CONCRETE			
Class "F" Cap = 7.1 Cu. Yds.			
MISCELLANEOUS			
6-12.9×.7 Ga. Steel Pile Shells @ 30'0 = 180 Lin. Ft.			



BENDING DIAGRAMS
Not To Scale

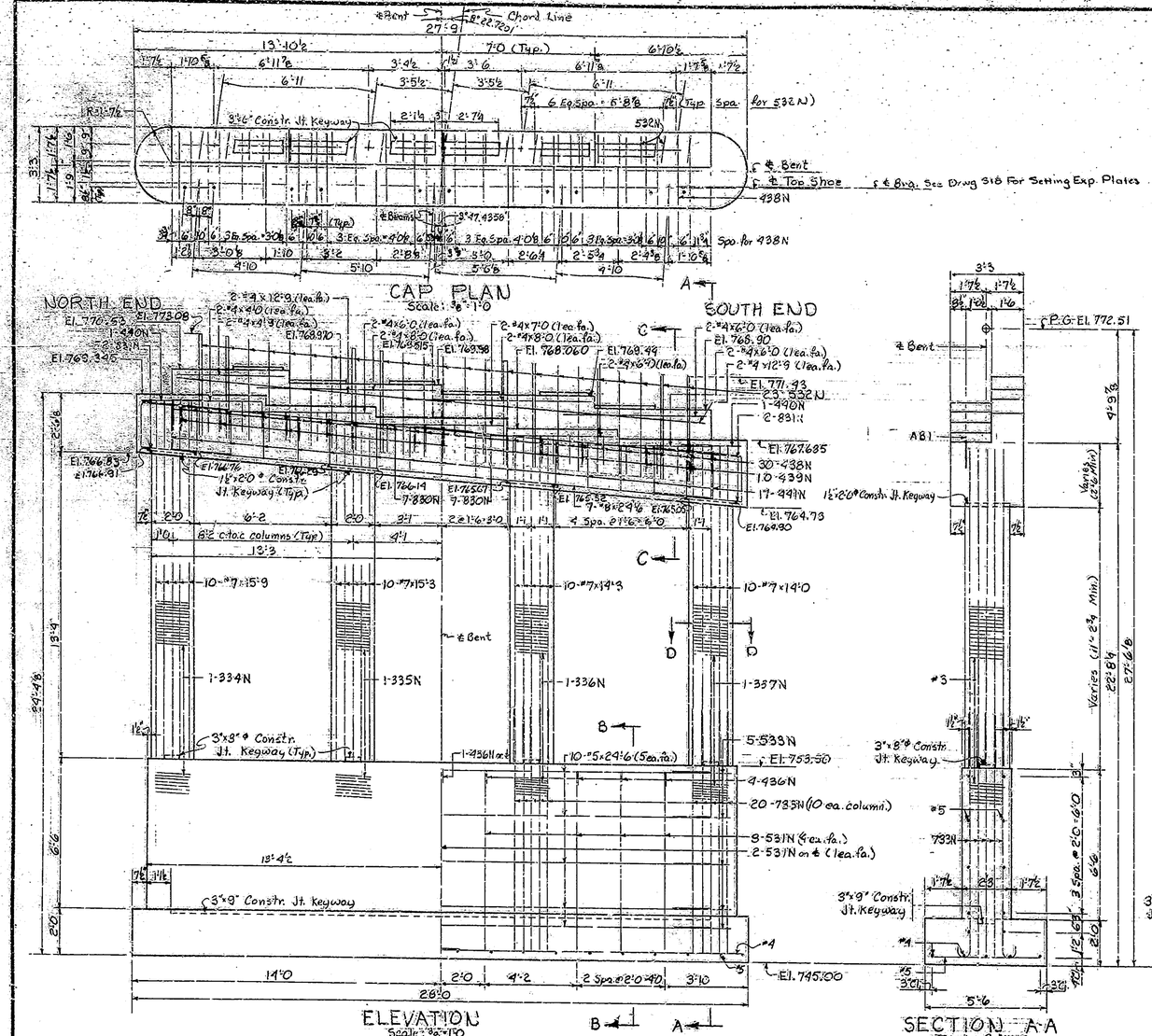
BENT Nº1 - DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- AS NOTED
JANUARY 10, 1961
Walter M. Bass

DRAWING:- S4 OF 16
PROJECT:- I-465-4(17)55
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-78-14.77 DR(1)

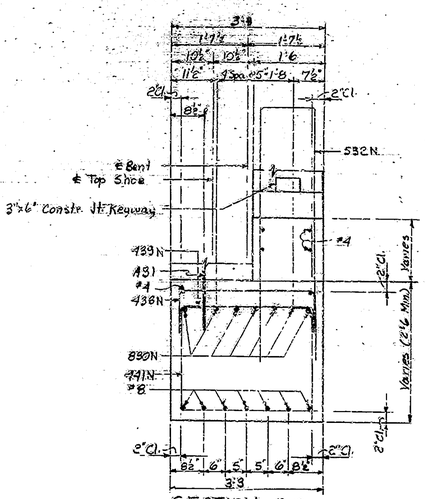
DESIGNED RAG CK'D. RHM
DRAWN RAG CK'D. RHM
TRACED CK'D.

KAESTNER ENG. SUPPLY-NO. 108



NOTE: Holes for Anchor Bolts, A81, are to be drilled.
2 Anchor Bolts, A81, are required at each bearing.
For Superstructure Details for billing, See Dwg. 318
For final location of drilled holes.
See Dwg. 312 for reinforcing bar notes.
See Dwg. 352 for General Notes.
See Dwg. 316 for Section D-D
See Dwg. 357 for Bending Diagrams not shown here.
Dimensions shown for locating Anchor Bolts are for checking field clearance between reinforcing steel and Anchor Bolts. Reinforcing steel shall be adjusted to maintain 1½" clearance.

DESIGNED	RAG	CKD.	RHM
DRAWN	RAB	CKD.	RHM
TRACED		CKD.	



SECTION C-C
Scale: ¾"=1'-0

BRIDGES OVER [illegible]

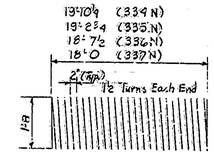
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FED. NO.	SHEET NO.	TOTAL SHEETS
4	IND.	I-465 (4)155	1611	35	64

BILL OF MATERIALS
BENT Nº 2

SIZE OF MARK	Nº OF BARS	LENGTH	WEIGHT (LBS.)
830N	14	17'-0	
831N	4	3'-9	
#8	7	24'-6	
	Total	Nº 8	1197
739N	90	11'-4	
#7	10	15'-9	
#7	10	15'-3	
#7	10	14'-3	
#7	10	14'-0	
	Total	Nº 7	2138
531N	12	8'-6	
532N	23	12'-3	
533N	10	6'-4	
#6	10	24'-6	
#5	20	5'-0	
	Total	Nº 5	879
436N	3	2'-11	
438N	30	5'-10	
439N	10	4'-10	
440N	2	7'-1	
441N	17	8'-6	
#4	10	19'-6	
#4	9	12'-9	
#4	4	8'-0	
#4	2	7'-5	
#4	2	6'-0	
#4	2	5'-9	
#4	2	1'-0	
	Total	Nº 4	454
834N	1	19'-10½	
835N	1	19'-2½	
836N	1	18'-7½	
837N	1	18'-0	
	Total	Nº [illegible]	[illegible]
	Total	[illegible]	5486

CONCRETE

Class "F" Exp.	10.5 Cu. Yds.
Class "D" Columns	5.0 Cu. Yds.
Class "E" Above Ftgs.	11.4 Cu. Yds.
Class "E" Ftg.	11.9 Cu. Yds.



1. Ring lap made in spiral, weld or 1½ turns lapped.
2. Spiral is to be made of cold drawn wire.
3. 2 spacers are required for each column and are included in the cost of the spiral.

834N x 339'-6
835N x 619'-9
836N x 600'-9
837N x 581'-3

BENDING DIAGRAMS
Not To Scale

BENT Nº 2 - DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

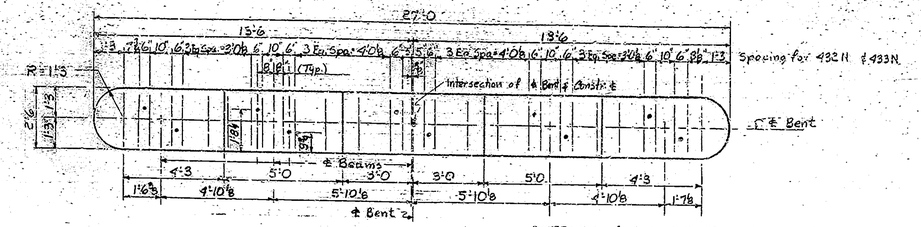
SCALE:- AS NOTED

JANUARY, 19[illegible]

Walter S. Re[illegible]

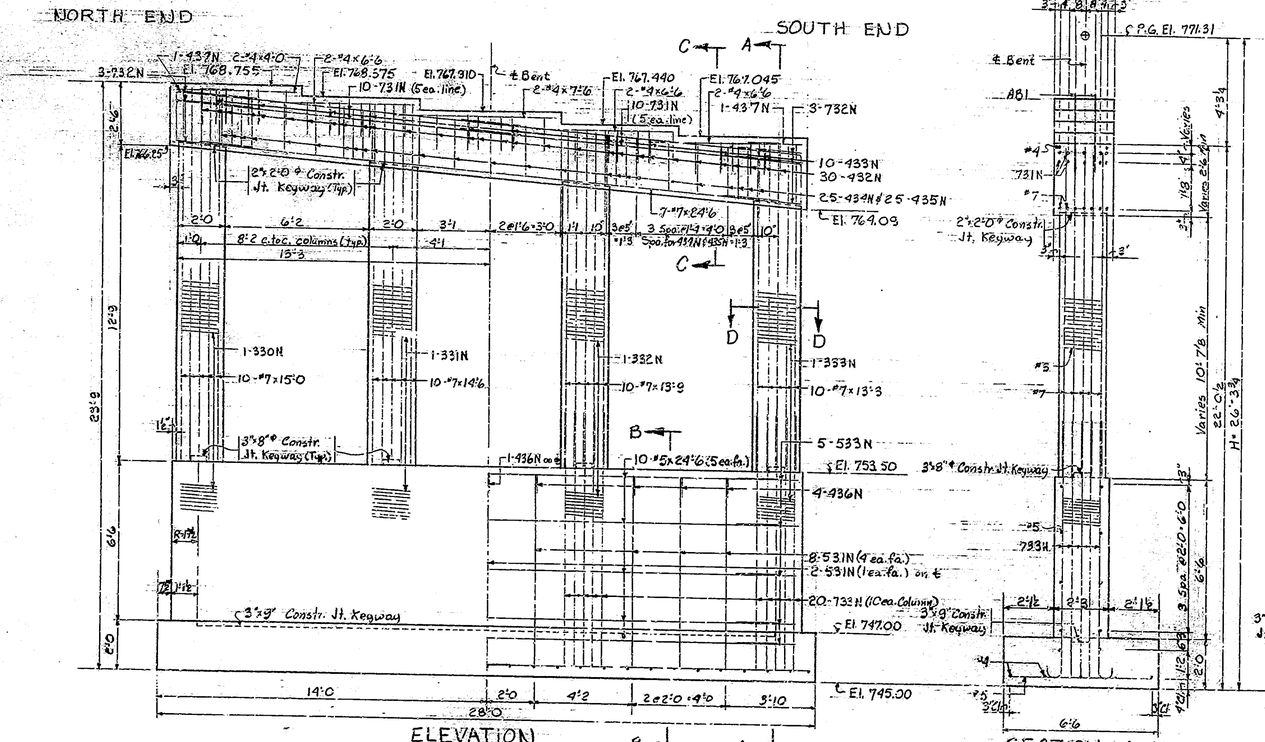
DRAWING:- 55 OF 78
PROJECT:- I-465-4(77) 155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-78-4647 DRN

MANSBACH ENG. SUPPLY—NO. 186

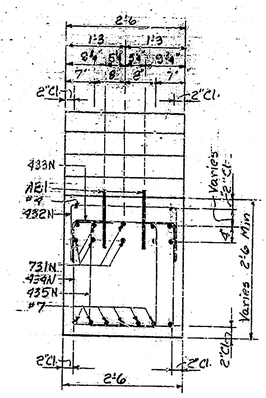


CAP PLAN
Scale: 3/8"=1'0

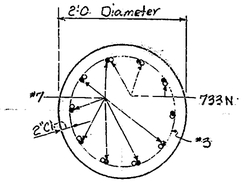
NOTE: Holes for Anchor Bolts, AB1, are to be drilled
2 Anchor Bolts, AB1, are required at each bearing.
See Superstructure Details for Billing. See Drg. 5.18
for final location of drilled holes.



NOTE: See Br. Std. C for reinforcing bar notes.
See Drg. 52 for General Notes
Dimensions shown for locating Anchor Bolts are for checking field clearance between reinforcing steel and Anchor Bolts. Reinforcing steel shall be adjusted to maintain 1½" clearance.



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



SECTION D-D
Scale: 1"=1'0

BRIDGES OVER 20' SPAN

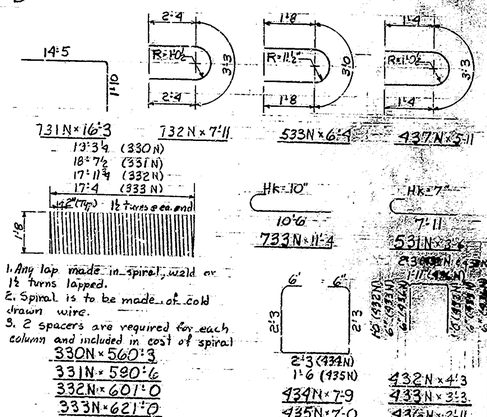
FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4(77)155	1961	36	64

BILL OF MATERIALS
BENT No. 3

SIZE OR MARK	No. OF BARS	LENGTH	WEIGHT (LBS.)
731N	20	16'8	
732N	6	7'11	
733N	40	11'4	
#7	7	8'6	
#7	10	15'0	
#7	10	14'6	
#7	10	13'9	
#7	10	13'3	
	Total	No. 7	3193
531N	18	8'6	
533N	10	9'4	
#5	10	24'6	
#5	30	6'0	
	Total	#5	643
432N	30	4'3	
433N	10	3'3	
434N	25	2'8	
435N	25	7'0	
436N	9	2'8	
437N	2	5'11	
#4	10	14'6	
#4	2	7'6	
#4	6	6'6	
#4	2	9'0	
	Total	No. 4	217
330N	1	15'4	
331N	1	16'7½	
332N	1	17'11¾	
333N	1	17'9	
	Total	No. 3	886
	Total	Steel	5,661

CONCRETE

Class "F" Cap	6.6 Cu. Yds.
Class "D" Columns	4.5 Cu. Yds.
Class "E" Above Ftg.	4.2 Cu. Yds.
Class "E" Footing	13.5 Cu. Yds.



1. Any lap made in spiral, weld or 1½ turns lapped.
2. Spiral is to be made of cold drawn wire.
3. 2 spacers are required for each column and included in cost of spiral

330N x 560'3
331N x 590'6
332N x 601'0
333N x 621'0

BENDING DIAGRAMS
Not To Scale

BENT No. 3 - DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

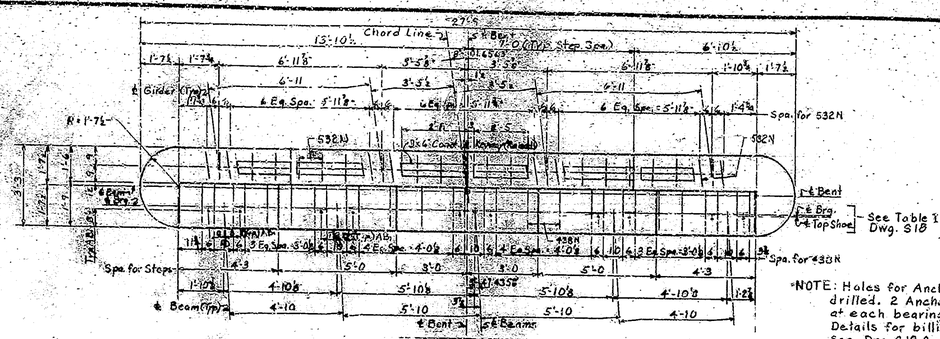
SCALE: AS NOTED

JANUARY 10, 19[illegible]

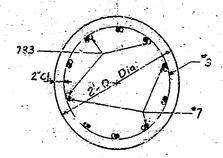
Walter E. Bean

DESIGNED FEN CKD. RAG
DRAWN RAG CKD. RHM
TRACED CKD.

DRAWING: 36 OF 18
PROJECT: I-465-4(77)-155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE: I-70-73-4687 DRN

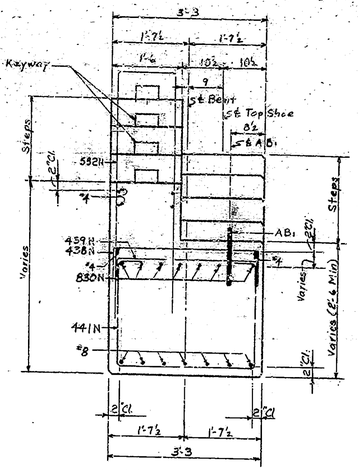


CAP PLAN
Scale: ¾"=1'-0



SECTION D-D
Scale: 1"=1'-0

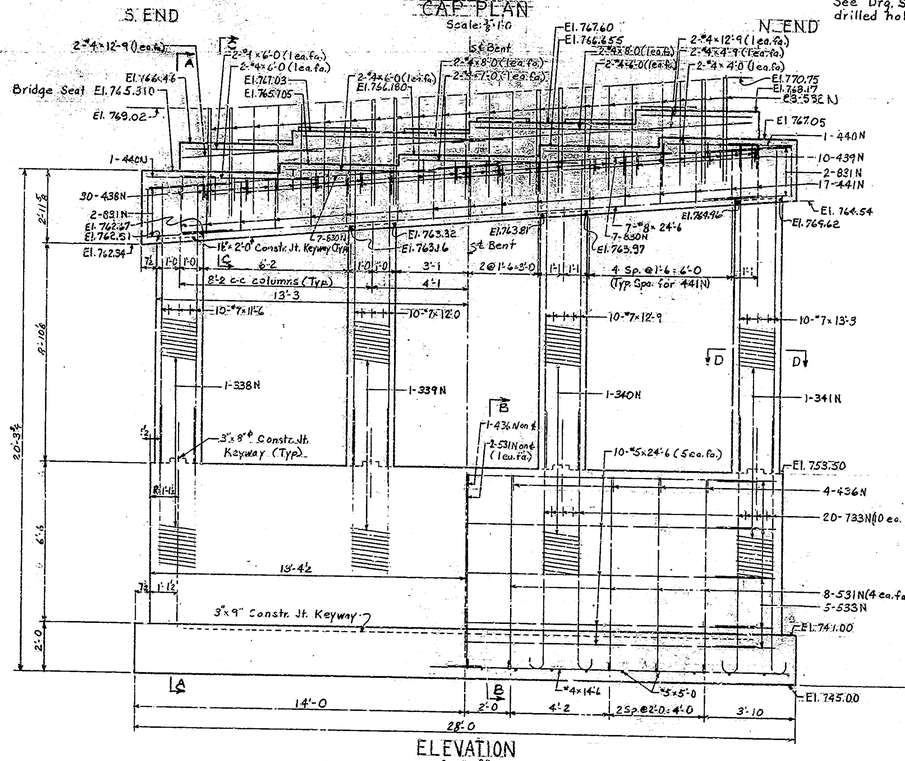
*NOTE: Holes for Anchor Bolts, AB1, are to be drilled. 2 Anchor Bolts, AB1, are required at each bearing. See Superstructure Details for billing of Anchor Bolts. See Drg. S18 for final location of drilled holes.



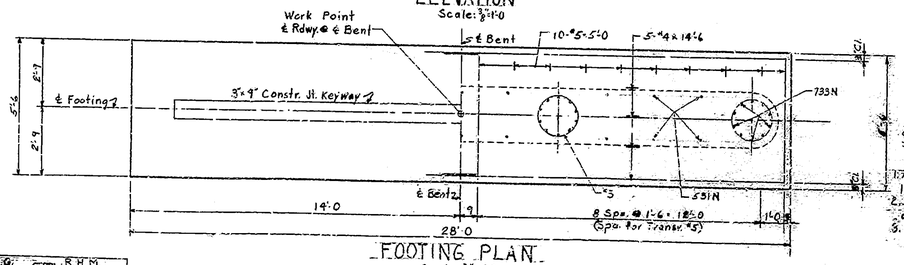
SECTION C-C
Scale: ¾"=1'-0

SECTION A-A
Scale: ¾"=1'-0

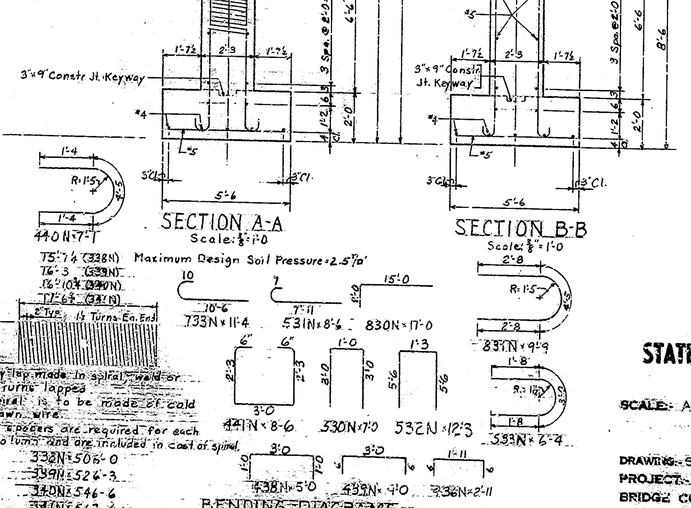
SECTION B-B
Scale: ¾"=1'-0



ELEVATION
Scale: ¾"=1'-0



FOOTING PLAN
Scale: ¾"=1'-0



BENDING DIAGRAMS
NOT TO SCALE

NOTES:
See Bridge Std. C1 for reinforcing bar notes.
See Drg. S2 for General Notes.
Dimensions shown for locating Anchor Bolts are for checking field clearance between reinforcing steel and Anchor Bolts. Reinforcing steel shall be adjusted to maintain 1½" clearance.

BRIDGES OVER 20' SPAN

PUB. ROAD DES. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4(27)155	1976	5	16

BILL OF MATERIALS
BENT Nº4

MARK AND SIZE	Nº OF BARS	LENGTH	WEIGHT (LBS)
830N	14	17'-0	
831N	4	9'-9	
*8	7	24'-6	
Total Nº 8			1,197
733N	40	11'-4	
*7	10	13'-3	
*7	10	12'-9	
*7	10	12'-0	
*7	10	11'-6	
Total Nº7			1,938
531N	18	8'-6	
532N	23	12'-3	
533N	10	6'-4	
*5	10	23'-6	
*5	20	5'-0	
Total Nº5			879
436N	9	2'-11	
438N	30	5'-0	
439N	10	4'-0	
440N	2	7'-1	
441N	17	8'-6	
*4	10	14'-6	
*4	4	12'-9	
*4	4	8'-0	
*4	2	7'-0	
*4	8	6'-0	
*4	2	4'-9	
*4	2	4'-0	
Total Nº 4			456
338N	1	15'-7¼	
339N	1	16'-3	
340N	1	16'-10¾	
341N	1	17'-6¾	
Total Nº3			807
Total Steel (lb)			5,277

CONCRETE	
Class 'F' Cap	10.4 C.Y.
Class 'D' Columns	4.7 C.Y.
Class 'E' Above Ftg.	1.4 C.Y.
Class 'E' Footing	11.4 C.Y.

BENT Nº 4 DETAILS

STATE HIGHWAY DEPARTMENT OF INDIANA

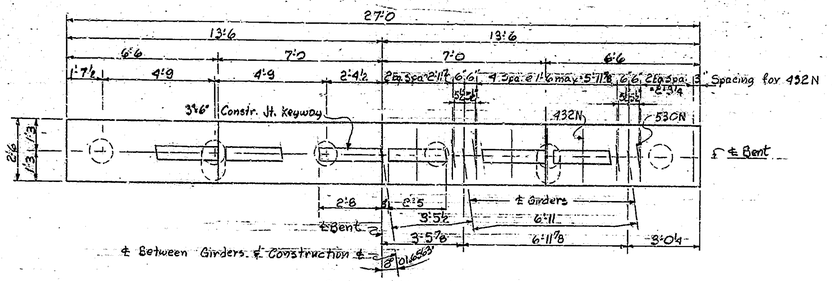
SCALE: AS NOTED — JANUARY 1976

DESIGNED: R.A.G. CKD. R.H.M.
DRAWN: R.H.M. CKD. R.A.G.
TRACED: CKD.

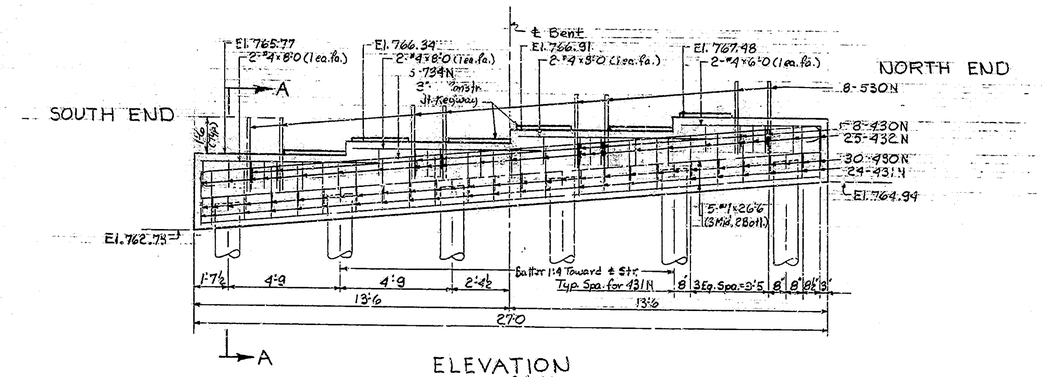
DRAWING: 5 T. OF 16
PROJECT: I-465-4(27)155
BRIDGE CONTRACT NO. 5-212
BRIDGE FILE: I-70-73-46.17 D.R.N.

MANHAUGH ENG. SUPPLY NO. 188

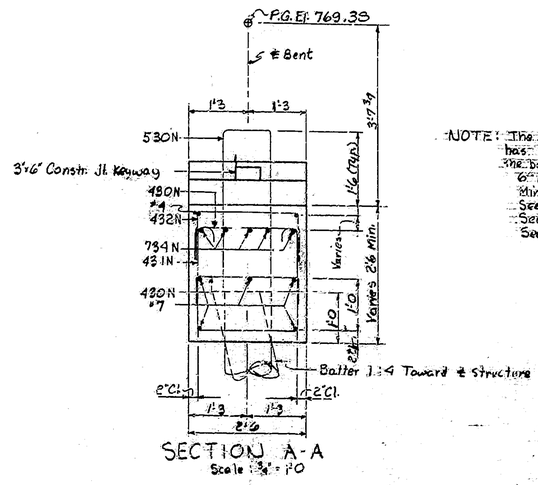
BRIDGES OVER 20' SPAN					
FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4(77)155	1961	38	64



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



ELEVATION
Scale: 3/8" = 1'0

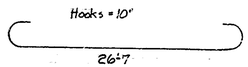


SECTION A-A
Scale: 3/4" = 1'0

NOTE: The bent cap is not to be poured until the fill has been completed to the approximate elevation of the bottom of the cap.
6-12"x7 Ga. Steel Pile Shells are required
Minimum bearing = 35 Tons/pile
See Br. Std. C1 for reinforcing bar notes.
See Drg. S2 for General Notes.
See Drg. S4 for Bending Diagrams not shown here.

BILL OF MATERIALS
BENT Nº5

SIZE or MARK	Nº OF BARS	LENGTH	WEIGHT (Lbs.)
734N	5	28'3	
#7	5	26'6	
	Total	Nº 7	560
530N	8	7'0	58
430N	38	3'3	
431N	24	7'9	
432N	25	4'3	
#4	6	8'0	
#4	2	6'0	
	Total	Nº 4	318
	Total	Steel	936
CONCRETE			
Class "F" Cap = 7.0 Cu. Yds.			
MISCELLANEOUS			
6-12"Φ x 7 Ga. Steel Pile Shells @ 25'0 = 150 Lin. Ft.			



BENDING DIAGRAMS
Not To Scale

BENT Nº5 - DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

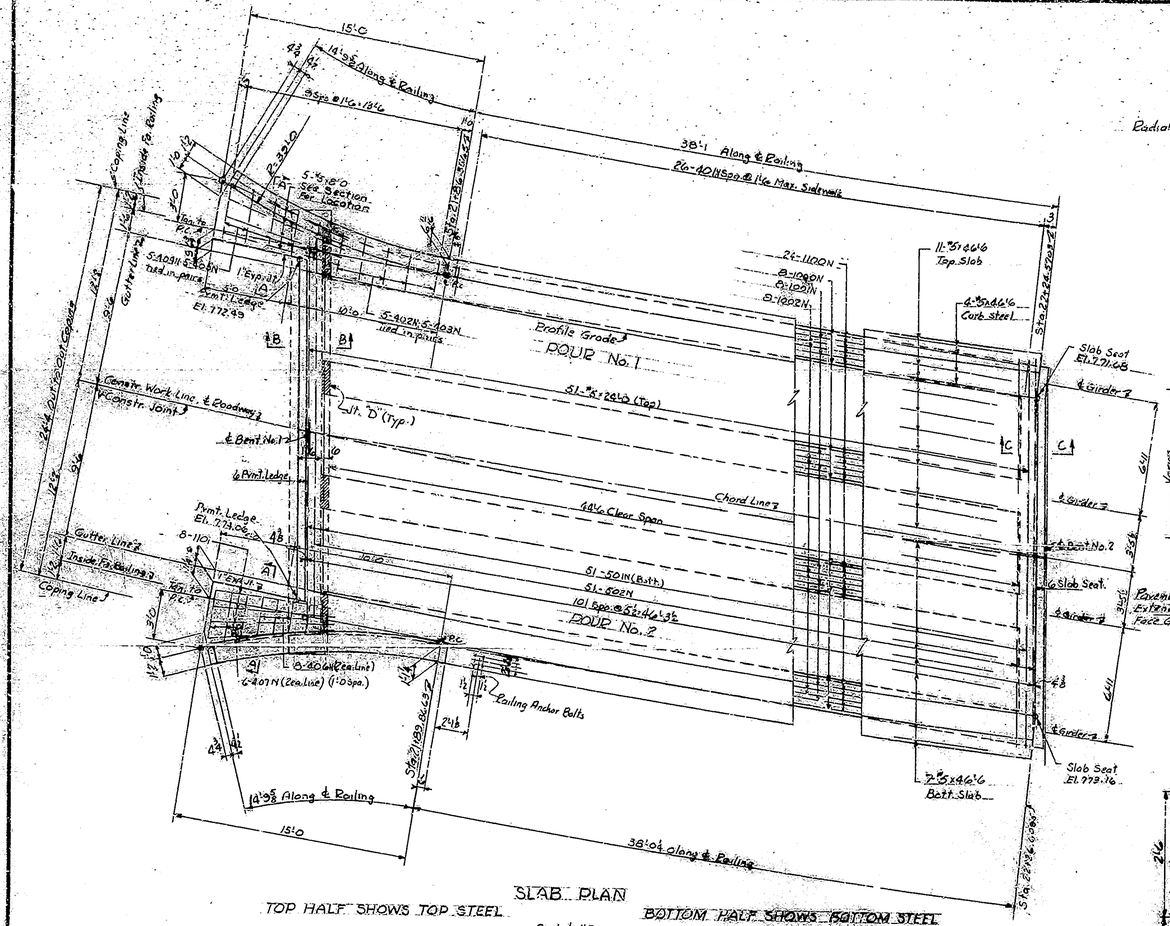
SCALE:- AS NOTED

JANUARY 19, 1961

DRAWING:- S3 OF 18
PROJECT:- I-465-4(77)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-78-4647 DRN

DESIGNED RAG CK'D RHM
DRAWN RAG CK'D RHM
TRACED CK'D

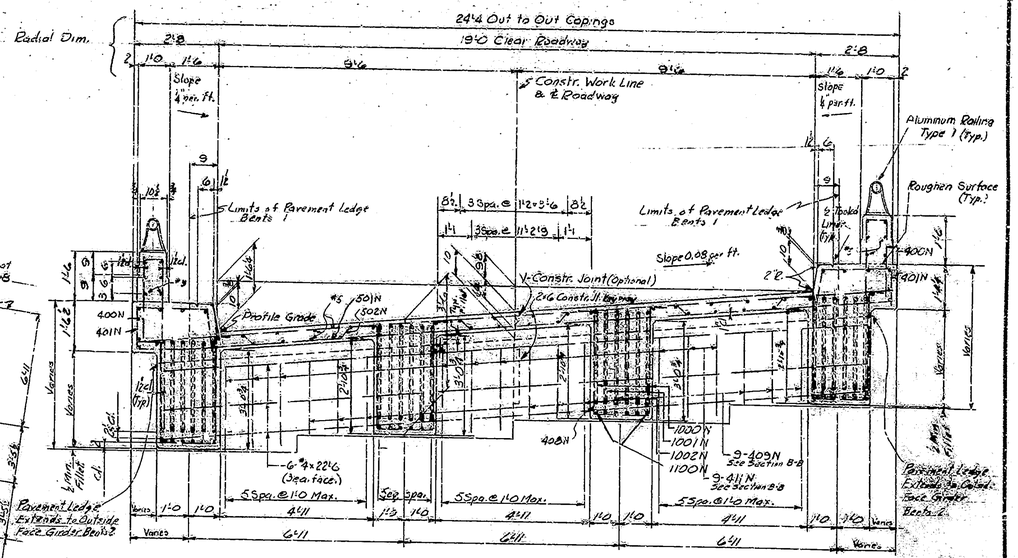
BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465(6) 171)155	1961	39	64



SLAB PLAN

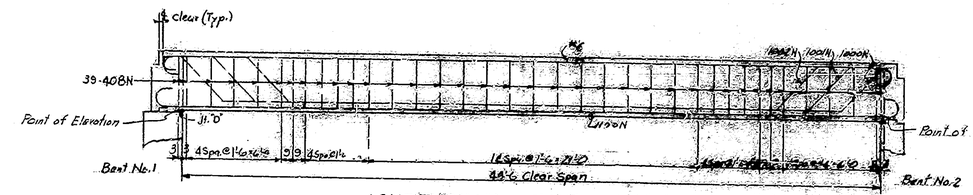
TOP HALF SHOWS TOP STEEL BOTTOM HALF SHOWS BOTTOM STEEL

Scale ¼"=1'-0



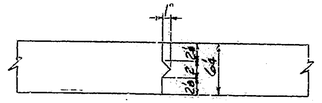
TRANSVERSE SECTION (NORMAL TO CHORD LINE)

Scale ¼"=1'-0



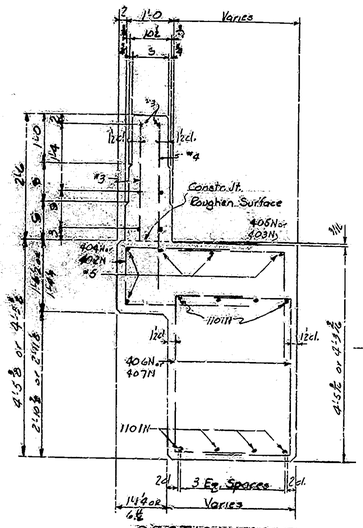
LONGITUDINAL GIRDER SECTION - SPAN 'A'

Scale ¼"=1'-0



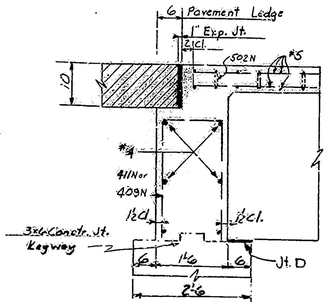
'V' CONSTRUCTION JOINT

Scale 1½"=1'-0



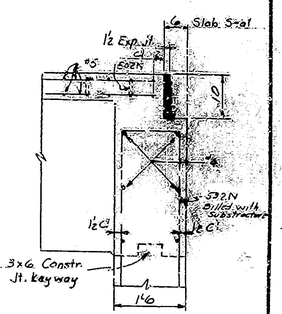
SECTION A-A

Scale ½"=1'-0



SECTION B-B

Scale ¾"=1'-0



SECTION C-C

Scale ¾"=1'-0

Design Data:
Unit Stresses: fs = 20000#; fc = 1,200#
Live Load: H20-S16-44 with impact and distribution of loads in accordance with 1957 A.A.S.H.O Specifications except floor slab designed for 16'-0" wheel load.
Dead Load increased 33⅓% of roadway for future wearing surface.
Slab designed with 1" wearing surface.
Max. Dead Load Deflection = ¾"

Note:
See Dwg. S11 For Bill of Materials and Railing Details.
See Dwg. S-2 For General Notes
See Br. Std. C1 for reinforcing bar Notes.

DESIGNED F.E.M. CKD. E.D.P.
DRAWN J.D.T. CKD. R.A.G.
TRACED CKD.

SUPERSTRUCTURE DETAILS - SPAN A

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: As Noted JANUARY 19[illegible]

DRAWING: 39 OF 18

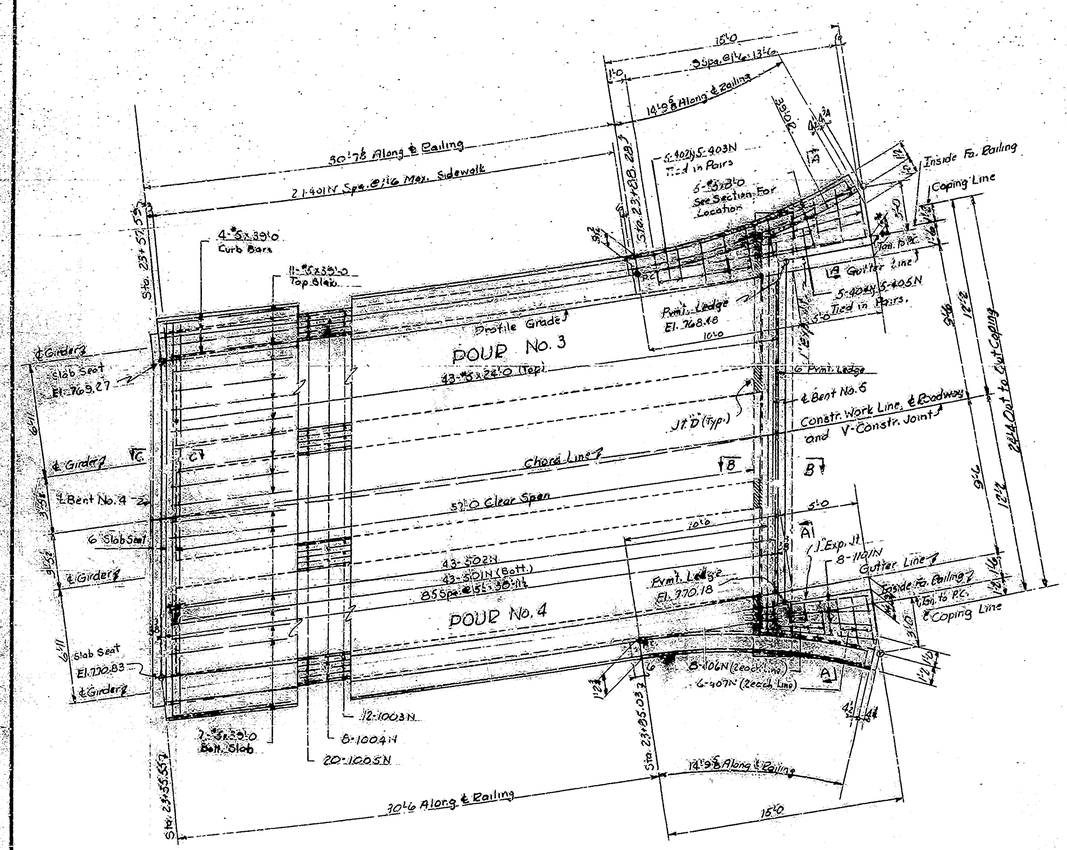
PROJECT: I-465-2(77)156

BRIDGE CONTRACT NO. 5212

BRIDGE FILE: 1-465-78-6271.01N

KINGSBURY ENG. SUPPLY—NO. 185

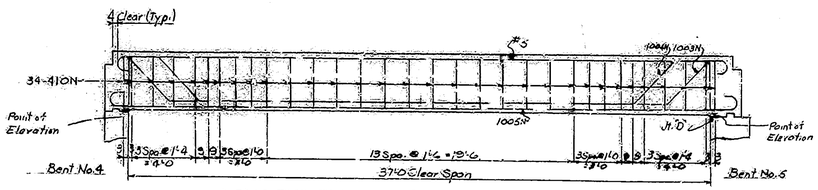
BRIDGES OVER 20' SPAN					
HUB ROAD REF. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
-6	IND.	I-465-2(77)155	1961	40	64



SLAB PLAN

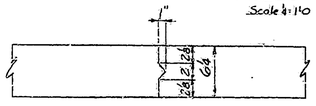
TOP HALF SHOWS TOP STEEL BOTTOM HALF SHOWS BOTTOM STEEL

Scale ¼"=1'-0



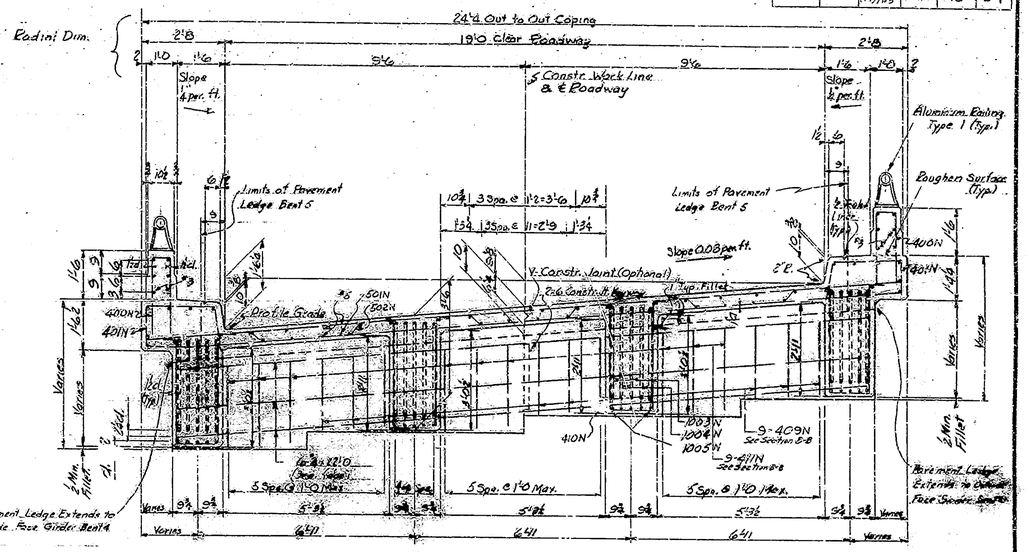
LONGITUDINAL GIRDER SECTION - SPAN "D"

Scale ¼"=1'-0



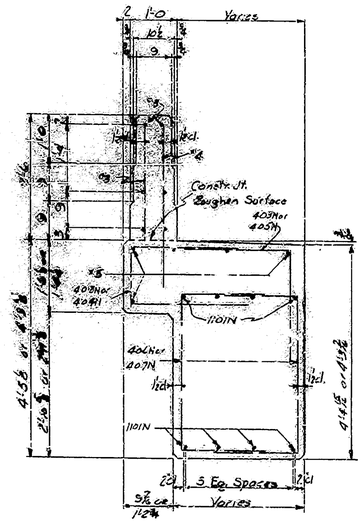
V-CONSTRUCTION JOINT

Scale 1½"=1'-0



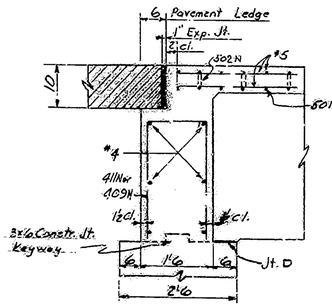
TRANSVERSE SECTION (NORMAL TO CHORD LINE)

Scale ¼"=1'-0



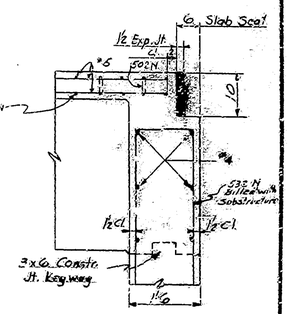
SECTION A-A

Scale ¾"=1'-0



SECTION B-B

Scale ¾"=1'-0



SECTION C-C

Scale ¾"=1'-0

SUPERSTRUCTURE DETAILS SPAN "D"

STATE HIGHWAY DEPARTMENT OF INDIANA

Notes:
See Dwg. 52 For General Notes
See Dwg. 511 For Bill of Materials and Railing Details.

Max. Dead Load Deflection = ½"

SCALE:- As Noted

JANUARY

DRAWING:- 510 OF 1⅝

PROJECT:- I-465-2(77)155

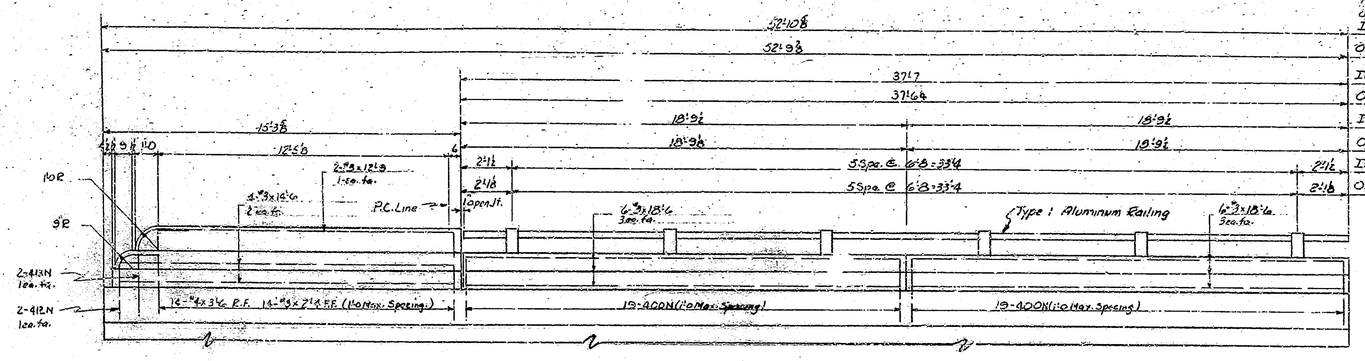
BRIDGE CONTRACT NO. 5212

BRIDGE FILE:- I-70-7?-5247 DRN

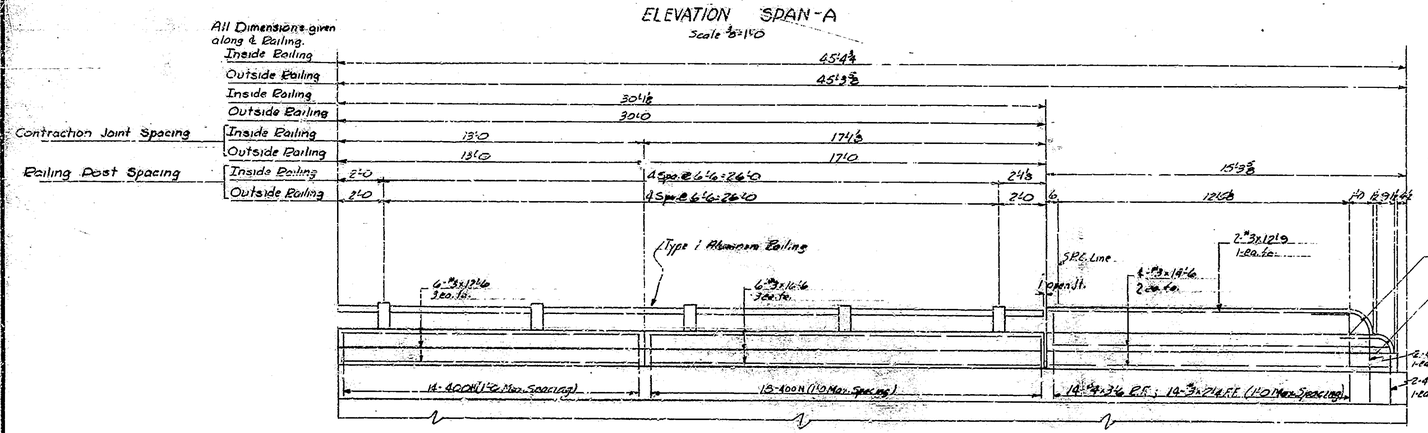
DESIGNED	E.E.M.	CK'D	V.D.P.
DRAWN	J.A.T.	CK'D	R.A.G.
TRACED		CK'D	

MARMOUCH END. SUPPLY—NO. 199

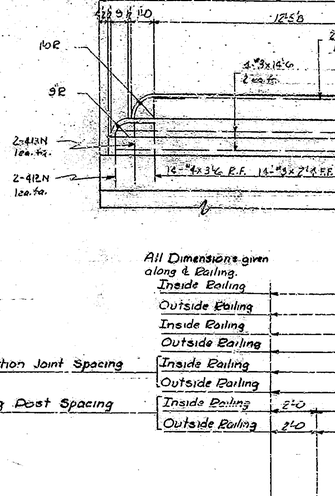
BRIDGES OVER CO. SPAN					
FED. ROAD REF. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	55-660 & 55-1155	1967	41	64



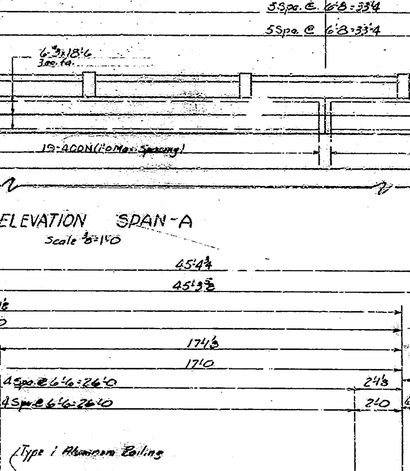
ELEVATION SPAN-A
Scale ⅜"=1'0



ELEVATION SPAN-D
Scale ⅜"=1'0



SPAN-A



SPAN-D

BOTTOM OF GIRDER ELEVATIONS
Not to Scale

BILL OF MATERIALS

SPAN-A

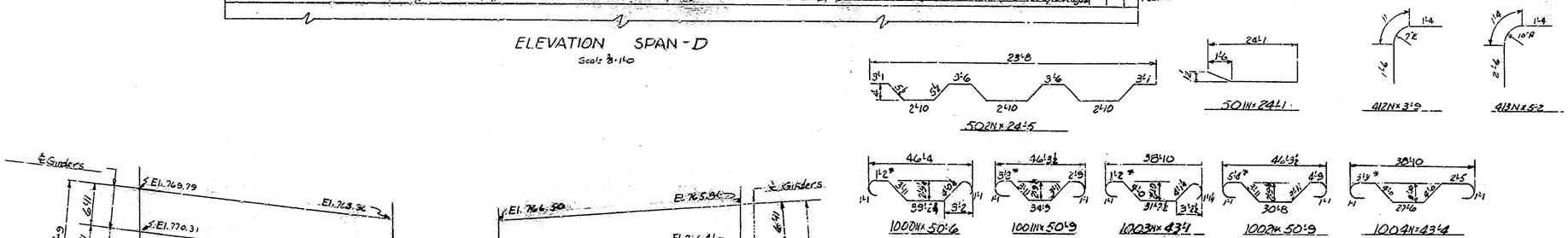
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
110IN	16	21'2	
110ON	24	21'8	
	Total	#11	2282
1000N	8	30'10	
1001N	8	30'9	
1002N	8	30'9	
	Total	#10	5232
501N	51	22'1	
502N	51	24'5	
#5	85	46'6	
#5	51	24'0	
#5	10	8'10	
	Total	#5	6074
412N	12	3'9	
400N	74	5'10	
401N	52	8'5	
402N	10	3'4	
403N	10	3'4	
404N	10	6'8	
405N	10	4'9	
406N	16	6'4	
407N	12	7'0	
408N	156	9'4	
409N	9	5'9	
411N	9	6'5	
#4	18	22'6	
#4	28	8'6	
413N	6	5'2	
	Total	#4	1981
#3	28	13'6	
#3	8	12'6	
#3	28	12'4	
#3	2	12'9	
	Total	#3	845
	Total	Steel	20814

CONCRETE	
Pour No.	Cu. Yds.
1	46.7
2	44.9
Class "A" Concrete	91.6
Railing Concrete	6.2 C.Y.
Aluminum Railing	74.9 Lin. Ft.

SPAN-D

MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
110IN	16	11'3	5432
1083N	12	9'3	
1084N	8	6'3	
1085N	20	12'10	
	Total	#6	7331
501N	46	24'1	
502N	42	24'5	
#5	68	38'0	
#5	43	24'0	
#5	10	8'0	
	Total	#5	5125
412N	2	3'9	
1001N	68	30'8	
401N	42	8'5	
400N	10	5'10	
403N	10	3'4	
1004N	10	2'8	
1003N	10	4'3	
1002N	12	7'0	
407N	9	5'3	
1081N	13	8'0	
408N	9	9'4	
#4	23	8'0	
413N	2	5'2	
	Total	#4	1311
#3	15	13'6	
#3	6	12'6	
#3	15	12'4	
#3	23	8'6	
#3	2	12'9	
	Total	#3	1045
	Total	Steel	15432

CONCRETE	
Pour No.	Cu. Yds.
3	57.5
4	54.0
Class "A" Concrete	111.5
Railing Concrete	5.6 C.Y.
Aluminum Railing	59.3 Lin. Ft.



Notes.
See Dwg. 59 #310 For Girder Details.
See Br. Std. G For Reinforcing Bar Notes.

SUPERSTRUCTURE DETAILS SPANS A & D
STATE HIGHWAY DEPARTMENT OF INDIANA

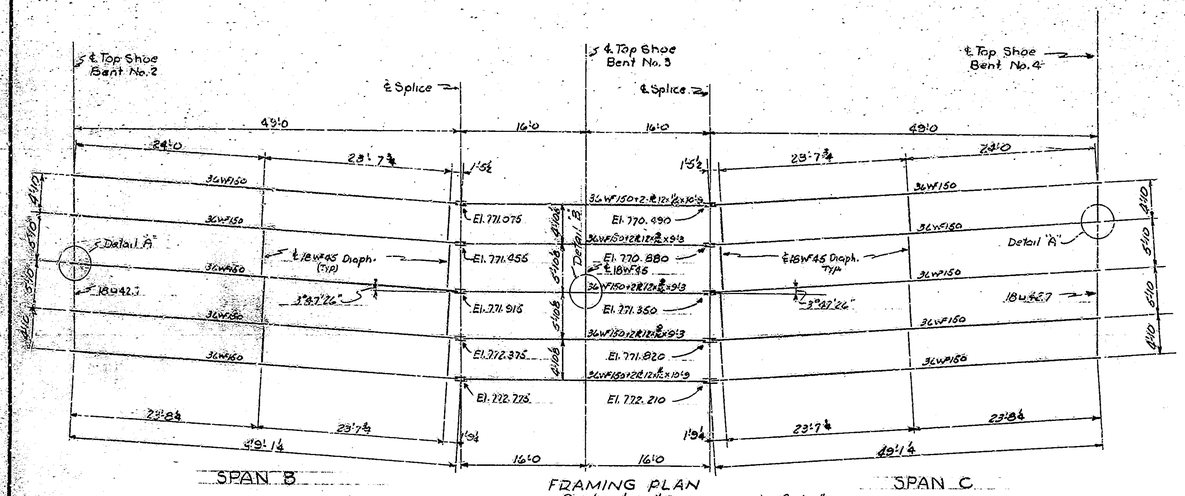
SCALE:- As Noted — CHIEF ENGINEER

DRAWING:- 5 OF 18
PROJECT:- 55-660 & 55-1155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- 070-75-4647DRN

DESIGNED	F.E.M.	CK'D.	K.D.R.
DRAWN	J.R.F.	CK'D.	R.A.G.
TRACED		CK'D.	

BURGESS-NASH ENG. SUPPLY-NO. 1311

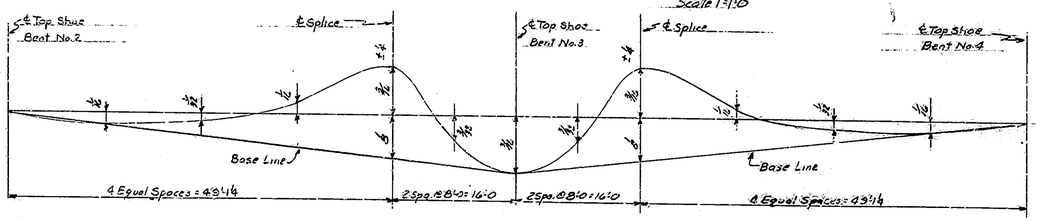
BRIDGES OVER 20' SPAN					
PUB ROAD RTE. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (77) 155	1961	42	64



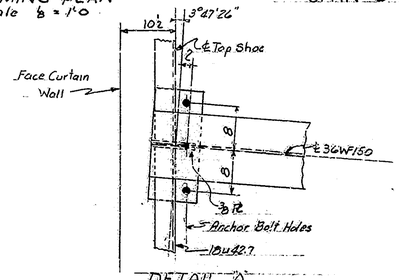
FRAMING PLAN
Scale ⅛" = 1'-0

TABLE OF MOMENTS AND REACTIONS

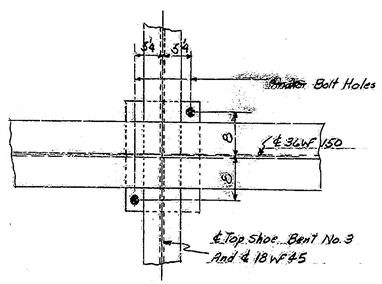
	Moment ℄ Span Bar to SPC. 11.K		Moment ℄ BS Ft. Kip.		Reaction BS & ES Kip.		Reaction BS Kip.	
	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.
DEAD LOAD	243.6	303.6	484.1	761.0	20.62	23.71	71.00	89.08
LIVE LOAD	378.1	312.6	317.3	102.6	35.48	18.33	45.10	25.49
IMPACT	99.4	82.2	63.4	60.9	9.38	4.62	11.56	7.43
TOTAL	722.3	698.6	884.8	940.5	65.49	46.86	127.36	121.00



NO LOAD CAMBER DIAGRAM
No Scale



DETAIL "A"
Scale 1½"=1'-0



DETAIL "B"
Scale 1½"=1'-0

DATA USED FOR DESIGN AND DETAILS

LIVE LOAD: H20-S16-44 loading with impact and distribution of loads in accordance with 1962 AASHO Specifications.
DEAD LOAD: Actual weight plus 35 pounds per sq. Ft. of roadway to provide for future wearing surface.
SLAB: Designed for 16000 lb wheel plus impact and with 2 inch monolithic wearing surface.

UNIT STRESSES.

Structural Steel Bending (Tension)	18,000 #/sq. in.
Shear on Rivets	13,500 #/sq. in.
Structural Steel Bearing (Including Rivets)	27,000 #/sq. in.
Bearing Steel on Concrete (Including overturning and Eccentric loading)	1,000 #/sq. in.
Reinforcing Steel (Tension)	20,000 #/sq. in.
Concrete (Compression)	1,200 #/sq. in.

PAINTING STRUCTURAL STEEL

All Paint shall be in accordance with current State Highway Specifications.
SHOP PAINT: One coat Red Lead Type I or II except as noted.
FIELD PAINT: 2 Coats of Aluminum.

NOTE: Aluminum Railing including Anchor Bolts and Post Castings to be paid for at cost per lineal foot.

NOTE: Estimated Weight of Structural Steel = 117000 lbs.

* Weight of Structural Steel shown is approximate only and it shall be the Contractors responsibility to determine the weight on which he forms his bid.

GENERAL NOTES

Rivets - ⅞" Unless noted.
Open Holes - 15/16" Unless noted.
Diameter of holes in all materials connecting top shoes to beam flange shall be 1 inch. Bolts connecting beam flange to top shoe shall extend into top shoe a minimum of 1 inch.
Beams shall be cambered as shown on the "No Load Camber Diagram". Beams shall be checked for camber while supported in such a way as to have no bending moment in the direction of camber.

Holes for beam splices shall be subpunched or subdrilled and reamed to size while assembled. See Article E1103.18(d) of the Specifications.
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 shall be assembled in accordance with the Camber diagram. If the beams are shop reamed or drilled, full size drift pins shall be used in erection.
The shop details shall show a plan of matchmarking for all reaming jobs.
All Splice plates are to be removed, cleaned, and painted after reaming. Splice plates shall not extend beyond the end of beam after painting for shipment.
Flange splice bars shall have planed or rolled edges and holes in bars shall be subdrilled and reamed or drilled full size while assembled.
Ribbed bolts may be substituted for field rivets in end diaphragm connections. See Specifications.
All structural steel shall be erected and beams adjusted to required elevation before driving rivets in beam splices.
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 Engineers drawings and specifications and shall submit 3 copies of these to the Engineer. See Article E1103.2 of the Specifications.
All Structural Steel on which welding is used shall be made from steel conforming to ASTM Specifications A 373-567.
Welding shall conform to the "Welded Highway & Railway Bridges Specifications. See Article E1103.28 of the Specifications.

NOTE.
See Dwg. S2 For General Notes.
See Dwg. S3 For Geometrical Layout
See Dwg. S13 For Splice, Shoe Details and Interior Diaphragm Conn's.
See Dwg. S14 & S16 For End Diaphragm Conn's.
See Dwg. S18 For Shoe Setting Diagram and Erection Procedure.

DESIGNED FLM CKD. JAT
DRAWN JAT CKD. FLM
TRACED CKD.

FRAMING PLAN SPANS B & C

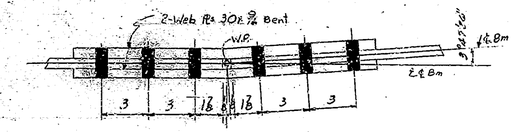
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted
JANUARY 1962
Walter Sp Chairman

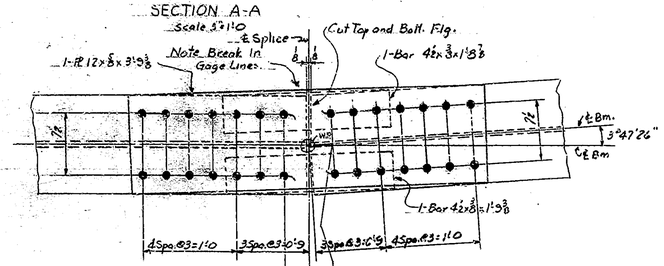
DRAWING:- S12 OF 18
PROJECT:- I-465-4 (77) 155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-78 46-A7 DEN

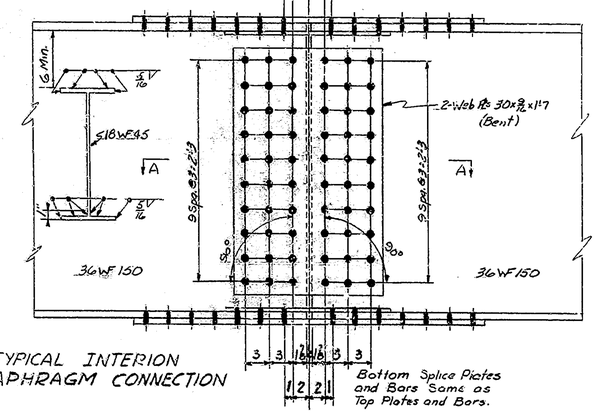
HARRISON ENG. SUPPLY-NO. 198

BRIDGES OVER 20' SPAN					
FUN. SYSTEM REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	F 465-4 (77)155	1961	43	64



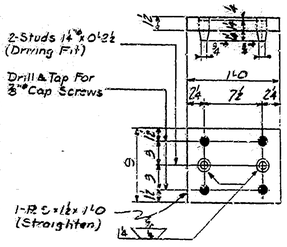
SECTION A-A
Scale 3"=1'0



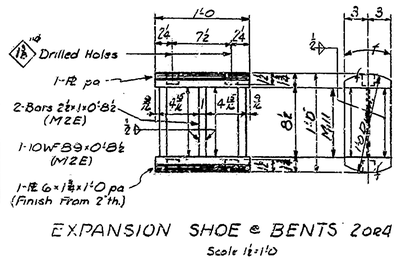


TYPICAL INTERIOR DIAPHRAGM CONNECTION

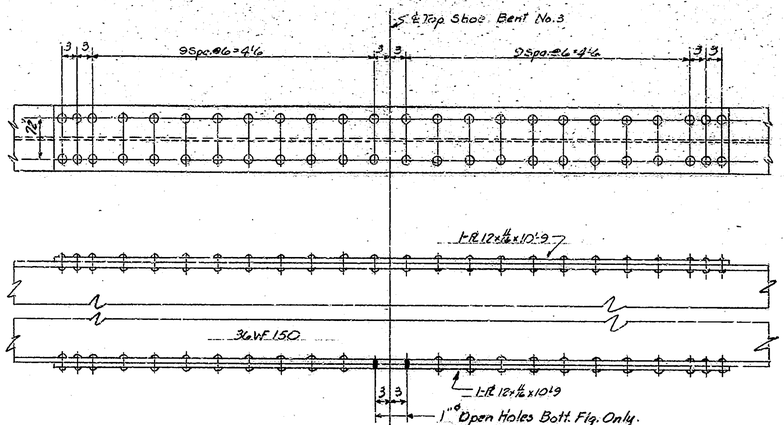
SPLICE DETAILS FOR ALL BEAMS
Scale 1½"=1'0



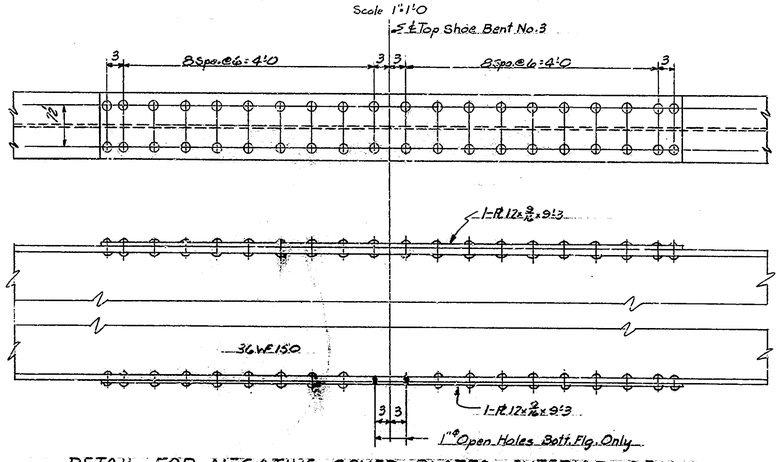
TOP SHOE @ BENTS 2 & 4
Scale 1½"=1'0



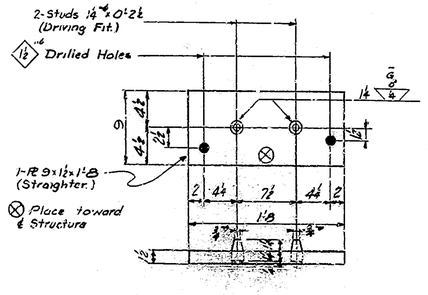
EXPANSION SHOE @ BENTS 2 & 4
Scale 1½"=1'0



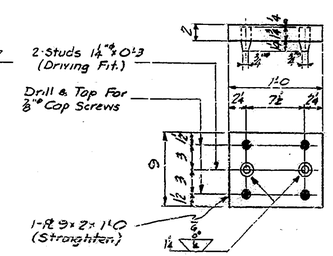
DETAIL FOR NEGATIVE COVER PLATES OUTSIDE BEAMS
Scale 1"=1'-0



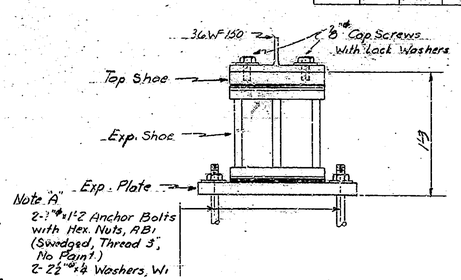
DETAIL FOR NEGATIVE COVER PLATES INTERIOR BEAMS.



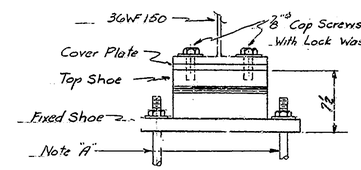
EXPANSION PLATE @ BENTS 2 & 4
Scale 1½"=1'0



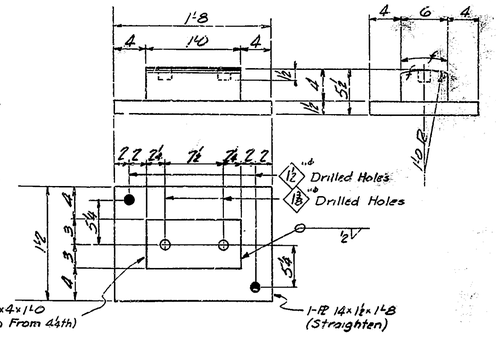
TOP SHOE @ BENT 3
Scale 1½"=1'0



SHOE ASSEMBLY AT BENTS No. 2 OR 4
Scale 1½"=1'0



SHOE ASSEMBLY AT BENT No. 3
Scale 1½"=1'0



FIXED SHOE @ BENT 3
Scale 1½"=1'0

Notes
Rivets ⅞"ø
Open Holes 15/16"ø unless noted
See Dwg. S 12 For General Notes and Location of Details.

SUPERSTRUCTURE DETAILS SPANS B & C

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted

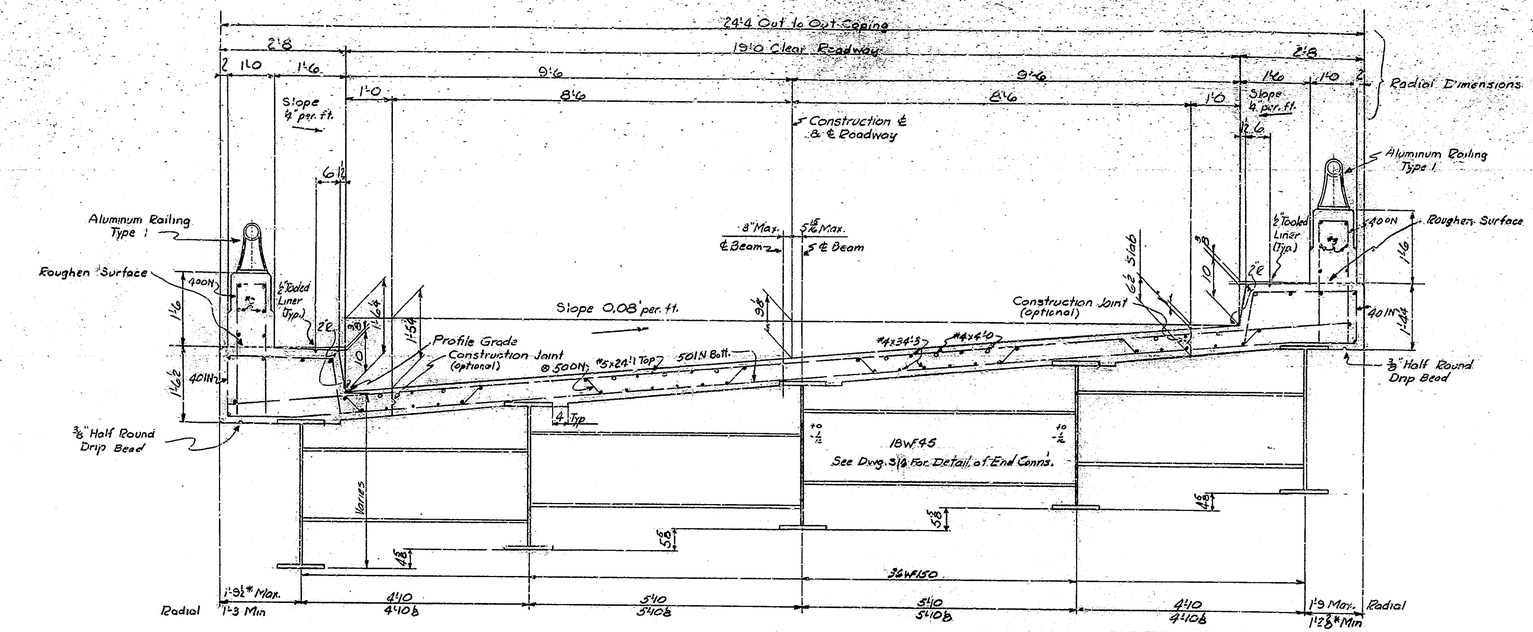
JANUARY 10, 19[illegible]

DRAWING S 13 OF 18
PROJECT:- F 465-4 (77) 155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- F 10-75 4647 DRN.

DESIGNED	F.E.M.	CK'D	J.R.T.
DRAWN	J.S.T.	CK'D	F.E.M.
TRACED		CK'D	

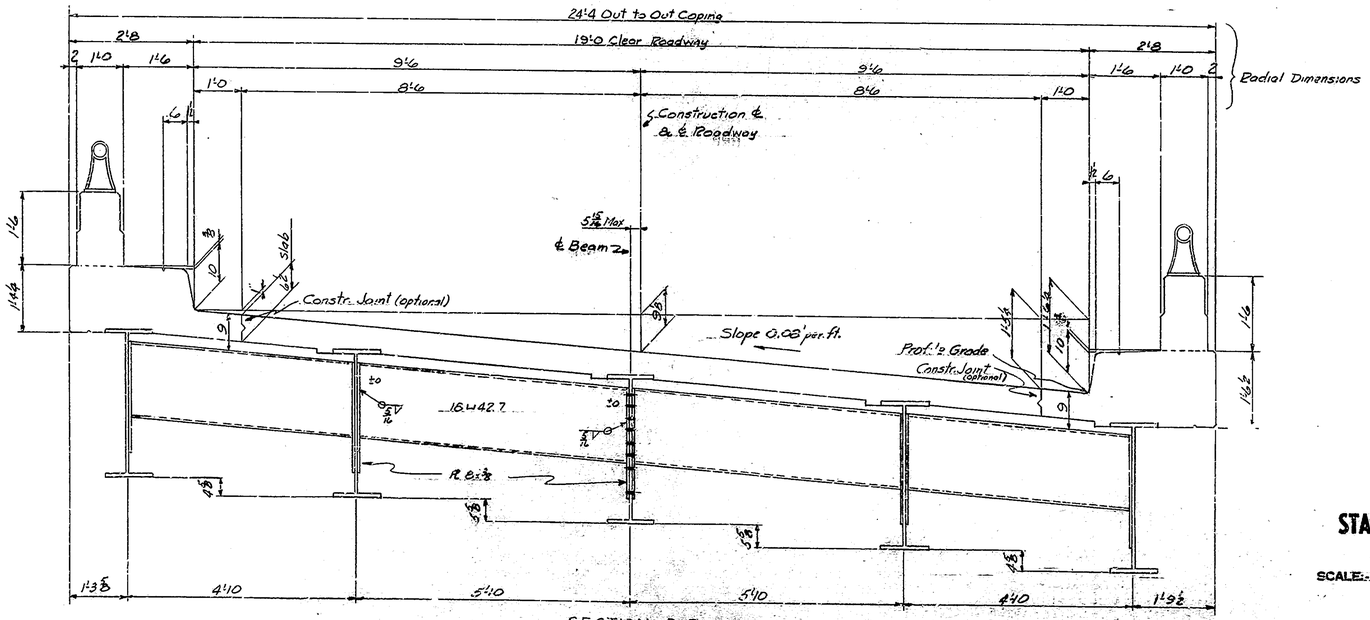
MARSHALL VAN, P.P.F.L.T.-INC. 1961

BRIDGES OVER 20' SPAN					
SUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (77)155	1961	44	64



SECTION A-A

* Dimensions ⊥ to tangent @ Sta. 22+91.08
⊗ Center the 500N bar over ℄ of center beam.



SECTION B-B BENT No. 2
SECTION B-B BENT No. 4 OPP. HAND

NOTES
See Dwg. S15 For Location of Sections.
See Dwg. S13 For Int. Diaph. Conns.
See Dwg. S16 For End Diaph. Conns.
See Dwg. S3 For Geometrical Layout.

SUPERSTRUCTURE DETAILS SPANS B&C
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: ¼"=1'-0 JANUARY 10, 1961

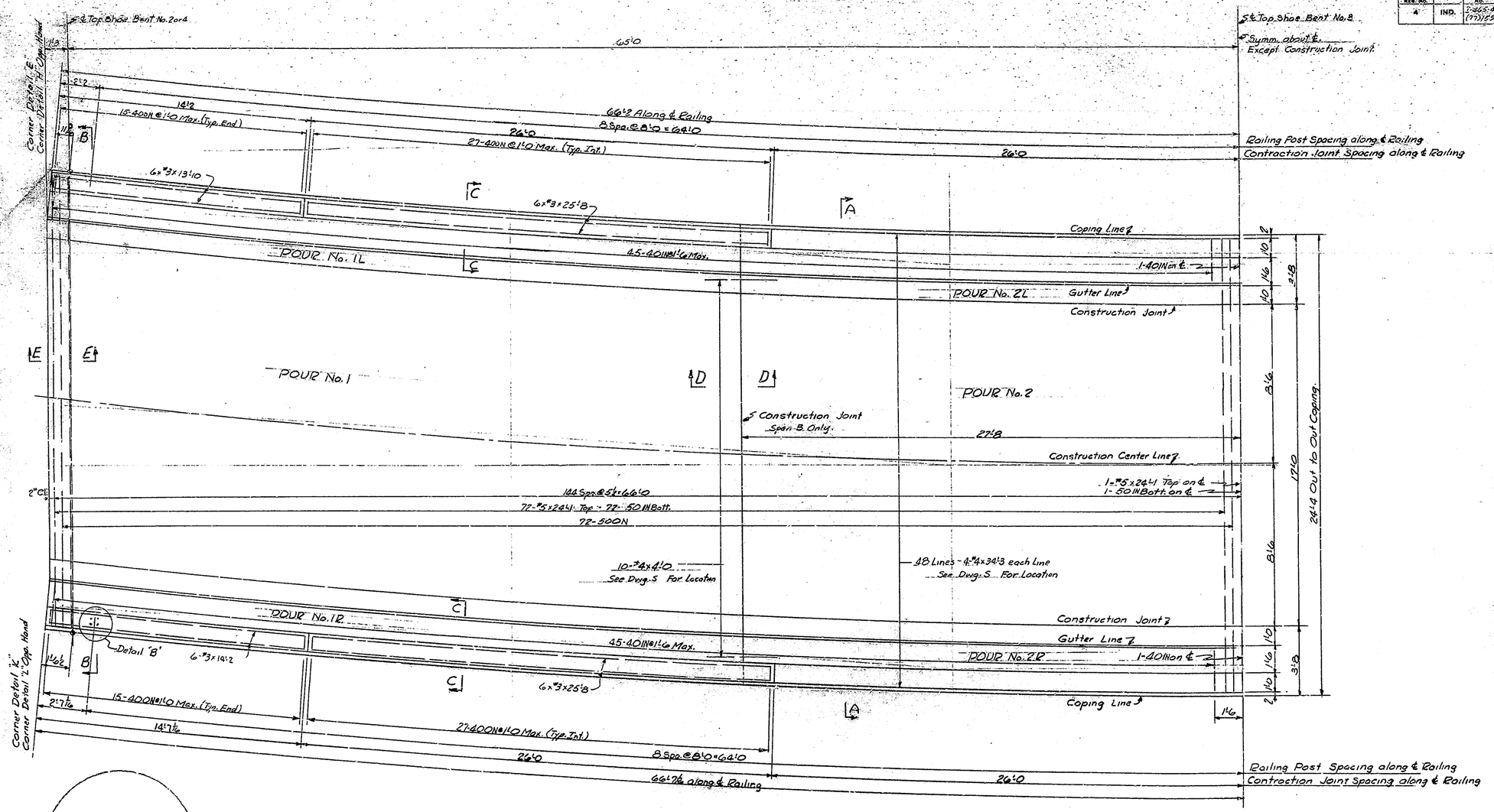
Walter M. Pee

DRAWING: S14 OF 18
PROJECT: I-465-4 (77)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE: I-70-70-4647 DRN

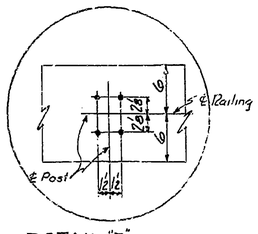
DESIGNED FEM CK'D IAT
DRAWN JAT CK'D FEM
TRACED CK'D

MARBAUGH ENG. SUPPLY—NO. 198

BRIDGES OVER 20' SPAN					
FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (77)155	1961	45	64



HALF PLAN ~ SPAN-B
SPAN-C OPP. HAND.
Scale ⅜=1'0



DETAIL "B"
Setting Plan For Post Anchor Bolts
Scale 1½=1'0

NOTES:-
See Dwg. S3 For Geometrical Layout
See Dwg. S16 For Corner Details and Sections C-C, D-D & E-E.
See Dwg. S14 For Sections A-A & B-B
See Dwg. S17 For Pour Diagram and Bill of Materials.

Sequence of pours to be made in order of pour numbers. Transverse construction joints are optional and pours may be continuous provided the pour terminates at a construction joint indicated on the plans.

SUPERSTRUCTURE DETAILS SPANS B&C
STATE HIGHWAY DEPARTMENT OF INDIANA

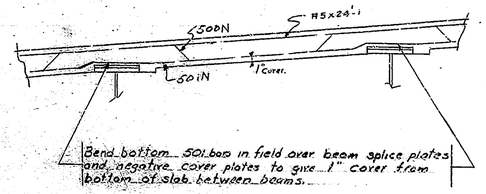
SCALE:- As Noted
JANUARY 10, 1961
Walter M. Ramm

DRAWING:- S15 OF 18
PROJECT:- I-465-4 (77)155
BRIDGE CONTRACT NO. S212
BRIDGE FILE:- I-70-[illegible]-4647DEN

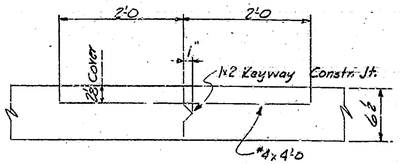
DESIGNED	FEM	CK'D	JAT
DRAWN	JAT	CK'D	EEM
TRACED		CK'D	

MARRAUGH ENG SUPPLY-NO. 14

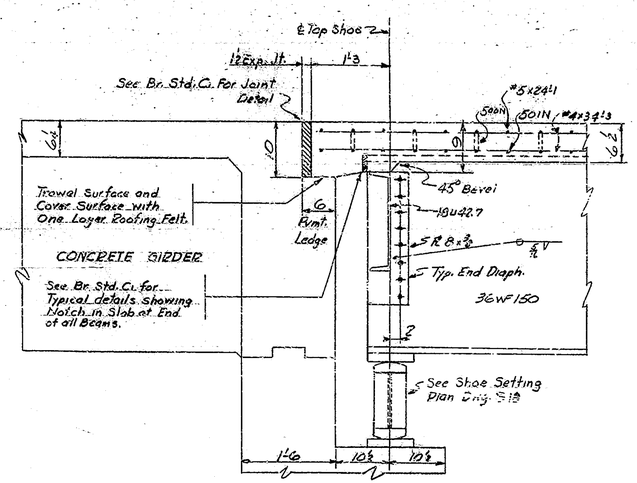
BRIDGES OVER 20' SPAN					
FUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (77)155	1961	46	64



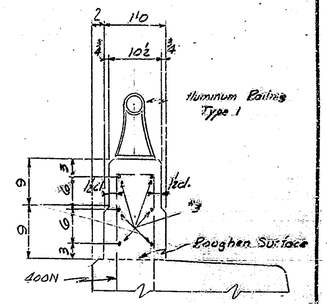
FIELD BEND REQUIRED ON BOTTOM BARS OVER BEAMS
No Scale



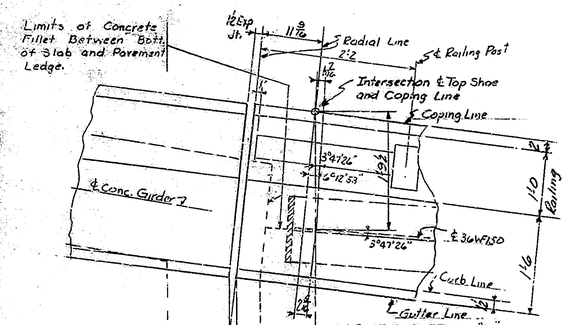
SECTION D-D
Scale 1½"=1'-0
See Dwg. S For Location



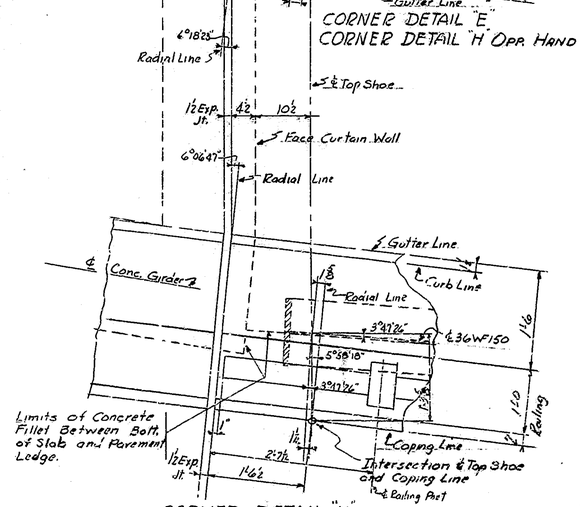
SECTION E-E
Scale 1"=1'-0



SECTION C-C
Scale 1"=1'-0



CORNER DETAIL "E"
CORNER DETAIL "H" OPP. HAND



CORNER DETAIL "K"
CORNER DETAIL "L" OPP. HAND.
Scale 1"=1'-0

NOTE:
See Dwg. S15 For Location of Sections and Corner Details.
See Br. Std. C1 For Reinforcing Bar Note.

SUPERSTRUCTURE DETAILS SPANS B&C
STATE HIGHWAY DEPARTMENT OF INDIANA

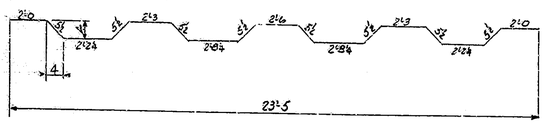
SCALE: As Noted
JANUARY 10, 1961
Walter M. Baum

DRAWING: S16 OF 18
PROJECT: I-465-4 (77)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE: I-80-19-4 ALDEN

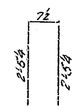
DESIGNED	FEM	CK'D	JAT
DRAWN	JAT	CK'D	FEM
TRACED		CK'D	

MARGAUSH ENG. SUPPLY—NO. 186

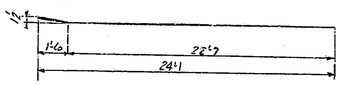
BRIDGES OVER 20' SPAN					
FUS. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (17)155	1961	47	64



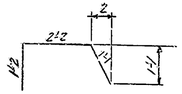
500N×24'-5



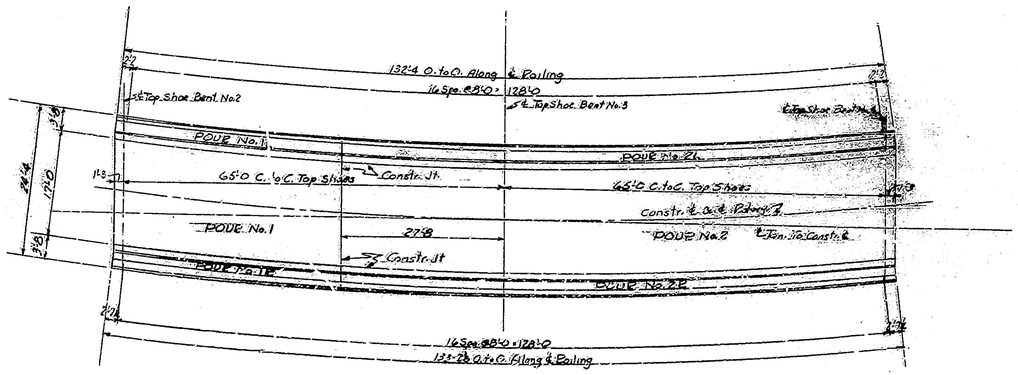
400N×5'-6



501N×24'-1



401N×4'-5



CONCRETE POUR DIAGRAM AND RAILING POST SPACING

Scale 5/32" = 1'-0

NOTE

Sequence of pours to be made in order of pour numbers. Transverse Construction Joints are optional and pours may be continuous provided the pour terminates at a construction joint indicated on the plans.

BILL OF MATERIALS

MARK & SIZE	No. of BARS	LENGTH	WEIGHT
500N	14.4	24'-5	
501N	14.5	24'-1	
#5	14.5	24'-1	
	Total #5		10952
400N	27.6	5'-6	
401N	18.2	4'-5	
#4	19.2	3'-3	
#4	10	4'-0	
	Total #4		5970
#3	4.8	25'-8	
#3	1.2	14'-2	
#3	1.2	13'-3	
	Total #3		590
	Total Steel		17512
CONCRETE			
Pour No.			Cu. Yds.
1			[illegible]
1R			5.3
1L			6.4
2			12.3
2R			14.3
2L			15.7
Total Class "A"			66.0
Railing Concrete			13.0 Y.
			25.75 Lin. Ft.
Aluminum Railing			26.5 Lin. Ft.

SUPERSTRUCTURE DETAILS SPANS B & C

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted

JANUARY 10, 19[illegible]

Walter M. Bean

DRAWING:- S17 OF 18

PROJECT:- I-465-4 (17)155

BRIDGE CONTRACT NO. 5212

BRIDGE FILE:- I-70-78-4647 DRN

DESIGNED FEM CK'D JRT

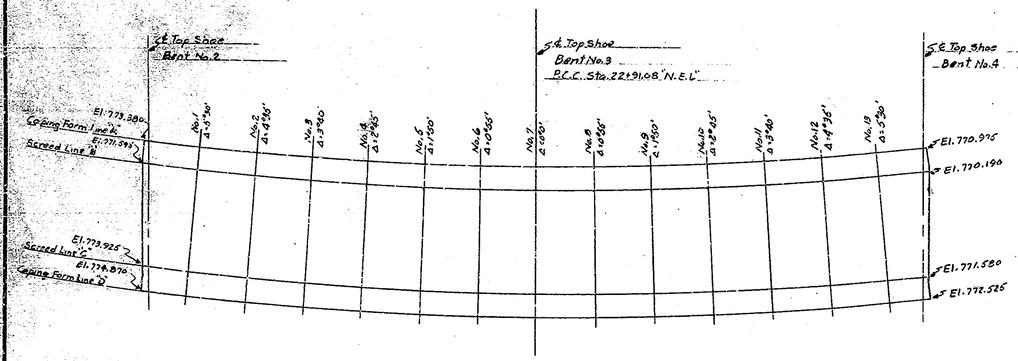
DRAWN JRT CK'D FEM

TRACED CK'D

BRIDGES OVER 20' SPAN					
FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (22)155	1961	48	64

TABLE OF ELEVATIONS

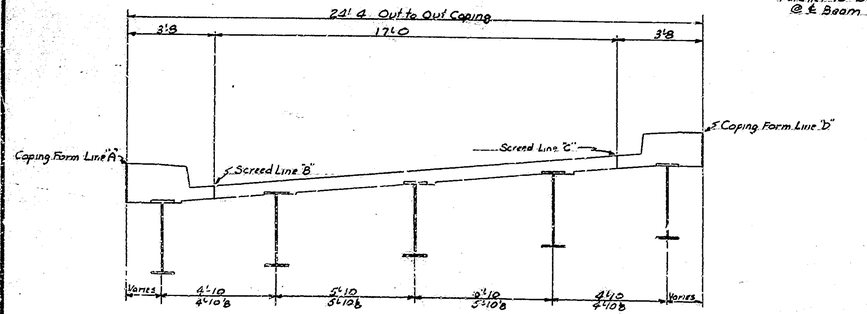
BENT	LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13
A	Elev. Top of Coping Form at ℄ Brg.	773.245	773.080	772.910	772.730	772.535	772.320	772.175	772.005	771.840	771.675	771.525	771.375	771.235
	Elev. Top of Slab at ℄ Brg.													
	Elev. Top of Slab at ℄ Bent Use for Const.													
B	Elev. Top of Screed	773.440	773.295	773.125	772.946	772.740	772.535	772.390	772.230	772.085	771.930	771.770	771.620	771.480
	Elev. Top of Slab													
	Dist. Back to ℄ Brg. at Screed													
C	Elev. Top of Screed	773.820	773.658	773.485	773.305	773.120	772.925	772.730	772.580	772.415	772.260	772.080	771.900	771.710
	Elev. Top of Beam													
	Dist. Back to ℄ Brg. at Screed													
D	Elev. Top of Coping Form	774.125	774.000	773.890	773.750	773.605	773.480	773.385	773.325	773.340	773.295	773.225	773.145	773.060
	Elev. Top of Curbside Beam													
	Dist. Back to ℄ Brg. at Curbside													



PLAN OF SCREEDS

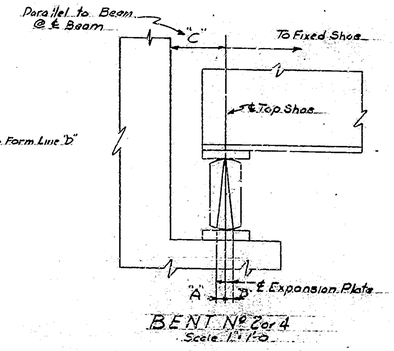
Scale 3/32" = 1'-0"

1. Lines 1 Through 13 Are Radial Lines
2. Unit Deflection Angle Between Any Two Adjacent Lines is 0°55'
3. Δ Signifies Total Deflection From A Tangent To The ℄ Profile Grade Line At Sta. 22+91.08



SECTION ON RADIAL LINE

Scale 3/8" = 1'-0"



BENT No. 2 or 4

Scale 1" = 1'-0"

NOTES:
Purpose.
"PLAN OF SCREEDS," shows location of screeds.
"TABLE OF ELEVATION," shows data for setting screeds and coping forms, so that the slab and copings will be at the final grade elevations after all concrete has been poured.
"TABLE I", shows data for setting expansion plates.

GENERAL PROCEDURE

1. After rivets and welding have been completed, adjust the superstructure longitudinally so that dimension "C" from the ℄ Top Shoe to the face of the curtainwall at Bent No. 2 and Bent No. 4 are equal.
2. With the superstructure in the adjusted position called for in No. 1, set the anchor bolts for the fixed shoe at Bent No. 3.
3. Adjust the expansion plate under each expansion shoe in accordance with dimension "A" or "B" in TABLE I for the prevailing temperature. Note that dimension "A" is always the distance from a vertical line through the ℄ of Top Shoe in a direction away from the Fixed Shoe. Set anchor bolts.
4. After the shoes are set, take elevations at all screed points on top of adjacent beam. Enter these elevations in "TABLE OF ELEVATIONS." Subtract these elevations from the tabulated elevations and use the resulting dimension as the height for setting the screed or coping form above the form. 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 is to be poured until the above operations are completed.

TABLE I

	Dim. "A"			Dim. "B"		
Temperature (F°)	0	20	40	60	80	100
℄ Top Shoe to ℄ Expansion Pl. @ Bench Mark	3/4	1/2	1/8	0	1/8	1/4

See Dwg. S 2. For General Notes.

DESIGNED	JAT	CHKD. EEM
DRAWN	JAT	CHKD. EEM
TRACED		CHKD.

SCREEDS FOR SPANS B & C

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: As Noted

JANUARY 10, 1961

DRAWING: S18 OF 18
PROJECT: I-465-4(22)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE: I-70 & I-465 INTERCHANGE

STRUCTURE QUANTITIES

ITEM	Concrete Class F Cu Yds	Concrete Class D Cu Yds	Concrete Class E Abut Cu Yds	Concrete Class E Ftg Cu Yds	Railing Concrete Class F Cu Yds	Railing Concrete Lin Ft	Reinforcing Steel (1934 Std Wts) #11 (1½") Lbs	#10 (1⅛") Lbs	#9 (1") Lbs	#8 (1") Lbs	#7 (⅞") Lbs	#6 (¾") Lbs	#5 (⅝") Lbs	#4 (½") Lbs	#3 (⅜") Lbs	#2 (¼") Lbs	Total Lbs	Structural Steel Lbs	Cast Iron Lbs	Steel Pile No.	Steel Pile Lin Ft	Aluminum Railing Type I Lin Ft
SUBSTRUCTURE [illegible]																						
[illegible]	1.1										370		58	4?			1,334			6	180	
[illegible]	10.5	5.8	13.2	11.4						1,197	2,158		879	45?	918		5,588					
[illegible]	6.6	5.5	14.0	13.5							3,183		583	817	086		5,261					
[illegible]	10.4	5.7	14.2	11.4						1,197	1,938		879	458	867		5,277					
[illegible]	7.0										580		58	313			936			6	180	
SUPERSTRUCTURE [illegible]																						
[illegible]	81.6				8.2		7,282	8,232					6,074	1,981	248		23,814					74.5
[illegible]	[illegible]				13.8								10,985	5,970	590		17,512	117,000				266.5
[illegible]	[illegible]				5.4		949	7,351					8,123	1,711	209		18,323					59.?
[illegible] (splice bars)							68	45		23	16		20	12	6		188					
TOTALS	294.7	16.0	42.6	56.3	28.2		8,289	12,608		2,417	8,115		24,716	11,847	5,063		71,955	117,000		12	360	400.3

BILL OF SPLICE BARS

REINFORCING STEEL

Mark	No. of Pieces			Length	Weight
[illegible]	[illegible]			11'-0	53
[illegible]	[illegible]			10'-6	45
[illegible]	[illegible]			8'-9	25
[illegible]	1			8'-0	16
[illegible]	4			8'-9	20
[illegible]	3			6'-0	12
[illegible]	3			5'-6	6
		Total Weight			188

Note: For Test Bar Samples see Br. Std. [illegible]

BILL OF MATERIALS FOR R.C. BRIDGE APPROACH

REINFORCING STEEL

Size	Mark	No. Pcs.	Length	No. Pcs.	Length	No. Pcs.	Length	Weight

BARRICADES, BARRIERS, TRAFFIC SIGNS & LIGHTS

ITEM	UNIT	QUANTITY	ASSEMBLY	
WARNING SIGNS	Each		[illegible] 30 R	
			[illegible] 23 R	
			[illegible] (24)	
			[illegible] (15)	
			Torches	
[illegible]	Each		Barricades (Type A)	
			Signs 10 R	
			W 11 R	
			(17)	
[illegible] SIGNS	Each			
[illegible]	Each	2	Surface Barriers	2
			Lanterns or Torches	4
BARRICADES (TYPE B)	Each		Barricades (Type B)	
			Signs 18	
			Lanterns or Torches	
TYPICAL SIGN STANDARDS	Each		Signs 13 R	
			W 11 R	
			17	
			Lanterns	
CONSTRUCTION IDENTIFICATION SIGNS	Each		[illegible] 18	

[redacted]

APPROACH STRUCTURES

Struct. No.	Location	Size	Kind	Length	Class Conc. in Struct. Cu Yds	Reinf. Steel Lbs	Cast Iron Lbs	Remarks
[illegible]	[illegible] N.E.L.	18"	Group A Pipe	90'	2.29			2 Galv Hawls
[illegible]	[illegible] N.E.L.	24"	Group A Pipe	146'	[illegible]			2 Galv Hawls
				TOTALS	6.0?			

Designed [illegible]
Traced [illegible]

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	465-4 (17) 165	1961	59	64

(Heading above: BRIDGES OVER 20' SPAN)

SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITY 4647 DRN	4647	TOTAL	
1	Class F Concrete	Cu. Yds.	294.7	981.6	1,276.3	
2	Class D Concrete	Cu. Yds.	16.0	42.6	58.6	
3	Class E Concrete above Footings	Cu. Yds.	42.6	528.8	571.4	
4	Class E Concrete in Footings	Cu. Yds.	56.3	164.2	200.5	
5	Railing Concrete	Lin. Ft.				
6	Reinforcing Steel	Lbs.	71,955	340,586	412,541	
7	Structural Steel	Lbs.				
8	Cast Iron	Lbs.				
9	Untreated Timber Piles Furnished	Lin. Ft.				
10	Untreated Timber Piles Driven	Lin. Ft.				
11	Furnishing Equipment for Driving Piles	Lump Sum		1	1	
12	Wet Excavation	Cu. Yds.				
13	Waterway Excavation	Cu. Yds.				
14	Common Excavation	Cu. Yds.	3,415	9,450	12,865	
15	Special Borrow	Cu. Yds.	3,990	62,620	66,610	
16	Grade B Special Borrow	Cu. Yds.	205	1,625	1,830	
17	Sodding	Sq. Yds.	972	1,880	2,852	
18	Mulched Seeding	Sq. Yds.	214	4,800	5,014	
19	Cement Concrete Pavement	Sq. Yds.				
20	Reinforced Cement Concrete Pavement	Sq. Yds.				
21	Thickened Reinf. Cement Concrete Pavement	Sq. Yds.				
22	Aggregate for Compacted Aggregate Base	Tons				
23	Removal Present Structure	Lump Sum				
24	Temporary Bridge and Approaches	Lump Sum				
25	Warning Signs	Each				
26	Std. Barricades (Type A)	Each				
27	Class D Concrete in Structures	Cu. Yds.	6.0	399.2	405.2	
28	R/W Markers	Each				
29	Steel Pile Shells Furnished (14"Φ)	Lin. Ft.		1,440	1,440	
30	Steel Pile Shells Driven (14"Φ)	Lin. Ft.		1,440	1,440	
31	Foundation Excavation (Unclassified)	Cu. Yds.	157	575	732	
32	4" Concrete Slopewall	Sq. Yds.		945	945	
33	Structural Steel (4647) **	Lump Sum		1	1	
34	Railing Concrete	Cu. Yds.	25.4	56.0	81.4	
35	Structural Steel (4647 DRN) **	Lump Sum	1		1	
36	Aluminum Railing (Type I)	Lin. Ft.	400.3	898.2	1,298.5	
37	Steel Pile Shells Furnished (12"Φ)	Lin. Ft.	330		330	
38	Steel Pile Shells Driven (12"Φ)	Lin. Ft.	330		330	
39	18" Group A Pipe	Lin. Ft.	90		90	
40	24" Group A Pipe	Lin. Ft.	146		146	
41						
42						
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SUMMARY

STATE HIGHWAY DEPARTMENT OF INDIANA

JANUARY 10, 1961

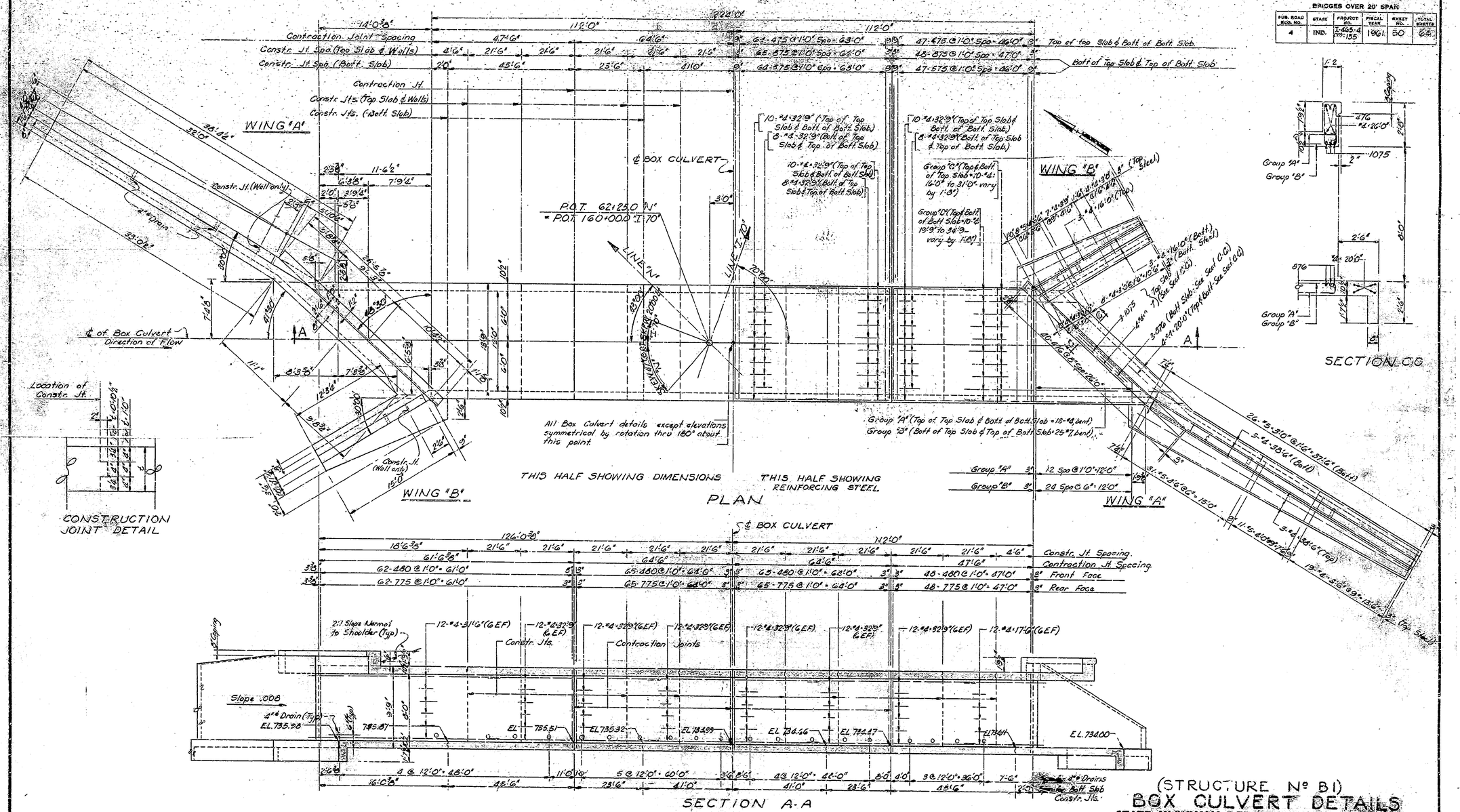
[signature]

PROJECT I-465-4 (17) 165

BRIDGE CONTRACT No. 5212

BRIDGE FILE I-10-73-4647 DRN

BRIDGES OVER 20' SPAN					
PUB. ROAD SEC. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-465-4 (7)-155	1961	50	64



NOTES:

See Dwg. S2 for General Notes.
Concrete in Box Culvert to be Class "D".
Waterproof sides and top of box & wingwalls in accordance with the Specifications.
See MISCELLANEOUS STRUCTURE STANDARDS SHEET "MG" for details of Contraction Joints.
See Sheet No. 51 for further details, bending diagrams, and Bill of Materials.
Cost of 4"ϕ drains to be included in unit price of Class "D" Concrete. Drains to be of 4"ϕ Steel Boiler Tube. (Weight per foot = 6.286 #/ft)

DESIGN DATA: Unit Stresses f_s = 20,000 p.s.i.; f_c = 1,200 p.s.i.
Designed for H-20-S16.44 loading in accordance with 1957 AASHO Specifications. Design also checked for live load for Bridges on Interstate System.

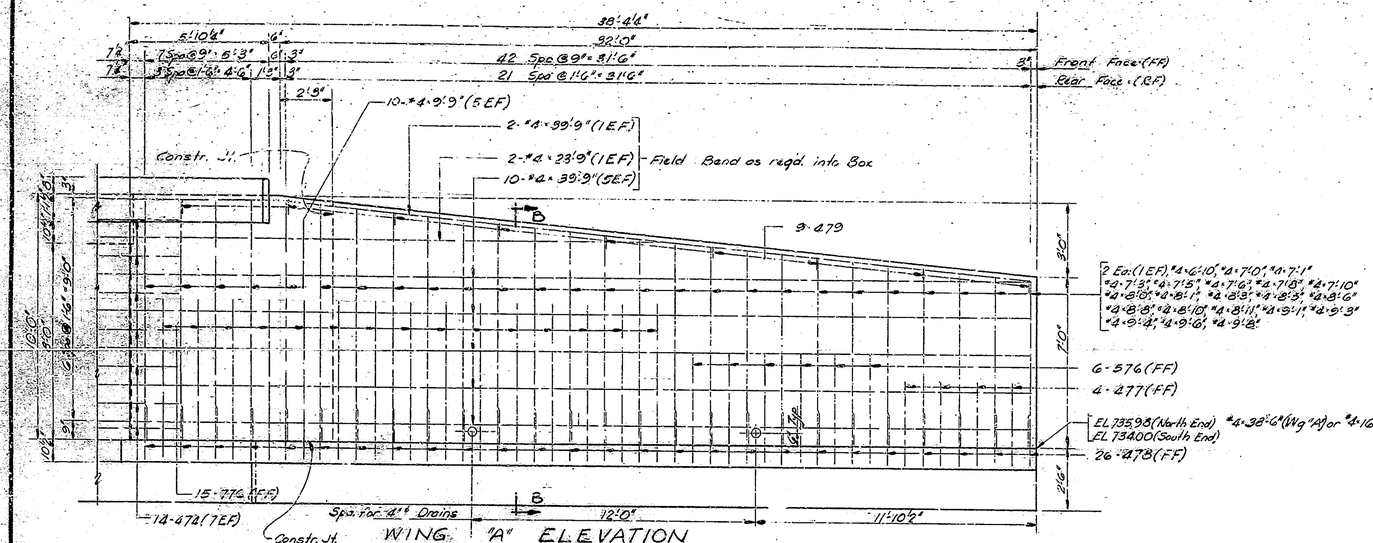
(STRUCTURE No. B1)
BOX CULVERT DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- NONE

Walter M. Brown

DRAWING:- OF
PROJECT:- I-465-4 (7)-155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-7 (7)-4647

DESIGNED KJP CK'D. RRH
DRAWN KDP CK'D.
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(77)155	1961	51	64

BILL OF MATERIALS

MARK SIZE	NO. BARS	LENGTH FT. IN.	WEIGHT LBS.
1075	6	29-0	783
875	452	15-2	
876	6	22-0	
TOTAL WT. #8			18656
775	480	18-6	
776	36	7-4	
Group B	8	235-5	
TOTAL WT #7			20665
575	444	14-8	
576	12	5-1	
#5	78	2-6	
#5	22	4-0	
#5	32	3-0	
TOTAL WT #5			7476
474	56	4-0	
475	442	18-0	
476	80	6-7	
477	12	3-11	
478	74	2-7	
479	26	1-9	
480	480	10-3	
Group A	4	113-9	
Group B	4	235-0	
Group D	4	272-6	
#4	24	39-9	
#4	12	38-9	
#4	360	32-9	
#4	12	31-6	
#4	8	26-0	
#4	4	23-9	
#4	8	20-0	
#4	4	17-9	
#4	22	17-6	
#4	8	17-0	
#4	12	16-0	
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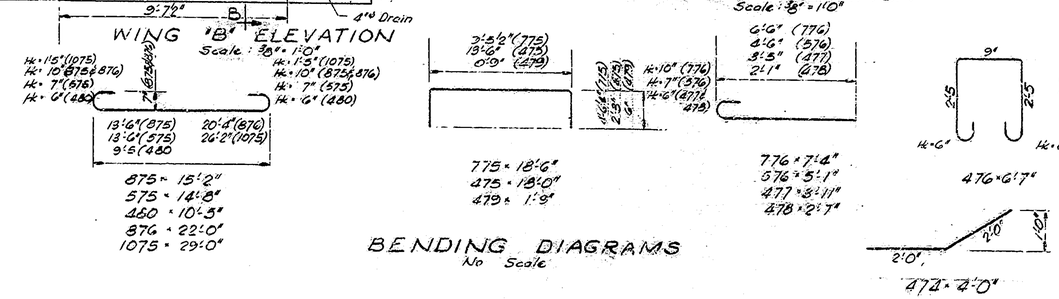
#4	4	11-3	
#4	24	9-9	
#4	4	9-8	
#4	4	9-6	
#4	4	9-4	
#4	8	9-3	
#4	4	9-1	
#4	4	8-11	
#4	4	8-10	
#4	4	8-8	
#4	4	8-6	
#4	4	8-5	
#4	8	8-3	
#4	4	8-1	
#4	4	8-0	
#4	4	7'-10"	
#4	4	7-9	
#4	4	7-8	
#4	4	7-6	
#4	4	7-5	
#4	4	7-3	
#4	4	7-1	
#4	8	7-0	
#4	4	6-10	
#4	4	6-3	
#4	4	5-6	
#4	4	5-3	
#4	4	4-9	
#4	4	4-0	
#4	14	3-9	
#4	38	3-6	
#4	4	3-3	
#4	32	3-0	
#4	4	2-6	
TOTAL WT #4			22,028
TOTAL WT. STEEL			69,334
CONCRETE			
Class "D"			999 Cu Yds
MISCELLANEOUS			
4" ϕ Drains			4-6 Ea

NOTES:
See Drg. 52 for General Notes.
See Br. Std. C, for Reinforcing Bar Notes
*Cost of drains to be included in the cost of adjacent concrete.

BENDING DIAGRAMS
No Scale



875 = 15'-2"
575 = 14'-8"
480 = 10'-3"
876 = 22'-0"
1075 = 29'-0"

775 = 18'-6"
475 = 18'-0"
479 = 1'-9"

776 = 7'-4"
576 = 5'-1"
477 = 3'-11"
478 = 2'-7"

476 = 6'-7"

474 = 4'-0"

Note: Group "A" = 15'-4" 3'-3" to 14'-3" (Vary by 11")
Group "B" = 25'-7" 3'-11" to 14'-11" (Vary by 36")

GROUP "A" = 113'-9" (TOTAL LENGTH)
GROUP "B" = 235'-5" (TOTAL LENGTH)

(STRUCTURE No. 81)
BOX CULVERT DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

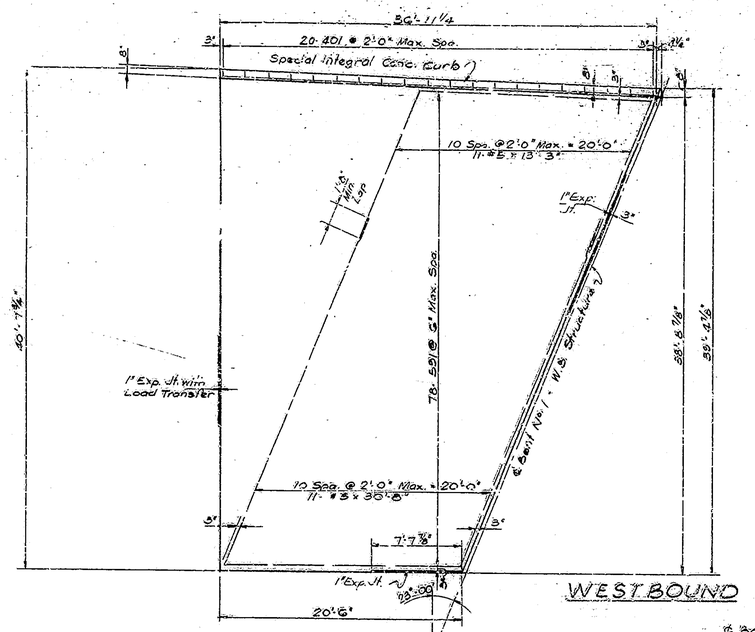
SCALE:- AS NOTED

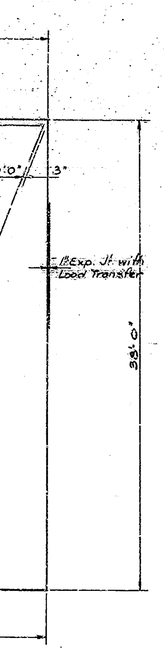
Walter M. Beam

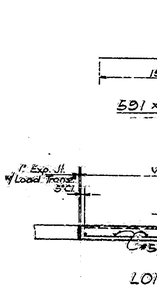
DESIGNED KDP CK'D. RBH
DRAWN KDP CK'D. RH
TRACED CK'D.

DRAWING:- OF
PROJECT:- I-465-4(77)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-70-73-4647

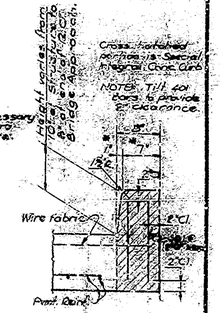
HARBAUGH ENG. SUPPLY—IND. 196







LONGITUDINAL SECTION
Scale: ½" = 1'-0"



SECTION THRU SPECIAL INTEGRAL CONCRETE CURB
Scale: 1"=1'-0"

591 x 20'-6"

401 x 3'-0"

* Vary as necessary to match curb at structure.

See Dwg SS for General Notes
See Br. Std. M3 for additional details
See Br. Std. C1 for Reinf. Bar Notes

BILL OF MATERIALS
WEST BOUND STRUCTURE
(2 APPROACHES)

Size of Mark	No. of Bars	Length	Weight
551	154	20'-6	
#5	11	30'-5	
#5	11	30'-0	
#5	11	13'-3	
#5	11	12'-9	
	TOTAL #5		4287
401	20	3'-0	
	TOTAL #4		40
	TOTAL STEEL		4327
CONCRETE			
R.C. Br. Approach Pvmt.		266.5 Sq. Yds.	
* Spl. Integ. Conc. Curb		370 Lin. Ft.	
1" Exp. Joint		107 Lin. Ft.	

BILL OF MATERIALS
EAST BOUND STRUCTURE
(2 APPROACHES)

Size of Mark	No. of Bars	Length	Weight
591	154	20'-6	
#5	11	30'-5	
#5	11	30'-0	
#5	11	13'-3	
#5	11	12'-9	
	TOTAL #5		4207
401	20	3'-0	
	TOTAL #4		40
	TOTAL STEEL		4247
CONCRETE			
R.C. Br. Approach Pvmt.		266.5 Sq. Yds.	
* Spl. Integ. Conc. Curb		357.5 Lin. Ft.	
1" Exp. Joint		117 Lin. Ft.	

BRIDGES OVER 20' SPAN

PUB. ROAD SER. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND	I-465-4(7)155	1961	52	54

R. C. BRIDGE APPROACH DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- 3/16" = 1'-0" and as shown — JANUARY, 1961

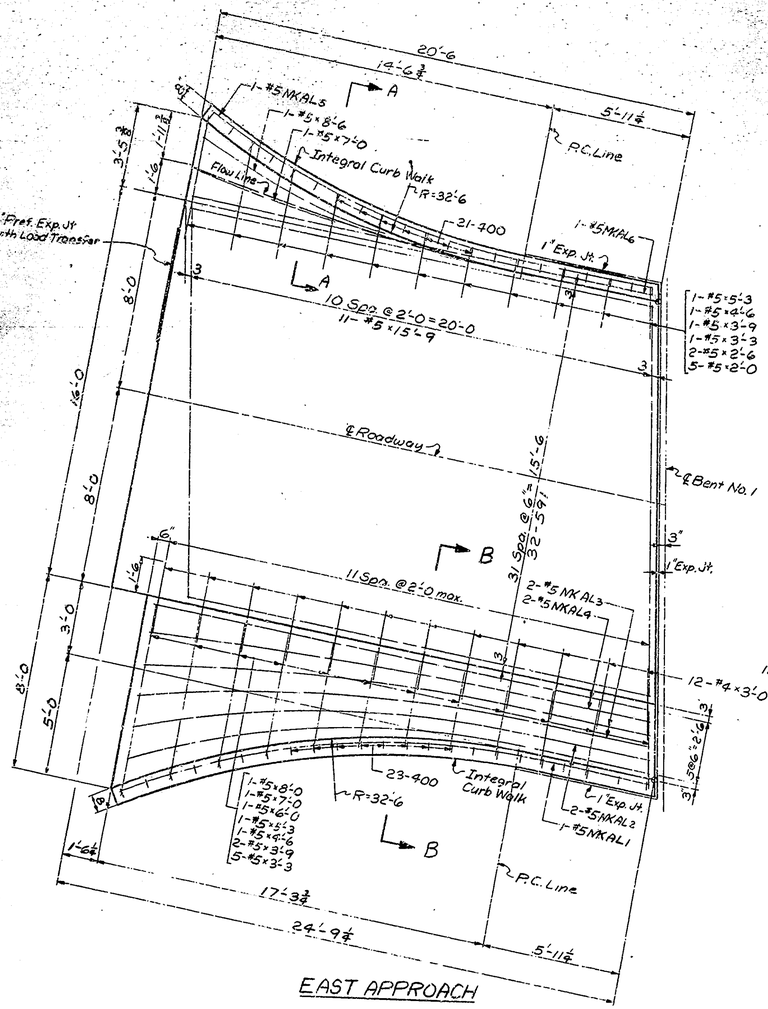
Walter G. Olson

DESIGNED ____ CK'D. ____
DRAWN C.C.T. CK'D. C.E.E.
TRACED ____ CK'D. ____

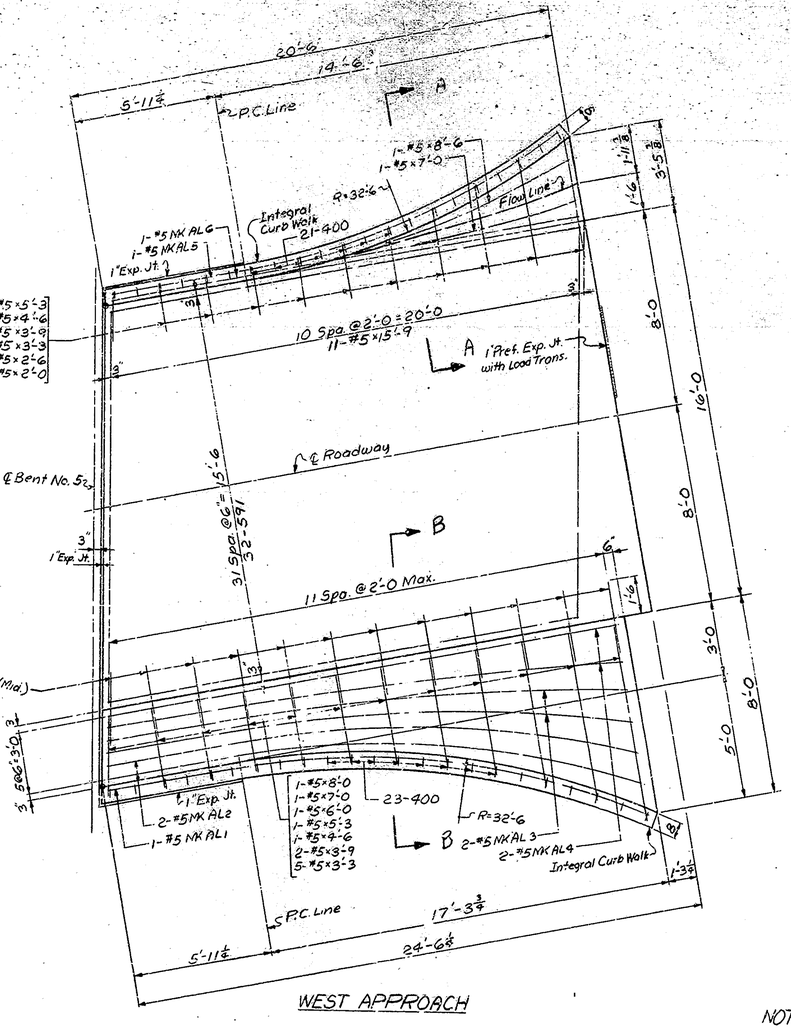
DRAWING:- OF
PROJECT:- I-465-4(7)155
BRIDGE CONTRACT NO. 5212
BRIDGE FILE:- I-74-73-46.47

SCHNEIDER ENG. SUPPLY-NO. 73

BRIDGES OVER 20% GRAN					
FED. ROAD DIST. NO.	STATE	PROJECT NO.	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4	IND.	I-70-3(4)72	1966	62	

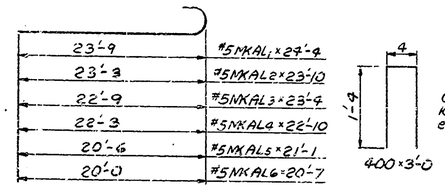


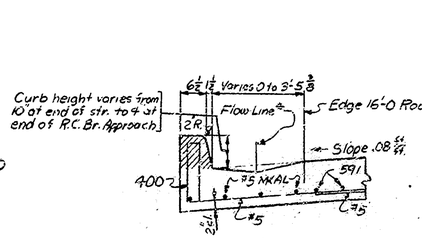
EAST APPROACH



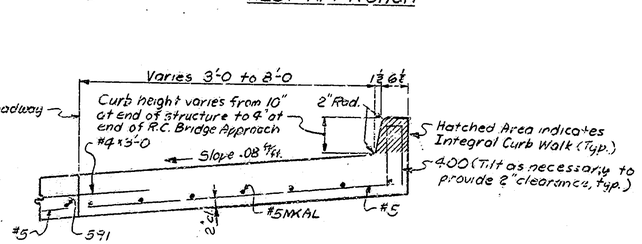
WEST APPROACH

23'-9	#5 NKAL1 x 24'-4
23'-3	#5 NKAL2 x 23'-10
22'-9	#5 NKAL3 x 23'-4
22'-3	#5 NKAL4 x 22'-10
20'-6	#5 NKAL5 x 21'-1
20'-0	#5 NKAL6 x 20'-7





SECTION A-A
Scale 3/8"=1'-0



SECTION B-B
Scale 3/8"=1'-0

BILL OF MATERIALS			
REINFORCING STEEL			
SIZE & MARK	NO. OF BARS	LENGTH	WEIGHT
591	69	20'-6	
#5	2	15'-9	
#5	2	8'-6	
#5	2	8'-0	
#5	4	7'-0	
#5	2	6'-0	
#5	2	5'-3	
#5	4	4'-6	
#5	6	3'-9	
#5	12	3'-3	
#5	9	2'-6	
#5	10	2'-0	
#5 NKAL1	2	24'-4	
#5 NKAL2	4	23'-10	
#5 NKAL3	4	23'-4	
#5 NKAL4	4	22'-10	
#5 NKAL5	2	21'-1	
#5 NKAL6	2	20'-7	
	Total #5		2372
400 #4	88	3'-0	
	29	3'-0	
	Total #4		224
	Total Steel		2596
CONCRETE			
10" R.C.C. Pavement			
Approach & Widening			
at South End of Str.			
- at Bent No. 1			42.5 Syd.
- at Bent No. 5			42.3 Syd.
Widening at N. side of Str.			
- at Bent No. 1			12.6 Syd.
- at Bent No. 5			12.6 Syd.
Total 10" R.C.C. Pvmt.			110.0 Syd.
Integral Curb Walk			1.2 Cyd.
MISCELLANEOUS			
1" Pref. Joint Filler			65.9 L.Ft.
1" Pref. Expansion Jt. with Load Transfer			11.1 L.Ft.

NOTES:
See Br. Std. C1 for reinforcing bar notes.
See Br. Std. M3 for additional details.

DESIGNED ____ CHK'D ____
DRAWN JDR 10-27-65 CHK'D GES 10-27-65
TRACED ____ CHK'D ____

R.C. BRIDGE APPROACH DETAILS
INDIANA STATE HIGHWAY COMMISSION

SCALE:- 3/8"=1'-0 Unless Noted OCTOBER 21, 1965

RECOMMENDED FOR APPROVAL:- D. Mirman
ENGINEER OF BRIDGE DESIGN

DRAWING:- OF
PROJECT:- I-70-3(4)72
BRIDGE CONTRACT NO.
BRIDGE FILE:- I-70-72-4647DRN

END STR