

- LEGEND**
- (A) R.C. Bridge Approach (10")
  - (B) 3" Bituminous Shoulders
  - (C) Terminal Joint
  - (D) R.C. Pavement (10")
  - (E) Bituminous Resurface

BRIDGES OVER 20' SPAN				
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	TOTAL SHEETS
4	IND.		1971	3

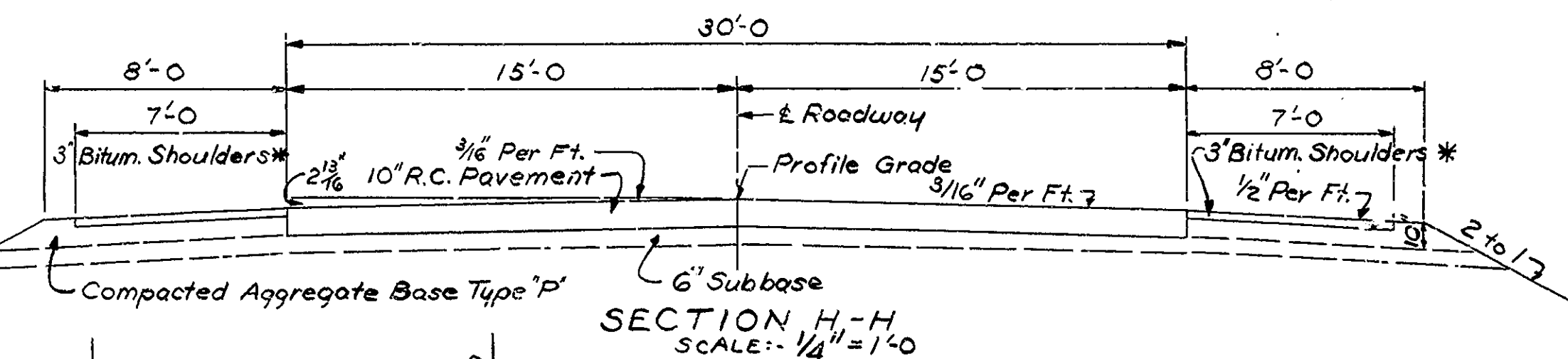
**UTILITY OWNERS**  
 Electric Power Line: Northern Indiana Public Service Co., Ind.

**NOTE:** Pres. Structure built by Ind. State Highway Commission in 1931 as Road Project 180. 1 Span 52'-6 1/2" Reinf. conc. Girder Bridge.

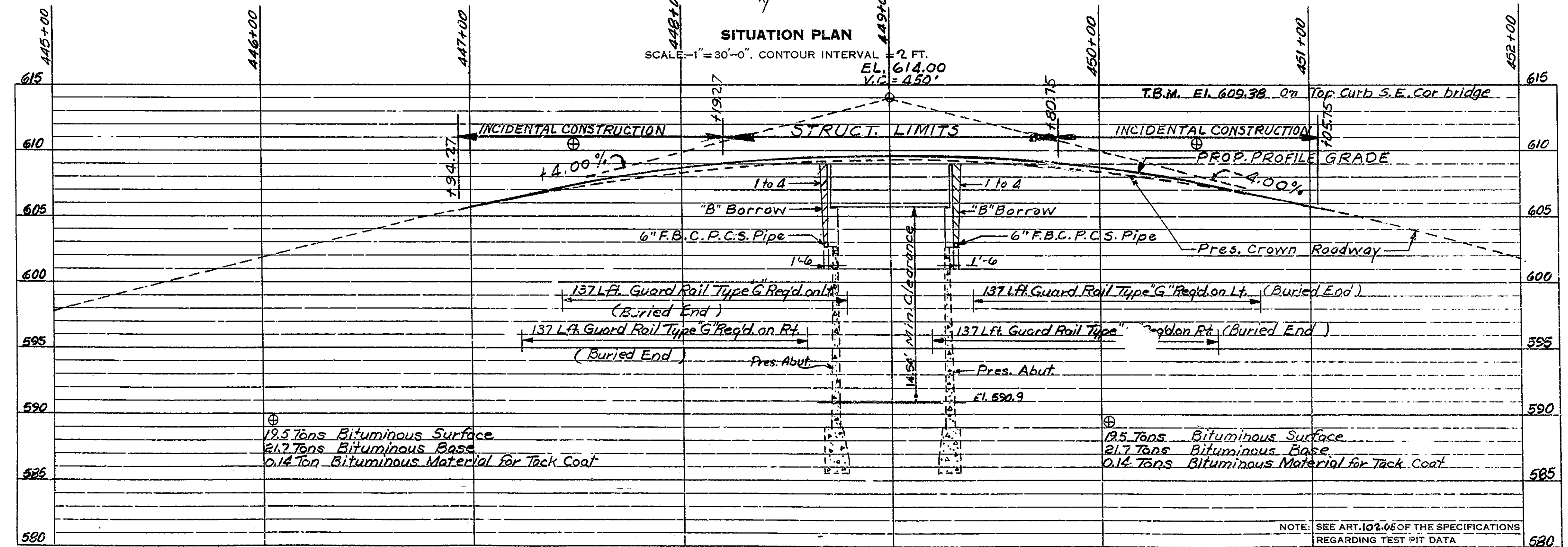
**BITUMINOUS RESURFACE**  
 90% su. H.A. Concrete Surface on H.A. Concrete Base (Variable Depth) or  
 90% su. Hot A.E. Surface Type III on Hot A.E. Base (Variable Depth)

END OF STRUCT. LIMITS  
 STATION 449+80.75

BEGINNING OF STRUCT. LIMITS  
 STATION 448+19.27



**SITUATION PLAN**  
 SCALE: 1" = 30'-0", CONTOUR INTERVAL = 2 FT.  
 EL. 614.00  
 V.C. = 450'



**LAYOUT**  
 PRESTRESSED CONG. I-BEAM BRIDGE  
 1 SPAN @ 52'-6 1/2" SKEW 24°R  
 OVER U.S. 20 ON STATE ROAD 49  
**INDIANA STATE HIGHWAY COMMISSION**  
 PORTER COUNTY  
 SCALE: AS NOTED  
 RECOMMENDED FOR APPROVAL: E. W. Walters  
 DRAWING: C1 OF 9  
 PROJECT: STATION: 449+00  
 BRIDGE CONTRACT NO. B-8754  
 BRIDGE FILE: 49-64-1016A

JUNE 4, 1971

E. W. Walters  
 ASSISTANT ENGINEER OF BRIDGE DIVISION

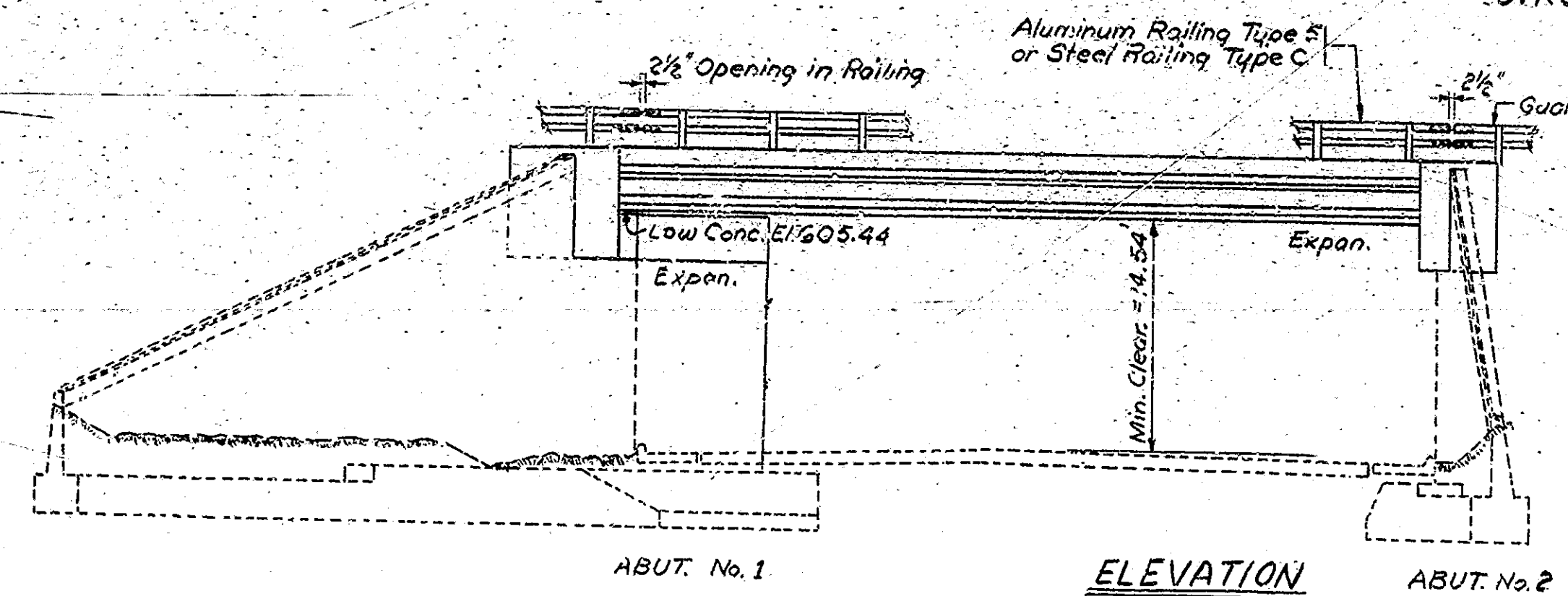
E. W. Walters  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 7059  
 STATE OF INDIANA

DRAWN: S.M.P. (M.L.S.)  
 DESIGNED: M.L.S. CKD: R.M.H.  
 TRACED: CKD

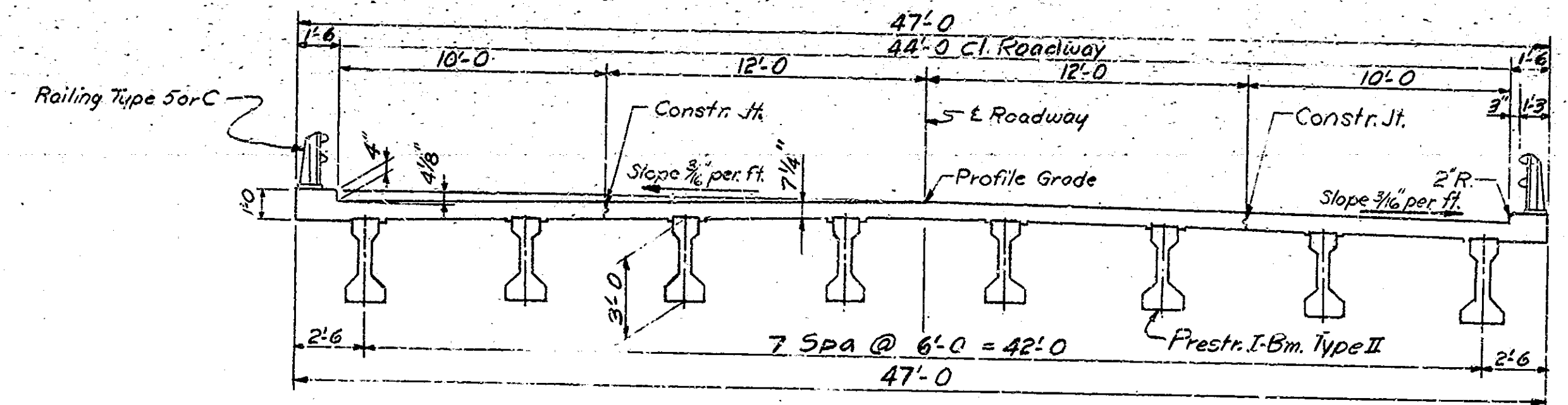


STRUCTURE TO BE BUILT TO A 450' V.C.

BRIDGES OVER 20' SPAN					
PUB. ROAD	STATE	PROJECT	FISCAL	SHEET	TOTAL
NO.	NO.	NO.	YEAR	NO.	SHEETS
4	IND.		1971	4	33



ELEVATION

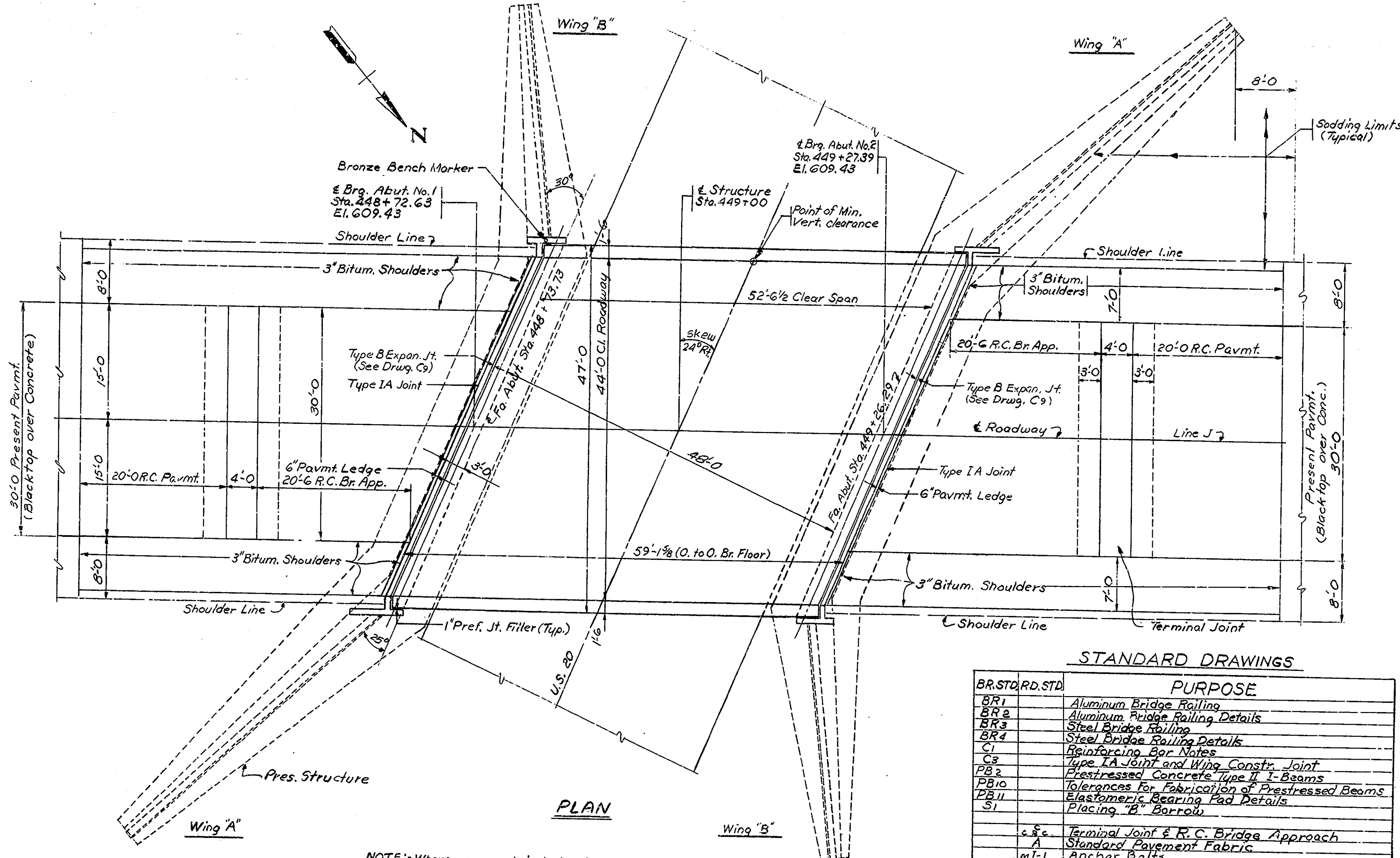


TYPICAL SECTION

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

GENERAL NOTES

Reinforcing steel covering shall be 2 inches in top and 1 inch min. in bottom of floor slab, and 2 inches in all other parts, unless noted.  
 Concrete in superstructure, abutment cap, abutment and wingwalls to be class "A".  
 Continuous concrete pours shall be required between construction joints as shown on detail plans.  
 Water proof joints in abutments and wingwalls in accordance with Art. 702.22 of the Specifications.  
 Bevel forms 1/4" under copings, and chamfer exposed edges 1 inch unless noted.  
 All railing posts to be constructed perpendicular to grade. Only the top of abutment caps, front face of mudwalls and face of end diaphragms to be sealed in accordance with Article 702.20 of the Specifications.  
 See special provisions for items included in this contract.



PLAN

TYPICAL CROSS SECTION

See Drwg. C<sub>1</sub>

STANDARD DRAWINGS

BR. STD. RD. STD.	PURPOSE
BR 1	Aluminum Bridge Railing
BR 2	Aluminum Bridge Railing Details
BR 3	Steel Bridge Railing
BR 4	Steel Bridge Railing Details
C 1	Reinforcing Bar Notes
C 2	Type IA Joint and Wing Constr. Joint
PB 2	Prestressed Concrete Type II I-Beams
PB 10	Tolerances for Fabrication of Prestressed Beams
PB 11	Elastomeric Bearing Pad Details
S 1	Placing "B" Barrows
S 5 c	Terminal Joint & R.C. Bridge Approach
A	Standard Pavement Fabric
M-1	Anchor Bolts
GR 4	Guard Rail Class GA or GST
GR 6	Aluminum Guard Rail Details
GR 8	Steel Tube Guard Rail Details
GR 10	Guard Rail - Buried Ends
Sh. 1 Det.	Standard Detour Signs
Sh. 2 Det.	Standard Detour Signs
Sh. 3 Det.	Standard Detour Signs
Sh. 3A Det.	Standard Detour Signs

DESIGN DATA

Designed for HS 20-44 loading in accordance with 1969 AASHTO Specifications.

GENERAL PLAN

PRESTRESSED CONC. I-BEAM BRIDGE  
 1 SPAN @ 52'-6 1/2" SKEW 24°R 44'-0" RDWY. 3" CBS.  
 OVER U.S. 20 ON STATE ROAD 49

INDIANA STATE HIGHWAY COMMISSION  
 PORTER COUNTY

SCALE: 1/8" = 1'-0" UNLESS NOTED DATE: JUNE 4, 1971

RECOMMENDED FOR APPROVAL: *E. W. Walker*

DRAWING: C<sub>2</sub> OF 3 PROJECT: STATION: 449+00

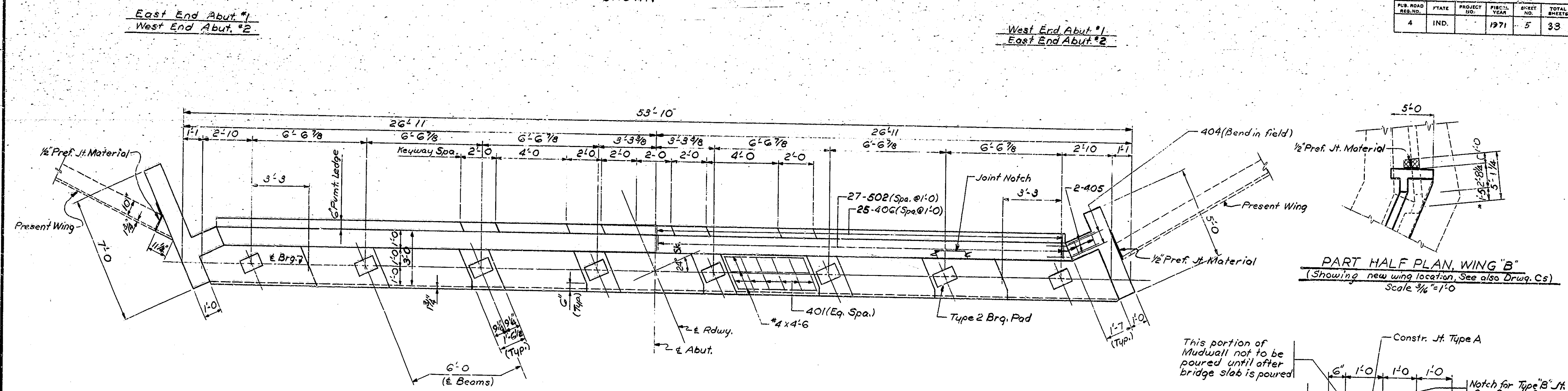
CONTRACT NO. B-8754 BRIDGE FILE: 49-64-1016A

DESIGNED	L.F.D.
DRAWN	J.P. 4-6-71 C.W.D. R.M.H.
TRACED	C.K.D.

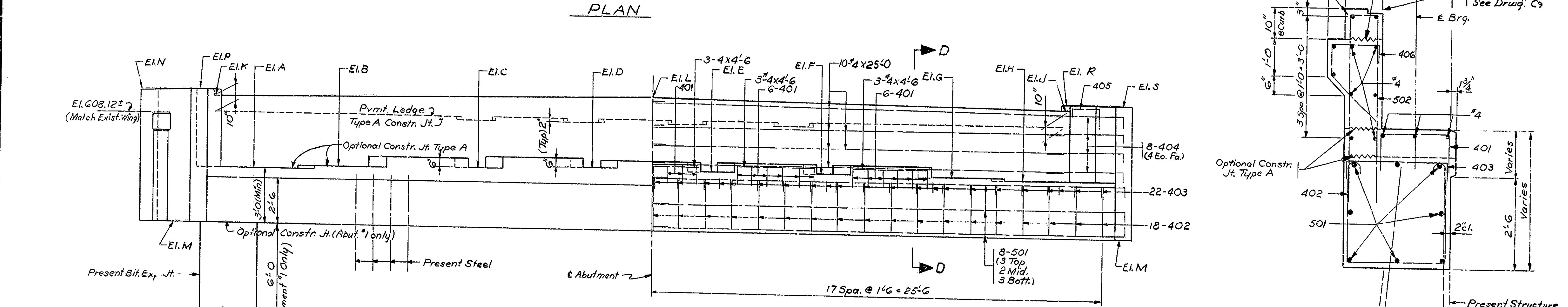
NOTE: Where new work is to be fitted to old work, the Contractor shall check all dimensions and conditions in the field and report any errors or discrepancies to the Engineer or assume responsibility for their correctness and the fit of new part to old.

NOTE: DO NOT CUT ANY PRESENT STEEL IN SUBSTRUCTURE EXCEPT AS SHOWN

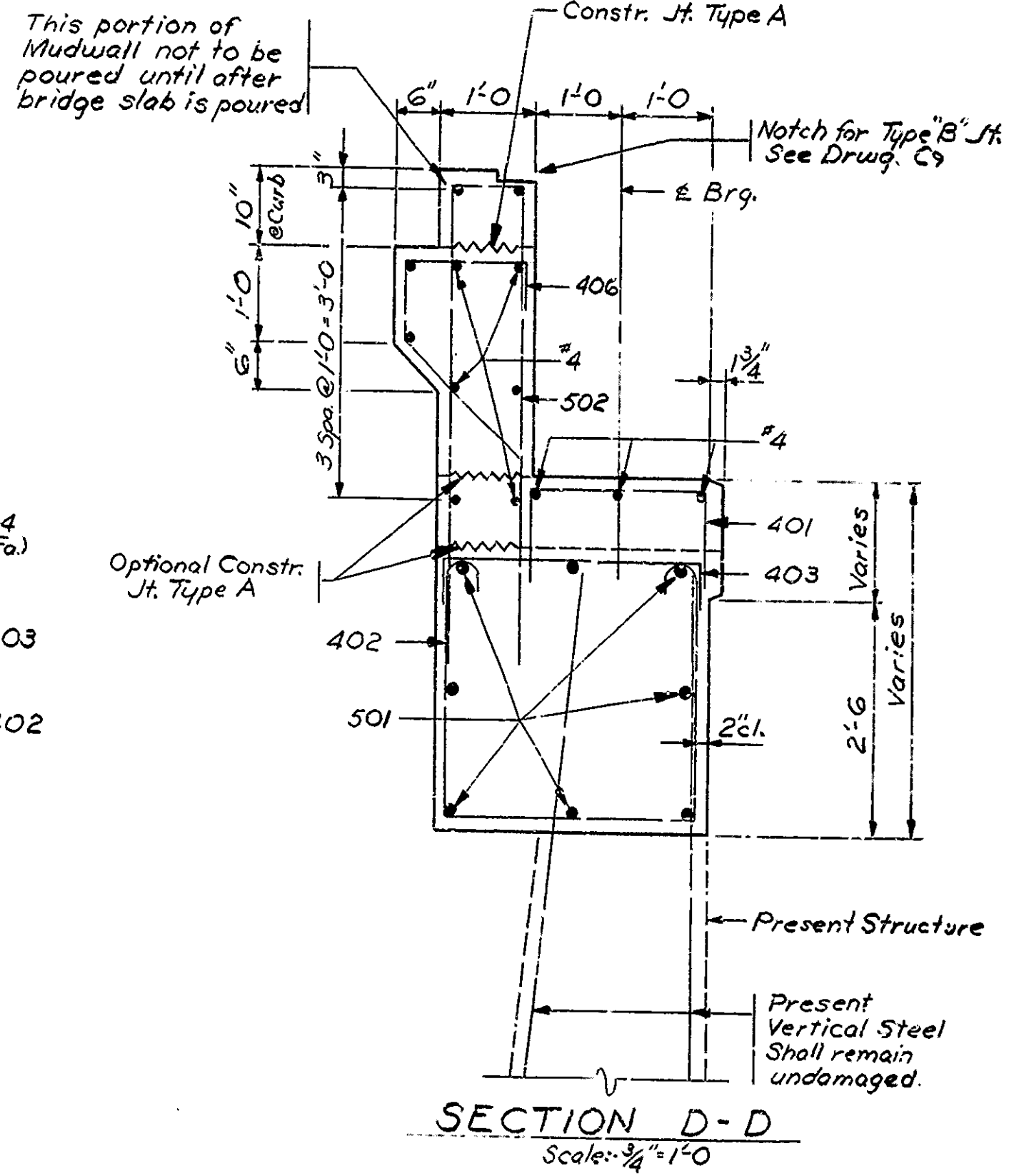
BRIDGES OVER 20' SPAN					
PLB. ROAD RES. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.		1971	5	33



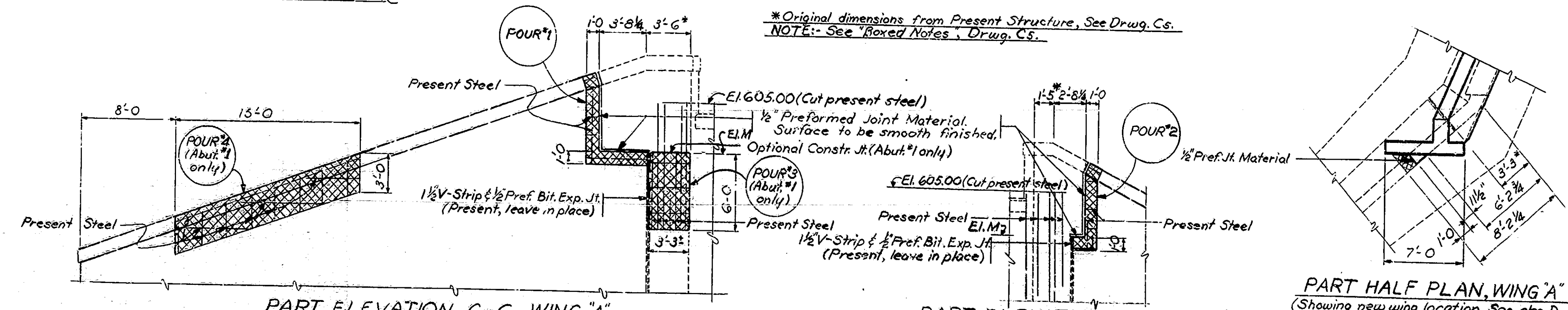
PART HALF PLAN, WING "B"  
(Showing new wing location, See also Drwg. C5)  
Scale: 3/8" = 1'-0"



ELEVATION  
\*Original dimensions from Present Structure, See Drwg. C5.  
NOTE: See "Fixed Notes", Drwg. C5.



SECTION D-D  
Scale: 3/8" = 1'-0"



PART ELEVATION C-C, WING "A"  
(See Drwg. C5)  
Scale: 3/8" = 1'-0"

PART ELEVATION G-G, WING "B"  
(See Drwg. C5)  
Scale: 3/8" = 1'-0"

PART HALF PLAN, WING "A"  
(Showing new wing location, See also Drwg. C5)  
Scale: 3/8" = 1'-0"

DESIGNED: VJ	C.K.D.	SJP
DRAWN: RMH 5-10-71	C.K.D.	VJ
TRACED:	C.K.D.	

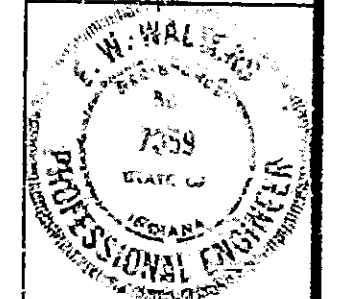
NOTE: See Bridge Standard C1 for Reinforcing Bar Notes

ABUTMENT No. 1 or No. 2  
INDIANA STATE HIGHWAY COMMISSION

SCALE: 3/8" = 1'-0" UNLESS NOTED DATE: JUNE 4, 1971

RECOMMENDED FOR APPROVAL: E. W. Walter  
ASSISTANT ENGINEER OF BRIDGE DESIGN

DRAWING: C3 OF 9  
PROJECT:  
CONTRACT NO. B-8754  
BRIDGE FILE: 49-64-1016A

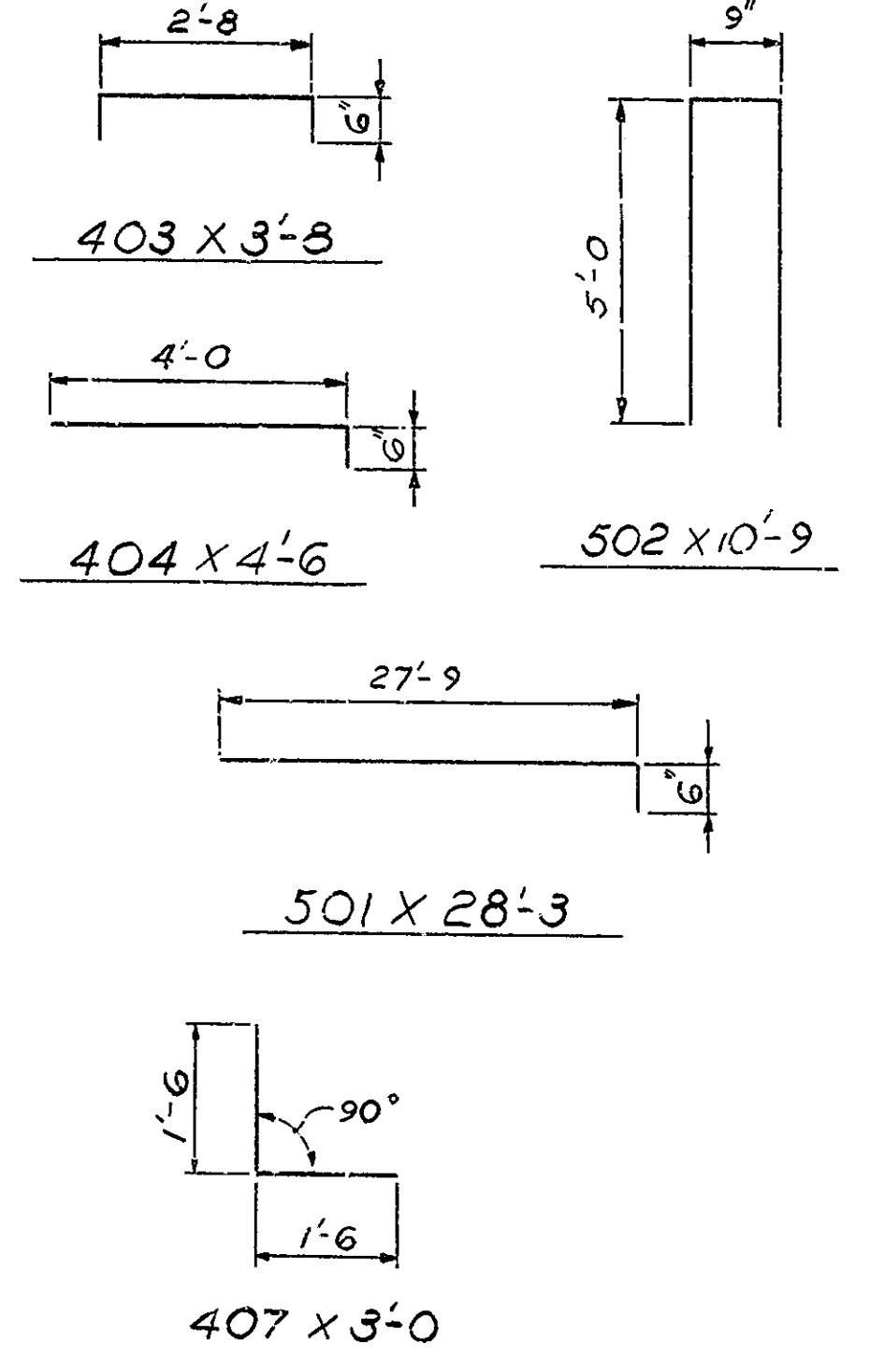
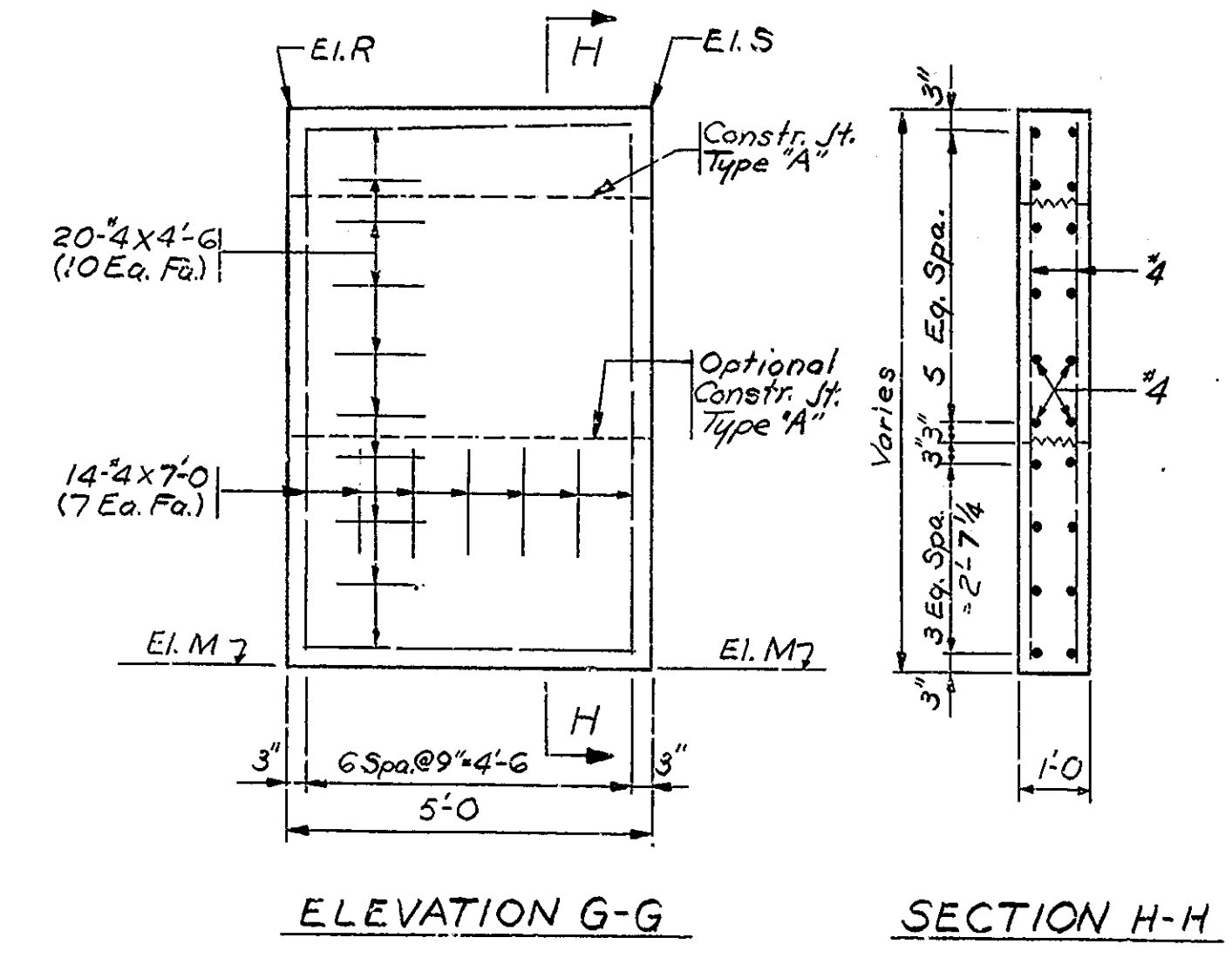
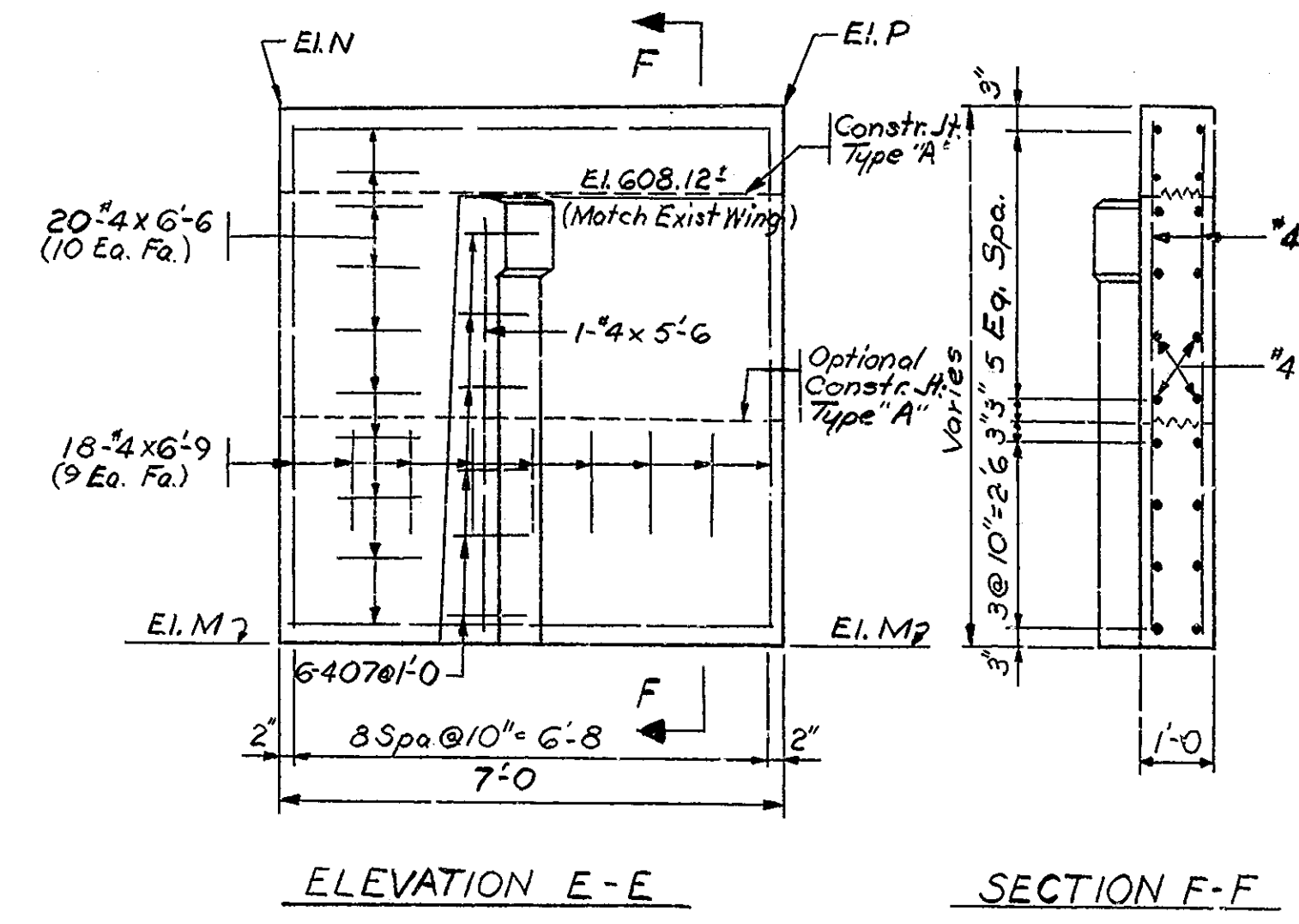
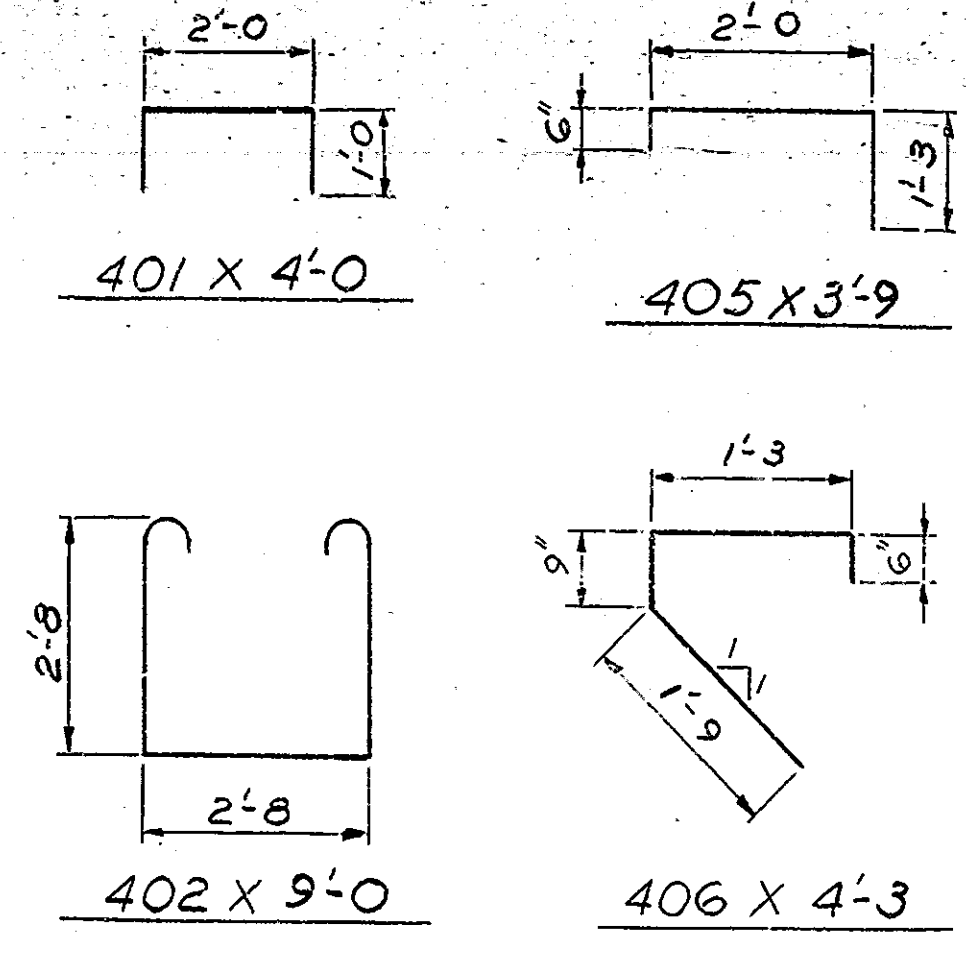
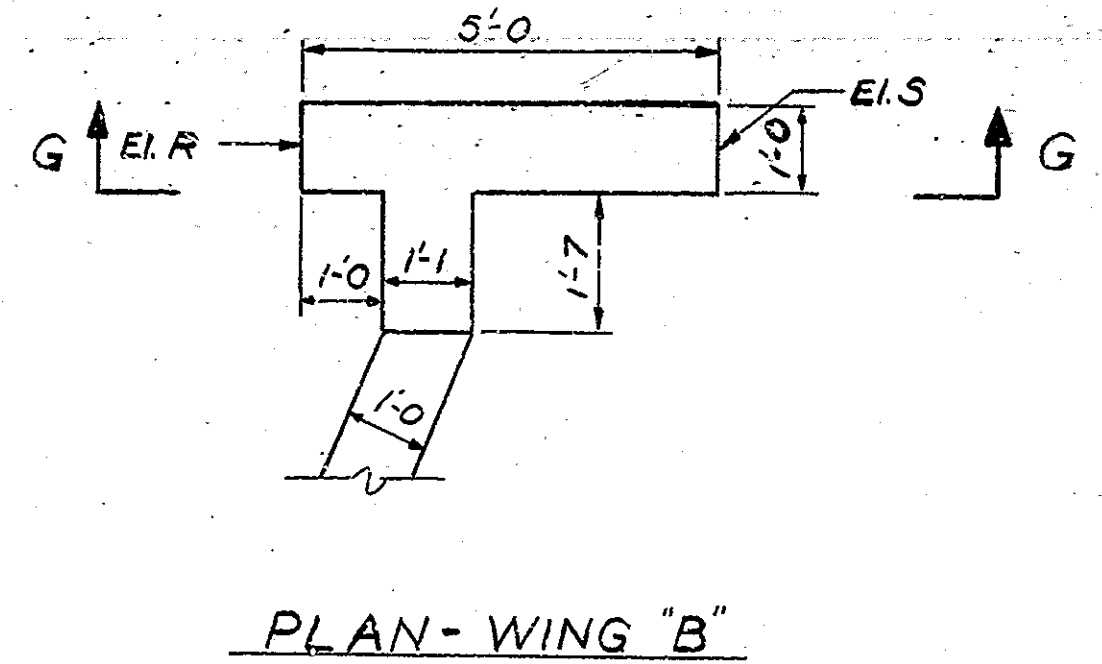
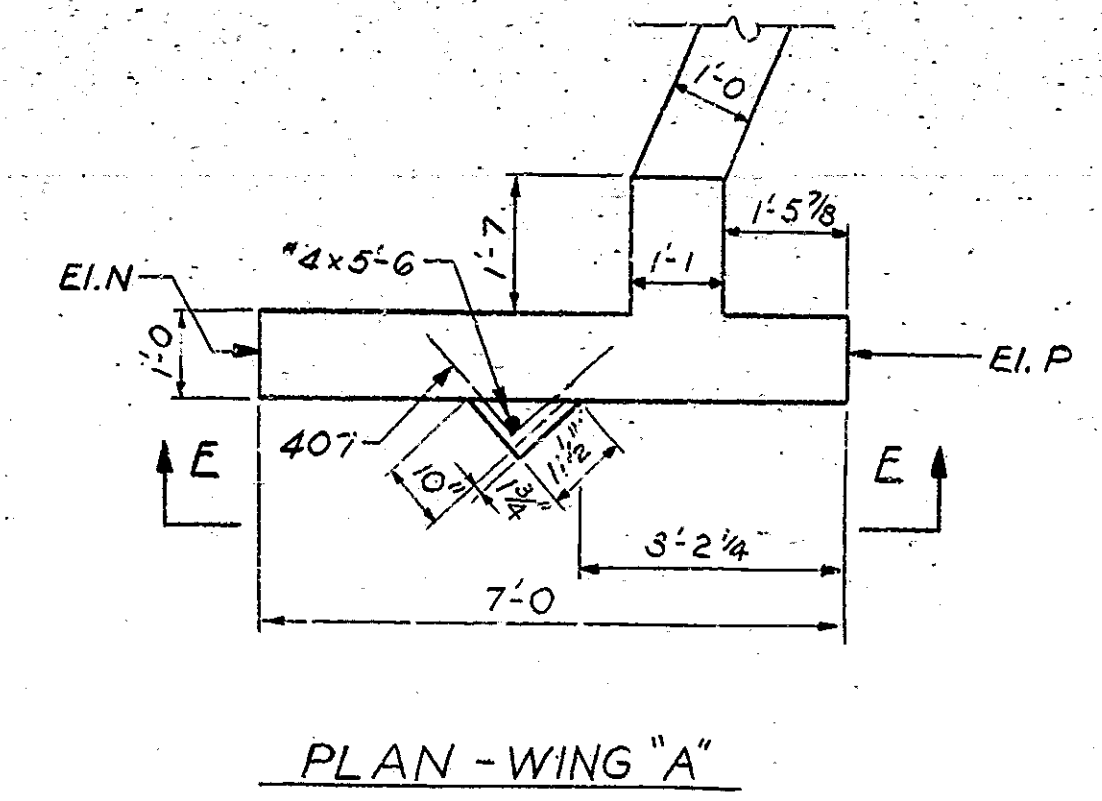




BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.		1971	6	33

**BILL OF MATERIALS**

ABUTMENT No. 1				ABUTMENT No. 2			
REINFORCING STEEL				REINFORCING STEEL			
SIZE & MARK	NO. OF BARS	LENGTH	WEIGHT (LBS.)	SIZE & MARK	NO. OF BARS	LENGTH	WEIGHT (LBS.)
501	16	28'-3"		501	16	28'-3"	
502	53	10'-9"		502	53	10'-9"	
	Total	#5	1066		Total	#5	1066
401	30	4'-0"		401	30	4'-0"	
402	35	9'-0"		402	35	9'-0"	
403	43	3'-8"		403	43	3'-8"	
404	16	4'-6"		404	16	4'-6"	
405	4	3'-9"		405	4	3'-9"	
406	49	4'-3"		406	49	4'-3"	
407	6	3'-0"		407	6	3'-0"	
#4	20	25'-0"		#4	20	25'-0"	
#4	14	7'-0"		#4	14	7'-0"	
#4	18	6'-9"		#4	18	6'-9"	
#4	20	6'-6"		#4	20	6'-6"	
#4	1	6'-6"		#4	1	6'-6"	
#4	35	4'-6"		#4	35	4'-6"	
	Total	#4	1282		Total	#4	1282
	Total	Steel	2348		Total	Steel	2348
CONCRETE Class "A"				CONCRETE Class "A"			
Cap		21.5 Cys.		Cap		21.5 Cys.	
Mudwall		7.5 Cys.		Mudwall		7.5 Cys.	
Pour No. 1		6 Cys.		Pour No. 1		6 Cys.	
Pour No. 2		3 Cys.		Pour No. 2		3 Cys.	
Pour No. 3		1.4 Cys.		Pour No. 3		1.4 Cys.	
Pour No. 4		1.7 Cys.		Pour No. 4		1.7 Cys.	
	Total Class "A"	35.5 Cys.		Total Class "A"		32.4 Cys.	



**ELEVATION TABLE**

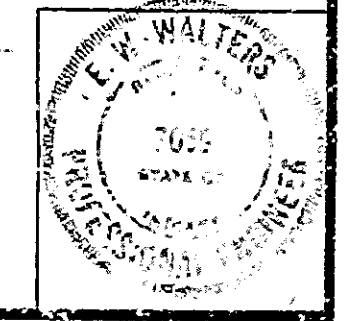
ABUTMENT	E.L.A.	E.L.B.	E.L.C.	E.L.D.	E.L.E.	E.L.F.	E.L.G.	E.L.H.	E.L.I.	E.L.J.	E.L.K.	E.L.L.	E.L.M.	E.L.N.	E.L.P.	E.L.R.	E.L.S.
ABUT. NR. 1	605.20	605.32	605.42	605.53	605.55	605.46	605.38	605.30	609.03	609.13	609.43	602.20	609.32	609.37	609.45	609.47	
ABUT. NR. 2	605.20	605.32	605.42	605.53	605.55	605.46	605.38	605.30	609.03	609.13	609.43	602.20	609.32	609.37	609.45	609.47	

DESIGNED: *JD* CKD: *SVP*  
 DRAWN: *EMH 5-10-76* CKD: *JD*  
 TRACED: \_\_\_\_\_ CKD: \_\_\_\_\_

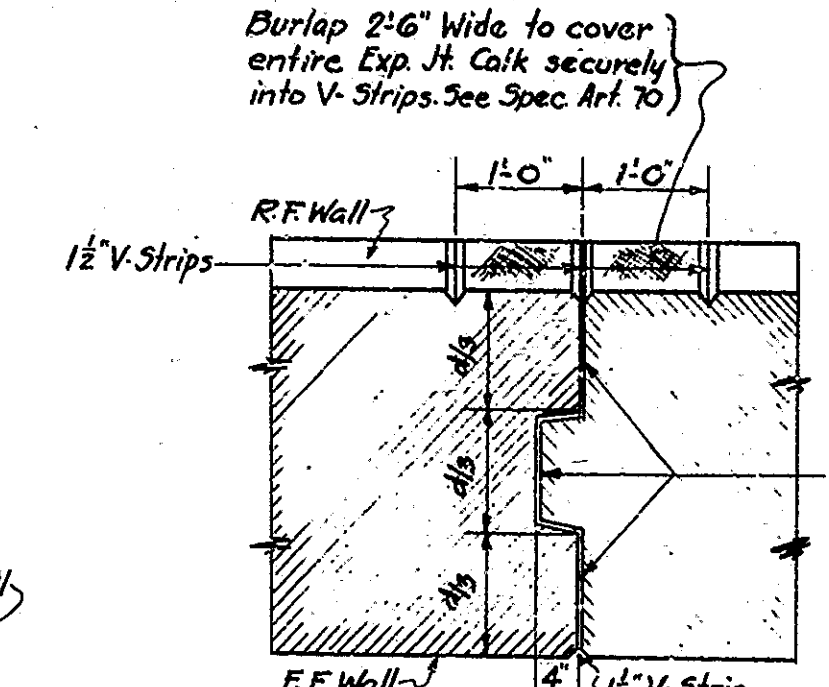
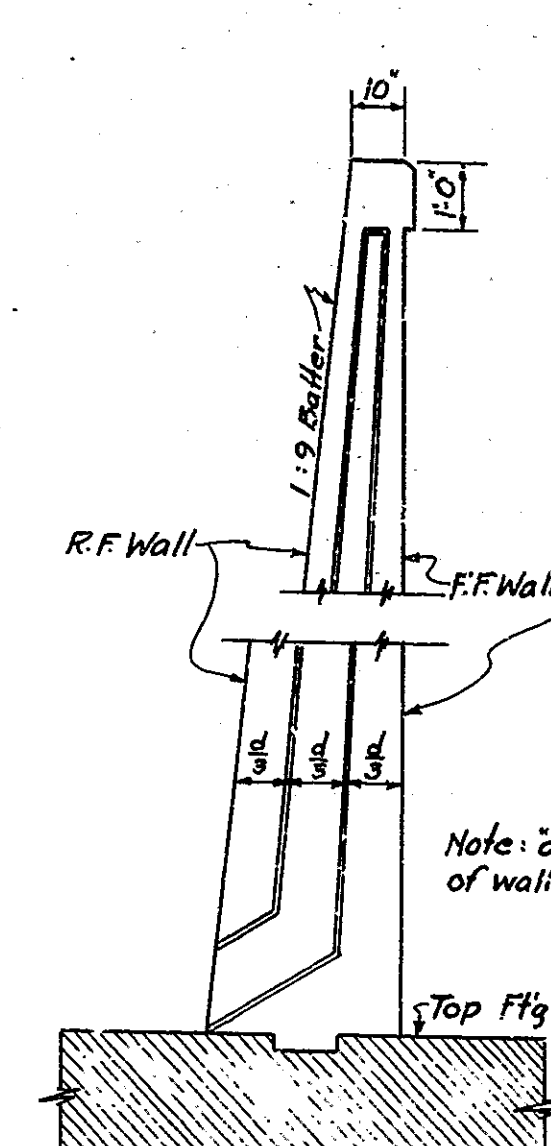
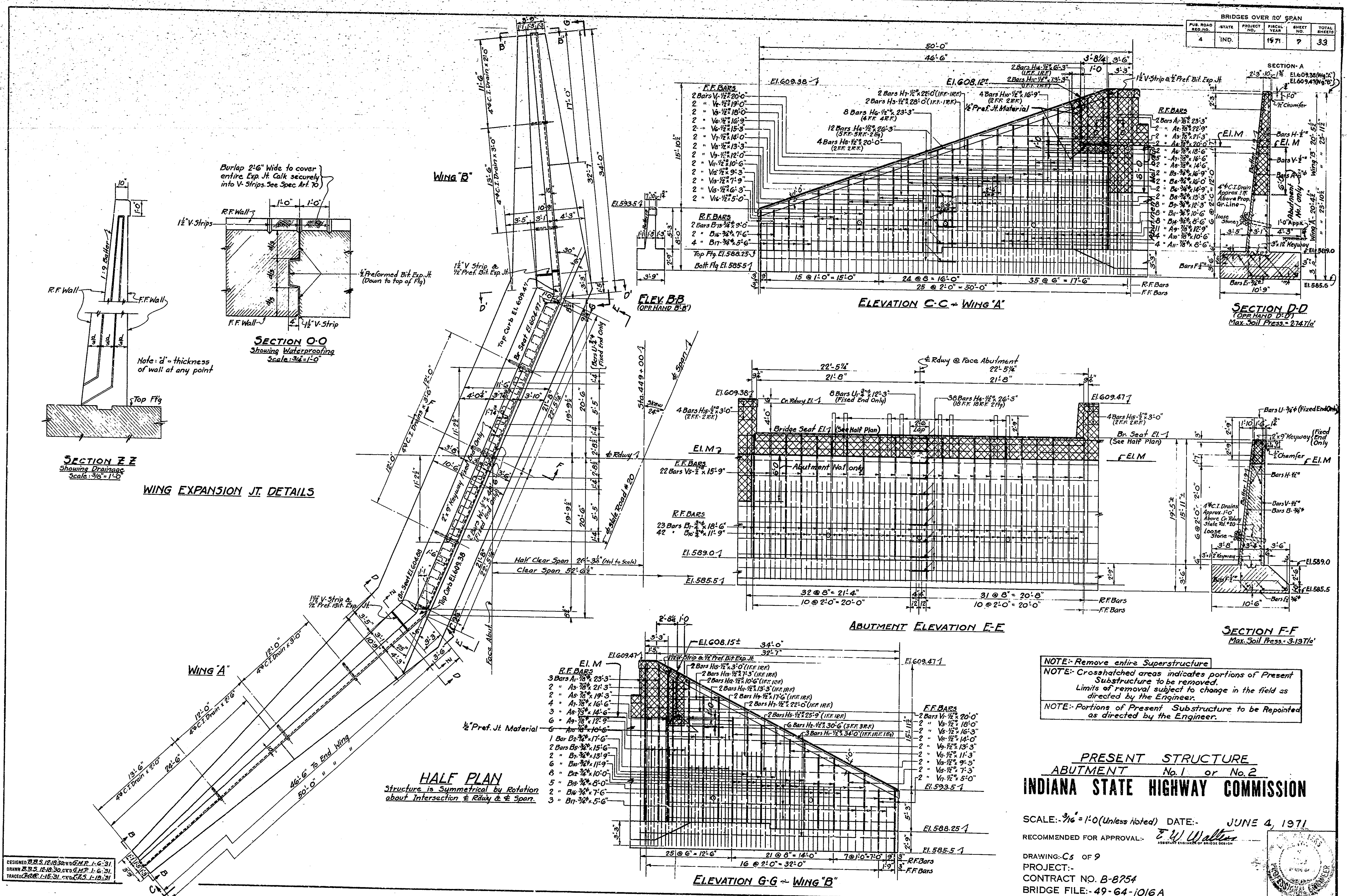
NOTE: See Bridge Standard C1 for Reinforcing Bar Notes.

**ABUTMENT No. 1 & No. 2**  
**INDIANA STATE HIGHWAY COMMISSION**

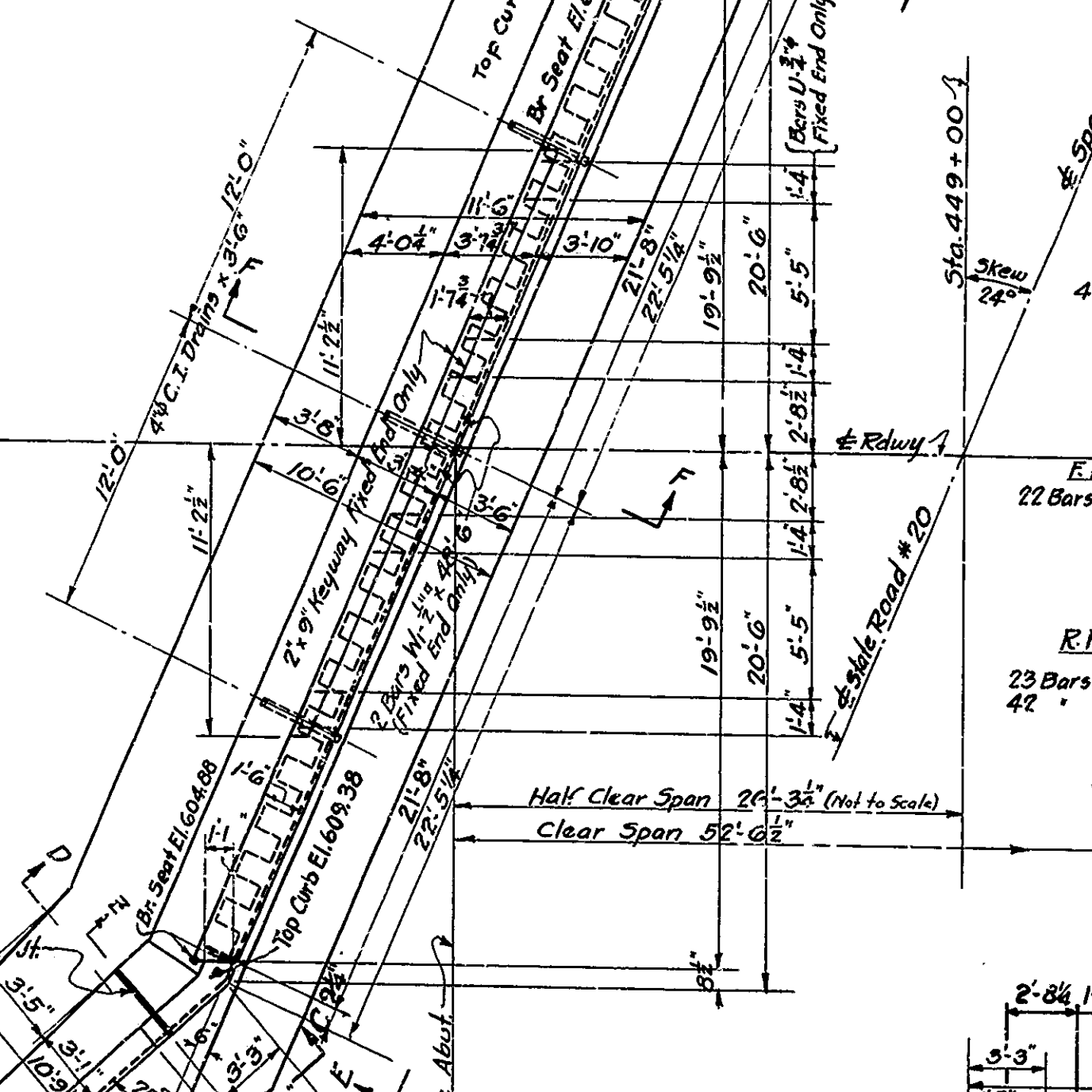
SCALE: 1/2" = 1'-0"  
 DATE: JUNE 4, 1971  
 RECOMMENDED FOR APPROVAL: *E. W. Walters*  
 DRAWING: C4 OF 9  
 PROJECT: \_\_\_\_\_  
 CONTRACT NO. B-8754  
 BRIDGE FILE: 49-64-1016A



BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.		1971	7	33



WING EXPANSION JT. DETAILS



HALF PLAN  
Structure is Symmetrical by Rotation  
about Intersection of Rdwy & Spurr.

ELEV. B-B  
(OP. HAND B-B)

ELEVATION C-C ~ WING 'A'

ABUTMENT ELEVATION E-E

ELEVATION G-G ~ WING 'B'

SECTION D-D  
(OP. HAND D-D)  
Max. Soil Press. - 2747 lb

SECTION F-F  
Max. Soil Press. - 3137 lb

NOTE: Remove entire Superstructure  
NOTE: Crosshatched areas indicates portions of Present Substructure to be removed. Limits of removal subject to change in the field as directed by the Engineer.  
NOTE: Portions of Present Substructure to be Repointed as directed by the Engineer.

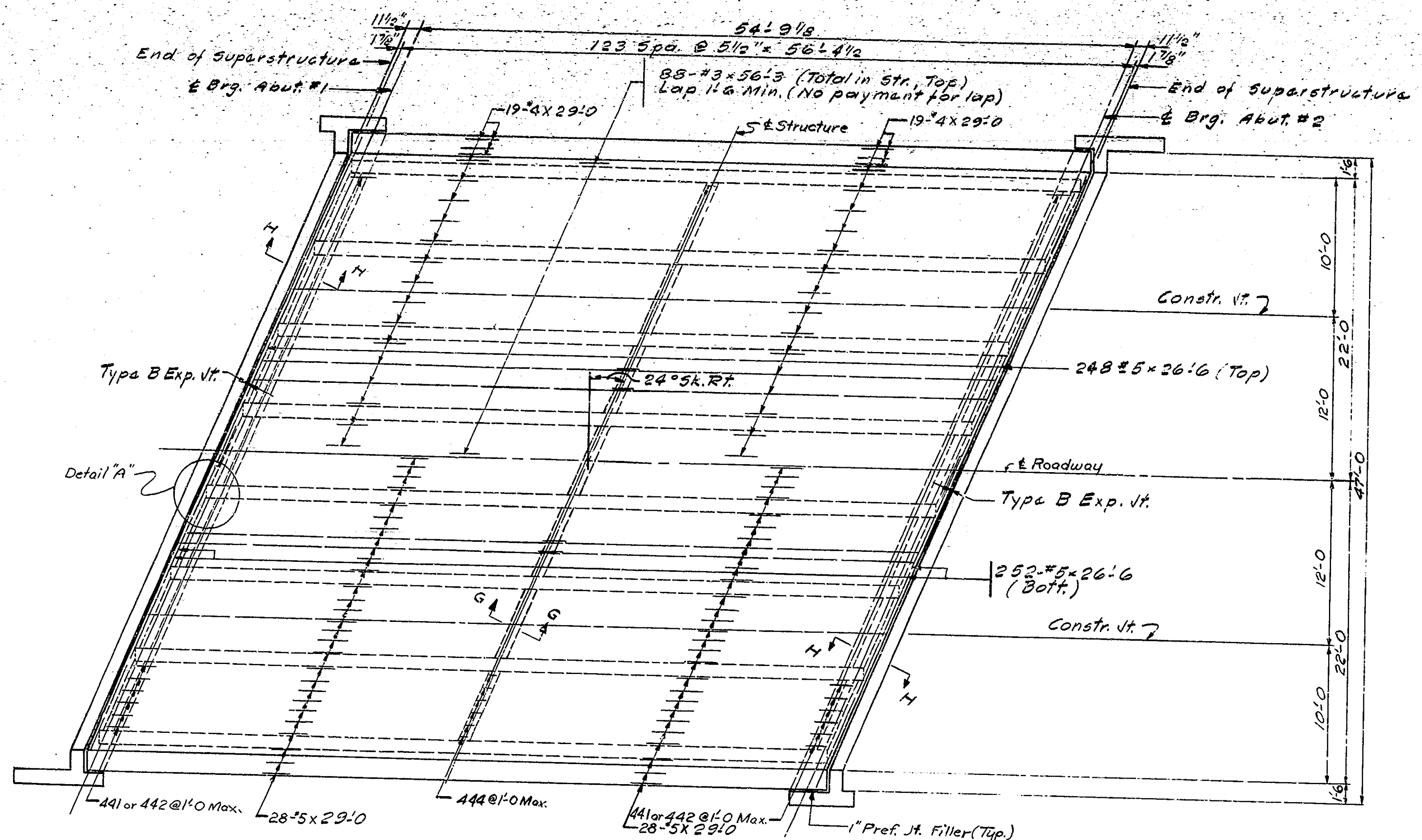
PRESENT STRUCTURE  
ABUTMENT No. 1 or No. 2  
INDIANA STATE HIGHWAY COMMISSION

SCALE: 3/16" = 1'-0" (Unless noted) DATE: JUNE 4, 1971  
RECOMMENDED FOR APPROVAL: E. W. Walters  
DRAWING: C5 OF 9  
PROJECT: CONTRACT NO. B-8754  
BRIDGE FILE: 49-64-1016A

DESIGNED BY: J. B. ...  
DRAWN BY: J. B. ...  
CHECKED BY: J. B. ...



BRIDGES OVER 20' SPAN					
PUB. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.		1971	8	33



UPPER HALF SHOWING TOP SLAB STEEL  
LOWER HALF SHOWING BOTTOM SLAB STEEL

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

NOTE: Top reinforcing steel shall be supported on chairs under the top transverse reinforcing bars.

NOTE: Scribed Data will be provided upon request of Project Engineer.

NOTE: After beams have been erected, concrete forms shall not be blocked against the expansion end of the beams in making any pours adjacent to the beam spans.

**DESIGN DATA**

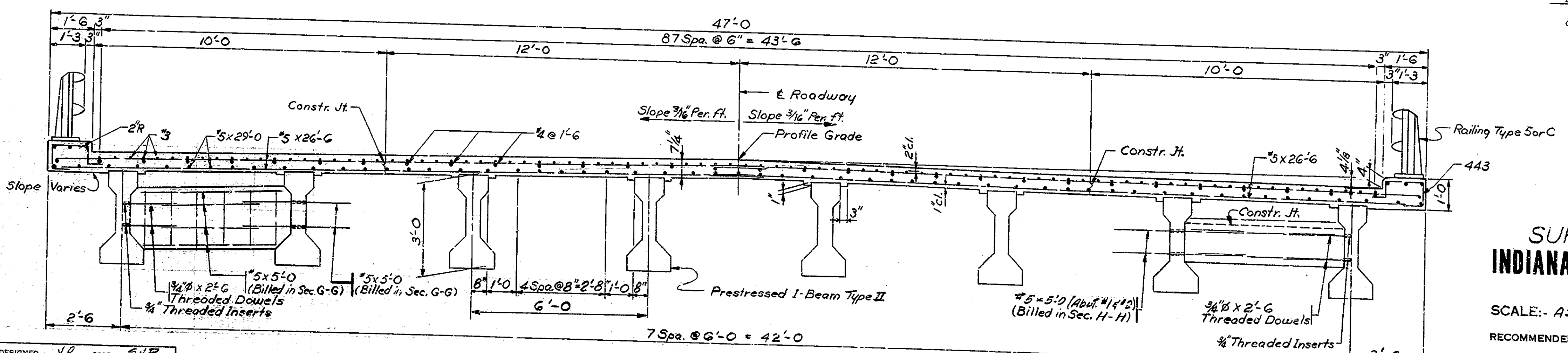
**Prestressed Beams** - All beams shall be Type II as shown on Bridge Standard PB2. See Bridge Standard PB2 and PB10 for Additional Design Data.

**Approximate Camber (inches)** -  
 Camber as erected = +.7999  
 Deflection under Slab D.L. = -.5420  
 Residual Beam Camber = +.2579

**Reinforced Concrete** -  
 Unit Stresses  
 $f_s = 20,000 \text{ psi}$   
 $f_c = 1,200 \text{ psi}$

**Live Load** - HS20-44 with impact and distribution of Loads in accordance with 1969 A. A. S. H. O. Specifications.

**Dead Load** - Increased 35% of roadway for future wearing surface. Slab designed with 1" wearing surface.



TYPICAL SECTION  
Scale 1/8" = 1'-0"

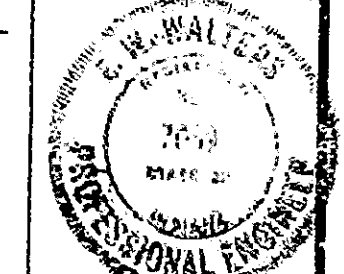
NOTE: See Bridge Standard C1 for Reinforcing Bar Notes.

**SUPERSTRUCTURE DETAILS**  
**INDIANA STATE HIGHWAY COMMISSION**

SCALE: AS NOTED DATE: JUNE 4, 1971

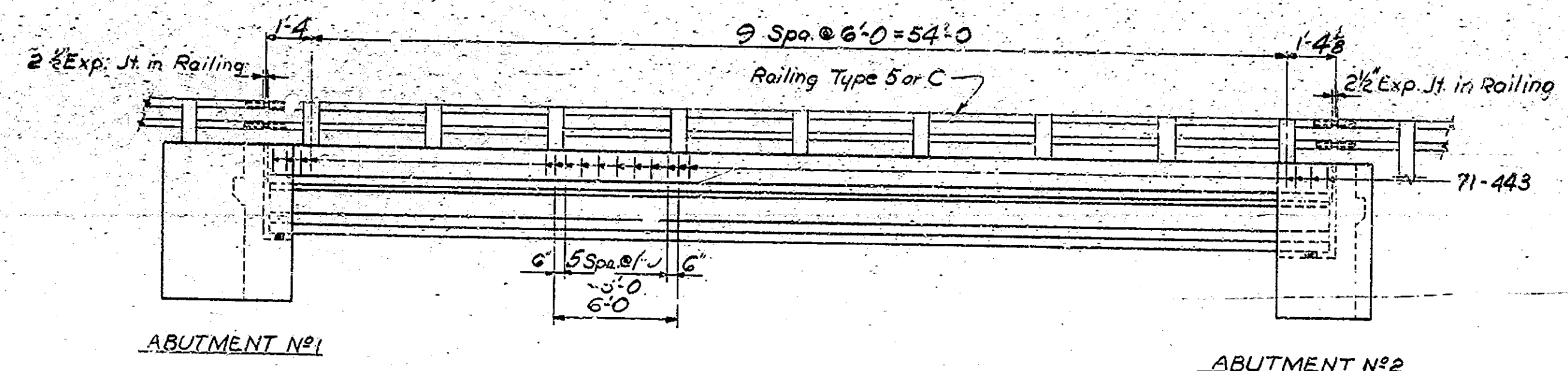
RECOMMENDED FOR APPROVAL: *E. W. Walker*  
ASSISTANT CHIEF ENGINEER OF BRIDGE DESIGN

DRAWING: C6 OF 9  
PROJECT:  
CONTRACT NO. B-8754  
BRIDGE FILE: 49-64-1016A



DESIGNED: J.D. C.K.D. S.V.P.  
DRAWN: R.H.N. E.L.V. C.K.D. V.O.  
TRACED: C.K.D.

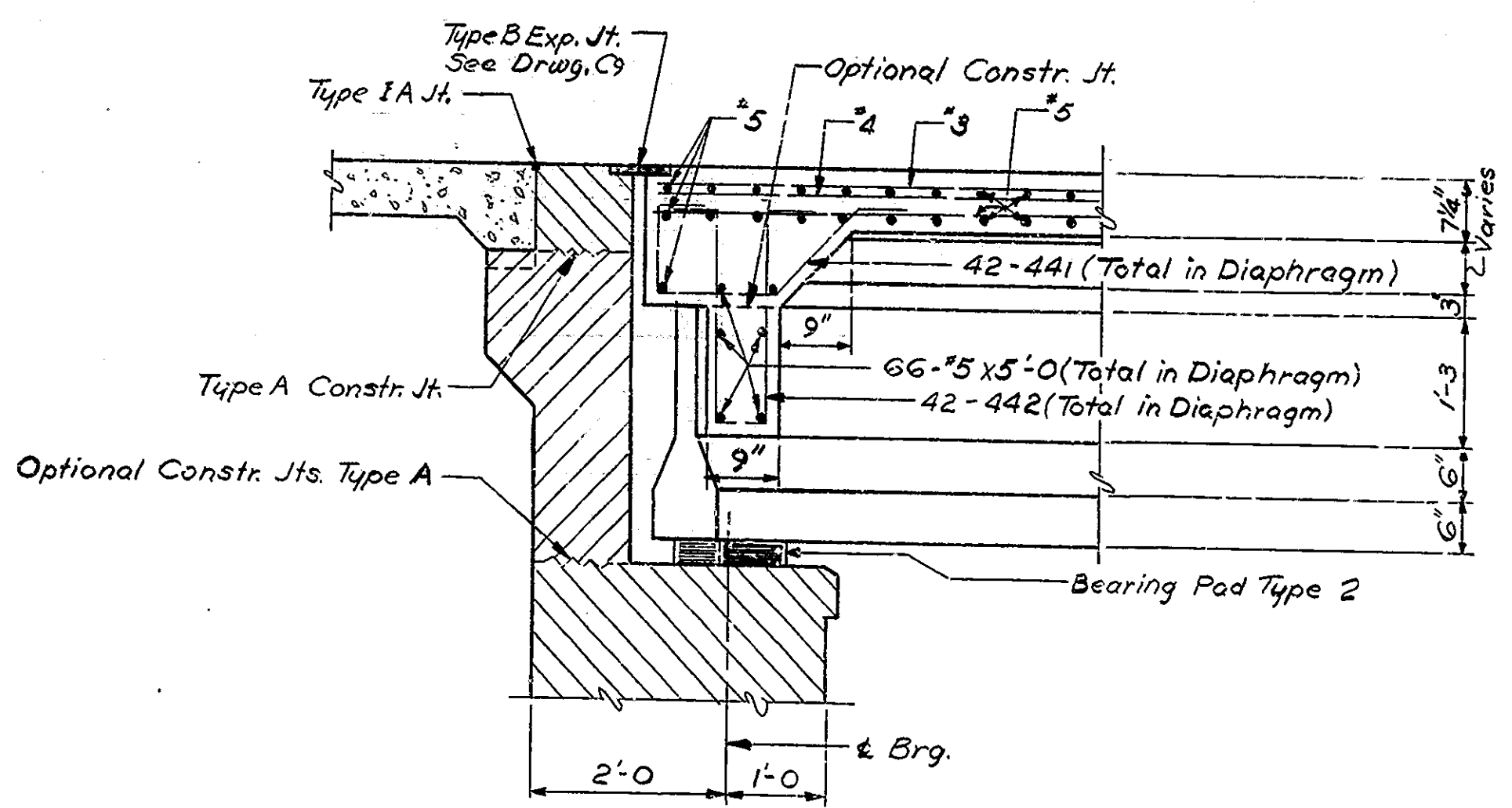
BRIDGE OVER 20' SPAN				
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	TOTAL SHEETS
4	IND.		1971	33



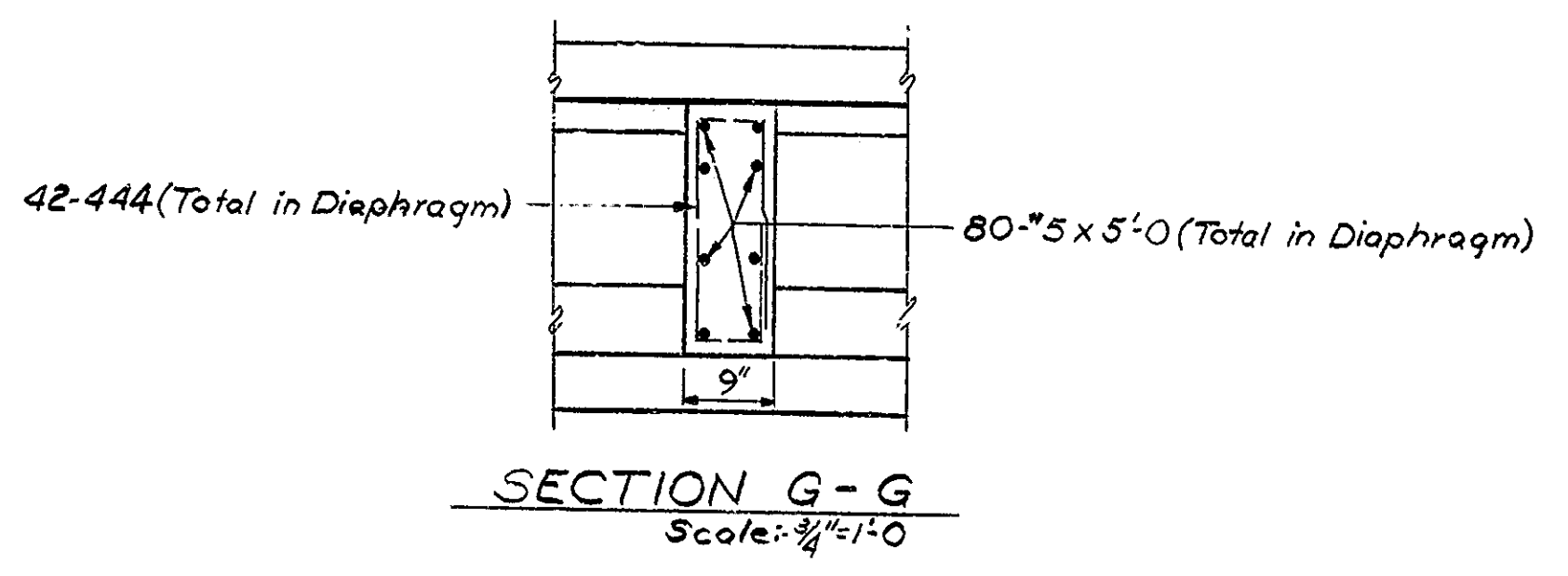
ELEVATION  
Scale: 3/8" = 1'-0"

BILL OF MATERIALS

REINFORCING STEEL			
SIZE & MARK	N° OF BARS	LENGTH	WEIGHT (LBS.)
#5	110	29'-0"	
#5	500	26'-6"	
#5	212	5'-0"	
	Total	#5	18,253
441	84	4'-3"	
442	84	5'-8"	
443	142	4'-0"	
444	42	5'-9"	
#4	76	29'-9"	
	Total	#4	2,570
#3	88	36'-3"	1861
	Total Steel		22,684
CONCRETE			
Class A			
Pour N° 1 (1 @ 55.3) 35.3 Cys			
Pour N° 2 (2 @ 17.8) 35.6 Cys			
Inf. Diaph. (7 @ 3) 2.1 Cys			
Total Class "A" 73.0 Cys			
MISCELLANEOUS			
Railing Type 5 or C 118.3 Lin. Ft.			
Type B Exp. Joint 101.7 Lin. Ft.			

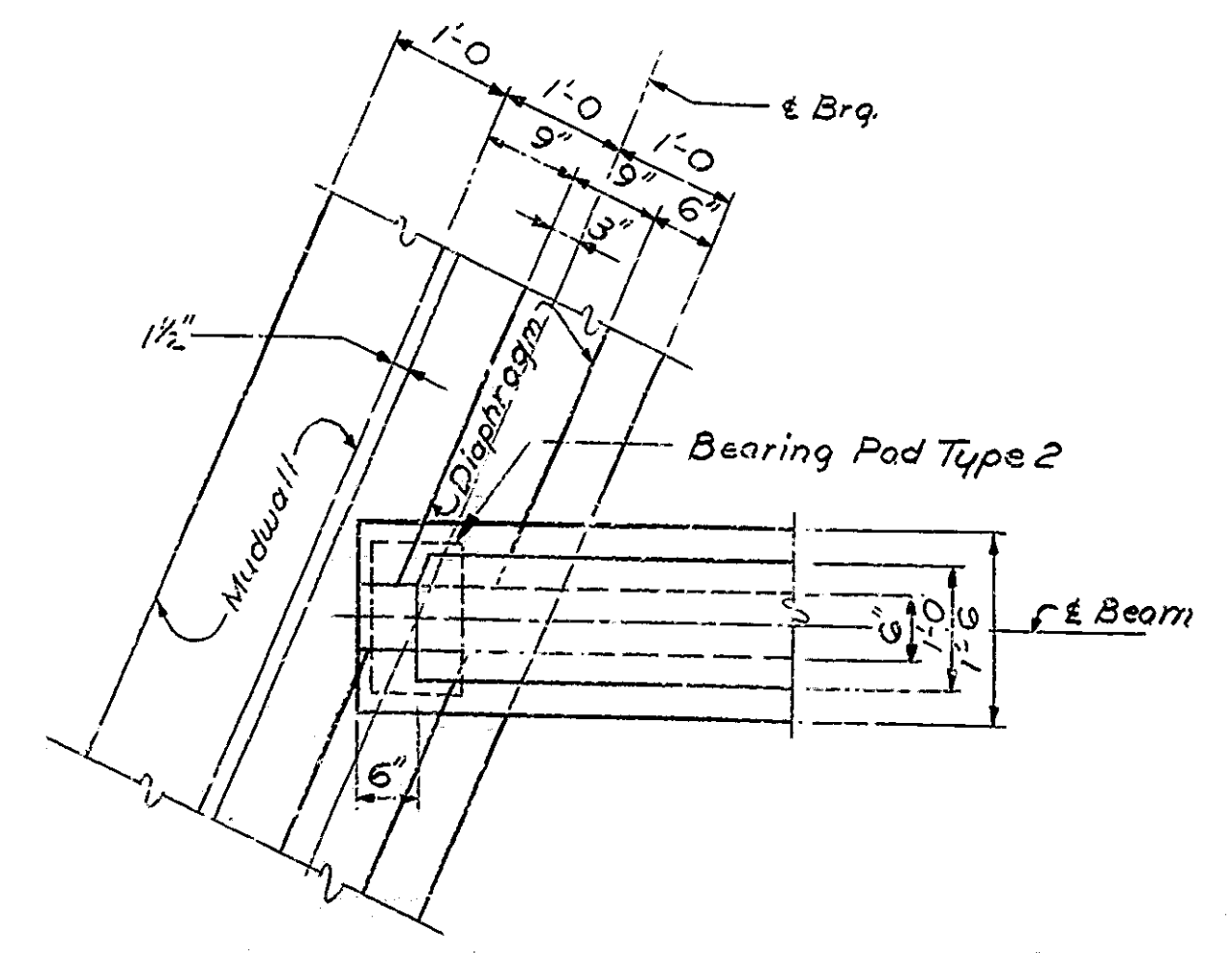
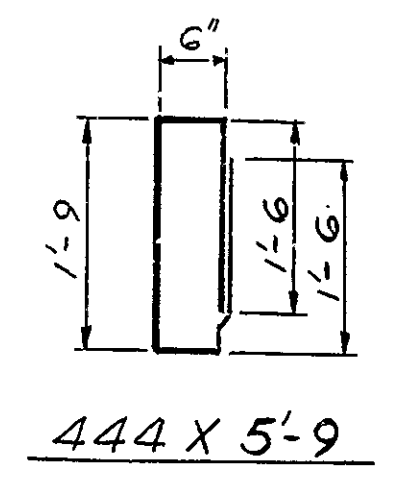
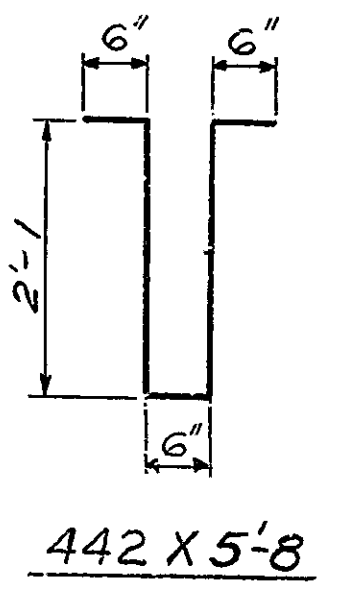
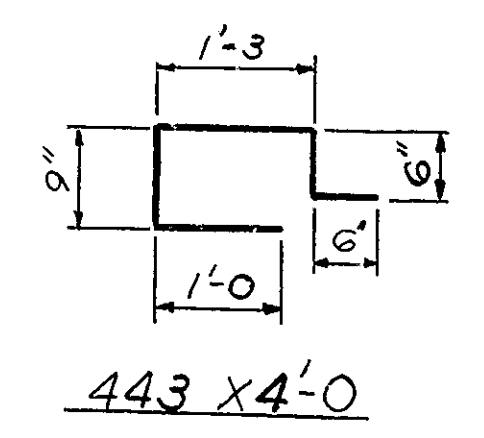
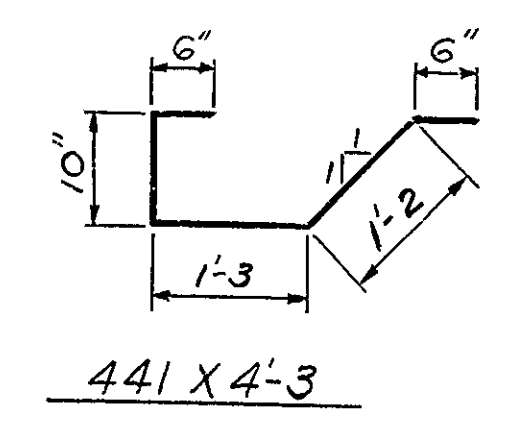


SECTION H-H  
Scale: 3/4" = 1'-0"



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

NOTE: Total Length of Type II Prestressed Beams = 446 Lin. Ft.  
16 Bearing Pads Type 2 Req'd.



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

DESIGNED	VO	CK'D	SVP
DRAWN	BHM	3-15-76	VO
TRACED		CK'D	

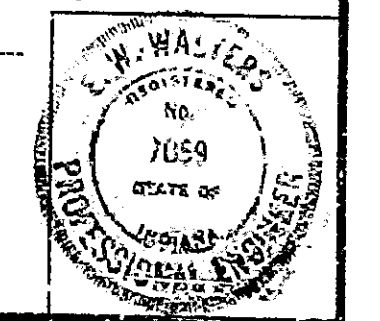
NOTE: See Bridge Standard C1 for Reinforcing Bar Notes.

SUPERSTRUCTURE DETAILS  
INDIANA STATE HIGHWAY COMMISSION

SCALE: AS NOTED DATE: JUNE 4, 1971

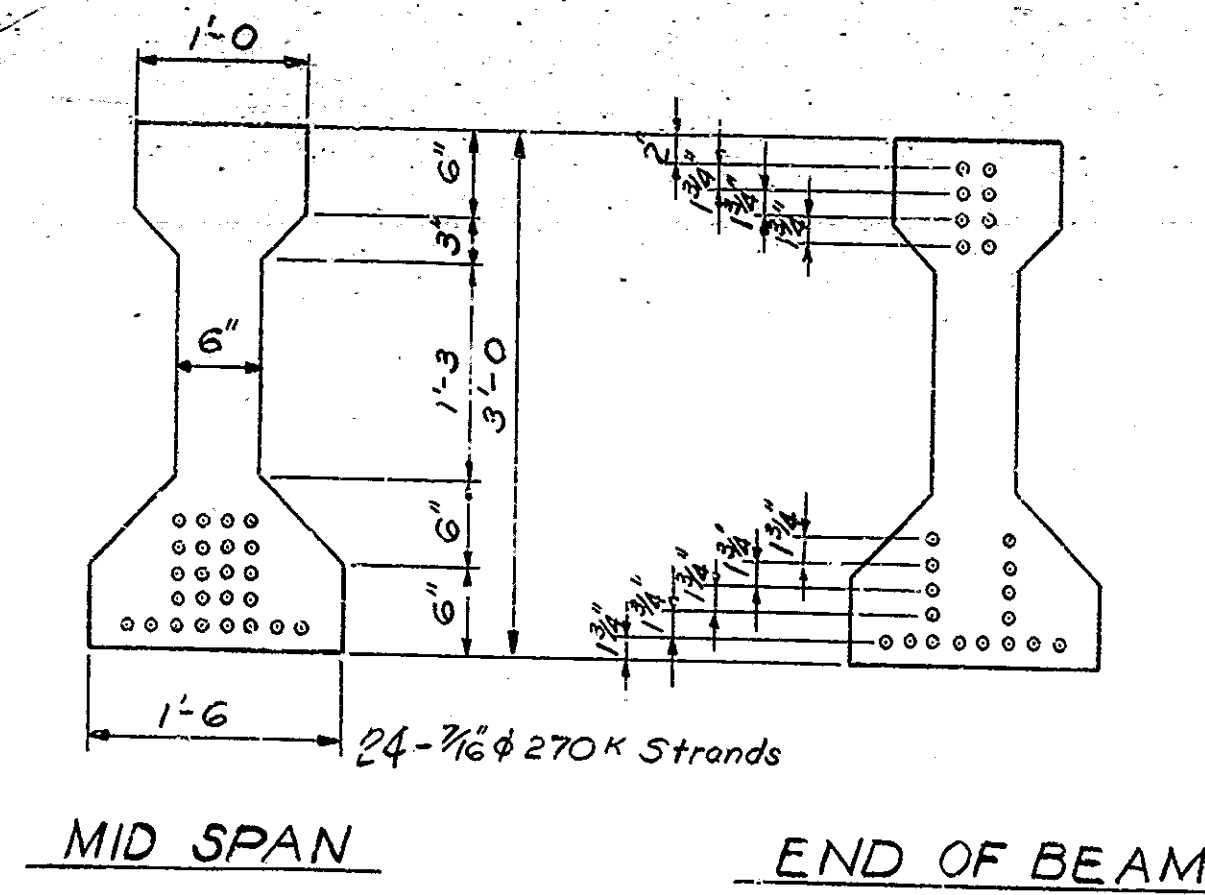
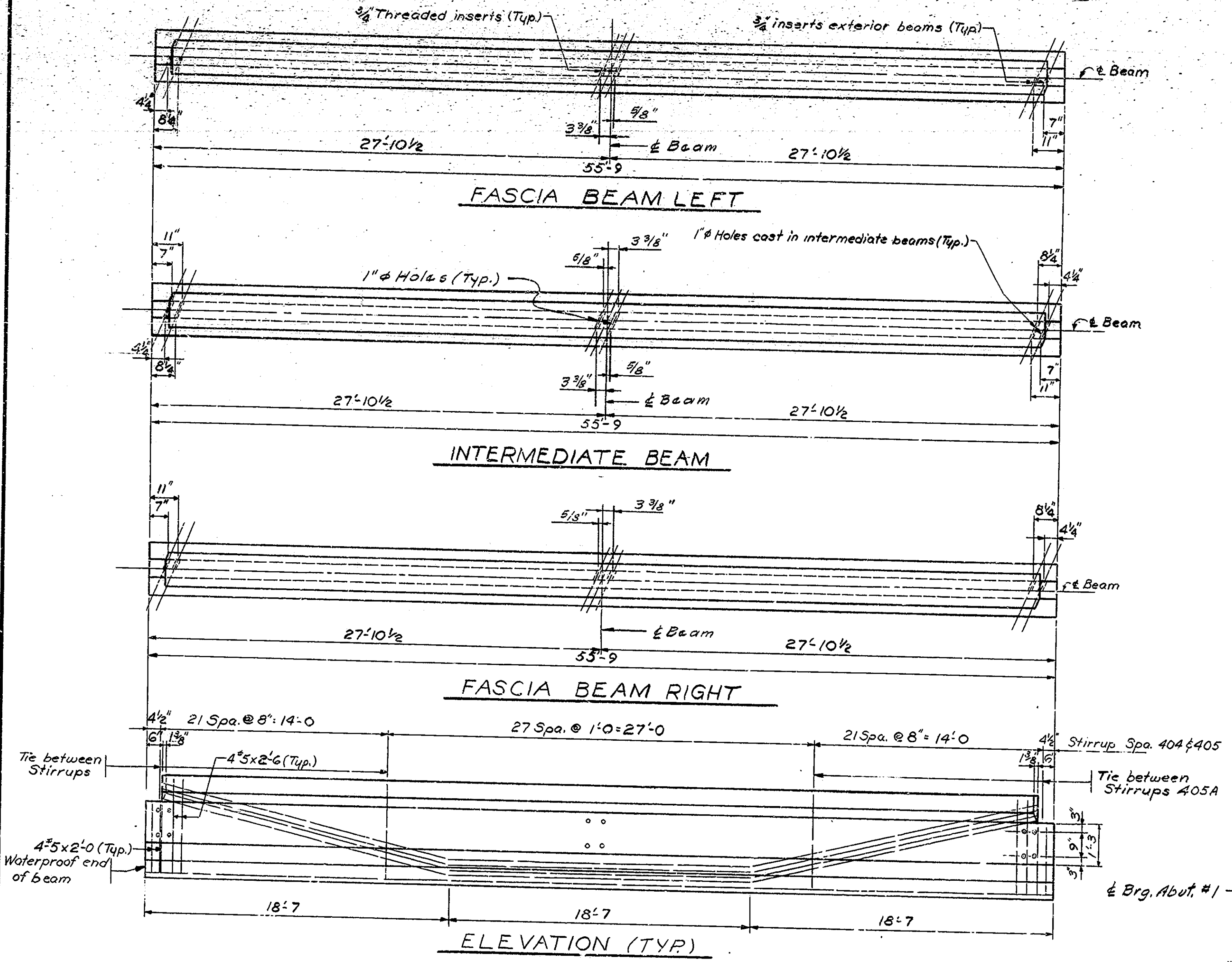
RECOMMENDED FOR APPROVAL: *E. W. Walter*

DRAWING: C7 OF 9  
PROJECT:  
CONTRACT NO. B-3754  
BRIDGE FILE: 49-G4-1016A





BRIDGES OVER 20' SPAN					
PUB. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.		1971	10	33



**Notes:-** See Bridge Standard PB2 for additional details.

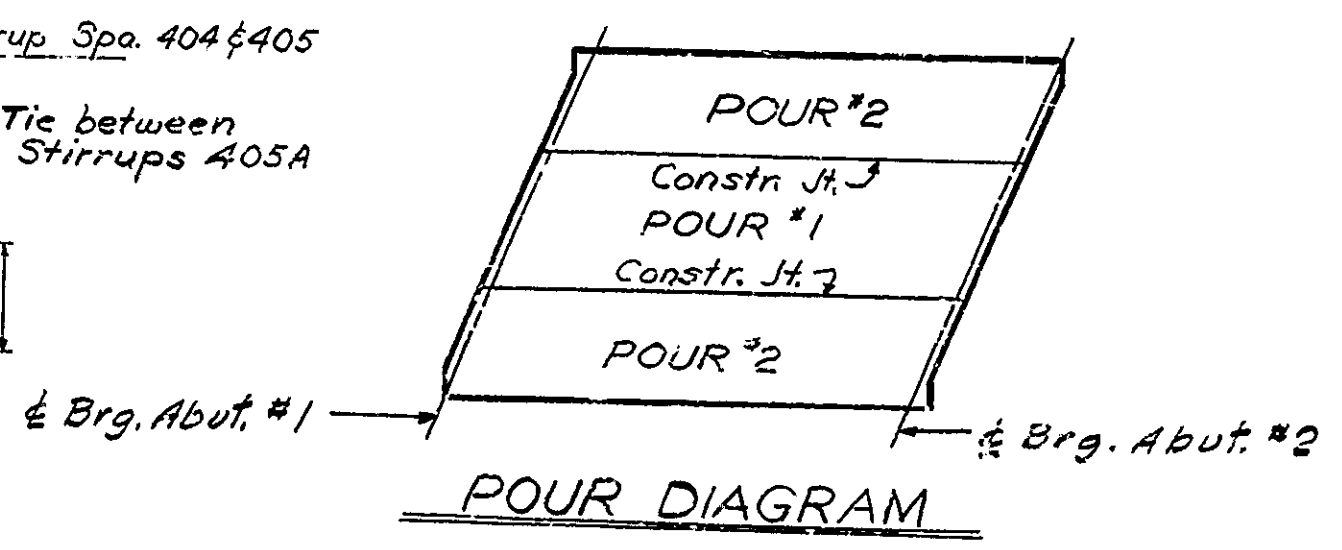
The 3/4" inserts to be set in beam parallel to skew.

The cost of neoprene bearing pads, 3/4" x 2" threaded dowels & inserts to be included in lump sum bid for Structural Members.

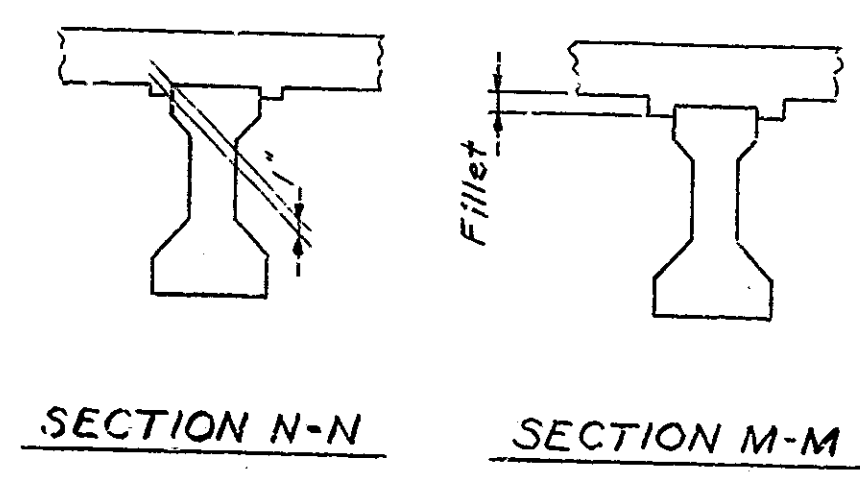
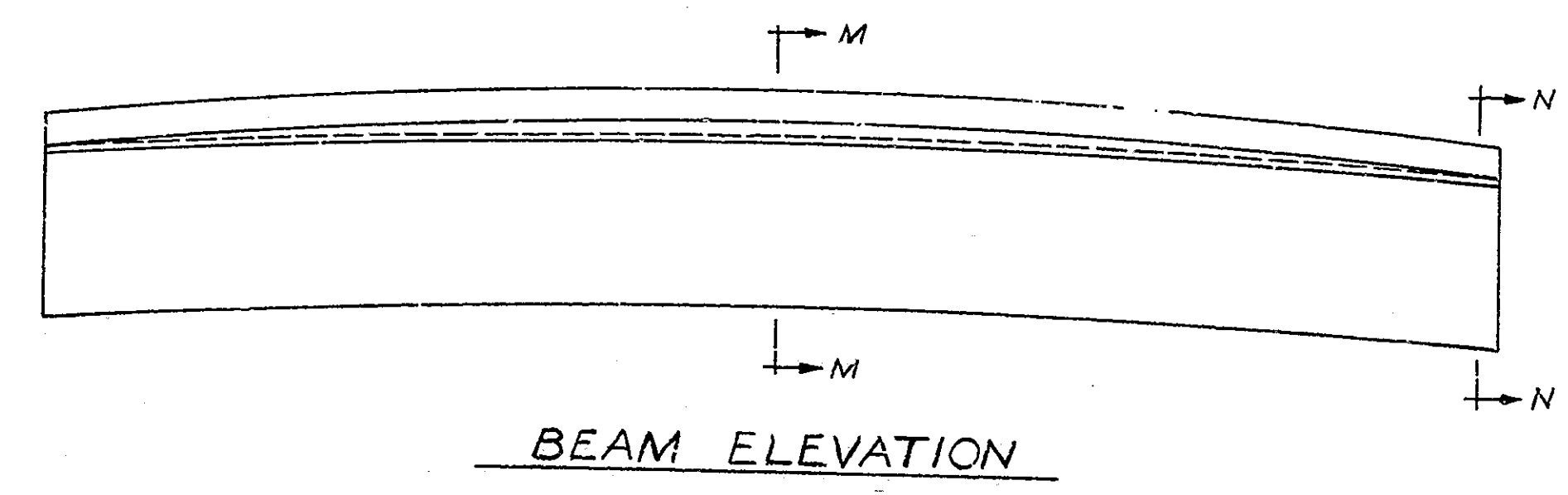
See Br. Std. PB11 for Brg. Pad Details.

**Notes:-** 7/16" Strands to be pulled to 21,800 lbs. each.

The concrete strength must be 4600 psi or more before prestressing force is applied.



**NOTE:-** "The longitudinal construction joints may be eliminated subject to the approval of the Engineer."



**NOTES**

Bridge Seat Elevations were set using design camber and deadload deflection of slab, so that top of beam will be at bottom of slab elevation of end of slab.

Fillet depth to vary along length of beam to compensate for camber and any vertical curve which may be in the profile grade.

Actual cambers which are greater than design cambers will be taken care of by permitting top of beam to extend into slab (Limit of 1 inch).

Actual cambers which are less than design cambers will require slightly higher fillets.

**SUPERSTRUCTURE DETAILS**  
**INDIANA STATE HIGHWAY COMMISSION**

SCALE:- NONE      DATE:- JUNE 4, 1971

RECOMMENDED FOR APPROVAL: *E. W. Walters*  
ASSISTANT CHIEF OF BRIDGE DIVISION

DRAWING:- C 8 OF 9  
PROJECT:-  
CONTRACT NO. B-8754  
BRIDGE FILE:- 49-64-1016A

DESIGNED: V.O. CKD S.V.P.  
DRAWN: R.M.H. 3-15-71 CKD V.O.  
TRACED: CKD

Note:- See Br. Std. C1 for Reinforcing Bar Notes.





