CONTRACT No. B-10560

INDEX

PROJECT	STRUCTURE	TYPE	SPAN	OVER	STATION
I-RFI-74-1(82)31	I-74-31-2334A	TWIN CONTINUOUS STEEL BEAM	60'-72'-60'	L. & N. RAILROAD	
	I-74-32-4946A		70'-3@84'-70'	SUGAR CREEK	
	I-74-34-2335A		49'-3@61'3-49'	P.C.R.R. & S.R. 47	

SHEET NO.	SHEET DESIGNATION	SUBJECT	F.H.W.A. APPROVAL
1		INDEX AND TITLE SHEET	
2	D1	GENERAL PLAN I-74-31-2334A	
3	D2	GENERAL PLAN I-74-32-4946A	
4	D3	GENERAL PLAN I-74-34-2335A	
5	D4	FLOOR SLAB DETAILS I-74-32-4946A & I-74-34-2335A	
6	D5	FLOOR SLAB DETAILS I-74-32-4946A & I-74-34-2335A	
7	D6	DETAILS	
8	D7	DETAILS	
9	D8	GUARD RAIL DETAILS I-74-32-4946A	
10	D9	GUARD RAIL DETAILS I-74-34-2335A	
11	D10	GUARD RAIL BRACKET DETAILS I-74-32-4946A & I-74-34-2335A	
~~12~~	~~D11~~	~~CLASS III EXPANSION JOINTS~~	
~~13~~	~~D12~~	~~CLASS III EXPANSION JOINTS~~	
14		SUMMARY	
12A	D11A	Expansion Joints Class S-S	

STATE OF INDIANA

INDIANA STATE HIGHWAY COMMISSION

BRIDGE PLANS

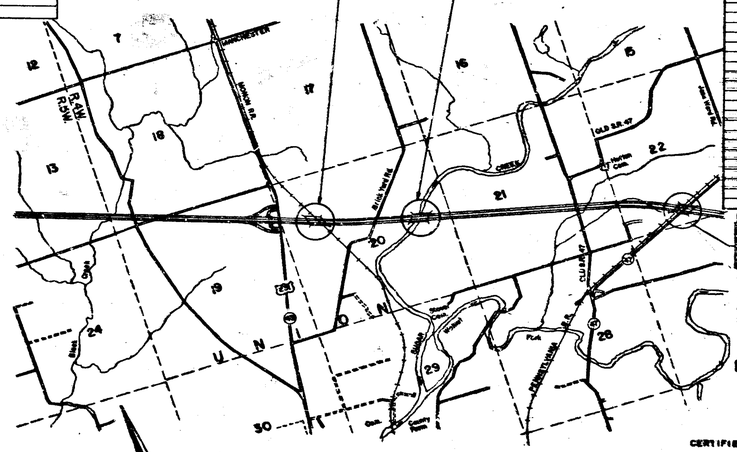
FOR SPANS OVER 20 FEET ON I-74 MONTGOMERY COUNTY PROJECT I-RFI-74-1(82)31 DECK RECONSTRUCTION AND OVERLAY

DECK RECONSTRUCTION AND OVERLAY ON INTERSTATE ROUTE 74 OVER L.&N. RAILROAD AND OVER SUGAR CREEK. BOTH IN SECTION 20, T.19N, R.4W. ALSO OVER PENN CENTRAL RAILROAD AND S.R. ROAD 47 IN SECTION 22, T.19N, R.4W. ALL IN UNION TOWNSHIP, MONTGOMERY COUNTY, STATE OF INDIANA.

BRIDGES OVER 20' SPAN					
PERSONAL BRIDGE No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	IND.	I-RFI-74-1(82)31	1977	1	30

INDEX CONTINUED
STANDARD DRAWINGS

SHEET NO.	SHEET DESIGNATION	SUBJECT	F.H.W.A. APPROVAL	ADOPTED "A" REVISION "R"
15	BRIDGE STD BR1	ALUMINUM BRIDGE RAILING	10/17/73	R-9/1/75
16	BRIDGE STD BR2	ALUMINUM BRIDGE RAILING DETAILS	10/17/73	R-9/1/75
	BRIDGE STD BR3	STEEL BRIDGE RAILING		
	BRIDGE STD BR4	STEEL BRIDGE RAILING DETAILS		
17	BRIDGE STD S1	MISCELLANEOUS DETAILS		R-6/1/72
	BRIDGE STD S2	MISCELLANEOUS DETAILS		
18	BRIDGE STD C3	MISCELLANEOUS DETAILS		R-12/1/74
	BRIDGE STD D	CASING DETAILS ROADWAY DRAINS		
19	BRIDGE STD D1	ADJUSTING FRAME DETAILS FOR ROADWAY DRAINS		A-Feb. 3, 1976
	BRIDGE STD PB	PRESTRESSED CONCRETE TYPE I-BEAMS		
	BRIDGE STD PB	PRESTRESSED CONCRETE TYPE I-BEAMS		
	BRIDGE STD PBS	PRESTRESSED BOX BEAMS		
	BRIDGE STD PB	PRESTRESSED COMPOSITE BOX BEAMS WIDE		
	BRIDGE STD PB	PRESTRESSED COMPOSITE BOX BEAMS WIDE		
	BRIDGE STD PB10	TOLERANCES FOR FABRICATION OF PRESTRESSED BEAMS		
	BRIDGE STD PB11	ELASTOMERIC BEARING PAD DETAILS		
	BRIDGE STD.			
	BRIDGE STD.			
	BRIDGE STD R2A	BRIDGE LIGHTING DETAILS		
	BRIDGE STD. S1	MISCELLANEOUS DETAILS		
	BRIDGE STD SH1	STEEL SHOE DETAILS		
	BRIDGE STD TSHEET A	STANDARD TEMPORARY BRIDGE		
	BRIDGE STD TSHEET B	STANDARD TEMPORARY BRIDGE		
	BRIDGE STD.			
	BRIDGE STD.			
	BRIDGE STD.			
	ROAD STD. SHEET A CRC	STANDARD CONT REINF CONC PAVEMENT		
	ROAD STD. SHEET B CRC	STANDARD CONT REINF CONC PAVEMENT		
	ROAD STD. SHEET C CRC	STANDARD CONT REINF CONC PAVEMENT		
20	ROAD STD. SHEET A	STANDARD PAVEMENT JOINTS	11/19/75	A-July 1975
21	ROAD STD. SHEET MA	MISCELLANEOUS STANDARDS	9/29/71	R-1/4/71
	ROAD STD. SHEET MA	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MB	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MB2	MISCELLANEOUS STANDARDS		
	ROAD STD SHEET	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MC	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MC1	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MD	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MD	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MD	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET ME	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET ME	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MH	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MH	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MI	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MN	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MP	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MQ	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET MR	MISCELLANEOUS STANDARDS		
	ROAD STD. SHEET			
	ROAD STD.	STANDARD REINF. CONC. BOX CULVERTS		
	ROAD STD.	STANDARD REINF. CONC. CULVERTS		
	ROAD STD.			
	ROAD STD. SHEET GR	GUARD RAIL GLASS		
22	ROAD STD. SHEET GR4	GUARD RAIL GLASS GA OR GST	7/30/76	A-Feb. 1977
23	ROAD STD. SHEET GR5	ALUMINUM GUARD RAIL DETAILS	8/2/72	R-10/1/71
	ROAD STD. SHEET GR6	STEEL TUBE GUARD RAIL DETAILS		
	ROAD STD. SHEET GR			
24	ROAD STD. SHEET GR10	GUARD RAIL BURIED ENDS	7/12/74	R-1/8/74
	ROAD STD.			
25	ROAD STD. SHEET 1 DETOURS	STANDARD DETOUR SIGNS	3/22/76	R-3/1/76
26	ROAD STD. SHEET 1A DETOURS	STANDARD DETOUR SIGNS		R-3/1/76
27	ROAD STD. SHEET 2A DETOURS	STANDARD DETOUR SIGNS	6-21-76	R-3/1/76
28	ROAD STD. SHEET 3 DETOURS	STANDARD DETOUR SIGNS	7/5/73	R-4/8/73
29	ROAD STD. SHEET 4 DETOURS	STANDARD DETOUR SIGNS	11/12/74	R-10/1/74
30	ROAD STD. SHEET 5A DETOURS	STANDARD DETOUR SIGNS	9/12/74	R-10/1/74
	ROAD STD. SHEET 1	CONSTRUCTION IDENTIFICATION SIGNS		
	ROAD STD.			



TRAFFIC DATA	2334A	4946A	2335A	
A.D.T. (1975)	8,110	8,110	8,600	V.P.D.
A.D.T. (1995 PROJECTED)	13,700	15,790	16,530	V.P.D.
D.H.V. (19 PROJECTED)				V.P.D.
TRUCKS			D.H.V. %A.D.T.	%
DESIGN SPEED				M.P.H.
ACCESS CONTROL				

PLANS PREPARED BY:

MONICAL ASSOCIATES INC.
CONSULTING ENGINEERS
INDIANAPOLIS, INDIANA

CERTIFIED: Ralph C. Mullinnix

DATE: 11-18-75

RALPH C. MULLINNIX REGISTERED No. 7942 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL 4-29-76

E. W. Walters
ENGINEER OF BRIDGE DESIGN, INDIANA STATE HIGHWAY COMMISSION

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

APPROVED 4-30-76

G.K. Hallock
CHIEF ENGINEER ENGINEER OF STATE HIGHWAY COMMISSION

FEDERAL HIGHWAY ADMINISTRATION
DEPARTMENT OF TRANSPORTATION

APPROVED:

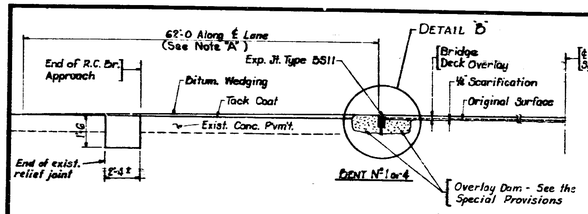
DIVISION ENGINEER DATE

BRIDGE FILE: I-74-31-2334A, I-74-32-4946A & I-74-34-2335A

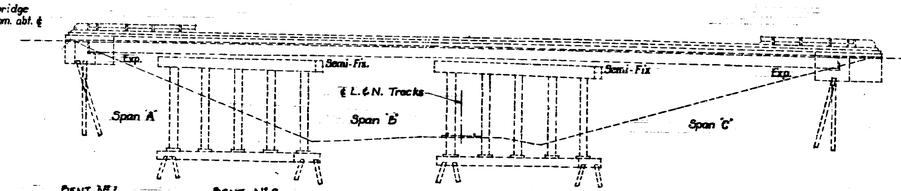
REVISIONS	
DATE	SHEET NO.
4-22-76	Sheet 14

INDIANA STATE HIGHWAY COMMISSION
STANDARD SPECIFICATIONS DATED 1974
TO BE USED WITH THESE PLANS.

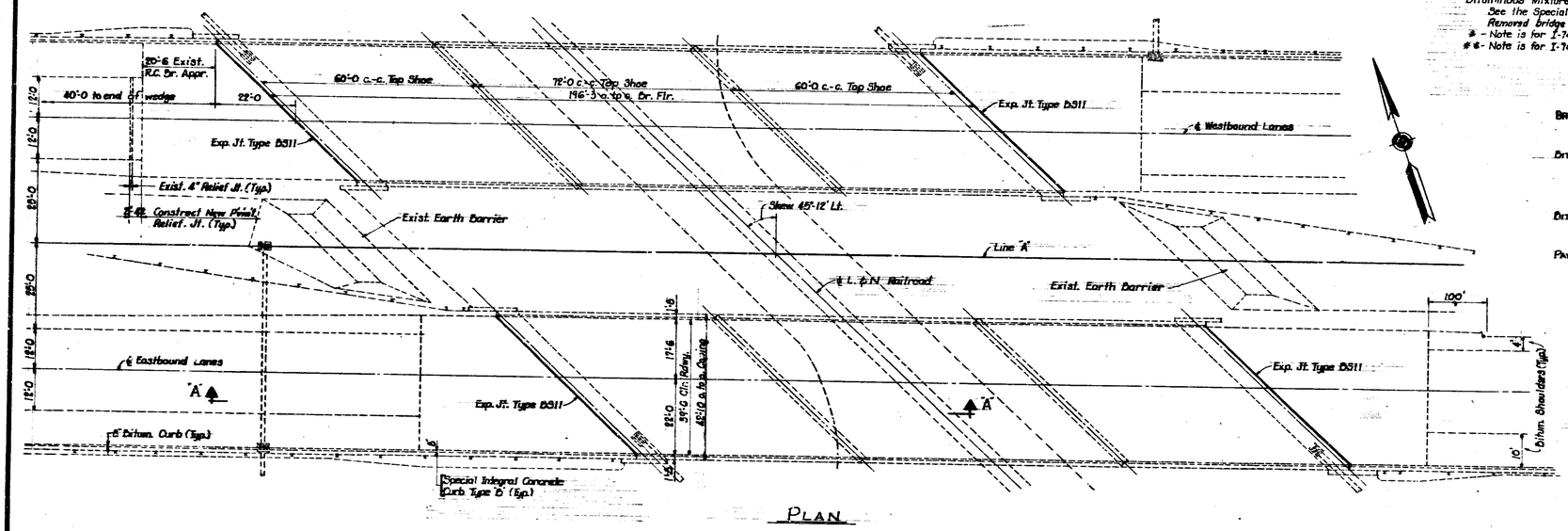
STRUCTURE BUILT TO A 1315 FT. VERTICAL CURVE



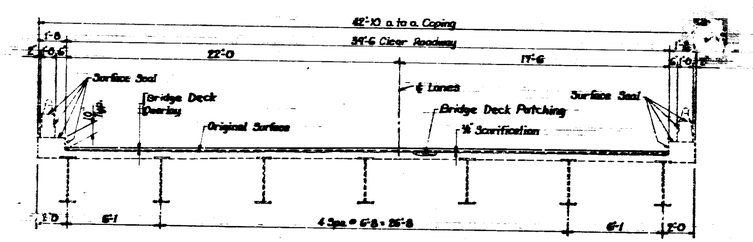
LONGITUDINAL SECTION "A-A"
Not to Scale



ELEVATION



PLAN



TYPICAL SECTION
Scale: ½"=1'-0

Note "A": The length and quantity of bituminous wedging shown on the plans is based on the thickness of the Mod. P.C.C. Overlay. If the contractor elects to place the Dense P.C.C. Overlay, the length of wedge shall be increased to 82 feet and the pay quantity of "Bituminous Mixture for Approaches" placed will be reduced by a factor of 55 pounds times the surface area in square yards of wedges laid.

GENERAL NOTES

Plans for these structures are on file in the Central Office as Bridge File Numbers: I-74-31-2334, I-74-32-4946 and I-74-36-2335.

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 and assume responsibility for their correctness and the fit of the new part to the old.

The hand chipping and cleaning of deteriorated deck areas shall be as directed by the Engineer. It is the intent of these plans that all such deteriorated concrete be removed and should there be any doubt as to the quality of the concrete, removal shall continue until PERFECTLY SOUND concrete is exposed.

* The boundaries of all deck removal areas shall be saw cut. All saw cuts for removals shall be made to a minimum depth of 1 inch below original surface or to the top of reinforcing if cover is less than 1 inch, unless noted.

* Concrete in patches for deteriorated concrete areas to original surface to be special Class "A" concrete bonded with epoxy bonding compound, unless noted. See the Special Provisions.

** Concrete in patches for deteriorated concrete areas to original surface to be Modified Portland Cement Concrete, or Special Class A Concrete. See the Special Provisions.

All bituminous material required in this contract to be included in the pay item "Bituminous Mixture for Approaches", unless noted.

See the Special Provisions for items included in this contract.

Removed bridge rail and guard rail to remain the property of I.S.H.C.

* - Note is for I-74-32-4946A only.

** - Note is for I-74-31-2334A and I-74-36-2335A only.

MATERIAL NOTES

BRIDGE DECK OVERLAY: 1¾" Modified Portland Cement Concrete OR 1¾" Dense Portland Cement Concrete (See the Special Provisions)

BITUMINOUS OVERLAY: 165 lbs./syd. Hot Asphaltic Concrete Surface Type "B" over 50 lbs./syd. Hot Asphaltic Concrete Surface Type "D"
OR
165 lbs./syd. Hot Asphaltic Emulsion Surface Type III over 50 lbs./syd. Hot Asphaltic Emulsion Surface Type IX

BITUMINOUS WEDGE: Hot Asphaltic Concrete Surface Type "B"
OR
Hot Asphaltic Emulsion Surface Type III

PAVEMENT RELIEF JOINT:
110 lbs./syd. Hot Asphaltic Concrete Surface Type "B" over 1870 lbs./syd. Hot Asphaltic Concrete Base
OR
110 lbs./syd. Hot Asphaltic Emulsion Surface Type III over 1870 lbs./syd. Hot Asphaltic Emulsion Base

STANDARD DRAWINGS

Bridge Std.	Road Std.	Description
C1		Reinf. bar notes
C3		Notch at end of beams
	A	Std. pavement joints
	MA	R.C. Br. Approach
	GR4	Guard Rail Class GA
	GR5	Guard Rail Details
	GH10	Guard Rail Buried Ends
	1, 1A, 2A, 3, 4, 5A	Std. detour signs
D1		Roadway Drain Adjusting Frame
BR 1		Aluminum Bridge Railing
BR 2		Aluminum Bridge Railing

Note:
See Drwg. D1 for Construction Procedure.

GENERAL PLAN - I-74-31-2334A
TWIN CONTINUOUS STEEL BEAM BRIDGE
DECK RECONSTRUCTION AND OVERLAY

3 SPANS 60'-0, 72'-0, 60'-0 — 34'-6 ROADWAY — 2 CURBS @ 6" — SKEW 45°-12' LT.

OVER L. & N. RAILROAD — ON INTERSTATE ROUTE 74

INDIANA STATE HIGHWAY COMMISSION
MONTGOMERY COUNTY

SCALE:- ½"=1'-0 Unless Noted — DATE:- Nov. 18, 1975

SUBMITTED FOR APPROVAL:- Ralph C. Mullinnix

DRAWING:- D1 OF 12 — SHEET:- 2 OF 30

PROJECT:- I-RFI-74-1(82)31

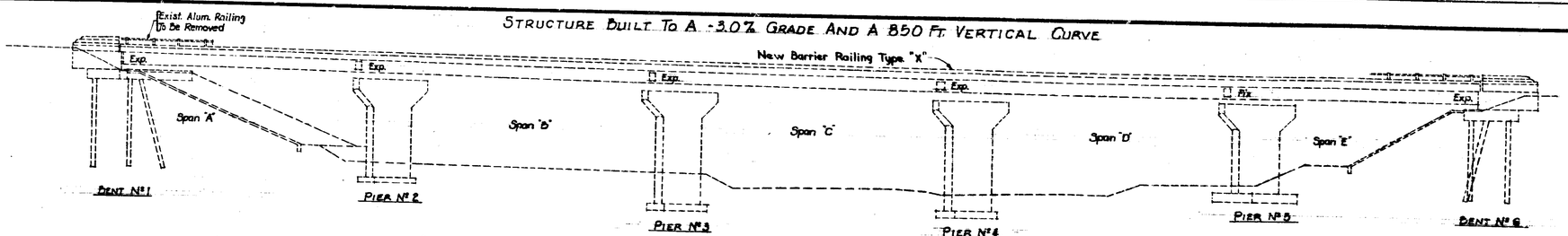
CONTRACT NO. B-10560

BRIDGE FILE:- I-74-31-2334A, I-74-32-4946A, I-74-36-2335A

RALPH C. MULLINNIX REGISTERED No. 7942 STATE OF INDIANA PROFESSIONAL ENGINEER

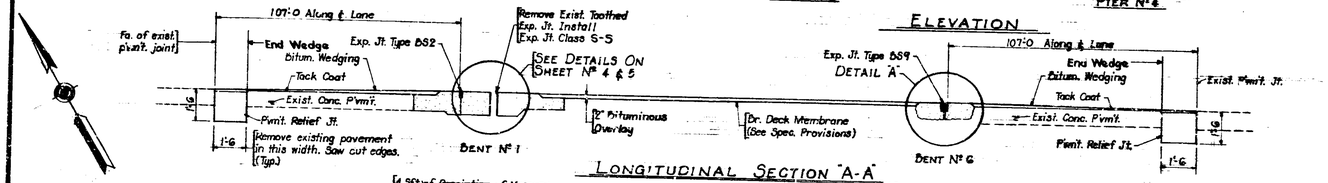
DESIGNED		CKD.	
DRAWN	L.R.H.	CKD.	R.C.M.
TRACED		CKD.	

STRUCTURE BUILT TO A -3.0% GRADE AND A 850 FT. VERTICAL CURVE

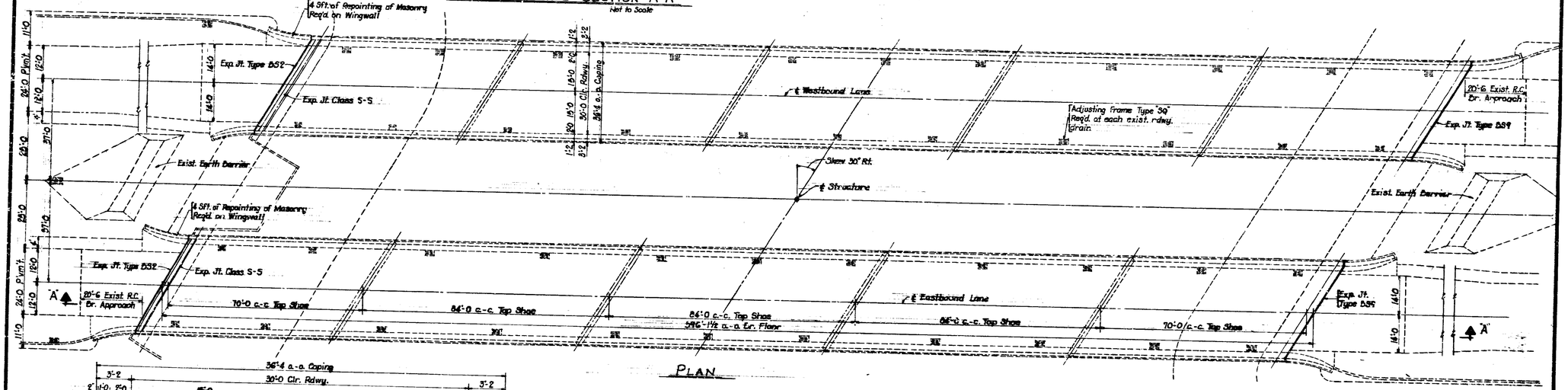


ELEVATION

Note: Remove and replace slopewall as directed by the Engineer. (Est. Quantity = 25 sq.yd.)

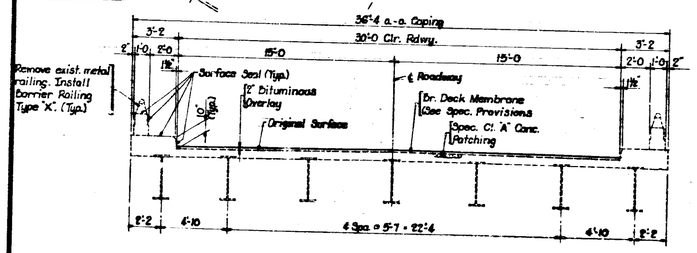


LONGITUDINAL SECTION "A-A"
Not to Scale



PLAN

Note: See Drwg. D1 for General and Material Notes.



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

GENERAL PLAN - I-74-32-494GA
TWIN CONTINUOUS STEEL BEAM BRIDGES
DECK RECONSTRUCTION AND OVERLAY
5 SPANS: 70'-0, 5 @ 84'-0, 70'-0 — 30'-0 ROADWAY — 2 WALKS @ 2'-0
SKEW 30°-00' RT.
OVER SUGAR CREEK — ON INTERSTATE ROUTE 74

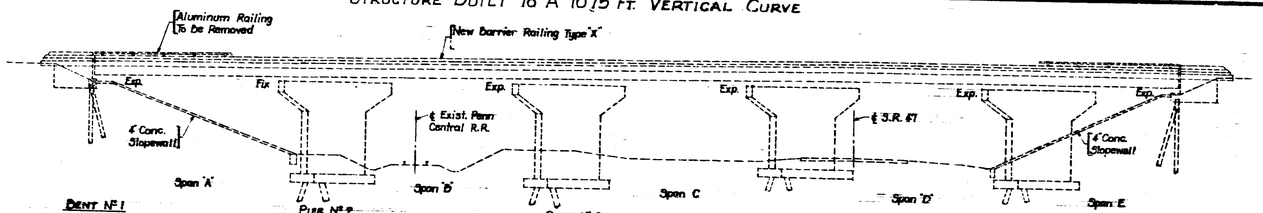
INDIANA STATE HIGHWAY COMMISSION
MONTGOMERY COUNTY

SCALE:- 1/4"=1'-0 Unless Noted — DATE:- Nov. 16, 1978
SUBMITTED FOR APPROVAL:- Ralph C. Mullinnix
DRAWING:- D2 OF 12 — SHEET:- 3 OF 30
PROJECT:- I-RF1-74-1(82) 31
CONTRACT NO. B-10560
BRIDGE FILE:- I-74-31-2556A, I-74-32-494GA, I-74-34-2556A

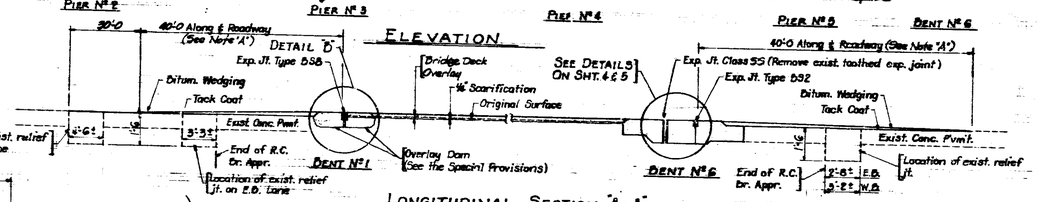
RALPH C. MULLINNIX — REGISTERED No. 7942 STATE OF INDIANA — PROFESSIONAL ENGINEER

DESIGNED		CK'D	
DRAWN	L.K.H.	CK'D	R.C.M.
TRACED		CK'D	

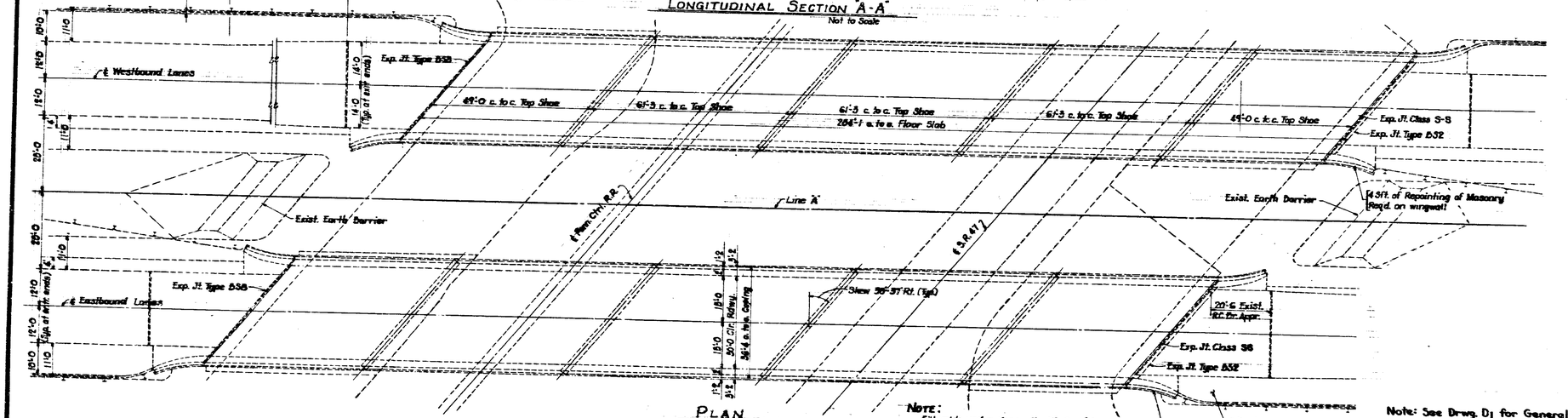
STRUCTURE BUILT TO A 1075 FT. VERTICAL CURVE



ELEVATION



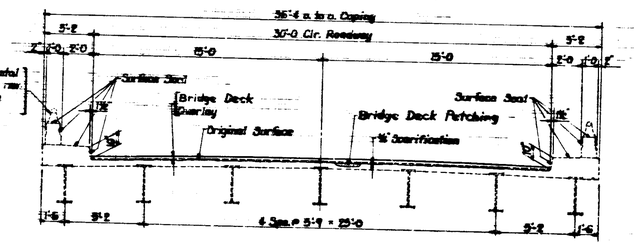
LONGITUDINAL SECTION "A-A"
Not to Scale



PLAN

NOTE:
Fill voids under slopewall with Special Conc. Typ. all quadrants.

Note: See Drwg. D1 for General and Material Notes



TYPICAL SECTION
Scale: ⅛" = 1'-0

Note "A": The length and quantity of bituminous wedging shown on the plans is based on the thickness of the Mod. P.C.C. Overlay. If the contractor elects to place the Dense P.C.C. Overlay, the length of wedge shall be increased to 60 feet and the pay quantity of "Bituminous Mixture for Approaches" placed will be reduced by a factor of 55 pounds times the surface area in square yards of wedges laid.

GENERAL PLAN - I-74-34
CONTINUOUS STEEL BEAM BRIDGE
DECK RECONSTRUCTION AND OVERLAY

5 SPANS: 49'-0, 3 @ 61'-3, 49'-0 — 30'-0 ROADWAY — 2 WALKS @ 2'-0
SKEW 35°-37' RIGHT

OVER PENN CENTRAL R.R. AND STATE ROUTE 67 ON INTERSTATE 74

INDIANA STATE HIGHWAY COMMISSION
MONTGOMERY

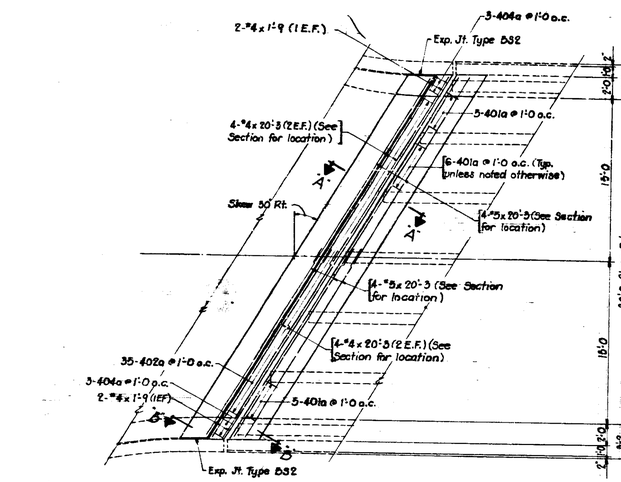
SCALE:- ⅛" = 1'-0 Unless Noted — DATE:- Nov. 18, 1975

SUBMITTED FOR APPROVAL:- Ralph C. Mullinnix

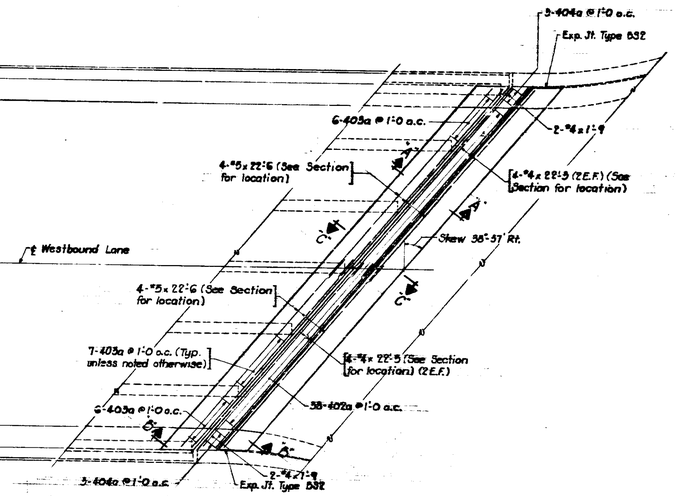
DRAWING:- D5 OF 12 — SHEET:- 4 OF 30
PROJECT:- I-RFI-74-1(82) 31
CONTRACT NO. B-10560
BRIDGE FILE:- I-74-31-2334A, I-74-32-4956A, I-74-30-2336A

DESIGNED ____ CK'D ____
DRAWN L.K.H. CK'D R.C.M.
TRACED ____ CK'D ____

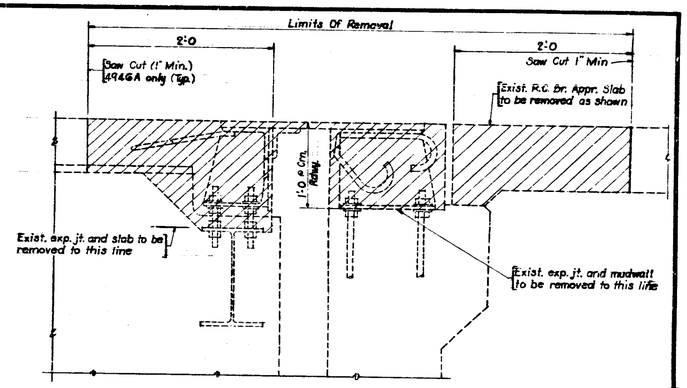
RALPH C. MULLINNIX REGISTERED No. 7942 STATE OF INDIANA PROFESSIONAL ENGINEER



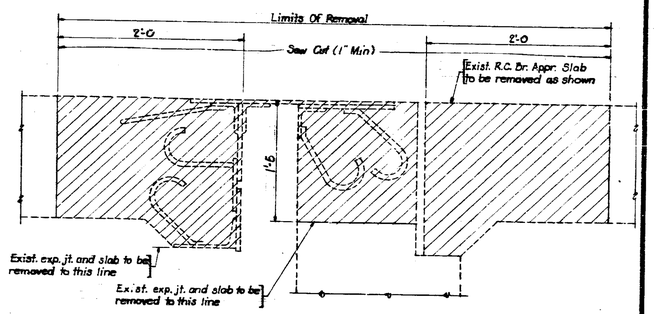
PLAN OF SLAB AT BENT Nº 1 (4946A)
(WESTBOUND LANE SHOWN - EASTBOUND SAME)
Scale: 3/16" = 1'-0



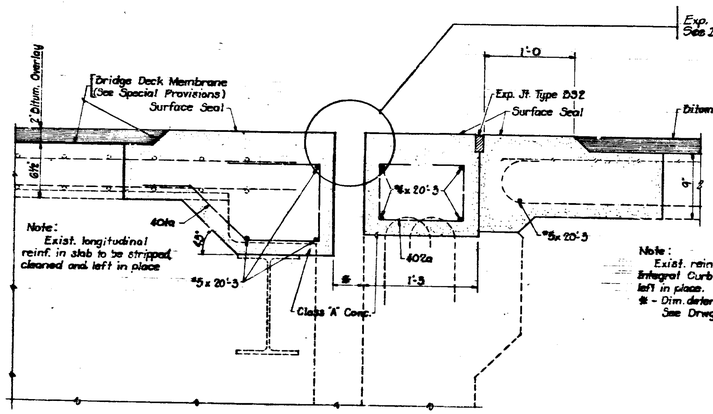
PLAN OF SLAB AT BENT Nº 6 (2335A)
(WESTBOUND LANE SHOWN - EASTBOUND SAME)
Scale: 3/16" = 1'-0



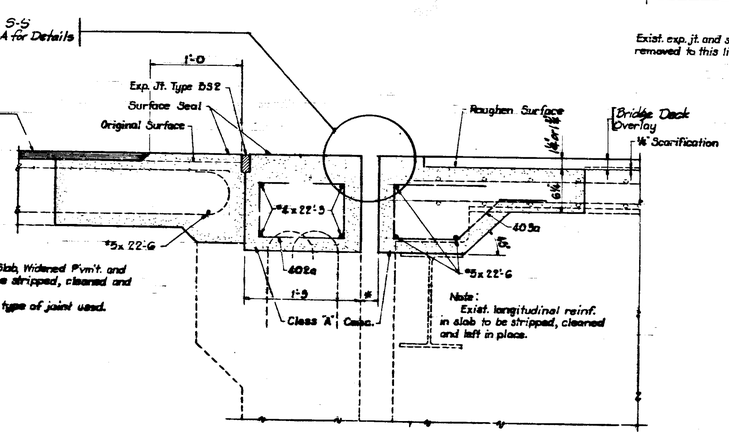
SECTION "A-A"
(SHOWING LIMITS OF REMOVAL)



SECTION "B-B"
(SHOWING LIMITS OF REMOVAL)



SECTION "A-A" (4946A)
(SHOWING NEW CONSTRUCTION)



SECTION "C-C" (2335A)
(SHOWING NEW CONSTRUCTION)

Note:
See Br. Std. C1 for Reinforcing Bar Notes.
See Drwg. D5 for additional details and Bill of Materials.

FLOOR SLAB DETAILS
I-74-32-4946A & I-74-34-2335A
INDIANA STATE HIGHWAY COMMISSION

SCALE:- Not to Scale, Unless Noted DATE:- Nov. 18, 1975

SUBMITTED FOR APPROVAL:- Ralph C. Mullinnix

DRAWING:- D4 OF 12 SHEET:- 5 OF 30

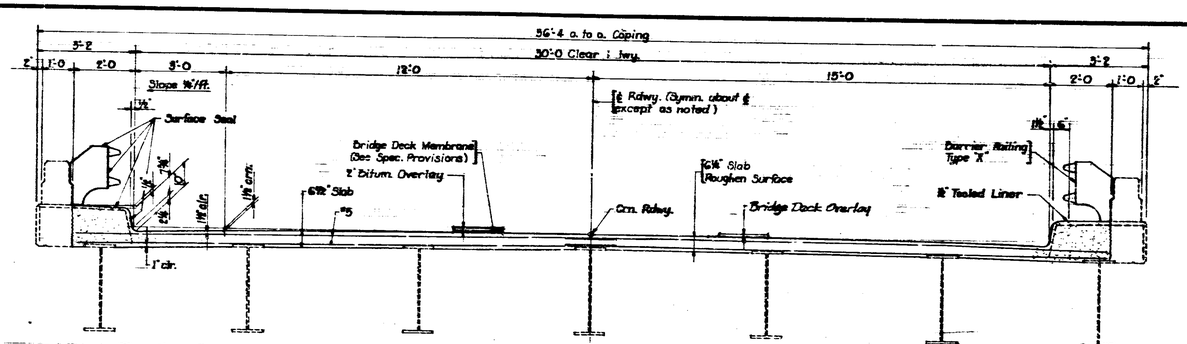
PROJECT:- I-RFI-74-1(82)51

CONTRACT NO. 8-10560

BRIDGE FILE:- I-74-51-2334A, I-74-32-4946A, I-74-34-2335A

RALPH C. MULLINNIX REGISTERED No. 7942 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGNED ____ CKD. ____
DRAWN L.K.H. CKD. R.C.M.
TRACED ____ CKD. ____

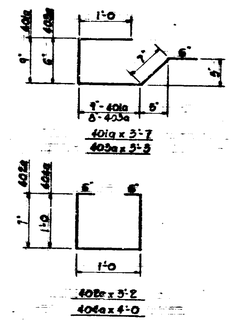


THIS HALF SHOWING SECTION FOR I-74-32-4946A

THIS HALF SHOWING SECTION FOR I-74-34-2335A

TYPICAL SECTION SHOWING AREA OF SLAB REPLACEMENT

Scale: ½"=1'-0



BILL OF MATERIALS

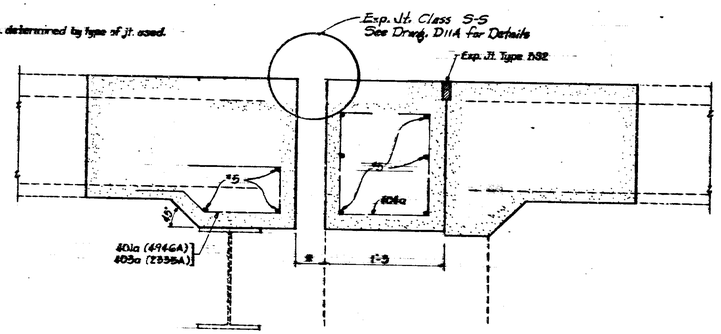
FLOOR SLAB - 4946A

REINFORCING STEEL			
Size or Mark	Nº of Bars	Length	Weight (Lbs.)
#5	14	20'-5	296
401a	68	5'-7	
402a	70	5'-2	
404a	12	4'-0	
#4	16	20'-5	
#4	8	1'-9	
	Total	Nº 4	569
	Total	Reinf.	865
CONCRETE			
Class "X" In Superstr.			10.8 Cys.
Integral Curb Walk			0.6 Cys.
MISCELLANEOUS			
Exp. Jt. Class S-S			82 Lft.
Exp. Jt. Type B32			88 Lft.

FLOOR SLAB - 2335A

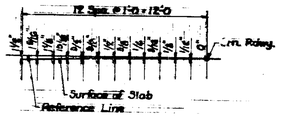
REINFORCING STEEL			
Size or Mark	Nº of Bars	Length	Weight (Lbs.)
#5	14	22'-6	329
401a	76	5'-2	
402a	80	5'-3	
404a	12	4'-0	
#4	16	22'-3	
#4	8	1'-9	
	Total	Nº 4	614
	Total	Reinf.	945
CONCRETE			
Class "X" In Superstr.			11.6 Cys.
Integral Curb Walk			0.6 Cys.
MISCELLANEOUS			
Exp. Jt. Class S-S			90 Lft.
Exp. Jt. Type B32			96 Lft.

* Dim. determined by type of jt. used.



SECTION "D-D"

(SHOWING NEW CONSTRUCTION)



PAVEMENT OFFSETS

Note:
See Dr. Std. C1 for Reinforcing Bar Notes.
See Drwg. D4 for additional details.

DESIGNED ____ CK'D. ____
DRAWN L.K.H. CK'D. R.C.M.
TRACED ____ CK'D. ____

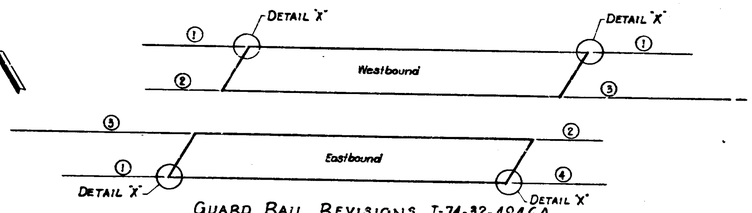
FLOOR SLAB DETAILS
I-74-32-4946A & I-74-34-2335A
INDIANA STATE HIGHWAY COMMISSION

SCALE:- Not to Scale, Unless Noted DATE:- Nov. 18, 1958

SUBMITTED FOR APPROVAL:- Ralph C. Mullinnix

DRAWING:- D5 OF 12 SHEET:- 6 OF 30
PROJECT:- I-(RF)-74-1(82) 31
CONTRACT NO. B-10560
BRIDGE FILE:- I-74-31-2334A, I-74-32-4946A, I-74-34-2335A

RALPH C. MULLINNIX REGISTERED No. 7942 STATE OF INDIANA PROFESSIONAL ENGINEER



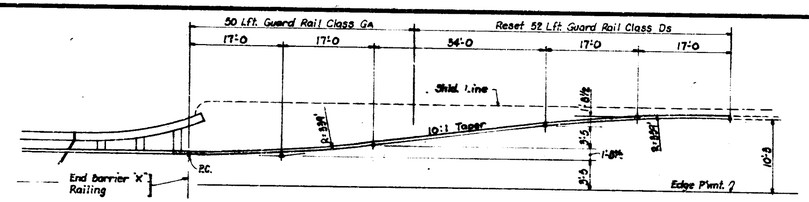
GUARD RAIL REVISIONS I-74-32-4946A

1. Remove 102 L.Ft. of existing guard rail. Install 50 L.Ft. of Guard Rail Class "GA". Reset 52 L.Ft. of Guard Rail Class "Ds".
2. Remove 37.5 L.Ft. of existing guard rail. Install 51.5 L.Ft. of Guard Rail Class "GA" w/ Terminal End.
3. Remove 187.5 L.Ft. of existing guard rail. Install 201.5 L.Ft. of Guard Rail Class "GA" w/ Flared and Buried End.
4. Remove 50 L.Ft. of existing guard rail. Install 61 L.Ft. of Guard Rail Class "GA" w/ Terminal End.

Note: All guard rails connected to Barrier "X" railing on structure.

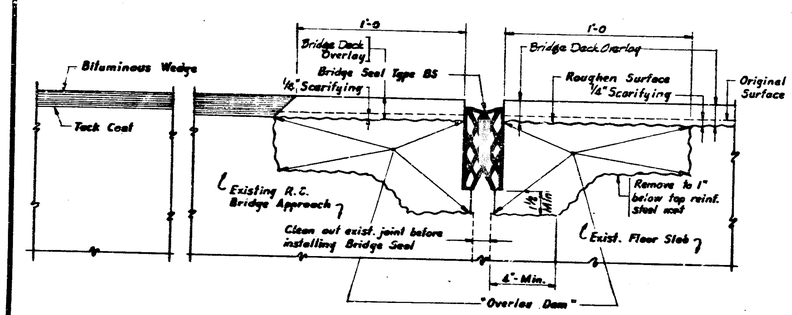
SUMMARY

Removal of Guard Rail _____ 806 L.Ft.
Guard Rail Class "GA" _____ 717 L.Ft.
Reset Guard Rail _____ 156 L.Ft.



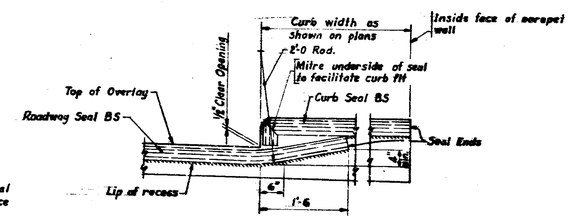
DETAIL "X"

Not to Scale



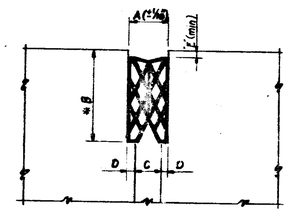
DETAIL "B"

Not to Scale



TYPICAL BS JOINT INSTALLATION AT CURBS

(4946A AND 2335A)



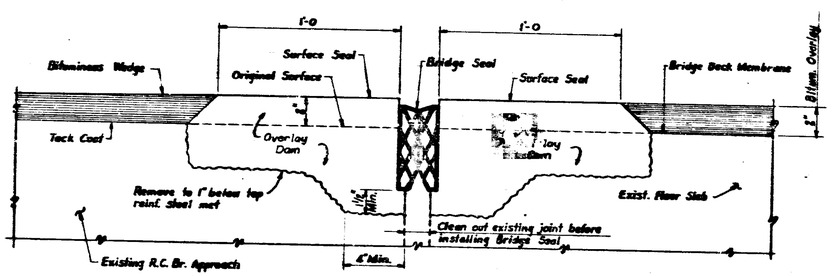
* To be determined in the field, see the Special Provisions.

Bridge Seal	A	B	C	D	E
BS2	1"	*	0"	1/2"	1/2"
BS3	2"	*	1 1/16"±	3/8"	1/2"
BS4	2 9/16"	*	1 5/16"±	1/2"	3/4"
BS11	3 1/2"	*	2 1/16"±	1/2"	3/4"

Note:
Clean out and rebuild curb joints to accomodate the joint seal. Such work to be included in the cost of Exp. Joint Type BS2, BS3, BS4 & BS11.

BRIDGE SEAL DETAILS

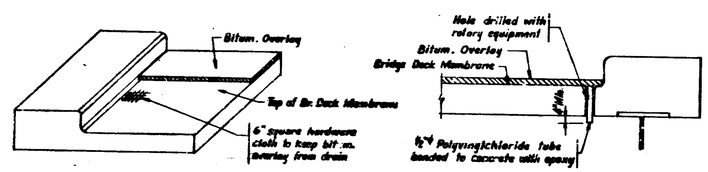
Not To Scale



DETAIL "A"

Not to Scale

Note:
See Drwg. D1 for General and Material Notes.



DECK DRAIN DETAIL (4946A)

Not To Scale

Place adjacent to overlay dams and at 18' maximum spacing along gutter lines.

DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE:- As Noted DATE:- Nov. 18, 1975.

SUBMITTED FOR APPROVAL:- Ralph C. Mullinnix

DRAWING:- D6 OF 12 SHEET:- 7 OF 30

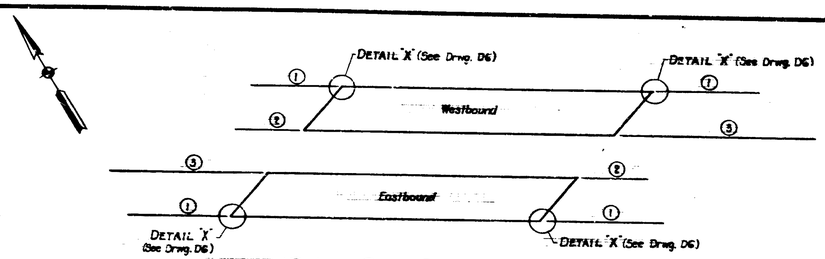
PROJECT:- I-RFI-74-1 (82) 39

CONTRACT NO. B-10560

BRIDGE FILE:- I-74-31-2334A, I-74-32-4946A, I-74-36-2335A

RALPH C. MULLINNIX REGISTERED No. 7942 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGNED _____ CKD. _____
DRAWN L.K.H. CKD. R.C.M.
TRACED _____ CKD. _____



GUARD RAIL REVISIONS

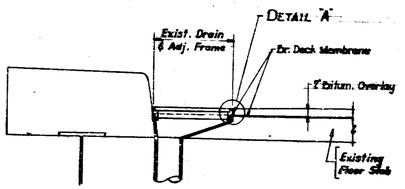
1. Remove 102 Lft. of existing guard rail. Install 50 Lft. of Guard Rail Class "GA". Reset 52 Lft. of Guard Rail Class Ds.
2. Remove 37.5 Lft. of existing guard rail. Install 51.5 Lft. of Guard Rail Class "GA" w/ Terminal End.
3. Remove 187.5 Lft. of existing guard rail. Install 201.5 Lft. of Guard Rail Class "GA" w/ Flared and Buried End.

Note: All guard rails connected to Barrier "X" railing on structure.

SUMMARY

Removal of Guard Rail	358 Lft.
Guard Rail Class "GA"	706 Lft.
Reset Guard Rail	208 Lft.

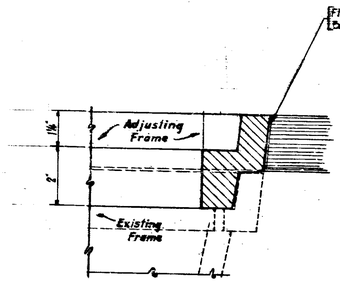
I-74-34-2335A



Note: See Br. Std. D1 for details.

SECTION AT ROADWAY DRAIN

44 Adjusting Frames Type 9Q Req'd. @ 87 lbs. Each = 3828 lbs.



DETAIL "A"

½ Full Size

CONSTRUCTION PROCEDURE

BITUMINOUS OVERLAY

1. Construct temporary crossovers and install traffic control devices to divert traffic to the westbound lanes. Traffic to be two directional.
2. Remove all deteriorated concrete from all spalled areas of the bridge floor and around all exposed reinforcing as directed by the Engineer and in accordance with the Special Provisions.
3. Place Special Class A Concrete bonded with epoxy in the areas to be patched. Finish smooth to level of adjacent concrete.
4. Construct overlay dams at locations shown on the plans. Install expansion joints and deck drains.
5. Fill all existing voids and irregularities in the bridge floor with a neat cement paste or a mortar of two parts sand to one part cement.
6. Apply the Bridge Deck Membrane to the bridge floor and for a distance of two inches up the face of curbs and place the bituminous overlay.
7. Clean and seal the roadway face and tops of curbs, parapet walls, the tops of overlay dams and all surfaces of new concrete brackets. Remove existing metal railing and install new bridge railing.
8. Construct pavement relief joints, bituminous wedges and all other work shown on the plans including the removal and installation of guard rail.
9. Reset traffic control devices to divert traffic to completed lanes and repeat steps 2 thru 8. When all work is completed open structures to traffic. Remove crossovers.

BRIDGE DECK OVERLAY

1. Same as Step 1 for Bitum. Overlay.
2. Scarify the entire bridge floor to a depth of ¼ inch. Scarify additional areas of the bridge floor an additional ¼ inch as directed by the Engineer. Remove scarified dust.
3. Remove all deteriorated concrete below the level of scarification and remove concrete around reinforcing, along curbs inaccessable to scarifying equipment and as required for installation of expansion joints by hand-chipping and cleaning in accordance with the Special Provisions.
4. Sandblast and clean all removal and scarified areas.
5. Construct overlay dams up to the level of scarification.
6. Place Bridge Deck Patches and Bridge Deck Overlay as shown on the Plans and in accordance with the Special Provisions.
7. Same as Step 7 for Bitum. Overlay except new railing to be installed on I-74-34-2335A only.
8. Steps 8 and 9 to be same as Bitum. Overlay.

Note:
The numbers for the Construction Procedure do not necessarily indicate the sequence of operations.
Pneumatic hammers 30 lbs. maximum weight to be used for removals.

ESTIMATED BILL OF MATERIALS FOR MAINTAINING TRAFFIC

DESCRIPTION	UNIT	QUANTITY
* Bitum. Material for Approaches (S)	Tons	604
* Common Excavation	Cys.	50
* Borrow	Cys.	1000
* Mulched Seeding "R"	Sys.	5000
* Pipe: 0.064" C.S. (2@ 90') 15"	Lft.	180
* Bituminous Base (Size No. 538)	Tons	254
Flexible Delineators	140 Each	
Temporary Crossovers Type B	2 Each	
Temp. P'mt. Marking Tape	35000 Lft.	
Temp. P'mt. Marking Paint	1617 Lft.	
Construction Signs Type "A"	38 Each	
Construction Signs Type "B"	8 Each	
Barricades Type III	2 Each	

* Cost of these items included in the cost of "Maintaining Traffic". Crossovers shall be constructed at locations designated by the Engineer and shall be removed upon completion of the project.

Note:
See Drwg. D1 for General and Material Notes.
(M) See Legend, Rd. Std. Sheet 1A Detours

DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE:- Not to Scale Unless Noted DATE:- Nov. 18, 1975

SUBMITTED FOR APPROVAL:- Ralph C. Mullinnix

DRAWING:- D7 OF 12 SHEET:- 8 OF 30

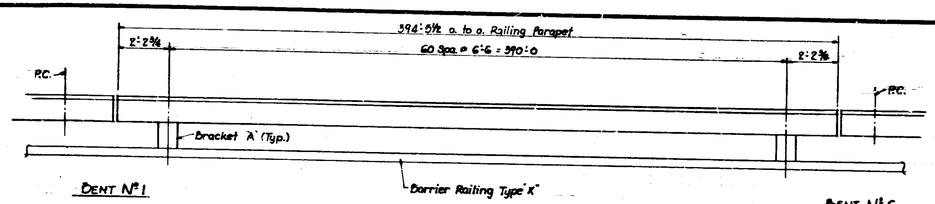
PROJECT:- I-RFI-74-1(82) 51

CONTRACT NO. B-10560

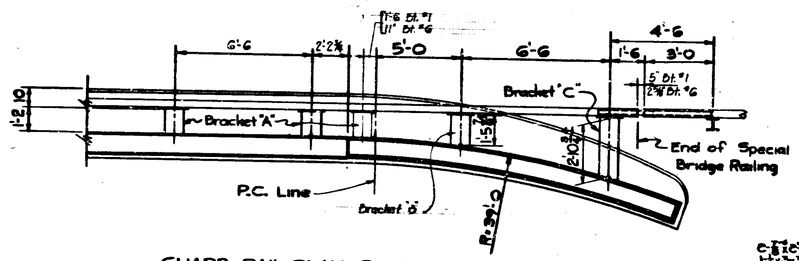
BRIDGE FILE:- I-74-34-2335A, I-74-32-4946A, I-74-34-2335A

RALPH C. MULLINNIX REGISTERED NO. 7942 STATE OF INDIANA PROFESSIONAL ENGINEER

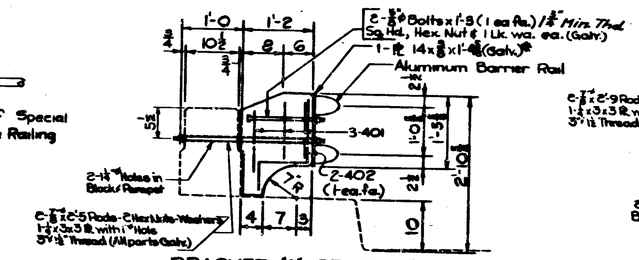
DESIGNED _____ CK'D _____
DRAWN L.K.H. CK'D. R.C.M.
TRACED _____ CK'D _____



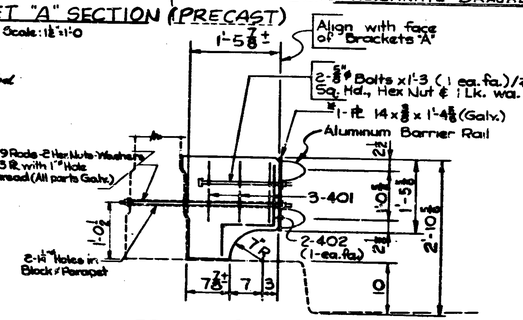
PLAN OF BRACKET SPACING
Not to Scale



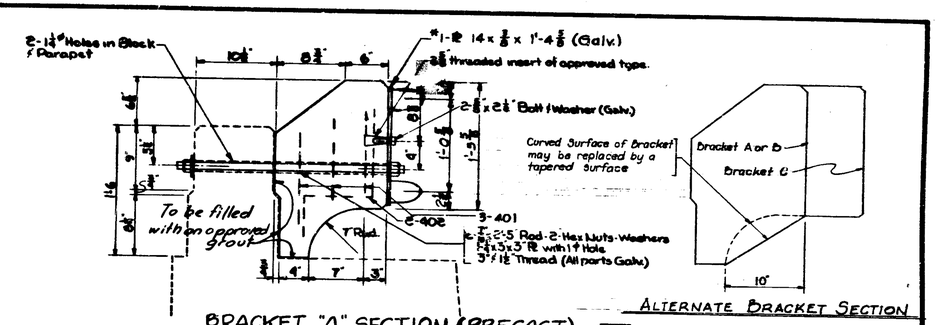
GUARD RAIL PLAN @ WING
Scale: 3/8" = 1'-0



BRACKET "A" SECTION (CAST IN PLACE)
Scale: 1" = 1'-0

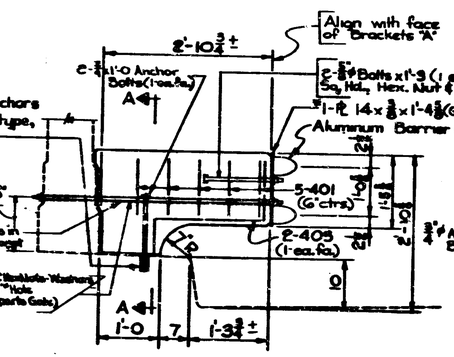


BRACKET "B" SECTION (CAST IN PLACE)
Scale: 1" = 1'-0

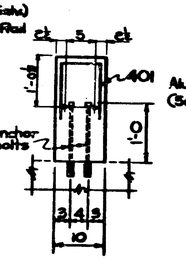


BRACKET "A" SECTION (PRECAST)
Scale: 1½" = 1'-0

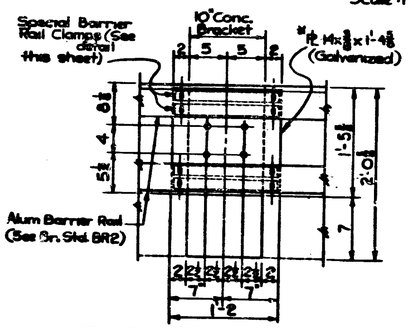
ALTERNATE BRACKET SECTION



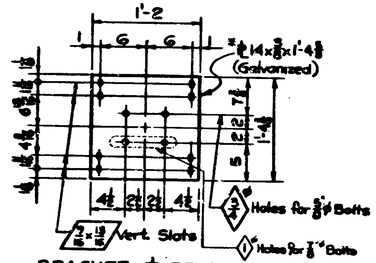
BRACKET "C" SECTION (CAST IN PLACE)
Scale: 1" = 1'-0



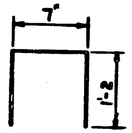
SECTION A-A
Scale: 1" = 1'-0



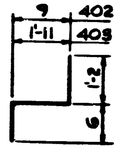
TYPICAL BRACKET ELEVATION
Scale: 1½" = 1'-0



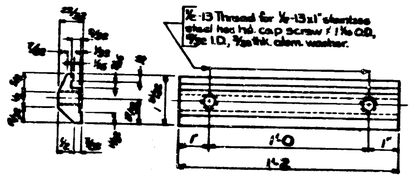
BRACKET ℄ DETAIL
Scale: 1½" = 1'-0



401 x 2'-11



402 x 2'-5
405 x 3'-7



SPECIAL BARRIER RAIL CLAMP BAR
Not to Scale

NOTES

¾"ø Expansion Anchors shall be of a type approved by the Engineer. They shall be a minimum of 9 inches in length and capable of a pull-out test of 10,000 pounds.

Concrete in Brackets to be Class "A".

Chamfer exposed concrete edges ¾ inch.

See Br. Stds. BR1 & BR2 for Guard Rail notes and details.

Alternate Precast Brackets may be used. If the Precast Bracket is used, details of the proposed Bracket shall be submitted to the Engineer for approval.

*As an alternate, an aluminum plate may be used. If used, it shall be aluminum alloy 6061-T6 conforming to ASTM B-209. Plates shall be free of sharp edges and irregularities.

Standard drawings reqd.: BR1, BR2, C1.
For alternate bracket see Dwg. B10.

PAY ITEMS

REMOVAL OF PRESENT RAILING	1576	Lin. Ft.
BARRIER RAILING, TYPE "X"	1713	Lin. Ft.

I-74-32-4946A

GUARD RAIL DETAILS

INDIANA STATE HIGHWAY COMMISSION

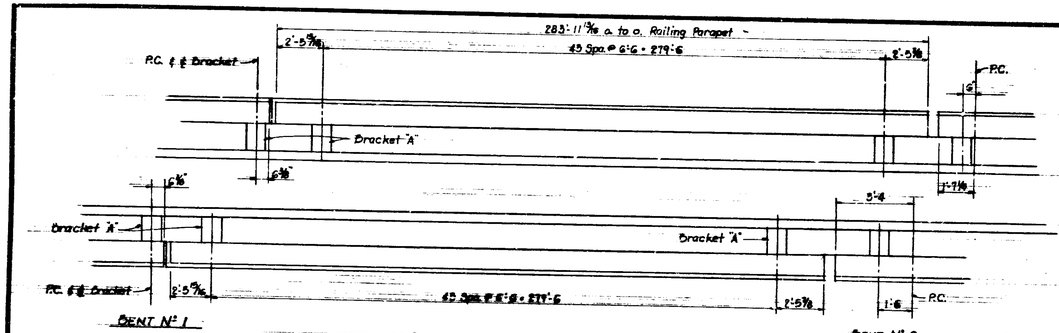
SCALE:- As Noted DATE:- Nov. 18, 1975

Ralph C. Mullinnix

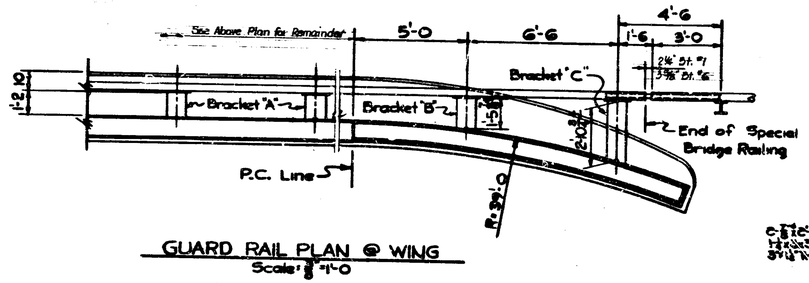
DRAWING:- D8 OF 12 SHEET:- 9 OF 39
PROJECT:- I-RF I-3-1(82) 34
CONTRACT NO. B-10560
BRIDGE FILE:- I-74-31-2334A, I-74-32-4946A, I-74-34-2335A

RALPH C. MULLINNIX REGISTERED No. 7942 STATE OF INDIANA PROFESSIONAL ENGINEER

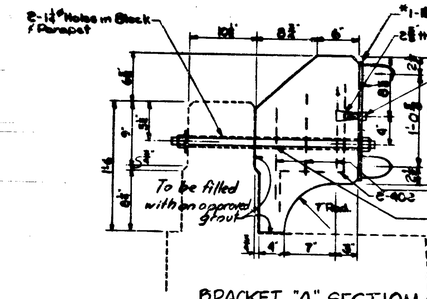
DESIGNED BDS 9-03-75 CHKD. JRC 11/26/75
DRAWN CWD
TRACED CWD



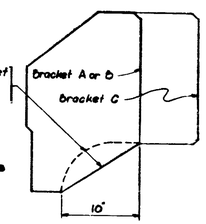
PLAN OF BRACKET SPACING
Not to Scale



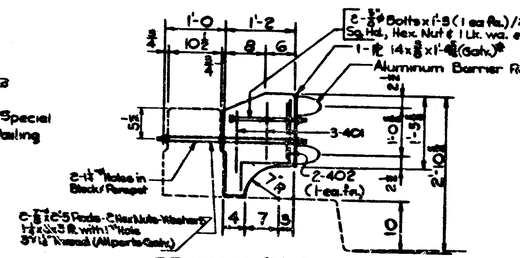
GUARD RAIL PLAN @ WING
Scale: 1/8"=1'-0



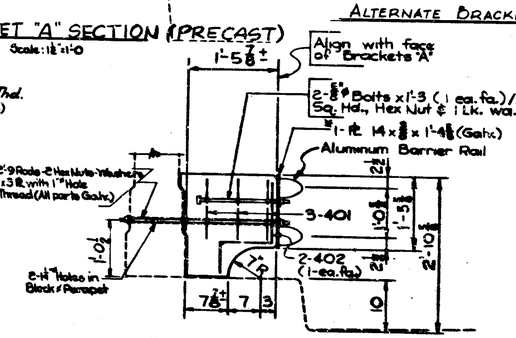
BRACKET "A" SECTION (PRECAST)
Scale: 1 1/2"=1'-0



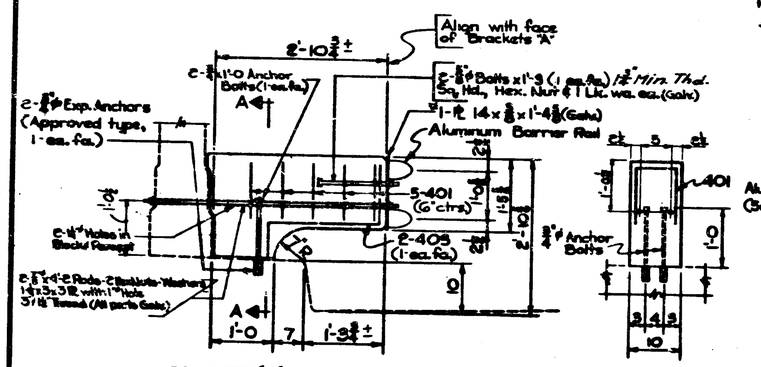
ALTERNATE BRACKET SECTION



BRACKET "A" SECTION (CAST IN PLACE)
Scale: 1"=1'-0

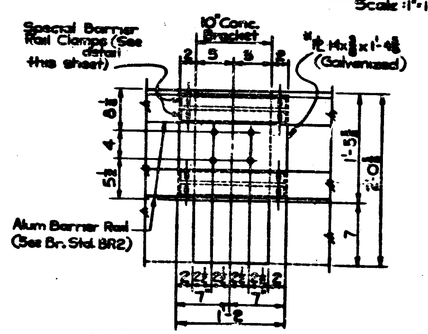


BRACKET "B" SECTION (CAST IN PLACE)
Scale: 1"=1'-0

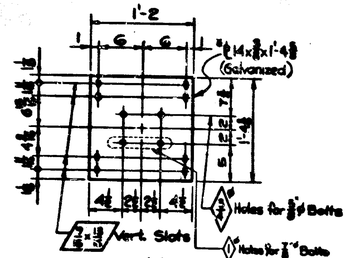


BRACKET "C" SECTION (CAST IN PLACE)
Scale: 1"=1'-0

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

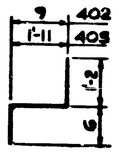


TYPICAL BRACKET ELEVATION
Scale: 1 1/2"=1'-0

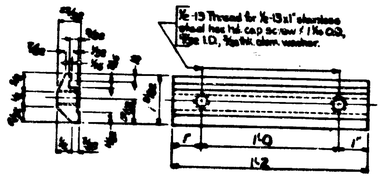


BRACKET PL DETAIL
Scale: 1 1/2"=1'-0

401 x 2'-11



402 x 2'-5
405 x 3'-7



SPECIAL BARRIER RAIL CLAMP BAR
Not to Scale

NOTES

3/4"ϕ Expansion Anchors shall be of a type approved by the Engineer. They shall be a minimum of 9 inches in length and capable of a pull-out test of 10,000 pounds.

Concrete in Brackets to be Class "A".

Chamfer exposed concrete edges 3/4 inch.

See Br. Stds. BR1 & BR2 for Guard Rail notes and details.

Alternate Precast Brackets may be used. If the Precast Bracket is used, details of the proposed Bracket shall be submitted to the Engineer for approval.

*As an alternate, an aluminum plate may be used. If used, it shall be aluminum alloy 6061-T6 conforming to ASTM B-209. Plates shall be free of sharp edges and irregularities.

Standard drawings reqd.: BR1, BR2, C1.

For alternate bracket see drawing D1Q

PAY ITEMS

REMOVAL OF PRESENT RAILING	1136	Lin. Ft.
BARRIER RAILING, TYPE "X"	1253	Lin. Ft.

I-74-34-2335A

GUARD RAIL DETAILS

INDIANA STATE HIGHWAY COMMISSION

SCALE:- As Noted

DATE:- Nov. 18, 1975

Ralph C. Mullinnix

DESIGNED [illegible]
DRAWN _____ CWD
TRACED _____ CWD

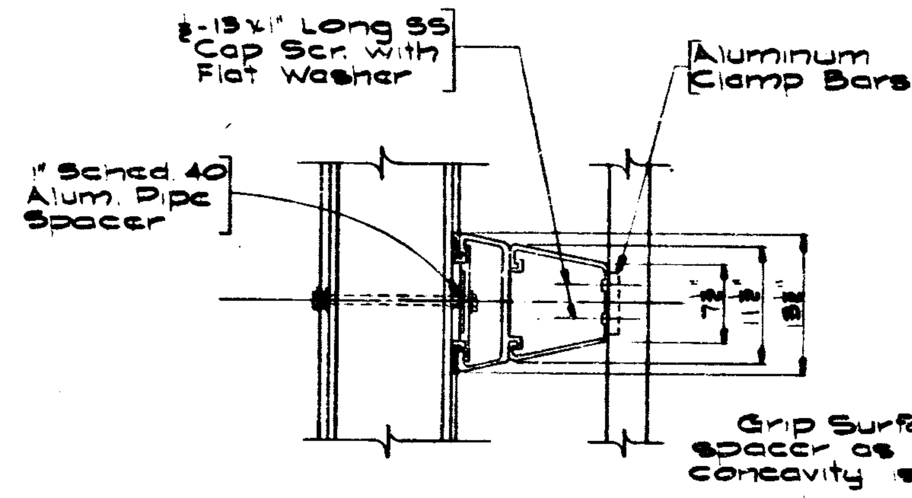
DRAWING: D9 OF 12 SHEET 10 OF 38

PROJECT:- I-RF2-74-1(82) 24

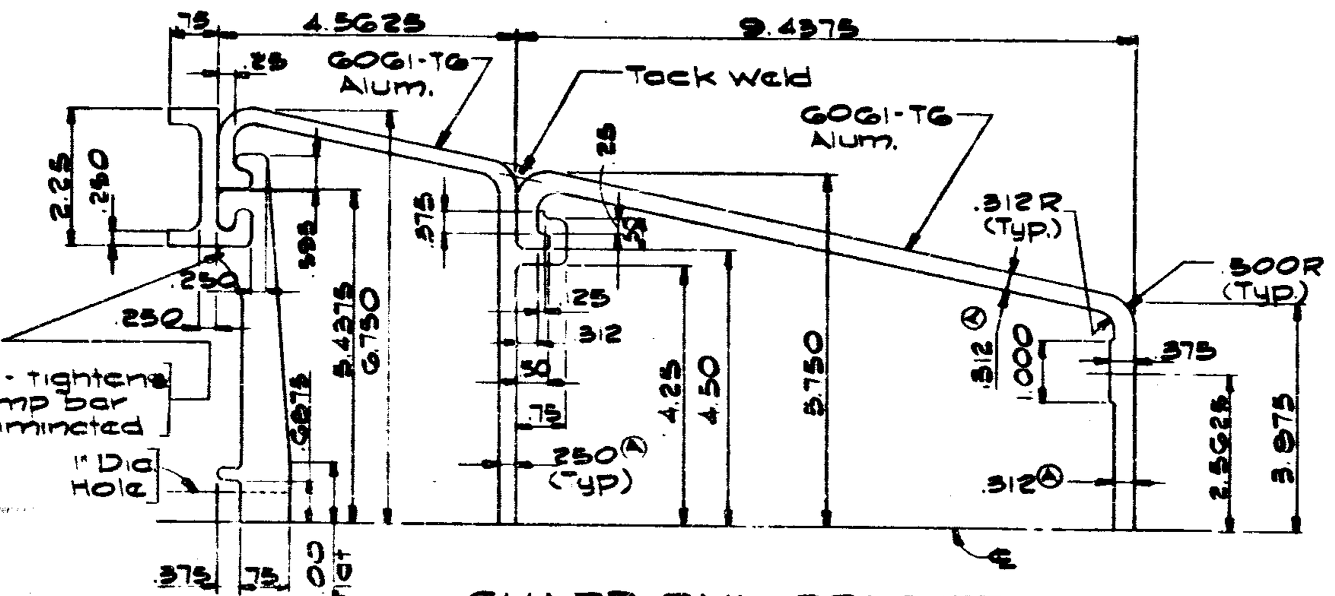
CONTRACT NO. B-10560

BRIDGE FILE:- I-74-31-2334A, I-74-32-2335A, I-74-34-2336A

RALPH C. MULLINNIX REGISTERED NO 7942 STATE INDIANA PROFESSIONAL ENGINEER

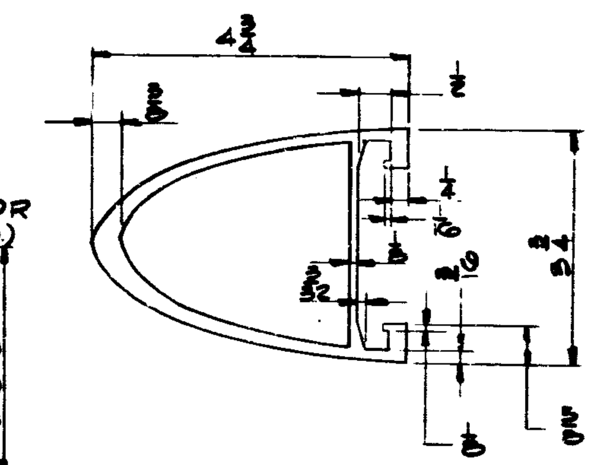


PLAN
Scale: 1" = 1'-0



GUARD RAIL BRACKET
Scale: 6" = 1'-0

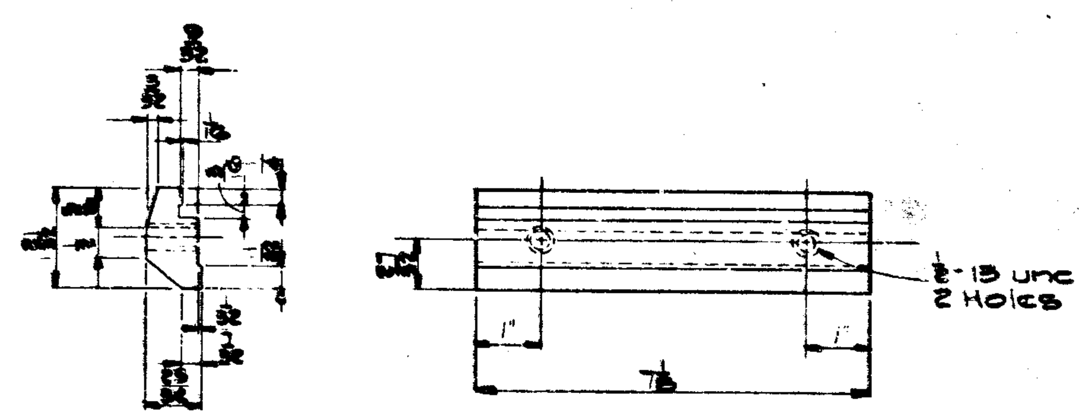
Clamp bar is extruded with $\frac{1}{8}$" concavity (.875 at mid. point) to be eliminated by assembly pull down on anchor.



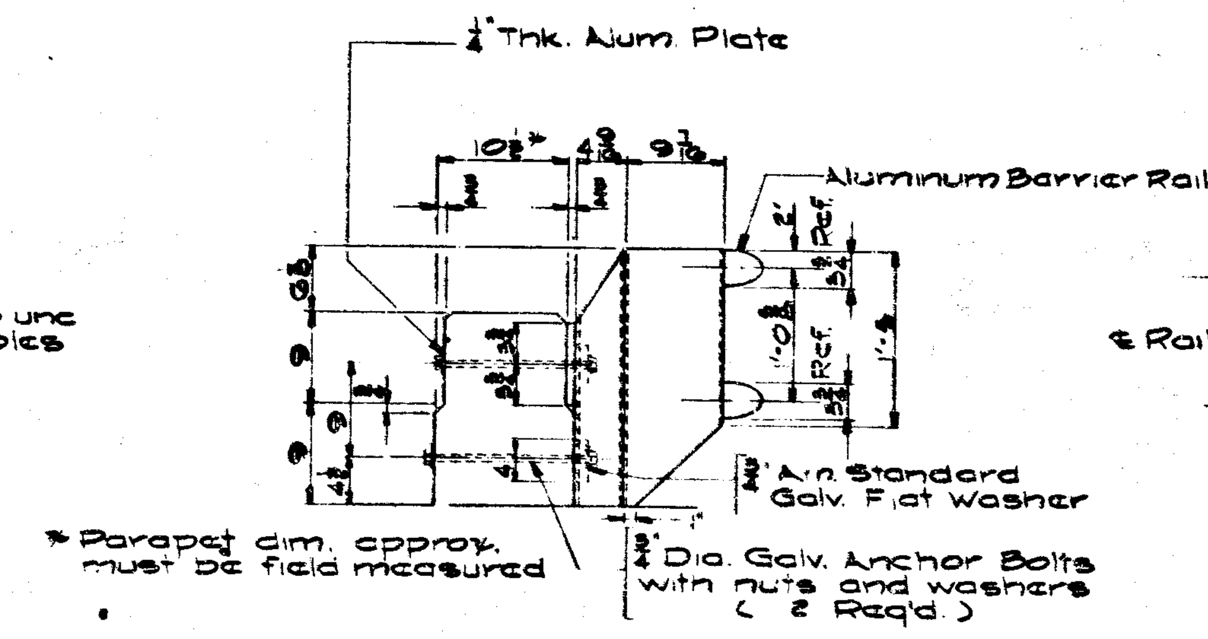
RAIL SECTION
No Scale

NOTES

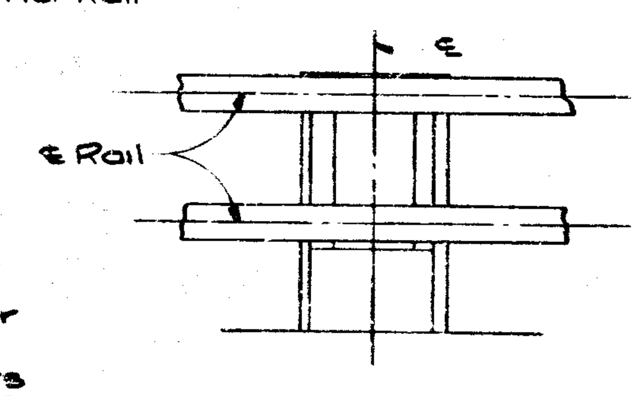
Mat'l. except as noted 6061-T6 Alum.
Bracket may be used as an alternate to precast or cast in place concrete bracket.
See Bridge Standards BR1 and BR2 for Guard Rail notes and details.
Standard Drawings required BR1 and BR2.



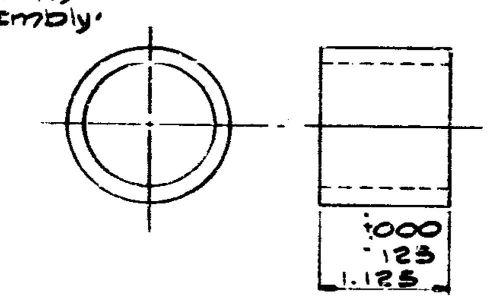
CLAMP BAR
Scale 6" = 1'-0



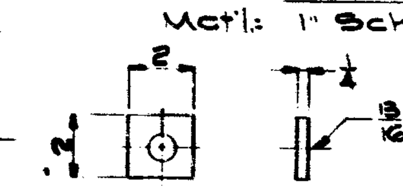
SIDE
Scale 1" = 1'-0



FRONT
Scale 1" = 1'-0



ANCHOR SPACER TUBE
Mat'l.: 1" Sched 40 Pipe



ALUM. PLATE
6061-T6

PAY ITEMS

Removal of Present Railing •	Lin. Ft.
Barrier Railing, Type X •	Lin. Ft.

Note: See Drwg. D8 & D9 for quantities.

I-74-32-4946A & I-74-34-2335A
GUARD RAIL BRACKET DETAILS

INDIANA STATE HIGHWAY COMMISSION

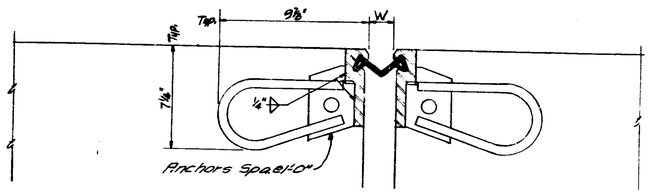
SCALE:- AS NOTED DATE:- Nov. 18, 1975

Ralph C. Mullinnix

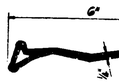
DRAWING:- D10 OF 12 SHEET:- 11 OF 30
PROJECT:- I-RFI-74-1(82)
CONTRACT NO. B-10560
BRIDGE FILE:- I-74-31-2334A, I-74-32-4946A, I-74-34-2335A

RALPH C. MULLINNIX REGISTERED NO 7942 STATE OF INDIANA PROFESSIONAL ENGINEER

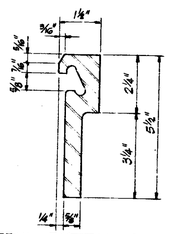
DESIGNED ____ C'K'D ____
DRAWN MS 5-75 C'K'D ____
TRACED ____ C'K'D ____



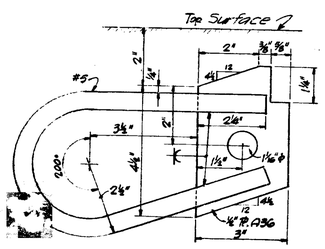
TYPICAL SECTION



STRIP SEAL S-400

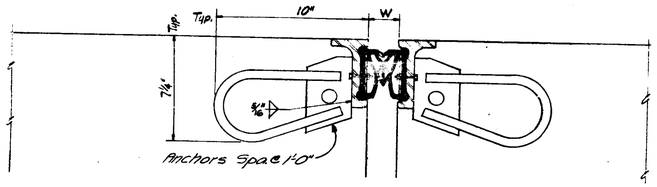


STEEL EXTRUSION
TYPE D



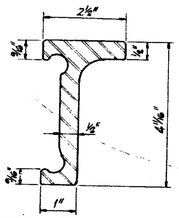
JOINT SA 400-D

ANCHOR DETAIL

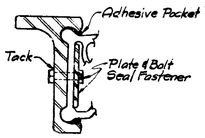


TYPICAL SECTION

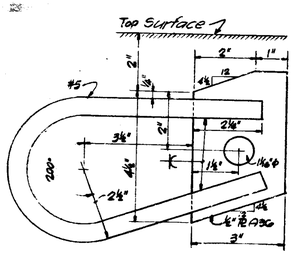
SEAL ELEMENT



STEEL EXTRUSION

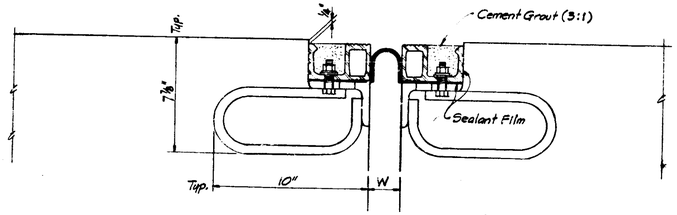


DETAIL

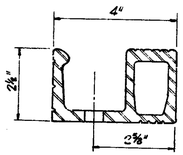


JOINT KLA SEAL S-6

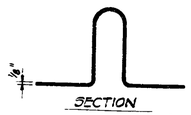
ANCHOR DETAIL



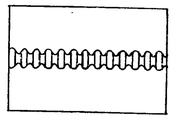
TYPICAL SECTION



ALUMINUM EXTRUSION

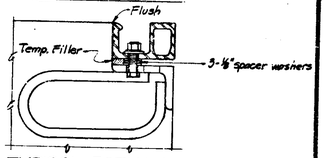


SECTION

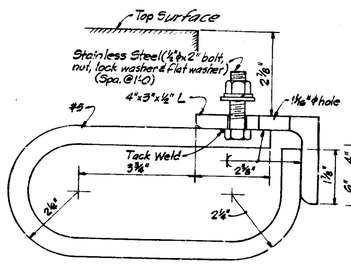


PLAN

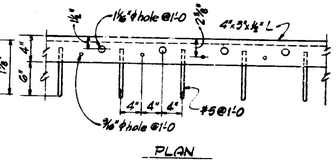
MEMBRANE



TYPICAL FORMING SECTION



SECTION



PLAN

JOINT ONFLEX 45

ANCHOR DETAIL

NOTES

See the Special Provisions for physical properties of materials. The cost of extrusions, elastomeric seal elements, adhesive, cement grout, anchor system and installation of joint shall be included in the cost of expansion joint.

The profile of the joint is to conform to the roadway cross section.

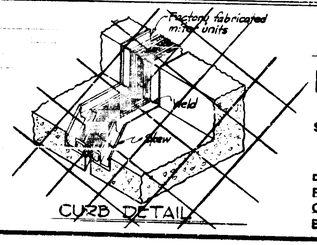
The Contractor shall submit 4 copies of shop drawings for all joints involving curbs or other special features.

The seal element shall be molded and furnished in a continuous length equal to that required for the joint.

The joint including anchor assembly to be shop fabricated and delivered to the job site as a complete continuous unit. If the extrusions are manufactured in inadequate lengths they shall be joined by welding.

JOINT SETTING TABLE	
Temp. when joint is set	W
100°	1"
80°	1⅝"
60°	2⅛"
50°	2⅜"
40°	2⅝"
20°	3⅜"
0°	4"

Note: Expansion Joint to extend from face of parapet wall to face of parapet wall and shall be parallel to the skew throughout its length.



CURB DETAIL

EXPANSION JOINTS CLASS S-S

INDIANA STATE HIGHWAY COMMISSION

SCALE:- NONE

DATE:- APRIL 9, 1976

Robert W. Bettge

DRAWING:- D.11A OF 12 SHEET:- 12A OF 30

PROJECT:- I-RPI-74-1(82)31

CONTRACT NO. B-10560

BRIDGE FILE:- I-74-34-2555A, I-74-32-4946A

ROBERT W. BETTGE REGISTERED No. 6463 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGNED _____ CK'D _____
DRAWN D.A. Sheets CK'D W.D.A., J.D.M.
TRACED _____ CK'D R.W.B., J.J.W.

◆ State Funds Only

(a) Includes sawcuts, concrete removal, cleaning reinforcing and epoxy bonding compound.

(b) Includes cost of removal and epoxy bonding compound.

(c) Removed bridge railing and guard rail to remain the property of the I.S.H.C. See the Special Provisions.

(d) Includes preparation of walks and curbs.

(f) Estimated Quantity: 23648 Sq. Ft.

SUMMARY

Code No.	Description	Unit	I-74-31-2336A Funding 70/30	I-74-31-2336A Funding 90/10	I-74-31-2336A Quan.	I-74-32-4946A Funding 70/30	I-74-32-4946A Funding 90/10	I-74-32-4946A Quan.	I-74-34-2335A Funding 70/30	I-74-34-2335A Funding 90/10	I-74-34-2335A Quan.	Total
51001	Concrete, Class 'A' In Superstructure	Cys.					✓	10.8		✓	11.6	22.4
51875	(a) Special Class 'A' Concrete	Sft.				✓		4685				4685
	Special Concrete	Cys.									15	15
51874	(b) Overlay Dam	Sft.		✓	448		✓	953		✓	154	1555
51030	Reinforcing Steel	Lbs.					✓	865		✓	943	1808
51110	Cast Iron, Grates, basins, And Fittings	Lbs.					✓	3820				3820
51134	(c) Removal of Present Railing	Lft.					✓	578		✓	1136	2714
51131	Barrier Railing Type 'X'	Lft.					✓	1713		✓	1253	2966
51870	Repointing Masonry In Structures	Sft.						8			8	16
51881	(d) Expansion Joint Type BS2	Lft.					✓	88		✓	96	184
51887	(d) Expansion Joint Type BS8	Lft.								✓	96	96
51886	(d) Expansion Joint Type BS9	Lft.					✓	88				88
51890	(d) Expansion Joint Type BS11	Lft.		✓	235							235
	Expansion Joint Class S-S	Lft.					✓	82		✓	90	172
51928	Removal of Present Structure (Portions) (4946A)	L.S.					✓	1				1
51928	Removal of Present Structure (Portions) (2335A)	L.S.								✓	1	1
	Removal of Slopewall	Sys.						25				25
51366	Concrete Slopewall 5 Inch	Sys.						25				25
51106	Deck Drains	Each					✓	136				136
51826	Surface Seal	Sft.	✓		1441	✓		11341	✓		7504	20286
(f) 51827	Bridge Deck Membrane (4946A)	L.S.					✓	1				1
	Bridge Deck Overlay	Sys.		✓	1748					✓	1911	3659
51833	Concrete Scarifying	Sys.	✓		1748				✓		1911	3659
	Bridge Deck Patching	Sft.	✓		4340				✓		6320	10,660
	Additional Concrete Scarifying	Sys.	✓		319				✓		362	681
	Blasting & Cleaning	Sys.		✓	1748					✓	1911	3659
51838	Finishing And Curing	Sys.		✓	1748					✓	1911	3659
52303	Removal Of Pavement	Sys.		✓	21		✓	34		✓	19	74
	Integral Curb Walk	Cys.					✓	0.6		✓	0.6	1.2
52290	Concrete Pavement Reinforced (9 Inch)	Sys.					✓	17		✓	19	36
52470	Bituminous Mixture For Approaches	Tons		✓	86		✓	422		✓	66	572
52529	Guard Rail Class GA	Lft.					✓	717		✓	706	1423
	Reset Guard Rail	Lft.					✓	156		✓	208	364
52535	(c) Removal of Guard Rail	Lft.					✓	306		✓	858	1664
52640	Maintaining Traffic	L.S.		✓			✓			✓		1
52340	Construction Signs Type A	Each		✓			✓			✓		38
52345	Construction Signs Type B	Each		✓			✓			✓		8
52825	Flexible Delineators	Each		✓			✓			✓		140
52819	Temporary Crossover Type 'B'	Each		✓			✓			✓		2
52350	Barricades Type III	Each		✓			✓			✓		2
52366	Temp. Pvmt. Marking Tape	Lft.		✓			✓			✓		55000
52367	Temp. Pvmt. Marking Paint	Lft.		✓			✓			✓		1417

Rev. 4-22-76 Concrete Scarifying; Additional Concrete Scarifying Added

SUMMARY

INDIANA STATE HIGHWAY COMMISSION

END STR

SCALE:- DATE:- Nov 18, 1975

SUBMITTED FOR APPROVAL:- Ralph C. Mullinnix

DRAWING:- OF SHEET:- 14 OF 50

PROJECT:- I-RIT-76-1162) 31

CONTRACT NO. B-10560

BRIDGE FILE:- I-74-31-2336A, I-74-32-4946A, I-74-34-2335A

RALPH C. MULLINNIX REGISTERED NO. 7942 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGNED ____ CK'D ____
DRAWN L.K.H. CK'D R.C.M.
TRACED ____ CK'D ____

H-29-13-H1