BRIDGE CONTRACT No 6321

INDEX

PROJECT	STRUCTURE	TYPE	SPAN	OVER	STATION	CONTRACT NO.
I-74-1(57)31	I-74-31-2334	Continuous Steel Beam	60'-0"-72'-0"-60'-0"	THE MONON RAILROAD	1290+67.10	6321

SHEET NO.	SHEET DESIGNATION	SUBJECT
1	ONE SHEET	INDEX AND TITLE SHEET
2	ONE SHEET	STANDARD DIVIDED LANE SECTIONS FOR FEDERAL AID INTERSTATE PROJECTS. **
3	ROAD PLAN SHEET NO. 10	ROAD PLAN AND PROFILE RD. PROJ. NO I-74-1(38)33-STA. 1268+00 TO STA. 1300+00.
4	ONE SHEET	SOIL BORINGS
5	S1	LAYOUT
6	S2	GENERAL PLAN
7	S3	BENTS 1 & 4 DETAILS
8	S4	BENTS 1 & 4 DETAILS
9	S5	BENTS 1 & 4 DETAILS
10	S6	BENTS 2 & 3 DETAILS
11	S7	BENTS 2 & 3 DETAILS
12	S8	SUPERSTRUCTURE DETAILS
13	S9	SUPERSTRUCTURE DETAILS
14	S10	SUPERSTRUCTURE BEARING DETAILS
15	S11	SUPERSTRUCTURE DETAILS
16	S12	SUPERSTRUCTURE DETAILS
17	S13	SCREED DETAILS
18	S14	BILL OF MATERIALS

** Rev. 7-24-63

STATE OF INDIANA

STATE HIGHWAY DEPARTMENT

BRIDGE PLANS

FOR SPANS OVER 20 FEET
ON
INTERSTATE ROUTE -74 SECTION NO. 1
F. A. PROJECT NO. I-74-1(57)31

BEGINNING AT A POINT ON LINE "A" APPROXIMATELY 1093.5 FEET SOUTHEAST OF THE INTERSECTION OF LINE "A" AND THE WEST LINE OF SEC. 20, T 19 N, R 4 W, UNION TWP, MONTGOMERY COUNTY AND EXTENDING ALONG LINE "A" IN A SOUTHEASTERLY DIRECTION FOR A DISTANCE OF 350 FEET TO A POINT ON LINE "A" APPROXIMATELY 1443.5 FEET SOUTHEAST OF THE WEST LINE OF SEC. 20, T 19 N, R 4 W, UNION TWP, MONTGOMERY COUNTY.

ROADWAY LENGTH = 0.029 MI.
BRIDGE LENGTH = 0.037 MI.
TOTAL LENGTH = 0.066 MI.

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

STRUCTURE NO. I-74-31-2334
STATION 1290+67.1 (LINE "A")
STATION 50+00.0 (LINE "R.R.-2-A")

BEGIN PROJECT
1288+950
(LINE "A")

END PROJECT
1292+45.0
(LINE "A")

SCALE 1" = 2000'

* = CONST. IDENTIFICATION SIGNS

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

BRIDGES OVER 20' SPAN

FEDERAL ROAD REGION NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57) 31	1963	1	37

INDEX CONTINUED
STANDARD DRAWINGS

SHEET NO.	SHEET DESIGNATION	SUBJECT	B.P.R. APPROVAL	ADOPTED "A" REVISION "R"
19		SUMMARY		
20-22		CROSS SECTIONS RD.PROJ. NO I-74-1(38)33 - Sht. Nos. 102-104		
23	BRIDGE STD. C1	STANDARD MISCELLANEOUS DETAILS		
	BRIDGE STD. C2	STANDARD MISCELLANEOUS DETAILS	6-21-63	R-5-1-63
	BRIDGE STD. D	CASTING DETAILS ROADWAY DRAINS		
	BRIDGE STD. F	ROADWAY DRAIN OUTLET DETAILS		
	BRIDGE STD. H	TYP. DETAILS OF THICK. PAVEMENT & LOC. TOE OF SL. A.E.B.		
	BRIDGE STD. H	TYP. DETAILS OF THICK. PAVEMENT & LOCATING TOE OF SLOPE		
24	BRIDGE STD. M1	MISCELLANEOUS APPROACH DETAILS		
	BRIDGE STD. M2	MISCELLANEOUS APPROACH DETAILS	6-21-63	R-5-14-63
25	BRIDGE STD. M3	MISCELLANEOUS APPROACH DETAILS		
26	BRIDGE STD. M5	SLOPE WALL AND DRAINAGE DETAILS		R-8-27-63
	BRIDGE STD. P2	STANDARD CONCRETE PILE DETAILS	12-4-62	R-10-4-62
27	BRIDGE STD. R1-A	ALUMINUM RAILING DETAILS		
28	BRIDGE STD. R1-B	STEEL RAILING DETAILS		R-1-22-63
	BRIDGE STD. S1	TYPICAL DETAILS FOR PLACING SPECIAL FILLING MATERIAL		R-1-14-63
29	BRIDGE STD. S2	TYPICAL DETAILS FOR PLACING [illegible]	3-28-63	R-2-18-63
	BRIDGE STD. T SHEET A	STANDARD TEMPORARY BRIDGE		
	BRIDGE STD. T SHEET B	STANDARD TEMPORARY BRIDGE		
	ROAD STD. SHEET A	STANDARD PAVEMENT JOINTS		
30	ROAD STD. SHEET MA	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MB	MISCELLANEOUS STANDARDS	3-9-61	R-7-11-60
31	ROAD STD. SHEET MC	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MC1	MISCELLANEOUS STANDARDS	1-26-60	R-4-1-59
32	ROAD STD. SHEET MD	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MD1	MISCELLANEOUS STANDARDS	1-26-60	R-5-26-59
33	ROAD STD. SHEET ME	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MF	MISCELLANEOUS STRUCTURE STANDARDS	8-9-61	R-10-14-60
	ROAD STD. SHEET MG	MISCELLANEOUS STRUCTURE STANDARDS		
	ROAD STD. SHEET MH	MISCELLANEOUS PRIVATE DRIVE STANDARDS		
	ROAD STD. SHEET MI	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MJ	MISCELLANEOUS STANDARDS		
	ROAD STD. SKEET K	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MN	MISCELLANEOUS STANDARDS		
34	ROAD STD. SHEET MP	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MQ	MISCELLANEOUS STANDARDS		[illegible]
	ROAD STD. SHEET MR	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET S	MISCELLANEOUS STANDARDS CENTER DITCH INLETS		
	ROAD STD. SHEET S1	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MT	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET	MISCELLANEOUS STANDARDS		
35	ROAD STD. SHEET MP1	MISCELLANEOUS STANDARDS		
	ROAD STD.	STANDARD STRUCTURE CONNECTIONS FOR EXTENSION		[illegible]
	ROAD STD.	STANDARD REINF. CONC. BOX CULVERTS		
	ROAD STD.	STANDARD REINF. CONC. BOX CULVERTS—SK. END & WING		
	ROAD STD.	STANDARD REINF. CONC. CULVERTS—SLAB TOP TYPE (W.F.)		
	ROAD STD.	STANDARD REINF. CONC. CULVERTS—SLAB TOP TYPE (U.F.)		
	ROAD STD. SHEET GR	STANDARD GUARD RAIL		
	ROAD STD. SHEET GR	STEEL BEAM GUARD RAIL		
	ROAD STD.	STANDARD REINF. CONCRETE ARCH—12' SPAN		
	ROAD STD.	STANDARD HEADWALLS		
	ROAD STD.	STANDARD STRUCTURAL PLATE ARCH		
	ROAD STD.	CONCRETE WINGS FOR STD. STRUCTURAL PLATE ARCHES		
	ROAD STD.	STANDARDS FOR SUPER-ELEVATION & WIDENING OF CURVES		
	ROAD STD. SHEET 1 DETOURS	STANDARD DETOUR SIGNS		
	ROAD STD. SHEET 2 DETOURS	STANDARD DETOUR SIGNS		
	ROAD STD. SHEET 3 DETOURS	STANDARD DETOUR SIGNS		
36	ROAD STD. SHEET 4 DETOURS	STANDARD DETOUR SIGNS		
~~37~~	ROAD STD. SHEET 5 DETOURS	SIGN DESIGN DETAILS	1-26-62	R-12-1-61 ~~[illegible]~~

TRAFFIC DATA	
A.D.T. (1963)	4,145 V.P.D.
A.D.T. (1975 PROJECTED)	8,007 V.P.D.
TRUCKS	7%
DESIGN SPEED	70 M.P.H.
ACCESS CONTROL	FULL

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

BY *Tom L. Underwood, P.E.* — *8-30-63* DATE

RIGHT OF WAY FOR THIS PROJECT INCLUDED IN PROJECT I-74-1(37)33

APPROVED *10-18-63*
M. L. Hayes, acting
CHIEF ENGINEER—INDIANA STATE HIGHWAY COMMISSION

REVISIONS	
DATE	SHEET NO.
1-18-64	1,2,6,12,15,16,18,25,29,34,36. Delete 37
5-8-64	7,15,16,18,19

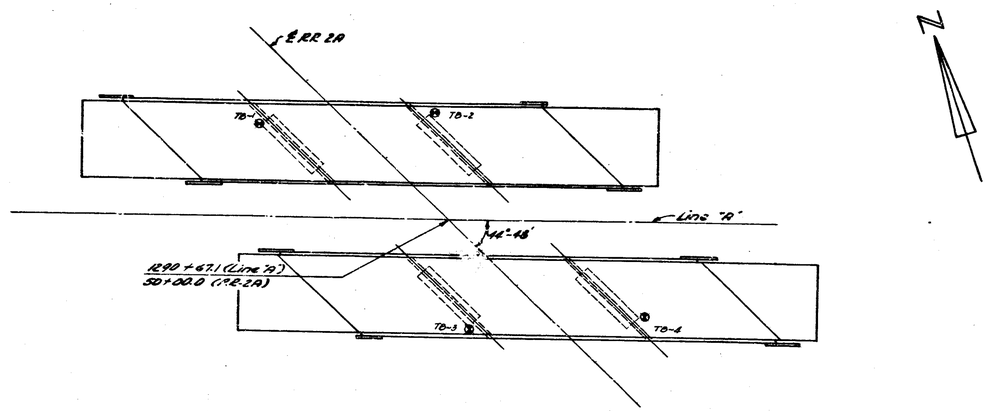
RECOMMENDED FOR APPROVAL *10-15-63*
C. R. Ruminer

CHARLES R. RUMINER REGISTERED NO. 2275 STATE OF INDIANA PROFESSIONAL ENGINEER

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

BRIDGE FILE:- I-74-31-2334

STATE HIGHWAY
DEPARTMENT OF INDIANA



▲ Denotes Ground Water Table.

N Indicates the number of blows required to drive a 1¾" I.D., 2" O.D. Split Spoon Sampler 6" by means of a 140# weight falling 30".

BORING NO.	TB-1				TB-2				TB-3				TB-4			
STATION	49+00				49+56				50+48				51+03			
OFFSET	32' Rt.				34' Lt.				32' Rt.				34' Lt.			
GROUND ELEV.	753.0				752.9				753.0				752.9			
	SAMPLE NO.	ELEV.	N	DESCRIPTION	SAMPLE NO.	ELEV.	N	DESCRIPTION	SAMPLE NO.	ELEV.	N	DESCRIPTION	SAMPLE NO.	ELEV.	N	DESCRIPTION
755	1	753.0	Push	Ground Elev.		752.9		Ground Elev.	1	753.0	Push	Ground Elev.		752.9		Ground Elev.
		752.0		Brown moist soft clayey silt. Topsoil.						752.0		Dark brown moist medium soft clayey silt. Topsoil.				
750						748.9		Black moist medium stiff silty clay.						749.4		Black moist medium stiff clayey silt.
	2	748.0	3/5		1	747.9	4/5		2	748	3/5		1	747.9	2/2	Brown moist medium stiff silty clay ▲
745		744.0		Brown moist medium stiff silt with some sand and a trace of clay. ▲		743.9		Brown moist stiff clayey silt and a little fine to coarse sand. ▲		744.0		Brown moist medium stiff silt with some sand and a trace of clay. ▲		746.9		Brown wet medium dense fine to coarse sand with some clay.
	3	743.0	4/6		2	742.9	8/11		3	743.0	5/7		2	742.9	6/6	
740										742.0						
	4	738.0	4/6	Gray moist to wet stiff clayey silt with a trace of sand and medium gravel.	3	737.9	3/6		4	738.0	9/13		3	737.9	12/25	
735		735.0														
	5	733.0	10/25	Brown moist hard clayey silt with some sand and a trace of gravel. Hardpan.	4	732.9	8/9		5	733.0	10/17		4	732.9	12/16	
730		729.4														
	6	728.0	16/35		5	727.9	10/13	Gray moist stiff to very stiff clayey silt with a little fine sand.	6	728.0	11/16		5	727.9	7/8	Gray moist hard to stiff silty clay with a little fine sand.
725						726.9						Gray moist stiff to hard clayey silt with some sand and a trace of fine to medium gravel with a few sand lenses. Hardpan.		725.9		
	7	723.0	34/52		6	722.9	40/50	Gray moist hard clay and fine sand with a trace of fine gravel. Hardpan.	7	723.0	29/53		6	722.9	11/13	Gray wet medium dense fine sand
720										721.5						
	8	718.0	27/36													
715																
	9	713.0	30/29	Brown to gray wet dense to very dense sand with a trace of gravel and hardpan seams												
710		710.5														
	10	708.0	47 for 5'	Gray moist hard silty clay with a trace of sand and gravel. Hardpan.												
705		706.0														
	Depth of Boring - 51.5'				Depth of Boring - 30.0'				Depth of Boring - 31.5'				Depth of Boring - 30.0'			

SOIL BORINGS

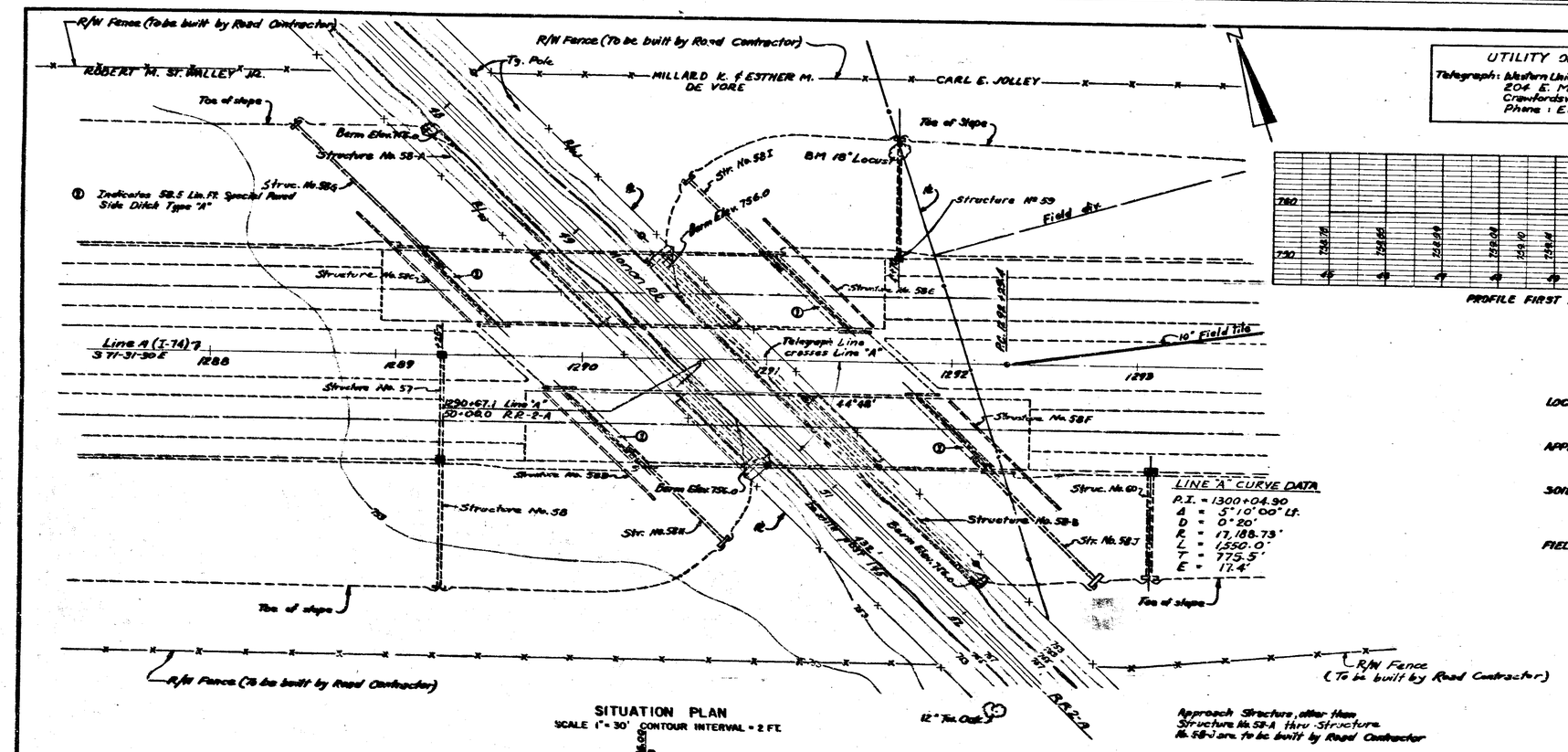
SCALES: HORIZ. 1" = 30'-0", VERT. 1" = 5'-0"

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

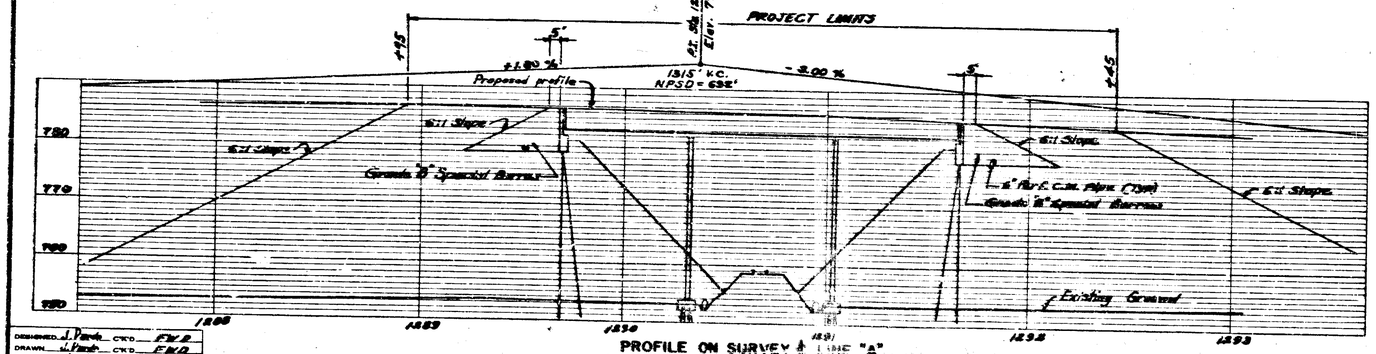
PROJECT I-74-1 (57) 81

BRIDGE CONTRACT NO. 6521

BRIDGE FILE I-74-31-2334



SITUATION PLAN
SCALE 1" = 30' CONTOUR INTERVAL = 2 FT.



PROFILE ON SURVEY ℄ LINE "A"
SCALES HORIZ. 1" = 30' VERT. 1" = 10'

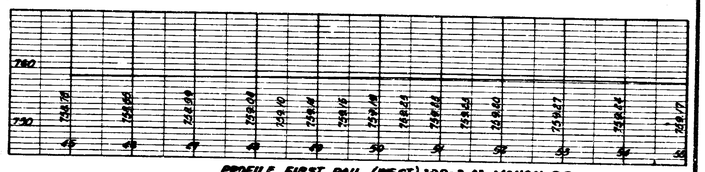
DESIGNED	J. Pardo	CK'D	FWD
DRAWN	J. Pardo	CK'D	FWD
TRACED	J.C.W.	CK'D	

Rev. 1-16-64 Bill Paved Side Ditch

UTILITY OWNERS
Telegraph: Western Union Telegraph Co.
204 E. Main
Crawfordsville, Ind.
Phone: EM-2-5904

BRIDGES OVER 20' SPAN

FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57)31	1963	5	37



PROFILE FIRST RAIL (WEST) "RR-2-A" MONON R.R.
Scale: 1" = 100' Horizontal
1" = 10' Vertical

LOCATION:
Section 20, Township 19N, Range 4W, Union Township
Montgomery County

APPROACH DATA:
For Bench Mark, Alignment references and Additional Approach Details See Sheet No. 3

SOIL DATA:
For Soil Borings See Sheet No. 4, See Article A203 of the Specifications regarding test pit data.

FIELD NOTES:
Book 8477 T Pages 51-52
Book 8478 L Pages 53-54

EARTHWORK TABULATION

Fill + 20 %	112,500	Cu.-Yds.
Surplus Excavation	100	Cu.-Yds.
Special Borrow	112,400	Cu.-Yds.

LAYOUT
TWIN CONTINUOUS STEEL BEAM BRIDGES
3 SPANS: 60'-0", 72'-0", 60'-0" 35'-6" ROADWAY 2 CURBS 9.6"
SKEW 45° 12' LEFT
OVER MONON RAILROAD ON INTERSTATE ROUTE 74

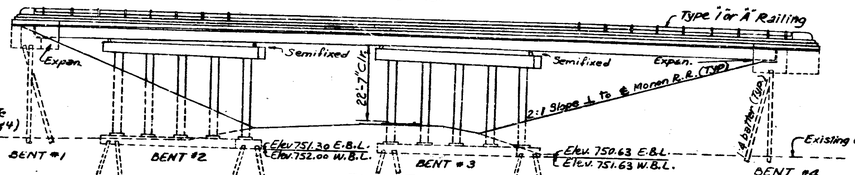
STATE HIGHWAY DEPARTMENT OF INDIANA
MONTGOMERY COUNTY

SCALE:- AS NOTED Aug. 30, 1963
SUBMITTED FOR APPROVAL:- [signature], P.E.

DRAWING:- S1 OF S14
PROJECT:- I-74-1 (57)31
BRIDGE CONTRACT NO. 8321
BRIDGE FILE:- I-74-31-2334

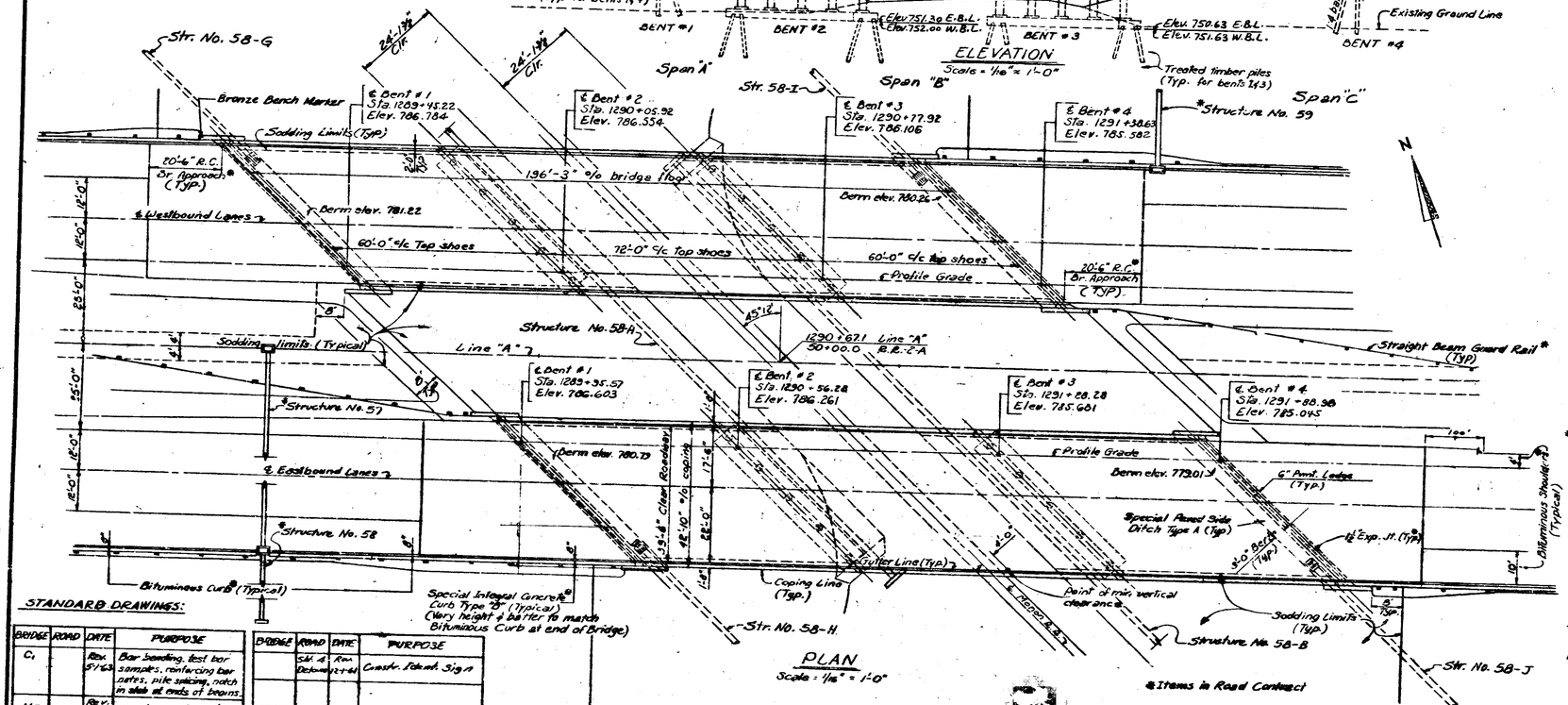
BRIDGES OVER 20' SPAN					
PUB. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57)31	1963	6	37

Structure to be built to a 1315' V.C.



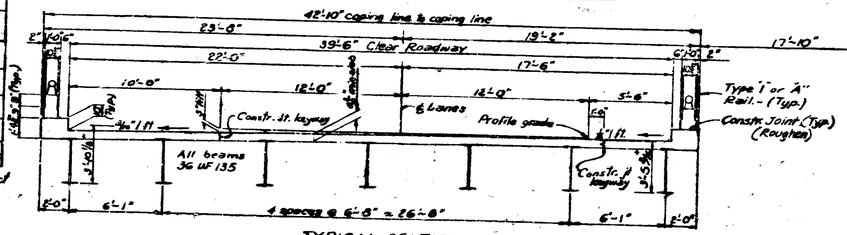
ELEVATION
Scale = 1/16" = 1'-0"

NOTE =
W.B.L. indicates West Bound Lanes.
E.B.L. indicates East Bound Lanes.
14" Steel encased Concrete Piles. (Typ. for bents 1 & 4)



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

*Items in Road Contract



TYPICAL SECTION
Scale: 1/4" = 1'-0"

STANDARD DRAWINGS:

BRIDGE	ROAD	DATE	PURPOSE
C_1		Rev. 5-1-63	Bar bending, test bar samples, reinforcing bar notes, pile splicing, notch in slab at ends of beams
M_5		Rev. 10-4-62	Drainage Details
M_1		Rev. 5-14-63	Project limits
M_3		Rev. 9-17-63	R.C. bridge approach
R_{1-A}		Rev. 1-12-63	Aluminum Railing Details (Type 7)
	MA	Rev. 7-11-50	Pavement offsets
	ME	Rev. 8-14-58	Headwalls
	MP	Rev. 1-28-63	Pipes
	MPI	Rev. 8-28-62	Pipes

BRIDGE	ROAD	DATE	PURPOSE
	Std. & Detour	Rev. 12-1-61	Constr. Detour Sign
R_{1-B}		Rev. 1-14-63	Steel Railing Details (Type A)
S-2		Rev. 12-1962	Grade 'B' Special Barrier
	MC	Rev. 4-1-57	Grate Details
	MD	Rev. 5-28-62	Inlet Details

* Not required in Bridge Contract

DESIGNED J Pardo CK'D final
DRAWN J Pardo CK'D final
TRACED CK'D

GENERAL NOTES:

EXISTING STRUCTURE: No present structure at proposed bridge site.

FOOTING DEPTH: Depth of footings to be extended if found necessary. See Article B 403.2(c) of Specifications.

PILE CAPACITY AND LENGTH: Piles shall have minimum bearing value shown on detail drawings. Determine pile lengths by Articles F103 and F 203 of Specifications.

ENCASED CONCRETE PILES: For details of steel encased concrete piles, see Bridge Standard C1, the special Provisions, and applicable articles of the Specifications.

REINFORCING STEEL COVERING: Reinforcing steel covering shall be 1½ inches minimum in top and 1 inch minimum in bottom of floor slabs, 3 inches in footings, except bottom steel which shall be 4 inches, 1½ inches for ties in beams and 2 inches in all other parts unless noted.

SUPERSTRUCTURE CONCRETE: Concrete in superstructure, including railing, to be class F.

END BENT CONCRETE: Concrete in end bents to be Class F.

INTERIOR BENT CONCRETE: Concrete in footings to be class E. Concrete in columns to be Class D. Concrete in caps to be Class F.

MISCELLANEOUS CONCRETE: Concrete in steel encased Concrete piles, Headwalls and Special Paved Side Ditch Type "A" to be Class "F".

CONCRETE POURS: Continuous concrete paurs shall be required between construction joints as shown on detail plans.

WATERPROOFING: Waterproof backs of mudwalls and wingwalls on end bents in accordance with specifications.

CONCRETE CHAMFER: Bevel forms ¾ inch under copings and chamfer exposed edges 1 inch unless noted.

PILE TOLERANCE: Maximum tolerance in position of pile head is 2 inches for steel encased concrete piles and ½ inches for treated timber piles.

*EXPANSION JOINTS: Three 1 inch expansion joints with load transfer to be placed in the approach pavement. See Bridge Standard M3.

RAILINGS: All railings to be constructed perpendicular to grade.

SPECIAL PROVISIONS: See Special Provisions for items included in this contract.

DESIGN DATA - Designed for H20-S16-44 loading in accordance with AASHO Standard Specifications for Highway Bridges, 1961 Edition. Checked for 2-24,000 lb axles at 4'-0" centers.

TYPICAL CROSS SECTION: See Standard Drawing, Sheet 2 for Interstate 74, Typical Section except that Median width shall be 50 Ft.

GENERAL PLAN

TWIN CONTINUOUS STEEL BEAM BRIDGES
3 SPANS: 60'-0", 72'-0", 60'-0" 39'-6" ROADWAY 2 CURB 3'6"
SKEW 45°12' LEFT
OVER MONON RAILROAD ON INTERSTATE ROUTE 74

STATE HIGHWAY DEPARTMENT OF INDIANA

MONTGOMERY COUNTY

SCALE:- AS NOTED Aug. 30, 1963

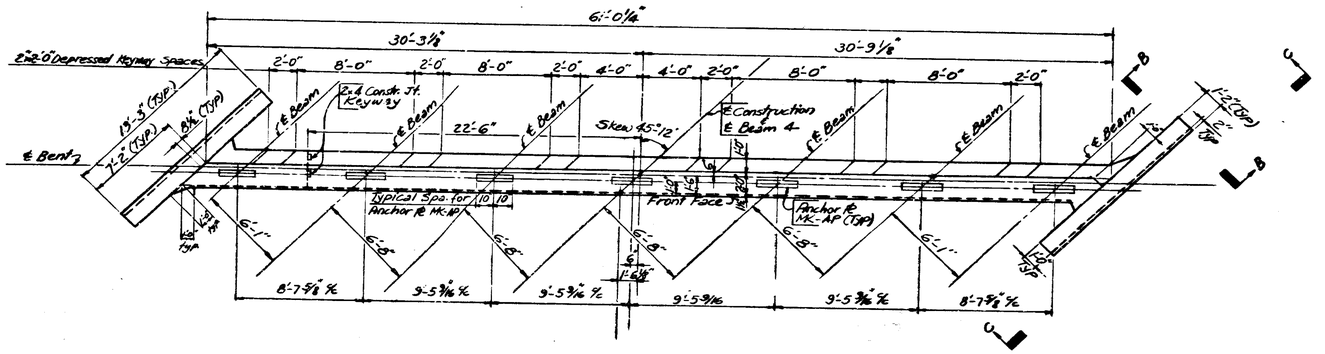
SUBMITTED FOR APPROVAL: Tom [illegible] Chief Engr.

DRAWING:- S2 OF S14
PROJECT:- I-74-1(57)31
BRIDGE CONTRACT NO. 6321
BRIDGE FILE:- I-74-31-2934

STA. 1290+62.10 Intersection Line "A" & R.R.-E-A

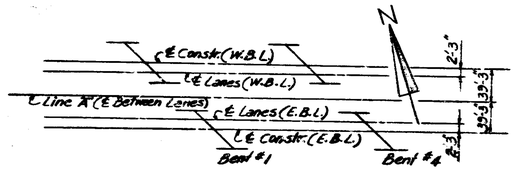
Rev. 1-16-64 General Notes, Curb, Std. Drawings

BRIDGES OVER 20' SPAN					
PUB. ROAD RES. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (37)31	1963	7	37

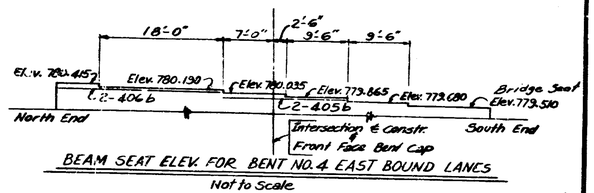


PLAN
Scale: 1/4"=1'0"

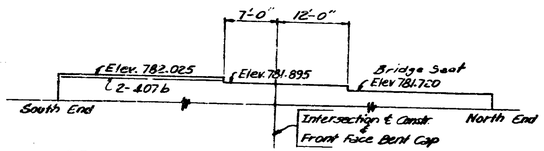
For General Notes See Drawing No. 32
For Additional Sections, Details and Notes See Drwgs No. 34 & 35



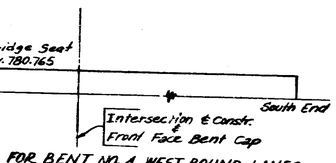
PLAN OF BENTS #1 & #4
Not to Scale.



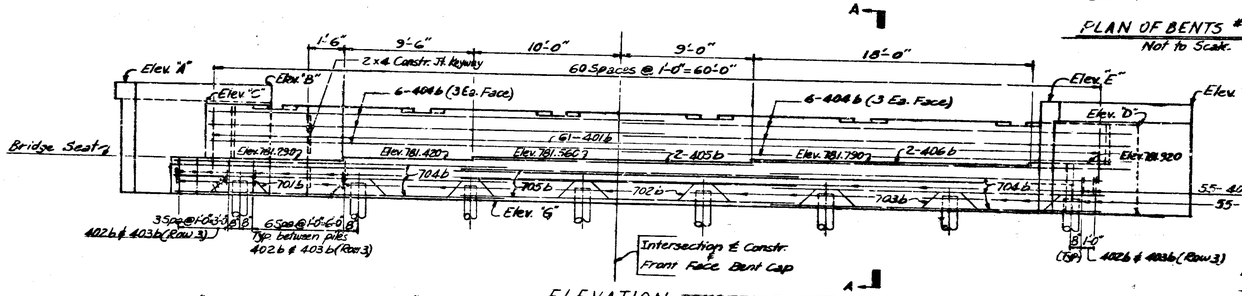
BEAM SEAT ELEV. FOR BENT NO. 4 EAST BOUND LANES
Not to Scale.



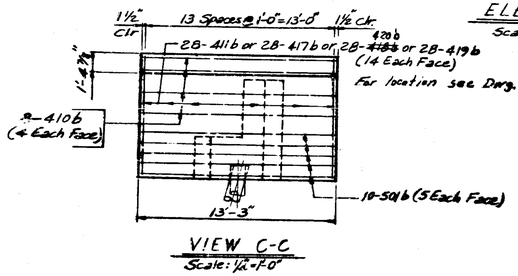
BEAM SEAT ELEV. FOR BENT NO. 1 WEST BOUND LANES
Not to Scale.



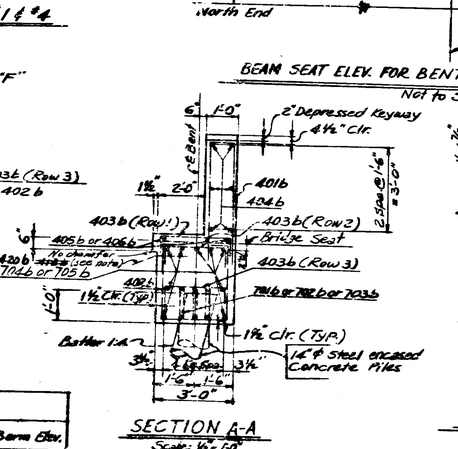
BEAM SEAT ELEV. FOR BENT NO. 4 WEST BOUND LANES
Not to Scale.



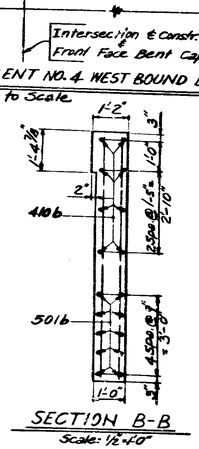
ELEVATION-BEAM SEAT ELEVATIONS ARE FOR BENT NO. 1 EAST B. LANES
Scale: 1/4"=1'0"



VIEW C-C
Scale: 1/2"=1'0"



SECTION A-A
Scale: 1/2"=1'0"



SECTION B-B
Scale: 1/2"=1'0"

TABLE OF ELEVATIONS									
LOCATION		A	B	C	D	E	F	G	Berm Elev.
East Bound Lanes	Bent #1	786.80	786.88	785.18	785.84	787.46	787.53	778.79	780.79
	Bent #4	786.06	785.93	784.34	783.36	785.11	784.96	777.91	779.91
West Bound Lanes	Bent #1	787.60	787.65	785.62	785.62	787.37	787.29	779.22	781.22
	Bent #4	786.39	786.28	784.66	784.66	786.43	786.33	778.26	780.26

Note for 418b bars: 418b bars shall be spaced @ 1'-0" ℄ and shall be ore-set in Abutment Cap.

BENTS NO. 1 & 4 DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE:- As Noted
Aug. 30, 1963
SUBMITTED FOR APPROVAL:- Thos. R. Sherrard, P.E.

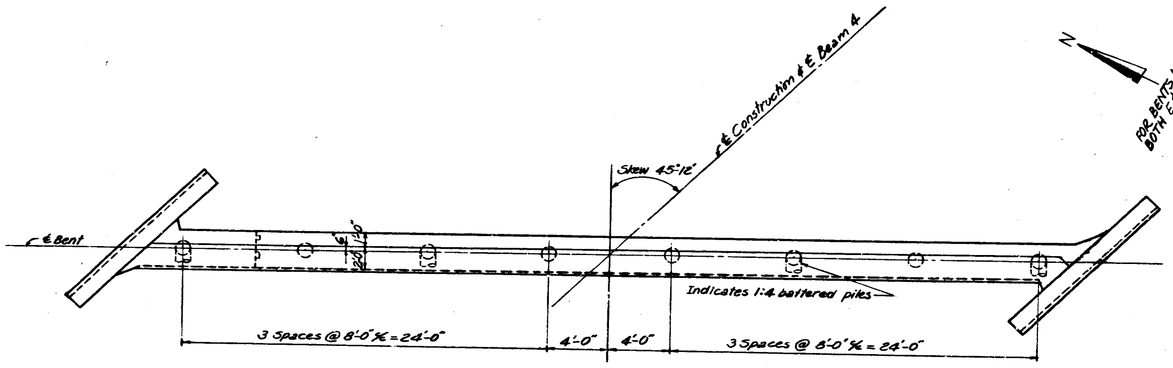
DESIGNED RT 12-22-61 CK'D GEA
DRAWN RT 12-11-61 CK'D GEA
TRACED _____ CK'D _____

DRAWING:- S3 OF 314
PROJECT:- I-74-1(37)31
BRIDGE CONTRACT NO. 6321
BRIDGE FILE:- I-74-31-2334

Rev. 5-8-62 Reinf. Steel

BRIDGES OVER 20' SPAN

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (52) 331	1963	8	37



PLAN

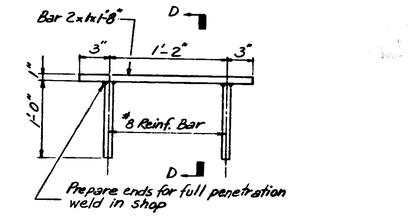
SHOWING PILING (BENT No.1 E.B.L.)

Scale: 1/8"=1'-0"

Bent No. 4 E.B.L. & Bent No. 1 W.B.L. & Bent No. 4 W.B.L. Same

PILES:

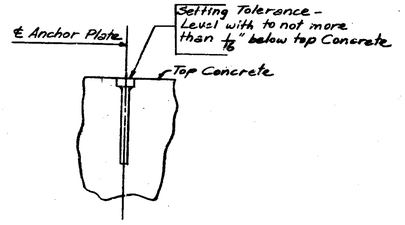
8-12"ϕ-7 Gage Steel encased Concrete Piles 40± Ft per Pile Required. All Piles to be driven to 40 Tons Minimum bearing Capacity.



DETAIL OF ANCHOR PLATE MK AP

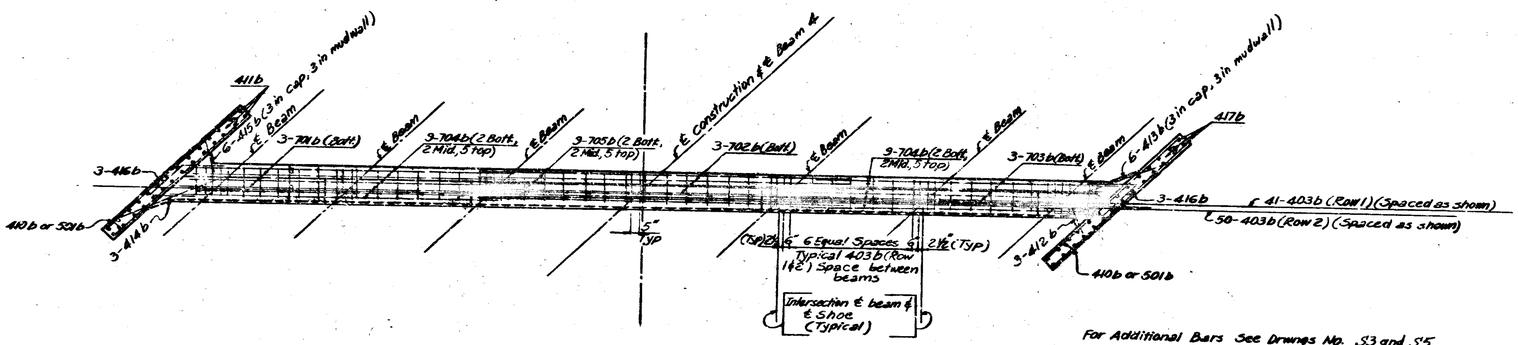
Not to Scale

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



SECTION D-D

Not to Scale



PLAN (BENT NO. 1 E.B.L.)

SHOWING LONGITUDINAL REINF. STEEL ∦ 403b (ROW 1&2) BARS ∦ WING STEEL

Bent No. 4 E.B.L. & Bent No. 1 W.B.L. & Bent No. 4 W.B.L. Same, Except as noted on drwg. S5

Scale: 1/4"=1'-0"

For Additional Bars See Drwngs No. S3 and S5

For Notes See Drwng No. S5

DESIGNED RTS 4-62 CK'D GEB
DRAWN RTS 4-62 CK'D GEB
TRACED ____ CK'D ____

BENTS NO. 1 & 4 DETAILS

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted

SUBMITTED FOR APPROVAL:- [signature], P.E. Aug. 30, 1963

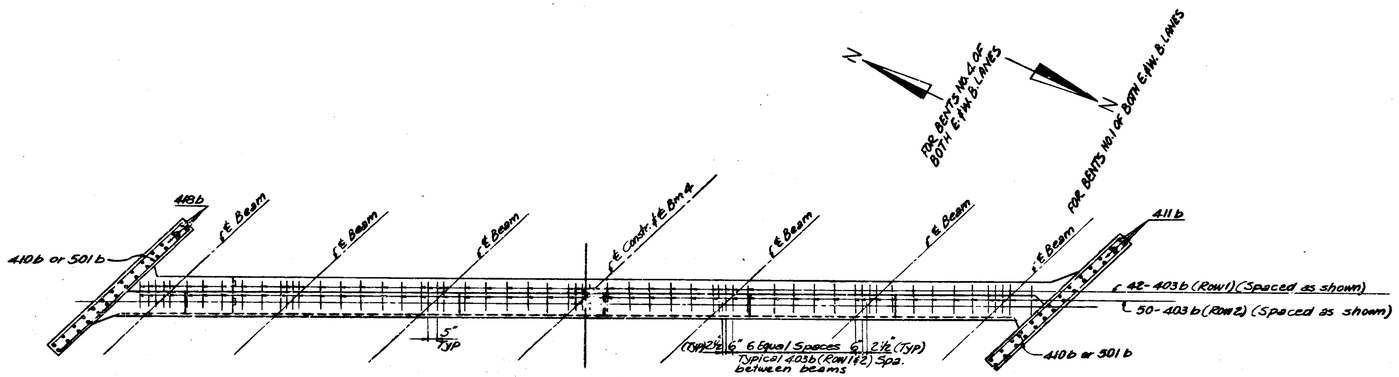
DRAWING:- S4 OF S14

PROJECT:- I-74-1(57)31

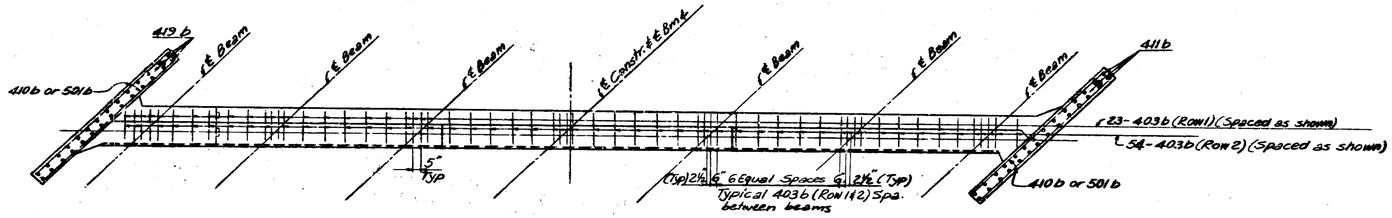
BRIDGE CONTRACT NO. 6321

BRIDGE FILE:- I-74-31-2334

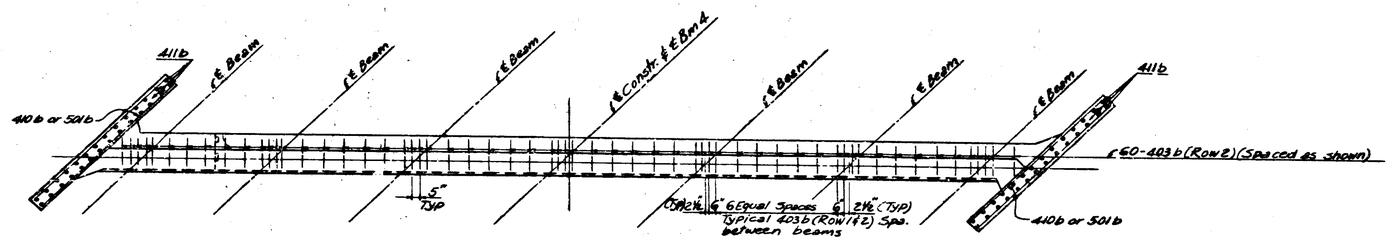
BRIDGES OVER 20' SPAN					
PUB. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57) 31	1963	9	37



PLAN (FOR BENT NO. 4 E.B.L.)
Showing 403b (Row 1 & 2) bars & Wing steel
Scale: ¼" = 1'-0"



PLAN (FOR BENT NO. 1 W.B.L.)
Showing 403b (Row 1 & 2) bars & Wing steel
Scale: ¼" = 1'-0"



PLAN (FOR BENT NO. 4 W.B.L.)
Showing 403b (Row 2) bars & Wing steel
Scale: ¼" = 1'-0"

NOTES:

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

Reinforcing Steel- For reinforcing bar notes, See Bridge Standard C1

Additional Details- For additional details, See Drawings 33 & 34

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

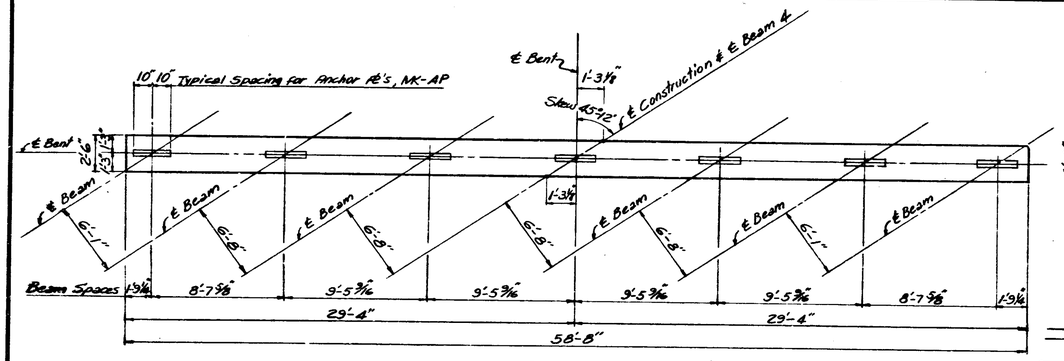
DESIGNED RTS-8-63 CK'D GEA
DRAWN RTS-8-63 CK'D GEA
TRACED CK'D

BENTS NO. 1 & 4 DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Shown
Aug. 30, 1963
SUBMITTED FOR APPROVAL:- Tom L. McDonald, P.E.

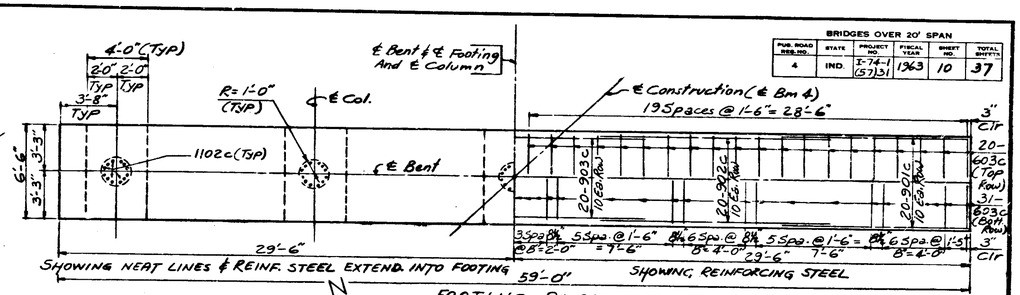
DRAWING:- 55 OF 514
PROJECT:- I-74-1(57)31
BRIDGE CONTRACT NO. 6321
BRIDGE FILE:- I-74-31-2334

BRIDGES OVER 20' SPAN					
FED. ROAD DESIGNATION	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57)31	1963	10	37

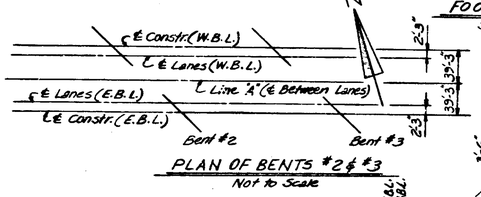


CAP PLAN
Scale: ⅛"=1'-0"

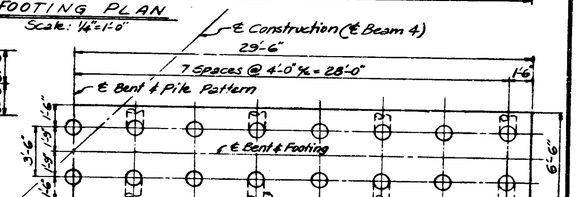
ELEVATION "A"			
EAST BOUND LANES		WEST BOUND LANES	
Bent #2	Bent #3	Bent #2	Bent #3
751.30	750.63	752.00	751.63



FOOTING PLAN
Scale: ⅛"=1'-0"

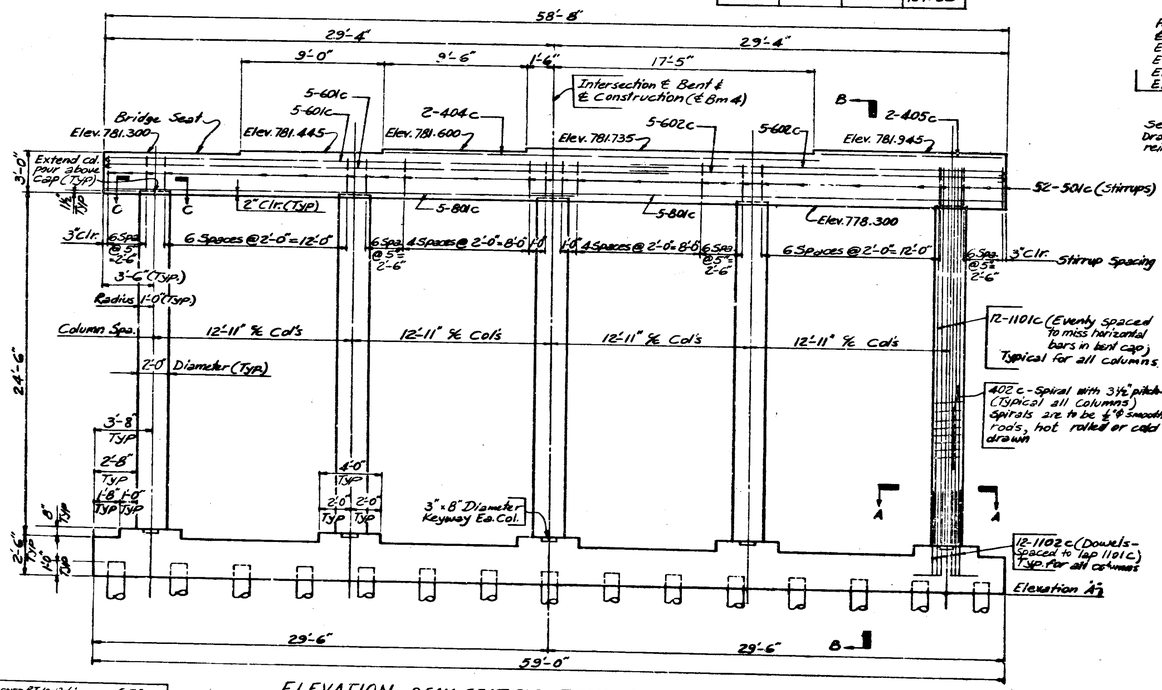


PLAN OF BENTS #2 & #3
Not to Scale

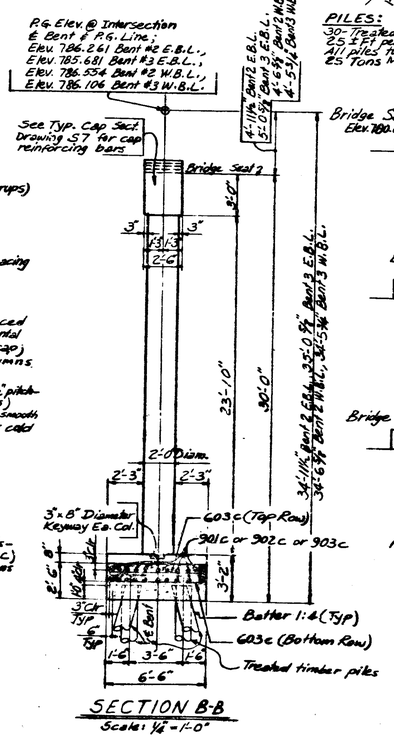


PILES:
30- Treated Timber Piles
25 Lin. Ft. per Pile required
41 Piles to be Driven to
85 Tons Min. Bearing Capacity

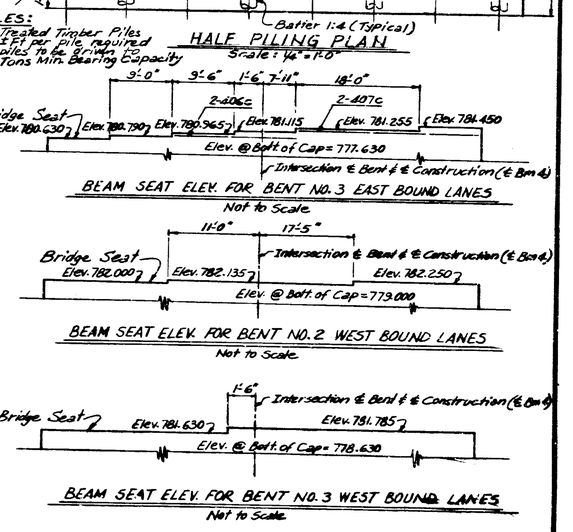
HALF PILING PLAN
Scale: ⅛"=1'-0"



ELEVATION - BEAM SEAT ELEVATIONS ARE FOR BENT NO.2 EAST BOUND LANES
Scale: ⅛"=1'-0"



SECTION B-B
Scale: ⅛"=1'-0"



For Additional Details See Drwg S7

BENTS NO. 2 & 3 DETAILS

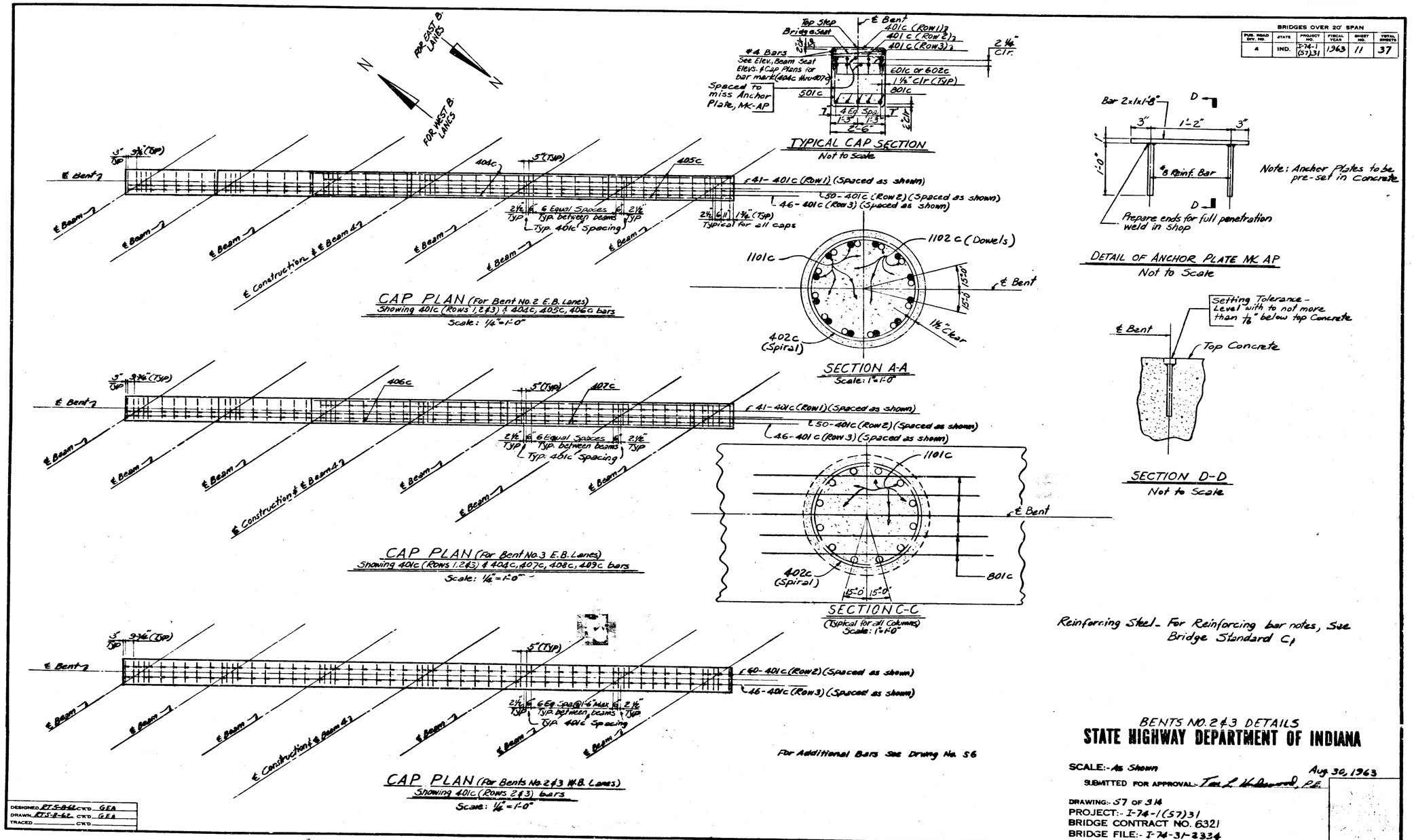
INDIANA STATE HIGHWAY COMMISSION

SCALE:- As Shown — Aug. 30, 1963

SUBMITTED FOR APPROVAL: [signature] P.E.

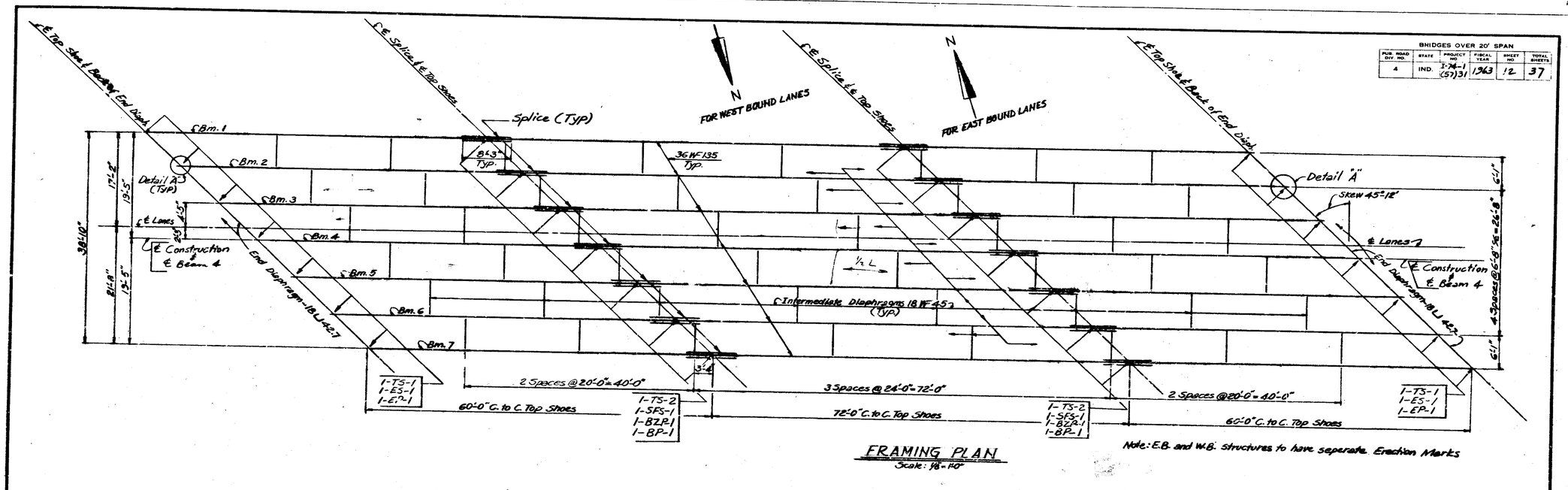
DRAWING:- S6 OF S14
PROJECT:- I-74-1(57)31
BRIDGE CONTRACT NO. 8321
BRIDGE FILE:- I-74-3/-2334

DESIGNED RT 10-12-62 CK'D G.E.A.
DRAWN RT 8-6-63 CK'D G.E.A.
TRACED CK'D



BRIDGES OVER 20' SPAN
PUB. ROAD DIV. NO. 4
STATE IND.
PROJECT NO. I-74-1 (57)31
FISCAL YEAR 1963
SHEET NO. 11
TOTAL SHEETS 37
FOR EAST B. LANES
FOR WEST B. LANES
N
TYPICAL CAP SECTION
Not to Scale
Top Step
Bridge Seat
℄ Bent
401c (Row 1)
401c (Row 2)
401c (Row 3)
2 1/4" Clr.
#4 Bars
See Elev., Beam Seat Elevs. & Cap Plans for bar mark (404c thru 407c)
601c or 602c
1 1/2" Clr (Typ)
801c
501c
Spaced to miss Anchor Plate, MK-AP
4 Eq. Spa.
1'-3"
2'-6"
2'-6"
Bar 2x1x1'-8"
3"
1'-2"
1'-0"
#8 Reinf. Bar
Note: Anchor Plates to be pre-set in Concrete
Prepare ends for full penetration weld in shop
DETAIL OF ANCHOR PLATE MK AP
Not to Scale
℄ Bent
℄ Beam
℄ Construction & ℄ Beam 4
404c
405c
5" (Typ)
41-401c (Row 1) (Spaced as shown)
50-401c (Row 2) (Spaced as shown)
46-401c (Row 3) (Spaced as shown)
2 1/2" 6" 6 Equal Spaces 6" 2 1/2"
Typ. between beams
Typ. 401c Spacing
2 1/2" 6" 1 3/4" (Typ)
Typical for all caps
CAP PLAN (For Bent No. 2 E.B. Lanes)
Showing 401c (Rows 1, 2 & 3) & 404c, 405c, 406c bars
Scale: 1/4" = 1'-0"
1101c
1102c (Dowels)
℄ Bent
15'-0"
1 1/2" Clear
402c (Spiral)
SECTION A-A
Scale: 1" = 1'-0"
Setting Tolerance - Level with to not more than 1/16" below top Concrete
℄ Bent
Top Concrete
SECTION D-D
Not to Scale
406c
407c
CAP PLAN (For Bent No. 3 E.B. Lanes)
Showing 401c (Rows 1, 2 & 3) & 404c, 407c, 408c, 409c bars
Scale: 1/4" = 1'-0"
1101c
℄ Bent
402c (Spiral)
801c
15'-0"
SECTION C-C
(Typical for all Columns)
Scale: 1" = 1'-0"
Reinforcing Steel - For Reinforcing bar notes, See Bridge Standard C1
60-401c (Row 2) (Spaced as shown)
46-401c (Row 3) (Spaced as shown)
2 1/2" 6" 6 Eq. Spa. @ 1'-6" Max 6" 2 1/2"
Typ. between beams
Typ. 401c Spacing
CAP PLAN (For Bents No. 2 & 3 W.B. Lanes)
Showing 401c (Rows 2 & 3) bars
Scale: 1/4" = 1'-0"
For Additional Bars See Drwng No. S6
BENTS NO. 2 & 3 DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA
SCALE:- As Shown
Aug. 30, 1963
SUBMITTED FOR APPROVAL:- Tom L. Underwood, P.E.
DRAWING:- S7 OF S14
PROJECT:- I-74-1(57)31
BRIDGE CONTRACT NO. 6321
BRIDGE FILE:- I-74-31-2334
DESIGNED RTS-8-62 CK'D GEA
DRAWN RTS-8-62 CK'D GEA
TRACED CK'D

BRIDGES OVER 20' SPAN					
PUB. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57)31	1963	12	37



FRAMING PLAN
Scale: 1/8" = 1'-0"

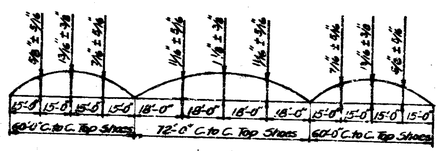
Note: E.B. and W.B. Structures to have seperate Erection Marks

TABLE OF MOMENTS AND REACTIONS

	Max. Positive Span Moment (Ft-K)				Max. Neg. Support Moment (Ft-K)		Max. Reaction @ End Supports (K)		Max. Reaction @ Intermediate Supports (K)	
	End Spans		Center Span							
	Exter. Bm.	Inter. Bm.	Exter. Bm.	Inter. Bm.	Exter. Bm.	Inter. Bm.	Exter. Bm.	Inter. Bm.	Exter. Bm.	Inter. Bm.
D.L.	292	274	278	262	440	403	25	23	73	71
L.L.	354	389	335	366	325	355	26	29	39	43
Imp.	95	105	85	97	63	70	8	9	9	11
Total	741	768	698	727	828	828	59	61	121	125

TABLE OF SHIMS

	Location	Bm 1	Bm 2	Bm 3	Bm 4	Bm 5	Bm 6	Bm 7
E. Bound Lanes	Bent No. 1	–	7/8"	–	1½"	–	–	–
	Bent No. 2	3/16"	–	1 7/16"	–	–	–	–
	Bent No. 3	–	1 5/16"	–	–	–	–	–
	Bent No. 4	–	1 7/16"	–	–	–	–	–
W. Bound Lanes	Bent No. 1	½"	3/8"	–	7/8"	–	1"	–
	Bent No. 2	–	–	1¼"	3/4"	–	3/8"	–
	Bent No. 3	–	1/16"	5/16"	–	1 3/8"	1 1/16"	–
	Bent No. 4	7/8"	1 3/16"	1 7/16"	1 3/8"	1"	½"	–



CAMBER DIAGRAM
Not to Scale

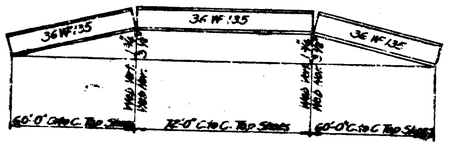


DIAGRAM SHOWING SHOP ASSEMBLY FOR FABRICATION OF BEAM SPLICES
Not to Scale

For Additional Details & Notes See Drawing No.'s 59 & 510

Ref. I-65-61 Unit Stresses

UNIT STRESSES:

Structural Steel Bending (tension)	20,000 psi
Shear on Rivets or Bolts	13,500 psi
Bearing structural steel parts in contact	29,500 psi
Bearing on power driven rivets and torqued High Strength Bolts	40,000 psi
Bearing, steel on concrete (including overturning and eccentric loading)	1,000 psi
Reinforcing Steel (Tension)	20,000 psi
Concrete (Compression)	1,200 psi

DATA USED FOR DESIGN AND DETAILS:

Live Loads – H20-S16-44 loading and distribution of loads in accordance with 1961 AASHO Specifications. Checked for 2-24,000 pound axles at 4'-0" centers

Dead Loads – Actual weight plus 35 pounds per square foot of roadway to provide for future wearing surface. Slab thickness includes ½ inch monolithic wearing surface

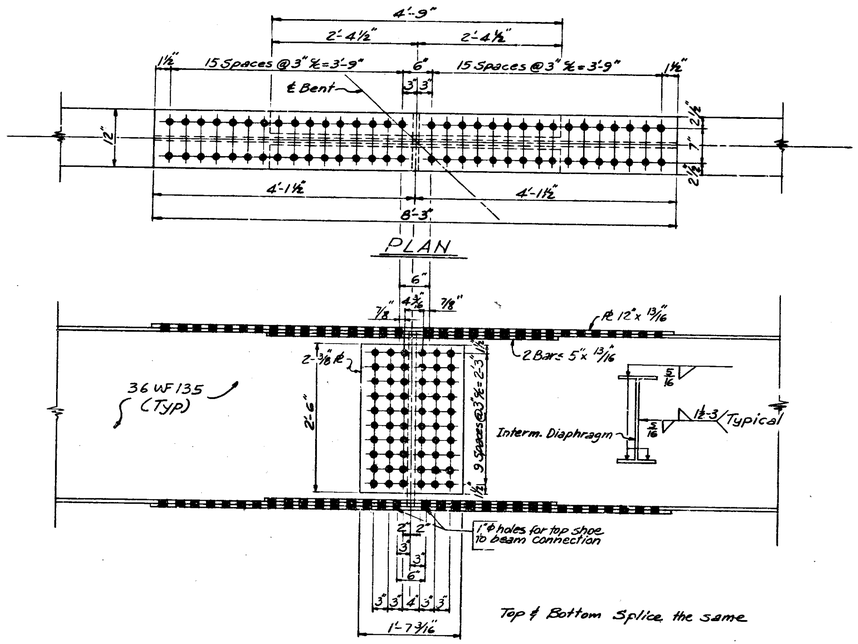
SUPERSTRUCTURE DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

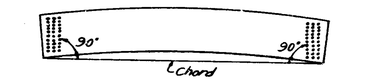
SCALE:- As Shown
SUBMITTED FOR APPROVAL:- Tom L. Hardesty, P.E. Aug. 30, 1963

DRAWING:- 58 OF 514
PROJECT:- I-74-1(57)31
BRIDGE CONTRACT NO. 6321
BRIDGE FILE:- I-74-31-2334

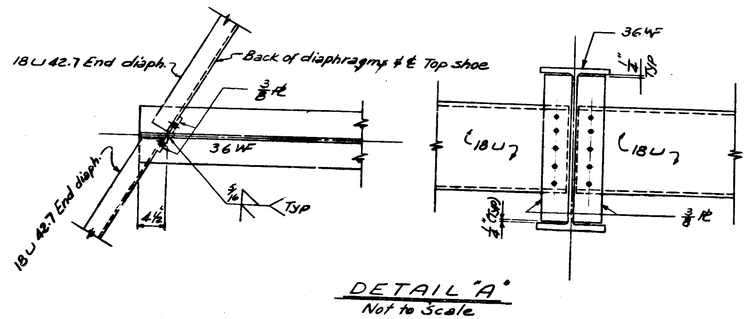
DESIGNED RJS-3-64 C'K'D RLA
DRAWN RJS-11-64 C'K'D G.E.A.
TRACED C'K'D

BRIDGES OVER 20' SPAN					
PUB. ROAD SEC. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57) 31	1963	13	37





SKETCH SHOWING PUNCHING OF BEAM WEB
Not to Scale



DETAIL "A"
Not to Scale

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

SUPERSTRUCTURE GENERAL NOTES:

STRUCTURAL STEEL: Structural steel shall meet the requirements of A.S.T.M. specifications A-36 unless noted.

RIVETS: All rivets shall be ⅞ inch diameter and holes 15/16 inch diameter unless noted.

TOP SHOE CONNECTION: Holes in all material connecting top shoes to beam flanges shall be 1 inch diameter. Bolts connecting beam flange to top shoe shall extend into top shoe a minimum of 1 inch.

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

REAMING: The shop plans shall indicate whether reaming is to be done in shop or field. If shop reaming or drilling is used, the beams may be reamed with the webs in either a horizontal or vertical position. If the beams are reamed with the webs vertical, they shall be supported relative to their final erection position. If they are reamed with the webs horizontal, a minimum of 1 line of beams shall be shop assembled with the webs vertical and inspected for fit. The shop details shall show a plan of matchmarking for all reamed pieces.

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

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

CAMBER: 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 direction of camber.

FIELD SPLICES: All structural steel shall be erected and beams adjusted to relative elevation before driving rivets in beam splices.

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

SHOP DRAWINGS: The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in conformity with the Engineer's drawings, and specifications and shall submit 5 copies of these to the Engineer. See Article E1103.2 of the specifications.

PAINTING: 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: Two coats of aluminum.

As soon as the Engineer has approved the field welds, all welds and any surface from which the shop coat has been omitted or becomes worn off or has otherwise became defective shall be thoroughly cleaned of all charred paint or any foreign matter and completely covered with one coat of shop paint.

ESTIMATED WEIGHT OF STRUCTURAL STEEL - 444,800 lbs.

WEIGHT OF BRONZE PLATE - 700 lbs.

SUPERSTRUCTURE DETAILS

INDIANA STATE HIGHWAY COMMISSION

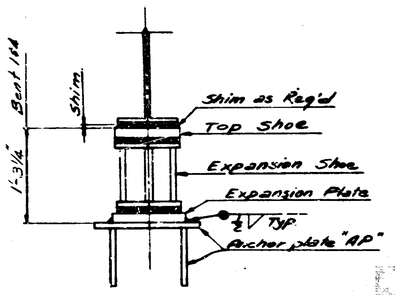
SCALE:- As Shown Aug. 30, 1963

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

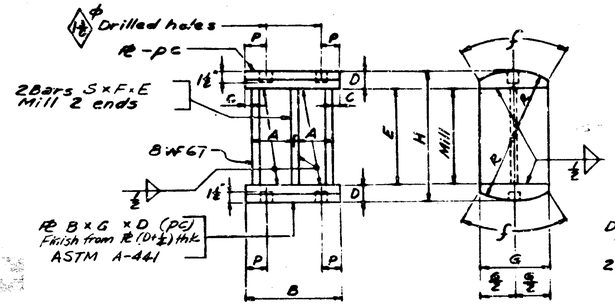
DRAWING:- 59 OF 314
PROJECT:- I-74-1(57)31
BRIDGE CONTRACT NO. 6321
BRIDGE FILE:- I-74-31-2334

BRIDGES OVER 20' SPAN

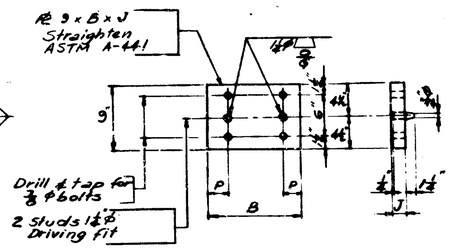
FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND	I-74-1 (57)131	1963	14	37



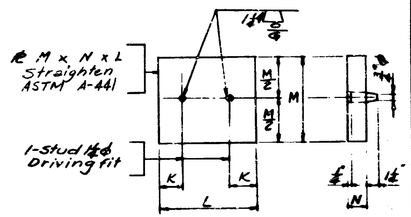
EXPANSION SHOE ASSEMBLY - TYPICAL



EXPANSION SHOE
ES



TOP SHOE
TS

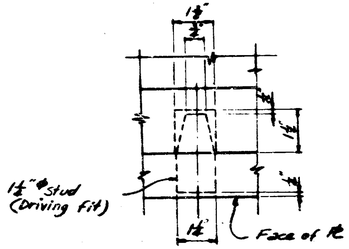


EXPANSION PLATE
EP

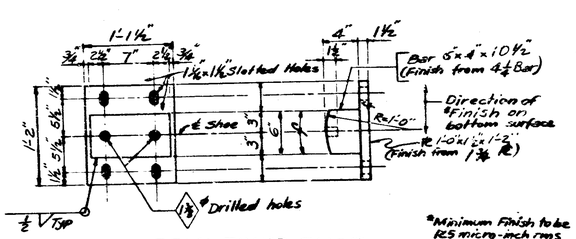
EXPANSION SHOE DIMENSIONS (inches)										
MARK	A	B	C	D	E	F	G	H	P	R	S
ES-1	4	12	1½	1¾	8½	1	6	12	2½	6	2½

TOP SHOE DIM. (in.)			
MARK	B	J	P
TS-1	12	1¾	2½
TS-2	12	2⅛	2½

EXPANSION Pl DIM. (in)				
MARK	K	L	M	N
EP-1	6¼	19½	10	1½

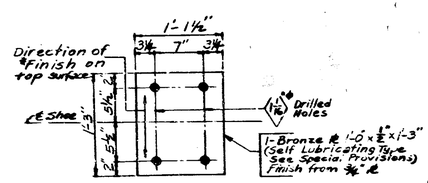


STUD DETAIL

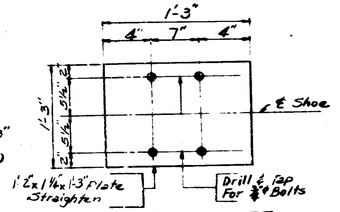


SEMI-FIXED SHOE
SFS-1

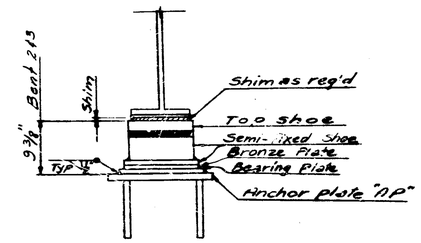
*Minimum Finish to be 125 micro-inch rms



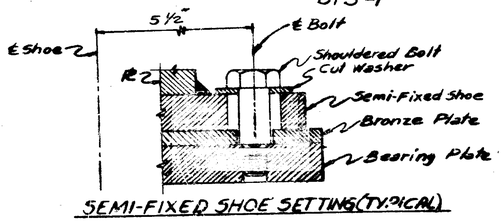
BRONZE PLATE
BZP-1



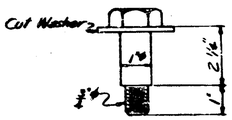
BEARING PLATE
BP-1



SEMI-FIXED SHOE ASSEMBLY - TYPICAL



SEMI-FIXED SHOE SETTING (TYPICAL)



SHOULDERED BOLT

WASHER

SUPERSTRUCTURE BEARINGS DETAILS
INDIANA STATE HIGHWAY COMMISSION

SCALE:- No Scale — Aug. 30, 1963

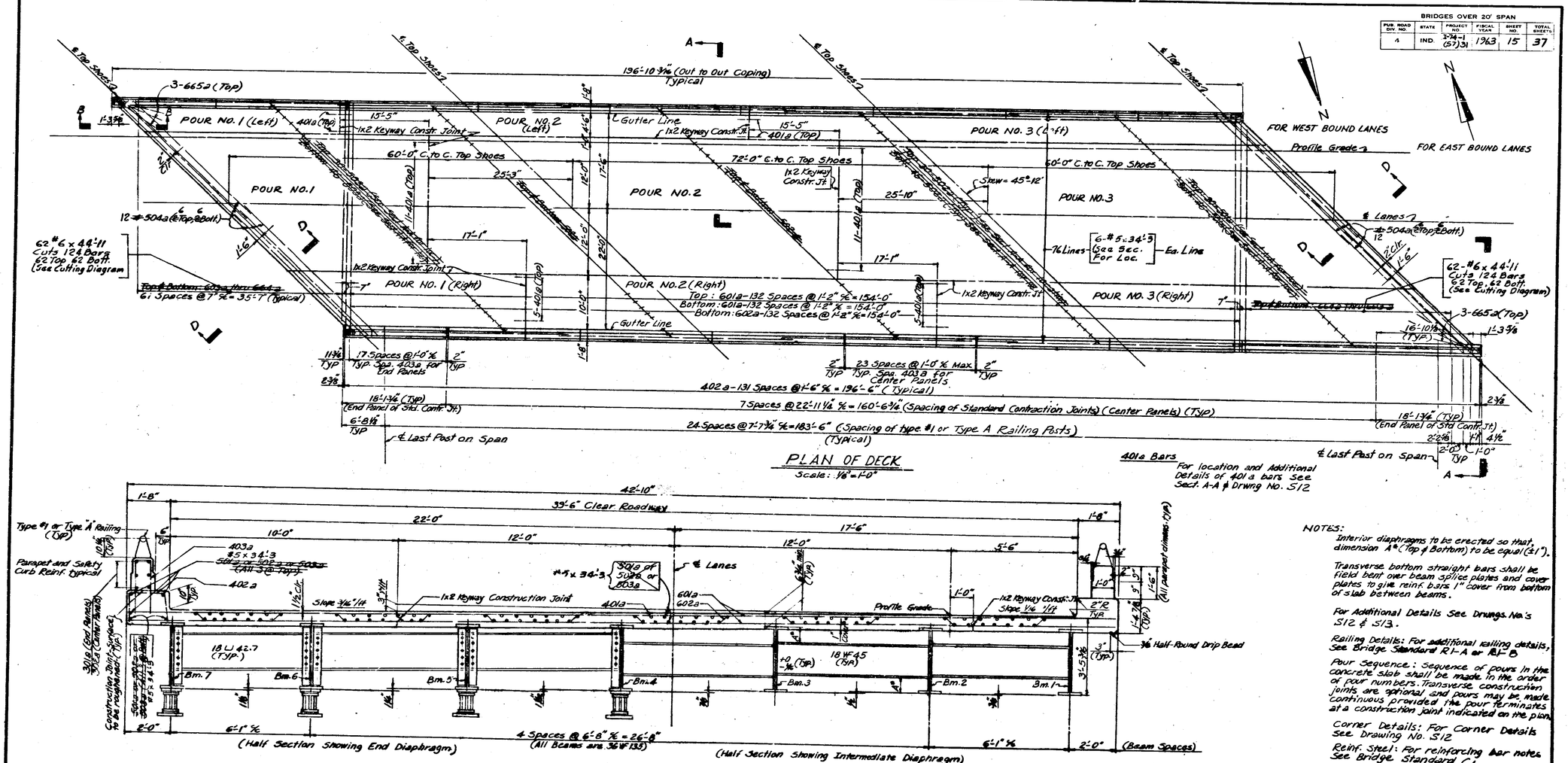
SUBMITTED FOR APPROVAL:- Tom L. Hammond, P.E.

DRAWING:- 314 OF 314
PROJECT:- I-74-1(57)131
BRIDGE CONTRACT NO. 6321
BRIDGE FILE:- I-74-31-2334

DESIGNED	RT	CKD	GEA
DRAWN	RT	CKD	GEA
TRACED		CKD	

BRIDGES OVER 20' SPAN

PUB. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57)31	1963	15	37



SUPERSTRUCTURE DETAILS

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Shown

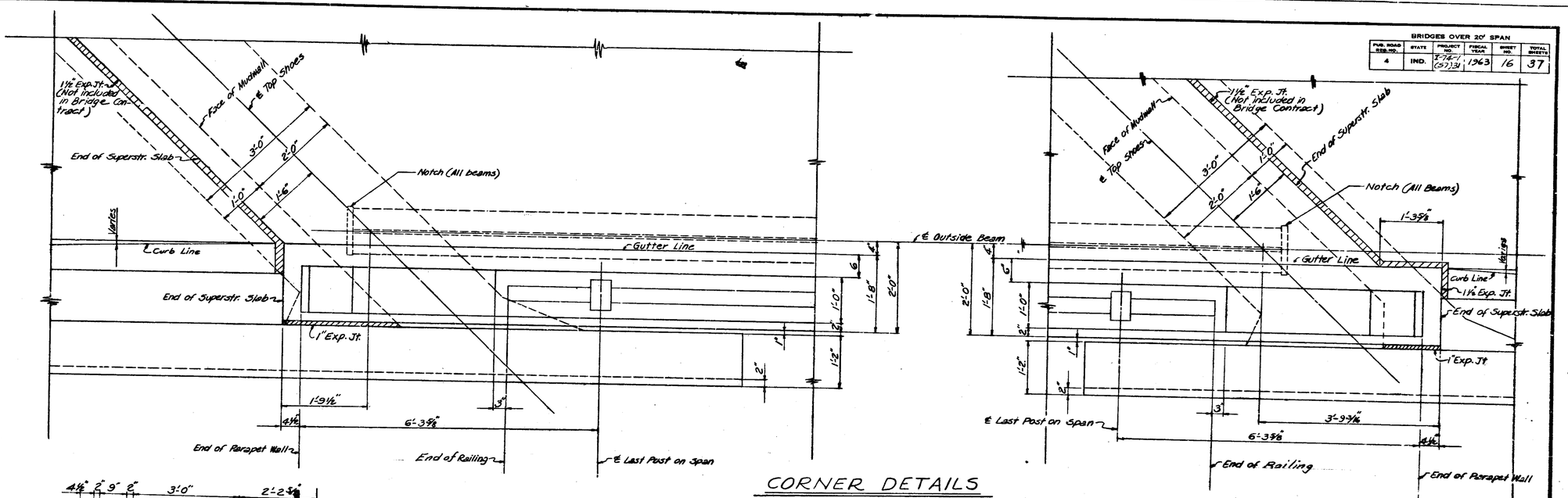
Aug. 30, 1963

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

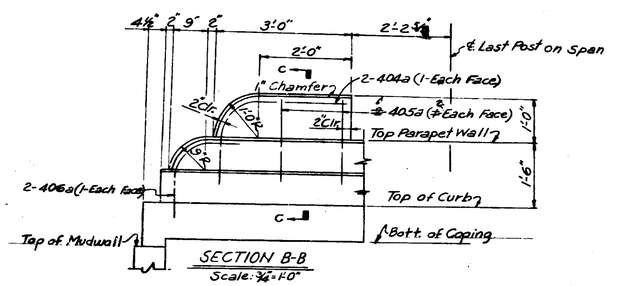
DESIGNED R.T. 9-7-61 CK'D G.E.A.
DRAWN R.T. 11-11-61 CK'D G.E.A.
TRACED ____ CK'D ____

DRAWING:- S11 OF S14
PROJECT:- I-74-1(57)31
BRIDGE CONTRACT NO. 6321
BRIDGE FILE:- I-74-31-2334

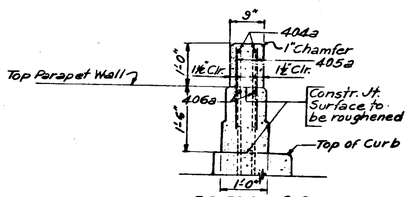
BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57)31	1963	16	37



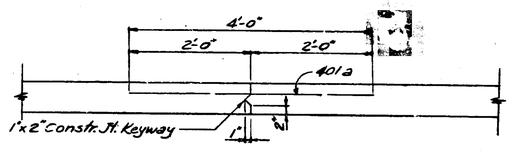
CORNER DETAILS
Scale: 1" = 1'-0"



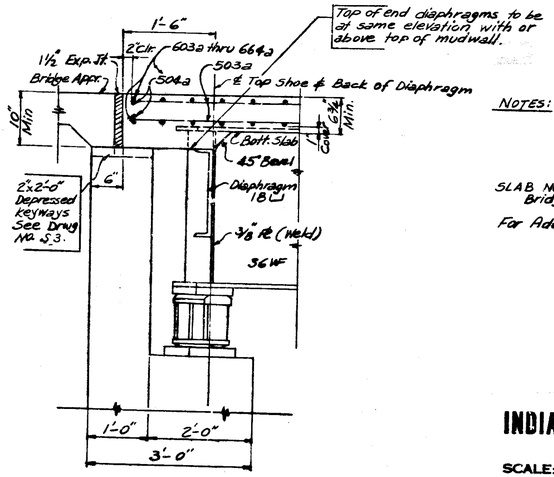
SECTION B-B
Scale: ¾" = 1'-0"



SECTION C-C
Scale: ¾" = 1'-0"



TRANSVERSE CONSTRUCTION JOINT DETAIL
Scale: 1" = 1'-0"



SECTION D-D
Not to Scale

Note:
For Shoe setting Data see Drawing S13
Rev. 5-8-64 Reinf. Steel

NOTES:

SLAB NOTCH: For notch in slab at end of beam, See Bridge Standard C_1.

For Additional Details & Notes See Drwgs S11 & S12.

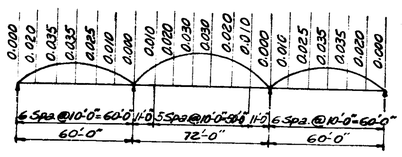
SUPERSTRUCTURE DETAILS
INDIANA STATE HIGHWAY COMMISSION

SCALE:- As Shown
Aug. 30, 1963
SUBMITTED FOR APPROVAL:- [signature], P.E.
DRAWING:- S12 OF S14
PROJECT:- I-74-1(57)31
BRIDGE CONTRACT NO. 8321
BRIDGE FILE:- I-74-31-2334

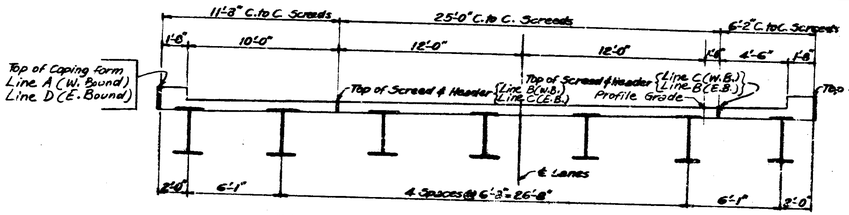
DESIGNED RTS-15-62 C'K'D GEA
DRAWN RTS-15-62 C'K'D GEA
TRACED _____ C'K'D _____

Rev. 1-16-64 Curb

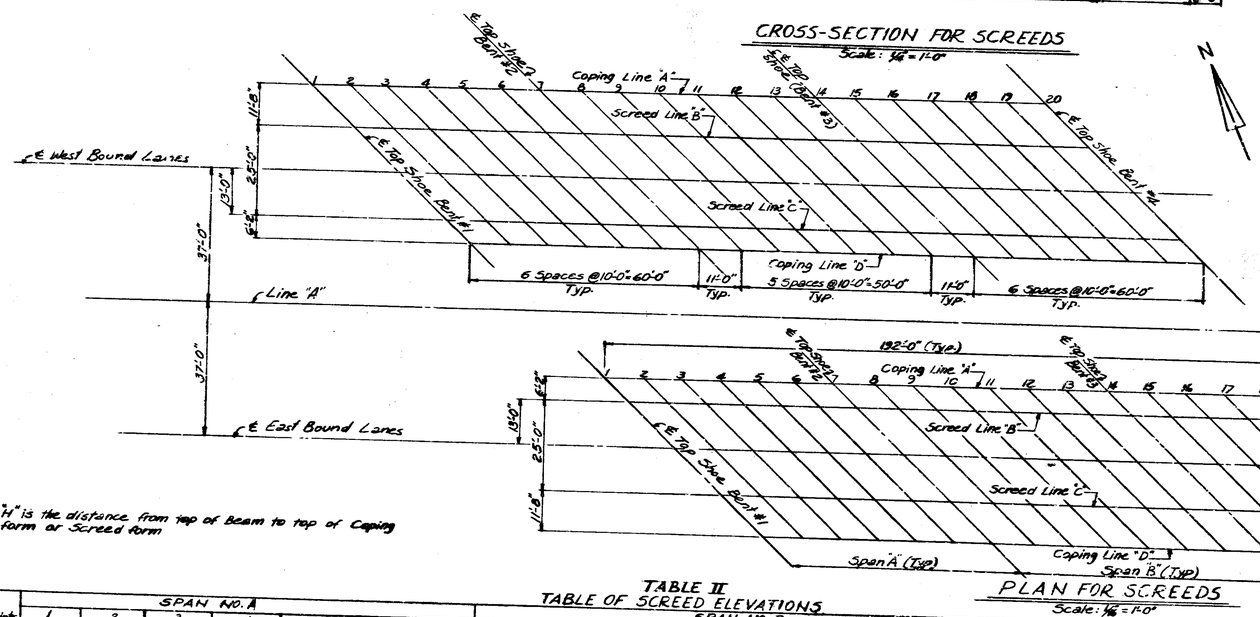
BRIDGES OVER 20' SPAN					
FUR. HWAY DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57)31	1963	17	37



CONCRETE D.L. DEFLECTION DIAGRAM
(In Feet)
Not to Scale



CROSS-SECTION FOR SCREEDS
Scale: 1/4" = 1'-0"

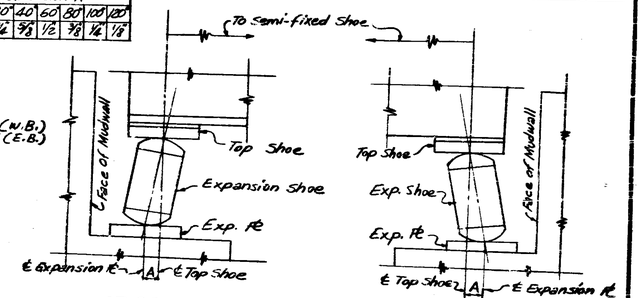


PLAN FOR SCREEDS
Scale: 1/16" = 1'-0"

"H" is the distance from top of Beam to top of Coping form or Screed form

TABLE I

TABLE FOR SHOE SETTING AT BENTS NO. 1 & 4							
	Dimension A						
Temperature	0°	20°	40°	60°	80°	100°	120°
℄ Top Shoe to ℄ Exp. Pt.	1/16	3/16	5/16	1/2	7/8	1 1/4	1 1/8



SHOE SETTING FOR BENTS NO. 1 & 4
Not to Scale

GENERAL PROCEDURE:

1. After structural steel has been erected, adjust the superstructure longitudinally so that the distance from the centerline of top shoe to the face of madwall is equal at bents 1 & 4.

2. With the superstructure in the adjusted position called for in 1 above, weld the anchor plates for the semi-fixed shoes at bent numbers 2 & 3; adjust each semi-fixed shoe so that shuckered bolt is centered in slotted hole.

3. Adjust the expansion plates under each expansion shoe in accordance with dimension "A" in Table I for the prevailing temperature. Note that dimension "A" is always the distance from a vertical line through the centerline of top shoe in a direction away from the semi fixed shoe.

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

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

TABLE II
TABLE OF SCREED ELEVATIONS

Line	Points	SPAN NO. A																				SPAN NO. B																						SPAN NO. C																			
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20	
		W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.
A	Coping Elev.	787.790	787.555	787.385	787.486	787.340	787.496	787.288	787.492	787.235	787.336	787.190	787.255	787.145	787.180	787.115	787.182	787.085	787.065	787.095	787.098	787.805	786.920	786.930	786.830	786.865	786.730	786.790	786.685	786.735	786.541	786.645	786.455	786.657	786.555	786.738	786.446	786.645	786.145	786.320	786.040
	Coping Elev. Less H																																																																					
	H																																																																					
B	Screed Elev.	786.765	786.640	786.540	786.980	786.540	786.555	786.555	786.695	786.540	786.480	786.468	786.350	786.610	786.270	786.375	786.205	786.340	786.145	786.340	786.050	786.345	786.007	786.180	785.985	786.110	785.885	786.030	785.698	785.970	785.640	785.845	785.595	785.850	785.610	785.870	785.638	785.890	785.645	785.890	785.645	785.890	785.645
	Coping Elev. Less H																																																																		
	H																																																																				
C	Screed Elev.	786.765	786.640	786.735	786.980	786.735	786.695	786.695	786.870	786.740	786.670	786.660	786.540	786.800	786.460	786.535	786.335	786.500	786.260	786.440	786.240	786.490	786.250	786.415	786.215	786.415	786.195	786.395	786.195	786.395	786.195	786.435	786.195	786.435	786.100	786.435	786.100	786.435	786.100	786.435	786.100	786.435	786.100
	Coping Elev. Less H																																																																	
	H																																																																		
D	Screed Elev.	786.765	786.640	786.640	786.980	786.740	786.780	786.780	787.640	786.780	786.780	786.780	787.580	786.665	787.480	786.980	787.390	786.480	787.340	786.380	787.580	786.380	787.830	786.380	787.830	786.380	787.830	786.380	787.830	786.380	787.830	786.380	787.830	786.380	787.830	786.380	787.830	786.380	787.830	786.380	787.830	786.380	787.830
	Coping Elev. Less H																																																																	
	H																																																																	

DESIGNED R.T. 9-15-61 CK'D S.E.A.
DRAWN R.T.W. 9-22-61 CK'D S.E.A.
TRACED ____ CK'D ____

For Superstructure General Notes See Drawing No. 59

SCREED DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Shown

SUBMITTED FOR APPROVAL:- [signature] Asst. Chief Engr. Aug. 30, 1963

DRAWING- 513 OF 514
PROJECT:- I-74-1(57)31
BRIDGE CONTRACT NO. 6321
BRIDGE FILE:- I-74-31-2334

REINFORCING STEEL LIST

Mark	No.	Length	Weight	Type	A	B	C	D	E	F	Shp	
		BENT NO. 1 E.B. LANES										
401b	61	11:10	482	1	5:8	2-9	5:8					bt
402b	55	7:10	288	1	2-3	2-9	2-3	0-6	0-6			bt
403b	146	3'6	341	1	0-6	2-9	0-6					bt
404b	12	31'8	254									St
405b	2	19-0	25									St
406b	2	23'0	31									St
410b	16	12'9	136									St
411b	28	7'9	144									St
412b	3	3'3	7									St
413b	6	5-6	22									St
414b	3	7'0	14									St
415b	6	2'6	10									St
416b	6	13'6	54	6	3-6	3-6	3-9	5'1				bt
417b	28	8'4	156									St
418b	62	3-0	124	2		1-6	0-8	1-4				Bt
Total	#4		2088									
501b	20	12'9	266									St
701b	3	23-9	146	7	2'6	1'1	1-1	1'4	4'6	3'0		bt
702b	3	23-11	147	8	3'6	1-1	1-1	1-4	4'6			bt
703b	3	23-9	146	9	3-0	1-1	1-1	1-4	4'6	2-6		bt
704b	18	21'6	791									St
705b	9	23-0	423									St
Total	#7		1653									
Total Bent #1		E.B.L.	4007									
		BENT NO. 2 E.B. LANES										
401c	137	3-0	275	1	0-6	2-3	0-6					bt
404c	2	28-3	38									St
405c	2	11-7	16									St
Total	#4		329									
501c	52	8-1	438	1	2-8	2-3	2-8	0-6	0-6			bt
601c	10	37-4	561	5	36-6							bt
602c	10	24-10	373	5	24'0							bt
603c	101	7-8	1163	4	6-0							bt
Total	#6		2097									
801c	10	30-6	814									St
901c	40	12-0	1632									St
902c	40	15-0	2040									St
903c	20	17-0	1156									St
Total	#9		4828									
1101c	60	26-7	8474									St
1102c	60	5-9	1833	1	4'5	1-8						bt
Total	#11		10.307									
Total Bent #2		E.B.L.	18813	+ 1519 (Spiral Rods) = 20,332								
		BENT NO. 3 E.B. LANES										
Same as Bent No. 2 E.B. Lanes except 401c & 405c shall be deleted and the followings added:												
406c	2	19-0	25									St
407c	2	21-1	28									St
Total	#4		328									
Total Bent #3		E.B.L.	18812	+ 1519 (Spiral Rods) = 20,331								

Mark	No.	Length	Weight	Type	A	B	C	D	E	F	Shp
		BENT NO. 4 E.B. LANES									
Same as Bent No. 1 E.B. Lanes, except 146-403b & 418b shall be deleted and the followings added:											
403b	147	3-6	343	1	0-6	2-9	0-6				bt
418b	28	8-7	161								St
Total	#4		2095								
Total Bent #4		E.B.L.	4014								
		BENT NO. 1 W.B. LANES									
Same as Bent No. 1 E.B. Lanes except 146-403b & 401b & 406b & 417b shall be deleted and the following added:											
403b	132	3-6	309	1	0-6	2-9	0-6				bt
407b	2	22-8	30								St
419b	28	8-1	151								St
Total	#4		2025								
Total Bent #1		W.B.L.	3944								
		BENT NO. 2 W.B. LANES									
Same as Bent No. 2 E.B. Lanes except 137-401c & 404c & 405c shall be deleted and the followings added:											
401c	106	3-0	212	1	0-6	2-3	0-6				bt
Total	#4		212								
Total Bent #2		W.B.L.	18.696	+ 1519 (Spiral Rods) = 20,215							
		BENT NO. 3 W.B. LANES									
Same as Bent No. 2 W.B. Lanes											
		BENT NO. 4 W.B. LANES									
Same as Bent No. 1 E.B. Lanes, except 146-403b & 428-411b & 405b & 406b & 417b shall be deleted and the followings added:											
403b	115	3-6	269	1	0-6	2-9	0-6				bt
411b	56	7-8	288								St
Total	#4		1948								
Total Bent #4		W.B.L.	3867								
		SUPERSTRUCTURE									
Both	E.B. Lane & W.B. Lane same as shown below:										
301a	24	17-0	158								St
302a	84	22-8	706								St
Total	#3		860								
401a	36	4-0	96								St
402a	264	3-2	559	2	1-1	1'3	0-2	1-1			bt
403a	408	3-3	886	1	2-4	0-7	2-4				bt
404a	8	4-5	24	3	1-3	0-10	1-10				bt
405a	16	2-1	23								St
406a	8	3-5	18	3	1-3	0-7	1-3				bt
Total	#4		1606								
501a	76	40-10	3237								St
502a	228	41-8	9909								St
503a	76	36-4	2880								St
504a	8	31-0	259								St
Total	#5		16.285								
601a	266	62-6	16980								St
602a	133	43-0	8590	10	3-1	0-4½	0-6½	3-0	2-6	3-4	bt
6031 thru 6038	4	40-3	8381	Varies by 7"							St
6648	4	4-8									St
6652	6	8-0	72								St
Total	#6		34.023								
Total Superstructure			52.774								

NOTE: See Revised computations Dated 5-8-64 For Revised Weights and Bending Diagrams.

DESIGNED [illegible] CKD. GEA
DRAWN [illegible] CKD. GEA
TRACED [illegible] CKD. GEA

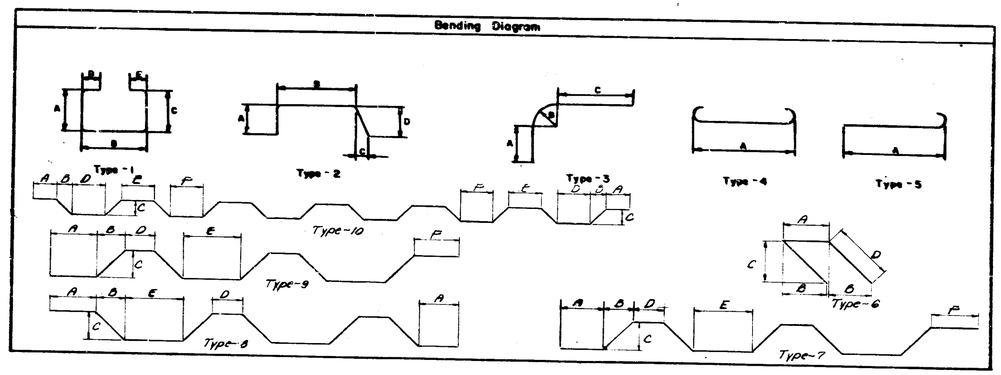
BRIDGES OVER 20' SPAN

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-1 (57) 31	1963	18	37

BILL OF MATERIALS

Description	Span 1 E.B.	Span 1 W.B.	Span 1 Pier 1	Span 1 Pier 2	Span 1 Pier 3	Span 2 Pier 2	Span 2 Pier 1	Span 2 Pier 3	Span 3 Pier 2	Span 3 Pier 1
Class F Concrete Substructure (Cu. Yds)			37.2	18.0	18.5	38.1	35.1	17.0	16.7	34.3
Class F Concrete Superstructure - Pour #1 (Cu. Yds)	13.4	13.4								
Class F Concrete Superstructure - Pour #2 (Cu. Yds)	37.0	37.0								
Class F Concrete Superstructure - Pour #3 (Cu. Yds)	45.1	45.1	→ Totals (E.B.L. & W.B.L. Same) =					194.5		
Class F Concrete Superstructure - Pour #1 (1½ Bt) (Cu. Yds)	17.3	17.3								
Class F Concrete Superstructure - Pour #2 (1½ Bt) (Cu. Yds)	33.8	33.8								
Class F Concrete Superstructure - Pour #3 (1½ Bt) (Cu. Yds)	41.9	41.9								
Class C Concrete (Cu. Yds)				13.8	13.8			13.8	13.8	
Class E Concrete in Footings (Cu. Yds)			41.07	38.7	38.7	41.14	40.42	38.7	38.7	39.68
Reinforcing Steel (Lbs)	~~35,774~~ 34,432	~~35,774~~ 34,432	4007	~~20,332~~ 20765	~~20,332~~ 20765	4014	3944	~~20,215~~ 20,648	~~20,215~~ 20,648	~~39,674~~ 38674
Steel Pile Shells, Furnished (Lin Ft)			320			320	320			320
Steel Pile Shells, Driven (Lin Ft)			320			320	320			320
Railing Concrete - Parapet Walls & End Posts (Cu. Yd.)	20.8	20.8								
Structural Steel, Encased (Lbs)	222,400	222,400								
Treated Timber Piles, Furnished (Lin Ft)			750	750				750	750	
Treated Timber Piles, Driven (Lin Ft)			750	750				750	750	
Aluminum Railing Type #1 or A (Lin. Ft.)	374.8	374.8								
Bronze Plates (Lbs.)	350	350								
1" Expansion Joint (Lin Ft)			2.8			2.8	2.8			2.8
Anchor Plates, Mk. AP (Each)			7	7	7	7	7	7	7	7

Bending Diagram



SPIRAL RODS

Mark	No.	Length	Core	Pitch	Turns	Spacers	Weight
402c	20	23-10	21	3¼	85	20	6076

Notes:

SPIRALS: Spirals shall have 1½ extra turns provided at the ends and ½ turns of lap at adjoining sections. Cost of spacer bars to be included in cost of spirals.

For reinforcing bar notes, see Bridge Standard C1.

* Spiral Rods to be formed of ½" ϕ non-deformed hot rolled or cold drawn steel rods

Rev. 5-8-64 Reinf. Steel & Bend Diags.

BILL OF MATERIALS

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- None

SUBMITTED FOR APPROVAL:- [signature] Aug. 30, 1963

DRAWING:- 5/4 OF 14

PROJECT:- I-74-1(57)31

BRIDGE CONTRACT NO. 6321

BRIDGE FILE:- I-74-31-2334

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. WTS) #11 (1 1/2") LBS.	#10 (1 1/8") LBS.	#9 (1") LBS.	#8 (7/8") LBS.	#7 (3/4") LBS.	#6 (5/8") LBS.	#5 (5/8") LBS.	#4 (1/2") LBS.	#3 (3/8") LBS.	#2 (1/4") LBS.	TOTALS LBS.	AC STRUCTURAL STEEL (Estimated) LBS.	1 INCH EXPANSION JOINT LIN. FT.	STEEL ENCASED CONCRETE PILES Nº	STEEL ENCASED CONCRETE PILES LIN. FT.	TREATED TIMBER PILES NO.	TREATED TIMBER PILES LIN. FT.	RAILING TYPE 'J' or TYPE 'A' LIN. FT.	BRONZE PLATES LBS	ANCHOR PLATES MK AP EACH
EAST BOUND STRUCTURE																										
SUBSTRUCTURE																										
BENT No.1	37.2																									
BENT No.2	18.0	13.3		35.7			10307		4828	814	1653		266	2088			4057									7
BENT No.3	18.5	13.8		38.7			10307		4828	814		2097	438	1848			20332		2.8	8	320	30	750			7
BENT No.4	38.4										1653	2097	438	(247)			20331					30	750			7
SUPERSTRUCTURE	194.5				20.8								266	2093			4014									7
												34023	16285	1606	860		52774	222,400	2.8	8	320					7
WEST BOUND STRUCTURE																								374.8	350	
SUBSTRUCTURE																										
BENT No.1	35.1																									
BENT No.2	17.8	13.3		38.7							1653		266	2835			3944									
BENT No.3	16.7	13.3		36.7			10307		4828	814		2097	438	1734			20215		2.8	8	320					7
BENT No.4	34.3						10307		4828	814		2097	438	1731			20215					30	750			7
SUPERSTRUCTURE	194.5				20.8						1653		266	1948			3867					30	750			7
												34023	16285	1606	860		52774	222,400	2.8	8	320					7
BILL OF SPLICE BARS																								374.8	350	
Reinf. Steel from "Approach Structure" column							176		38	24	16	68	28	12	6		362									
Reinf. Steel for RR to remain (estimated)																										
Reinf. Steel for Lip Curb, Ind. Speed etc.																										
TOTALS	604.2	55.2		154.8	41.6		41,404		19,344	3,280	6628	76,502	35,414	18,537	1726		202,835	444,800	11.2	32	1280	120	3000	749.6	700	56

NOTE:- See Revised Computations Dated 5-8-64 For Revised Weights.

BILL OF SPLICE BARS

REINFORCING STEEL

Size	Number Pieces	Lengths	Weight
11	3	14-0	176
9	1	9-6	32
8	1	8-9	24
7	1	8-0	16
6	6	7-6	68
5	4	6-9	28
4	3	6-0	12
3	3	5-4	6

Note :- For Test Bar Samples see Bridge Std. "C.J."

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
Construction Identification Sign	Each	1	Sign XH4-8
			" 123R
			" 124R
			" 115R
			Torches
STD. BARRICADES (TYPE A)	Each		Barricades (Type A)
			Signs 113R
			" W11R
			" 117
			Lanterns
STD. 3'-0" x 3'-0" SIGNS	Each		Signs 113
BRIDGE GUARD RAILS BARRIERS	Each		* Suitable Barriers
			* Lanterns or Torches
STD. BARRICADES (TYPE B)	Each		Barricades (Type B)
			Signs 113
			Lanterns or Torches
TYPICAL SIGN STANDARDS	Each		Signs 115R
			" W11R
			" 117
			Lanterns

*Not a pay item, place as directed by the Engineer

**The weight of structural steel shown is approximate. It shall be the Contractor's responsibility to determine the weight on which he bases his bid

APPROACH STRUCTURES

STRUCT. Nº	LOCATION	DESCRIPTION SIDE	DESCRIPTION KIND	DESCRIPTION LENGTH	CL. D CONC. IN STRUCT. CU. YDS.	REINF. STEEL LBS.	CAST IRON LBS.	REMARKS
58-A	Sta. 1290+41 Line 'A' (I-74)	18" Web	Group 'A' Pipe	266	2.3			2- Pipe Culvert Headwalls Required
58-B	Sta. 1290+94 Line 'A' (I-74)	18" Web	Group 'A' Pipe	258	2.3			2- Pipe Culvert Headwalls Required
58-C	Sta. 1289+20 (℄ N.B.)	6" Web	Perf. C.M. Pipe	85				Grade "B" Special Borrow Drain
58-D	Sta. 1289+95 (℄ E.B.)	6" Web	Perf. C.M. Pipe	85				Grade "B" Special Borrow Drain
58-E	Sta. 1291+40 (℄ N.B.)	6" Web	Perf. C.M. Pipe	85				Grade "B" Special Borrow Drain
58-F	Sta. 1292+13 (℄ E.B.)	6" Web	Perf. C.M. Pipe	85				Grade "B" Special Borrow Drain
58-G	Sta. 1289+23 (℄ W.B.)	12" Web	B'hum. C.C.M. Pipe	139	0.6			Berm Drain, Incl. 4 for 2-22½°-30' bends, 1-Rodin Manhole
58-H	Sta. 1290+25 (℄ E.B.)	12" Web	B'hum. C.C.M. Pipe	80	0.4			Berm Drain, Incl. 4 for 2-22½°-30' bends, 1-Rodin Manhole
58-I	Sta. 1291+07 (℄ N.B.)	12" Web	B'hum. C.C.M. Pipe	82	0.6			Berm Drain, Incl. 4 for 2-22½°-30' bends, 1-Rodin Manhole
58-J	Sta. 1292+12 (℄ E.B.)	12" Web	B'hum. C.C.M. Pipe	110	0.4			Berm Drain, Incl. 4 for 2-22½°-30' bends, 1-Rodin Manhole
			TOTALS		7.0			Total of Reinf. Steel carried to Structure Quantities

Submitted: R.T. Ck: GCA
Traced: J.J.V. Ck: GCA

Rev. 5-8-64 Item 6.
Rev. 1-16-64 Pipe Co.

Drawing not Legible

BRIDGES OVER 20' SPAN

PUB. ROAD REC. IT	STATE	PROJECT No.	FISCAL YEAR	BRIDGE No.	TOTAL SHEETS
4	IND	I-74-1 (57)31	1963	19	37

SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITY	
1	Class 'F' Concrete	Cu. Yds.	604.2	
2	Class 'D' Concrete	Cu. Yds.	55.2	
3	Class 'E' Concrete above Footings	Cu. Yds.		
4	Class 'E' Concrete in Footings	Cu. Yds.	154.8	
5	Railing Concrete	Lin. Ft.		
6	Reinforcing Steel	Lbs.	~~202,835~~	207,963
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.		
15	Special Borrow	Cu. Yds.	112,400	
16	Grade B Special Borrow	Cu. Yds.	3,100	
17	Sodding	Sq. Yds.	1270	
18	Mulched Seeding	Sq. Yds.		
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.	7.0	
28	R/W Markers	Each		
29	Steel Pile Shells Furnished, 14"	Lin. Ft.	1280	
30	Steel Pile Shells Driven, 14"	Lin. Ft.	1280	
31	Railing Concrete - Rail Units & End Posts	Cu. Yds.	41.6	
32	Structural Steel	Lump Sum	1	
33	Treated Timber Piles - Furnished	Lin. Ft.	3000	
34	Treated Timber Piles - Driven	Lin. Ft.	3000	
35	Railing, Type 'J' or Type 'A'	Lin. Ft.	749.6	
36	18" Grout 'A' Pipe (16 Ga.)	Lin. Ft.	524	
37	Bronze Plates	Lbs.	700	
38	~~Finger Expansion Joint~~	~~Each~~	~~Mk~~	
39	Anchor Plates MK AP	Each	56	
40	6" Perf. C.M. Pipe (16 Ga.)	Lin. Ft.	340	
41	12" Bitum. C.C.M. Pipe (16 Ga.)	Lin. Ft.	339	
42	Inlet (Type D-6)	Each	4	
43	Spec. Paved Side Ditch, Type 'A'	Lin. Ft.	234	
44	Foundation Excavation, Unclassified	Cu. Yds.	150	
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END STR

I-74-31-2334

SUMMARY

STATE HIGHWAY DEPARTMENT OF INDIANA

SUBMITTED FOR APPROVAL: Tom L Underwood, P.E. Aug. 30, 1963

PROJECT:- I-74-1(57)31

BRIDGE CONTRACT Nº 0321

BRIDGE FILE:- I-74-31-2334