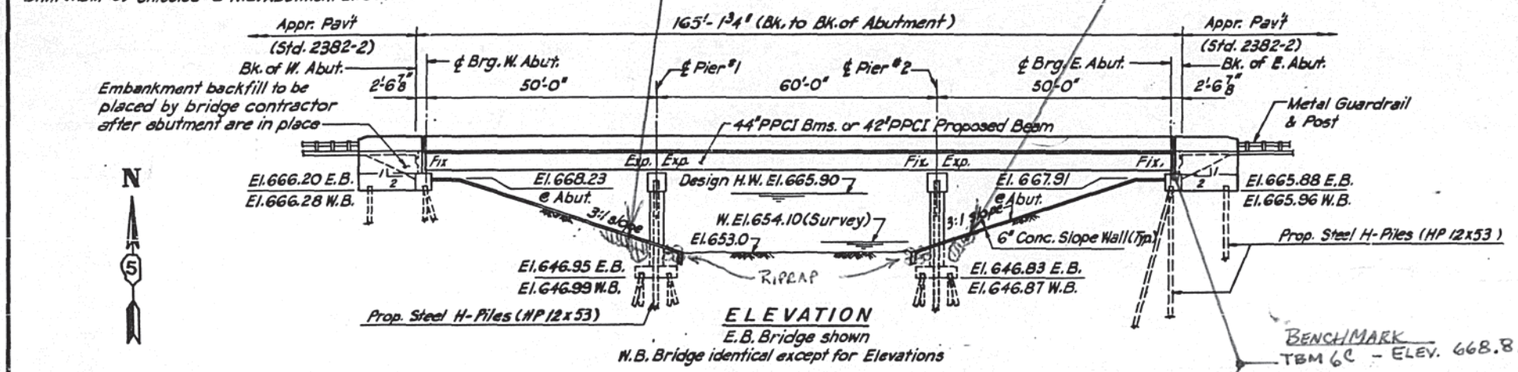
VOIDS UNDER SLOPEWALLS WERE FILLED WITH SLURRY MIX CONCRETE

(AS-BUILT PLANS)

FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B) BR	CHAMPAIGN	108	24
		PROJECT		

SHEET 1 OF 17

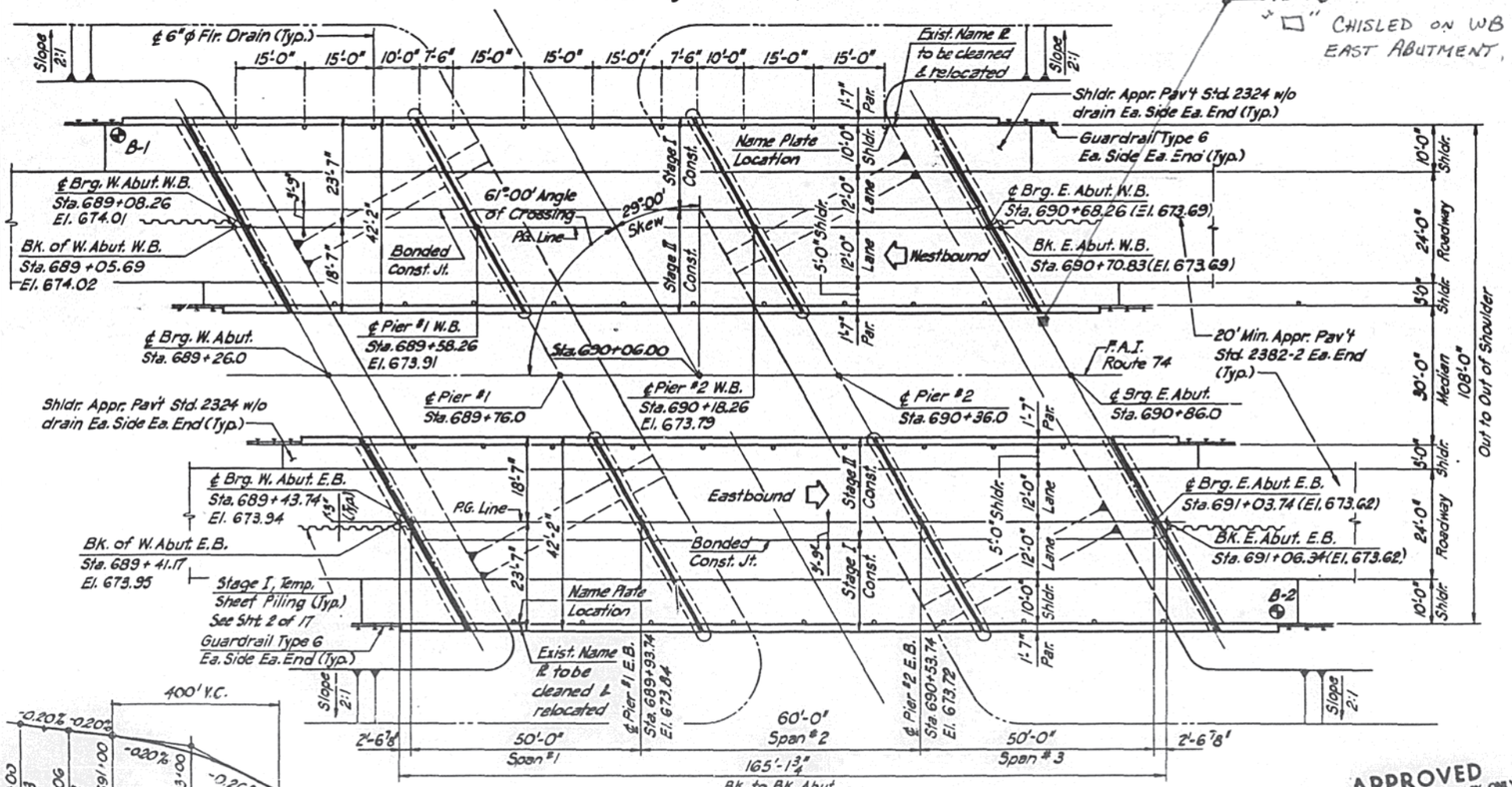
B.M. (TBM-6)-Chiseled 'D' N.E. Abutment El. 674.03

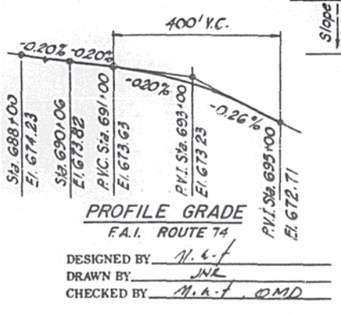


ELEVATION

E.B. Bridge shown
W.B. Bridge identical except for Elevations

BENCHMARK
TBM 6C - ELEV. 668.81
"□" CHISLED ON WB BRIDGE, EAST ABUTMENT, S.E. END





PROFILE GRADE
F.A.I. ROUTE 74

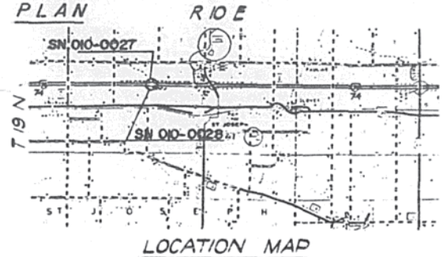
DESIGNED BY M.A.F.
DRAWN BY JNK
CHECKED BY M.A.F. / OMD

AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

STATE OF ILLINOIS HOSSEIN AMIR-FAZLI 081-002441 REGISTERED STRUCTURAL ENGINEER

Expires 04-30-93

PLAN RIDE



LOCATION MAP

TOTAL BILL OF MATERIAL (E.B. & W.B.)

	ITEM	UNIT	SUPER	SUB. PIERS	SUB. ABUT.	TOTAL
	Structure Excavation	Cu. Yd.		113	952	1065
	Class X Concrete	Cu. Yd.		112	100	212
	Class X Concrete Superstructure	Cu. Yd.	425			425
	REINFORCEMENT BARS (EPOXY COATED)	Lbs.	108,000	9000	15,000	132,000
†††	REMOVAL OF EXISTING CONCRETE DECK NO. 1	Each	1			1
†††	REMOVAL OF EXISTING CONCRETE DECK NO. 2	Each	1			1
††	Protective Coat	Sq. Yd.	315			315
	Steel Pile HP 12x53	Lin. Ft.		228	594	822
	Test Pile, Steel HP 12x53	Each		2	2	4
	Concrete Removal	Cu. Yd.		10	70	80
	Floor Drains	Each	40			40
	Name Plates	Each	2			2
	Temporary Sheet Piling	Sq. Ft.			650	650
	Furnishing & Erecting Precast Prestressed Concrete I Beams (42")	Lin. Ft.	321			321
	Slopewall REPAIR	Sq. Yd				56
	Bridge Seat Sealer	Sq. Ft.			54	54
	Repair Concrete Structure	Sq. Ft.	225			225
	Epoxy Mortar Repair	Cu. Ft.	10	5		15
	Preformed Joint Seal 1 3/4"	Lin. Ft.	200			200
	Preformed Joint Seal 2 1/2"	Lin. Ft.	100			100
	Preformed Joint Seal 4"	Lin. Ft.	100			100
	Furnishing & Erecting Structural Steel	Lbs.	12,000	550	750	13,300
	Elastomeric Bearing Assembly, Type I	Each		6		6
	Bridge Deck Grooving	Sq. Yds	1,550			1,550
	Epoxy Crack Sealing	Lin. Ft.	10	30	5	65

†† INCLUDES TOP AND INSIDE FACES OF PARAPETS ONLY.

††† ALL SUPERSTRUCTURE REMOVAL IS INCIDENTAL TO "REMOVAL OF EXISTING CONCRETE DECK", OF THE NO. SPECIFIED. SEE SHEET 7 OF 17.

STATION 690 + 06.00
REBUILT IN 199 BY
STATE OF ILLINOIS
F.A.I. RTE. 74 SEC. (10-7B) BR

LOADING HS20 & ALT.
STR. NO. 010-0028

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E. Anderson
Engineer of Structures

NAME PLATE

SEE STANDARD 2113

NOTE: EAST BOUND SHOWN, FOR WEST BOUND USE STRUCTURE NUMBER 010-0027

EXISTING BRIDGE DESCRIPTION

STRUCTURE NOS. 010-0027, 0028 WERE BUILT IN 1957 CARRYING FAI ROUTE 74 OVER THE SALINE DRAINAGE DITCH, EACH WITH; THREE SIMPLE SPANS (50', 60', 50'), OVERALL LENGTH OF 165' 1 3/4" BACK TO BACK OF ABUTMENTS, 36'6" OUT TO OUT WIDTH, R.C. DECK ON P.P.C. I-BEAM SUPERSTRUCTURE, SOLID PIERS AND OPEN TYPE ABUTMENTS ON 12" ϕ CAST IN PLACE CONCRETE PILES. THE SUPERSTRUCTURES WILL BE WIDENED TO 42' 2" OUT TO OUT. THE SUBSTRUCTURES AND EXISTING GIRDERS WILL BE REHABILITATED AND REUSED. THE TRAFFIC WILL BE MAINTAINED IN BOTH DIRECTIONS USING STAGE CONSTRUCTION. NO SALVAGE.

DESIGN SPECIFICATIONS

NEW CONSTRUCTION

1989 AASHTO, 1990 AND 1991 INTERIM

LOADING HS 20-44
NO FUTURE WEARING SURFACE

DESIGN STRESSES FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi (Reinf.)
fy = 50,000 psi (M223 Gr. 50)

PRECAST PRESTRESSED UNITS
f'c = 6,000 psi
f'ci = 4,200 psi

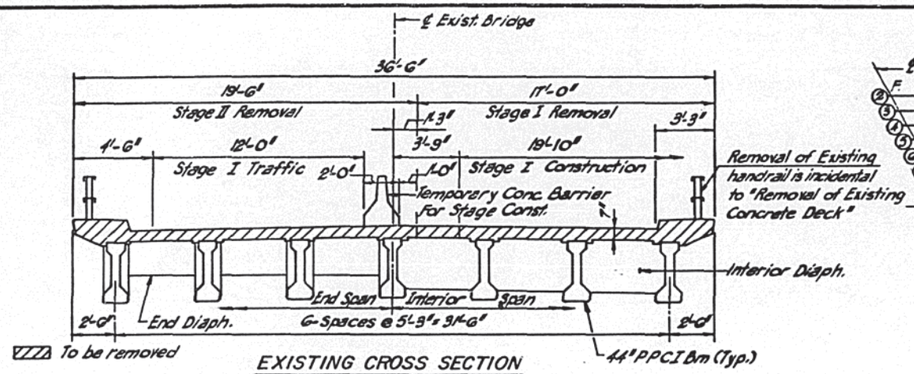
Low Relaxation Strands
f's = 270,000 psi (1/2ϕ Strands)
f'y = 229,000 psi
fsi = 201,960 psi
f's = Allow Final Tension 183,600 psi

GENERAL PLAN
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

DATE

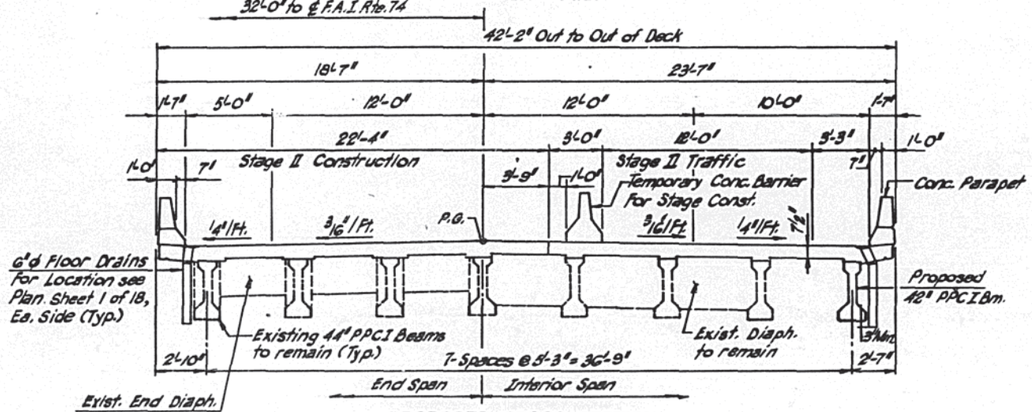
FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B) BR	CHAMPAIGN	108	25
		PROJECT		

SHEET 2 OF 17



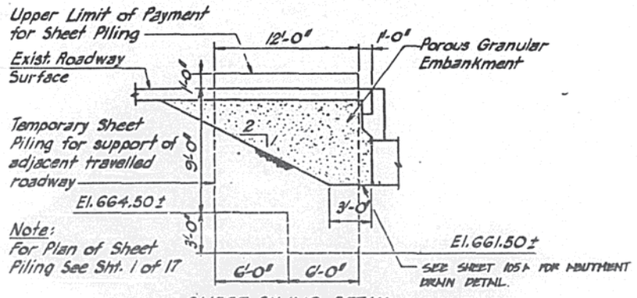
EXISTING CROSS SECTION

EASTBOUND SHOWN-LOOKING EAST
WESTBOUND SIMILAR-LOOKING WEST



PROPOSED CROSS SECTION

EASTBOUND SHOWN - LOOKING EAST
WESTBOUND SIMILAR - LOOKING WEST



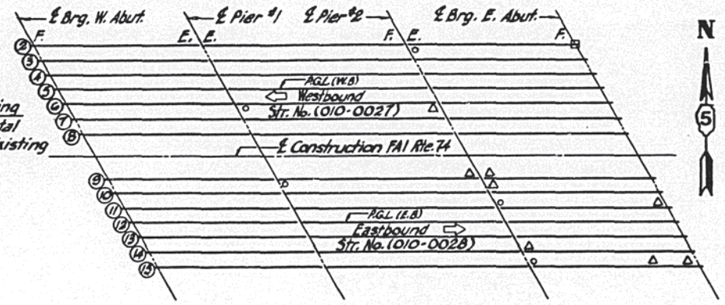
SHEET PILING DETAIL

W. Abutment Westbound - E. Abutment Eastbound Shown
W. Abutment Eastbound - E. Abutment Westbound Similar

THE INFORMATION SHOWN FOR THE TEMPORARY SHEET PILING IS ESTIMATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DESIGN AND COMPUTATIONS OF THE TEMPORARY SHEET PILING AND ASSOCIATED MEMBERS, IF REQUIRED, SUBJECT TO THE APPROVAL OF THE EINGINEER.

DESIGNED BY N.A.F.
DRAWN BY D.A.
CHECKED BY O.M.D./A.A.

AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS



EXISTING BEAM FRAMING PLAN

BILL OF MATERIAL

	ITEM	UNIT	QUANTITY
○	No. of Exp. bearings to be adjusted	Each	5
□	No. of fixed bearings to be cleaned or replaced	Each	1

LEGEND

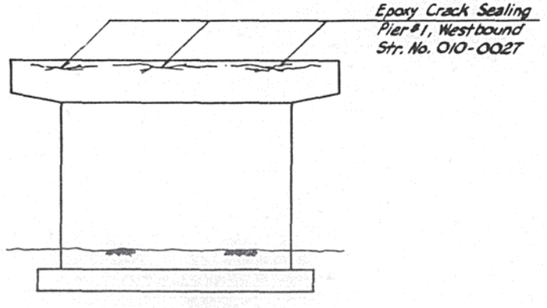
△ Bottom flange of beam to be repaired (Epoxy Mortar Repair)

□ Bearing Plates and bolts to be cleaned or replaced. "See Special Provisions"

○ Exp. Bearing to be adjusted. "See Special Provisions"

▨ Epoxy Mortar Repair

⌒ Epoxy Crack Sealing



PIER ELEVATION

West Face & East Face

BILL OF MATERIAL

	ITEM	UNIT	TOTAL
	Repair Concrete Structure	Sq.Ft.	5
	Epoxy Crack Sealing	Lin.Ft.	60
△	Epoxy Mortar Repair	Cu.Ft.	15

LEGEND

⌒ Epoxy Crack Sealing

GENERAL NOTES

CLASS X CONCRETE SHALL BE USED THROUGHOUT.

REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31, M-42 OR M-53 GRADE 60.

THE EXISTING EMBANKMENT CONFIGURATION IS THE MINIMUM TO BE MAINTAINED BY THE CONTRACTOR. ADDITIONAL MATERIAL SHALL BE PLACED ON TOP AS DIRECTED BY THE ENGINEER. COST INCIDENTAL TO "SUB-BASE GRANULAR MATERIAL, TYPE B-6".

PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING STRUCTURE HAVE BEEN TAKEN FROM EXISTING PLANS AND ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUCH DIMENSIONS AND DETAILS IN THE FIELD AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF THE WORK. HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED AT THE UNIT PRICE BID FOR THE WORK.

THE ZINC-SILICATE AND VINYL PAINT SYSTEM SHALL BE USED FOR SHOP AND FIELD PAINTING OF STRUCTURAL STEEL. THE COLOR OF THE VINYL FINISH COATS SHALL BE MUNSELL No. 10y 7/1 LIGHT GREY.

ALL BARRICADES AND TRAFFIC CONTROL DEVICES NOTED IN THE CONTRACT DOCUMENTS AND DEEMED NECESSARY BY THE ENGINEER SHALL BE PLACED PRIOR TO THE START OF CONSTRUCTION.

THE LOCATION, QUANTITIES AND EXTENT OF THE REPAIRS AND/OR REPLACEMENT SHOWN ON THE PLANS ARE BASED ON VISUAL OBSERVATIONS MADE DURING THE FIELD INSPECTION. ADDITIONAL DETERIORATION WHICH COULD NOT BE DETERMINED VISUALLY OR WHICH MAY HAVE OCCURRED AFTER THE INSPECTION SHALL ALSO BE REPAIRED AS DIRECTED BY THE ENGINEER.

ALL MINOR DETERIORATION AND SPALLS AT ABUTMENTS AND PIERS SHALL BE REPAIRED USING PNEUMATIC APPLIED CONCRETE AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQ.FT. FOR "REPAIR CONCRETE STRUCTURES". SEE SPECIAL PROVISION.

ALL CRACKS IN THE CONCRETE FACES OF ABUTMENTS AND PIERS SHALL BE FILLED IN WITH EPOXY CRACK SEALING. SEE SPECIAL PROVISION.

FORMED CONCRETE REPAIR LESS THAN OR EQUAL TO 6" SHALL BE PERFORMED AT THE EXISTING INTERMEDIATE DIAPHRAGMS (SEE SHEET 7 OF 17) AND PIERS AS SHOWN ON PLANS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQ. FT. FOR "FORMED CONCRETE REPAIR LESS THAN OR EQUAL TO 6".

REMOVE INTERMEDIATE DIAPHRAGMS BETWEEN LINES "C" AND "D" AS SHOWN ON SHEET 7 OF 17 BEFORE CONSTRUCTING THE NEW DECK.

THE CONTRACTOR WILL BE REQUIRED TO MARK ON TOP OF THE CONCRETE DECK THE LOCATIONS OF THE TOP FLANGE OF ALL THE CONCRETE BEAMS, PRIOR TO ANY REMOVAL OF THE BRIDGE CONCRETE DECK. SAW CUTTING DIRECTLY OVER THE TOP OF THE BEAM FLANGES IS NOT PERMITTED.

ALL SAWCUTTING SHALL BE CONSIDERED AS INCIDENTAL TO THE REMOVAL ITEM INVOLVED.

SLOPE WALLS SHALL BE REINFORCED WITH WELDED WIRE FABRIC, 6" X 6" - W4.0 X W4.0, WEIGHING 58 LBS. PER 100 SQ. FT.

BRIDGE SEAT SEALER SHALL BE APPLIED TO THE TOP SURFACES OF THE PIERS AND ABUTMENT SEATS.

ESTIMATED BRIDGE SEAT SEALER QUANTITY = 54 SQ.FT.

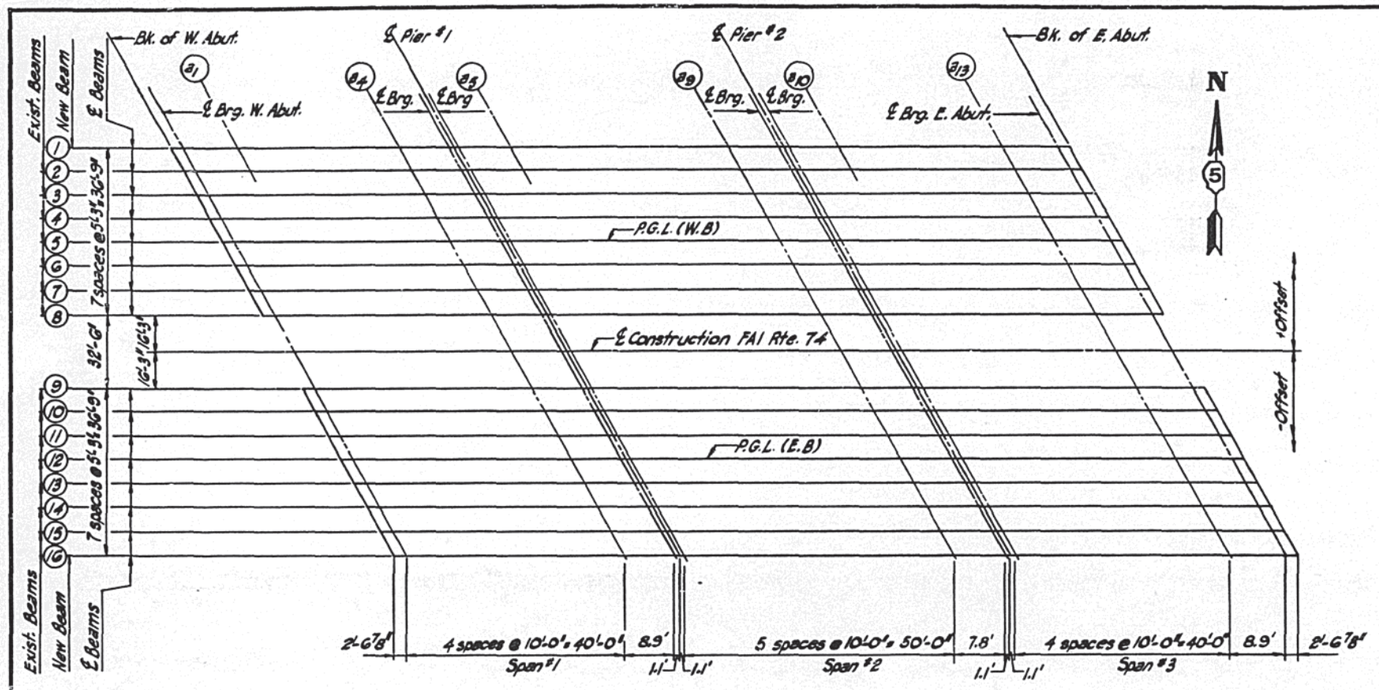
The Contractor shall drive in permanent locations 4 Steel (HP12x53) test piles 1 Ea. at the W. Abut. and E. Abut. of the E. Bd. Lanes and 1 Ea at Piers #1 & #2 of the W. Bd. Lanes as directed by the Engineer before ordering the remainder of the Piles.

STAGING DETAILS & GENERAL NOTES
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

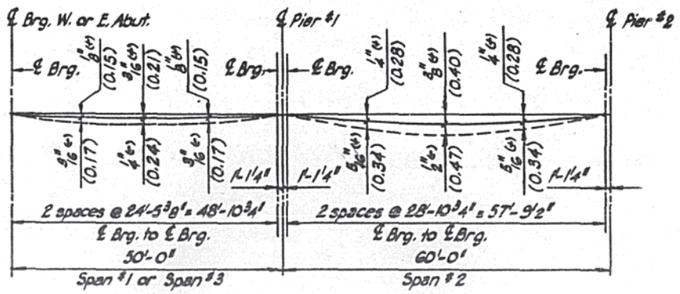
DATE

FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B) BR	CHAMPAIGN	108	26
		PROJECT		

SHEET 3 OF 17



PLAN



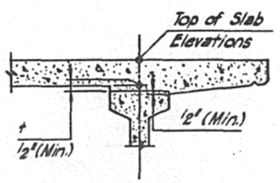
New Beam

Exist. Beam

DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of Concrete only)

NOTE: THE ABOVE DEFLECTIONS ARE NOT TO BE USED IN THE FIELD IF THE ENGINEER IS WORKING FROM THE GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTIONS AS SHOWN.



FILLET HEIGHTS

TO DETERMINE "t" AFTER ALL PRESTRESSED BEAMS HAVE BEEN ERECTED, ELEVATIONS OF THE TOP OF THE BEAMS SHALL BE TAKEN AT THE INTERVAL SHOWN IN THE PLAN. THESE ELEVATIONS SUBTRACTED FROM THE "THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTIONS" SHOWN ON THE FOLLOWING SHEETS, MINUS SLAB (7 1/2") EQUALS THE FILLET HEIGHTS "t" ABOVE THE TOP OF THE BEAMS.

BEAM 1

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEVATION ADJUSTED FOR D.L.DEF.
BK. W. Abut	688+94.02	53.00	673.67	673.67
C.L. Brg. W. Abut	688+96.62	53.00	673.66	673.66
a1	689+06.62	53.00	673.64	673.64
a2	689+16.62	53.00	673.62	673.62
a3	689+26.62	53.00	673.60	673.60
a4	689+36.62	53.00	673.58	673.58
C.L. Brg.	689+45.52	53.00	673.56	673.56
C.L. Pier 1	689+46.62	53.00	673.56	673.56
C.L. Brg.	689+47.72	53.00	673.56	673.56
a5	689+57.72	53.00	673.54	673.53
a6	689+67.72	53.00	673.52	673.51
a7	689+77.72	53.00	673.50	673.48
a8	689+87.72	53.00	673.48	673.47
a9	689+97.72	53.00	673.46	673.45
C.L. Brg.	690+05.52	53.00	673.44	673.44
C.L. Pier 2	690+06.62	53.00	673.44	673.44
C.L. Brg.	690+07.72	53.00	673.44	673.44
a10	690+17.72	53.00	673.42	673.42
a11	690+27.72	53.00	673.40	673.40
a12	690+37.72	53.00	673.38	673.38
a13	690+47.72	53.00	673.36	673.36
C.L. Brg. E. Abut.	690+56.62	53.00	673.34	673.34
Bk. E. Abut	690+59.22	53.00	673.34	673.34

REVISED ELEVATIONS

BEAM 2

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATION	THEORETICAL GRADE ELEVATION ADJUSTED FOR D.L.DEF.
BK. W. Abut	688+96.93	47.75	673.77	673.77
C.L. Brg. W. Abut	688+99.53	47.75	673.77	673.77
a1	689+09.53	47.75	673.75	673.76
a2	689+19.53	47.75	673.73	673.75
a3	689+29.53	47.75	673.71	673.73
a4	689+39.53	47.75	673.69	673.70
C.L. Brg.	689+48.43	47.75	673.67	673.67
C.L. Pier 1	689+49.53	47.75	673.67	673.67
C.L. Brg.	689+50.63	47.75	673.66	673.66
a5	689+60.63	47.75	673.64	673.67
a6	689+70.63	47.75	673.62	673.66
a7	689+80.63	47.75	673.60	673.65
a8	689+90.63	47.75	673.58	673.62
a9	690+00.63	47.75	673.56	673.58
C.L. Brg.	690+08.43	47.75	673.55	673.55
C.L. Pier 2	690+09.53	47.75	673.55	673.55
C.L. Brg.	690+10.63	47.75	673.54	673.54
a10	690+20.63	47.75	673.52	673.54
a11	690+30.63	47.75	673.50	673.52
a12	690+40.63	47.75	673.48	673.50
a13	690+50.63	47.75	673.46	673.48
C.L. Brg. E. Abut.	690+59.53	47.75	673.45	673.45
Bk. E. Abut	690+62.13	47.75	673.44	673.44

DESIGNED BY N.A.F.
DRAWN BY b.a.
CHECKED BY O.M.D

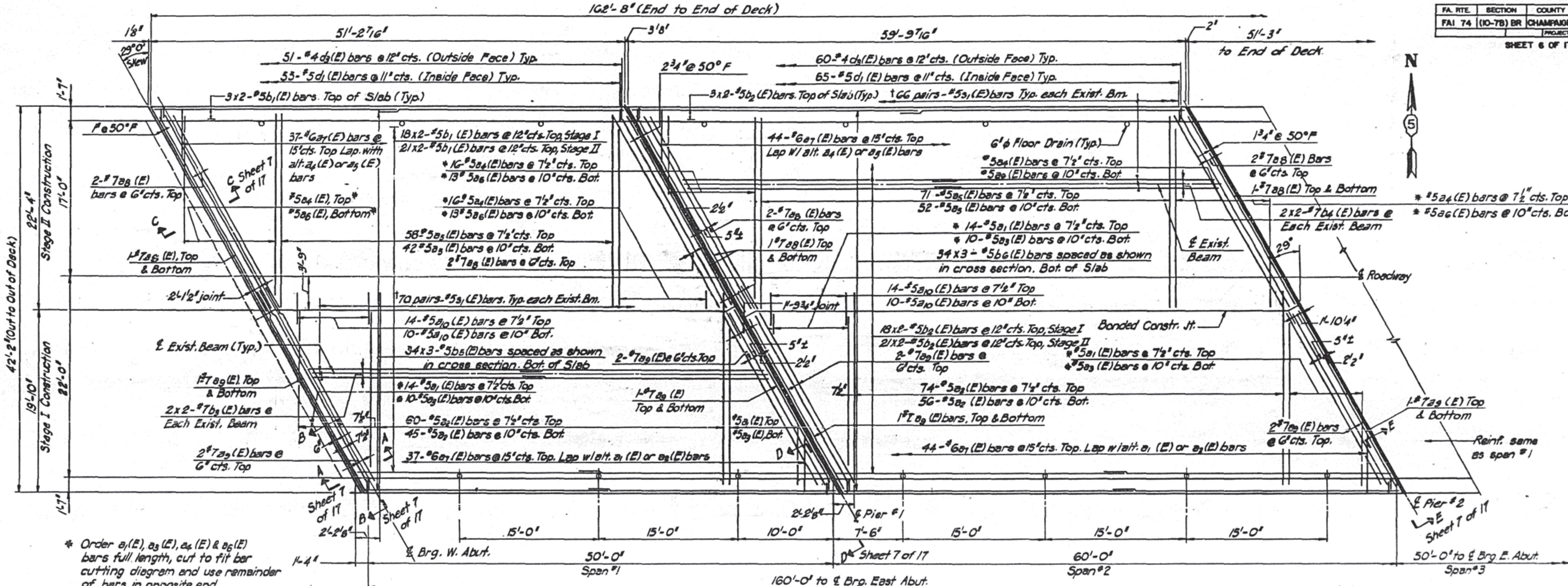
AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

TOP OF SLAB ELEVATIONS
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

DATE

FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B) BR	CHAMPAIGN	106	23
		PROJECT		

SHEET 6 OF 17

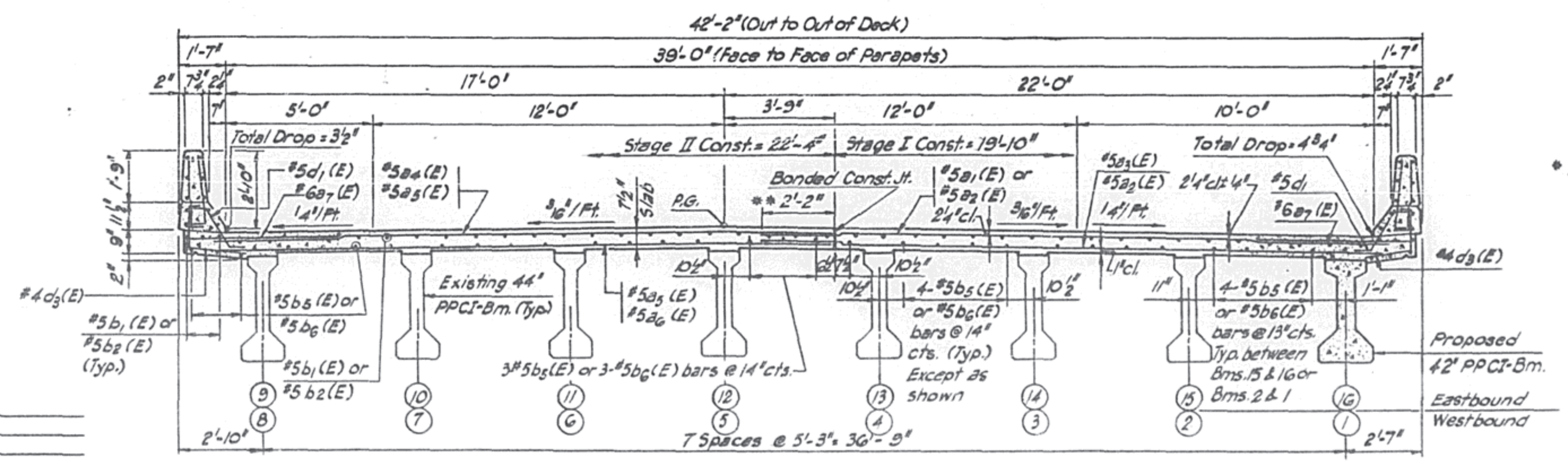


* Order $a_1(E)$, $a_3(E)$, $a_4(E)$ & $a_6(E)$ bars full length, cut to fit bar cutting diagram and use remainder of bars in opposite end.

† - Weld #5 $s_1(E)$ bars to existing beam stirrups. Cost incidental to "Reinforcement Bars, Epoxy Coated"

PARTIAL PLAN

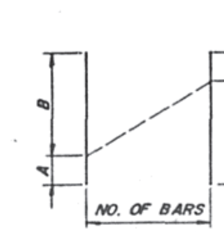
EASTBOUND DECK SHOWN WESTBOUND SIMILAR



CROSS SECTION

LOOKING EAST FOR EAST BOUND
LOOKING WEST FOR WEST BOUND

** Reinforcement bars in this area only shall have a minimum of 2'-2" lap and be tied with double the number of ties normally used.



* **BAR CUTTING DIAGRAM**

BAR CUTTING DIAGRAM TABLE

BAR	A	B	C	D	NO. OF BARS & SPACING
$a_1(E)$	2'-4"	17'-0"	17'-0"	2'-4"	14#5 @ 7 1/2"
$a_3(E)$	3'-5"	17'-0"	17'-0"	3'-5"	10#5 @ 10"
$a_4(E)$	2'-6"	19'-6"	19'-6"	2'-6"	16#5 @ 7 1/2"
$a_6(E)$	1'-6"	19'-6"	19'-6"	1'-6"	13#5 @ 10"

NOTES:

REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.

BARS INDICATED THUS 29 x 4-#5 etc., INDICATES 29 LINES OF BARS WITH 4 LENGTHS PER LINE.

FOR BILL OF MATERIAL SEE SHEET 8 OF 18.

MINIMUM BAR LAPS FOR #5 BARS = 1'-9"
#7 BARS = 2'-8"

DESIGNED BY N.A.F.
DRAWN BY G.L.
CHECKED BY O.M.D

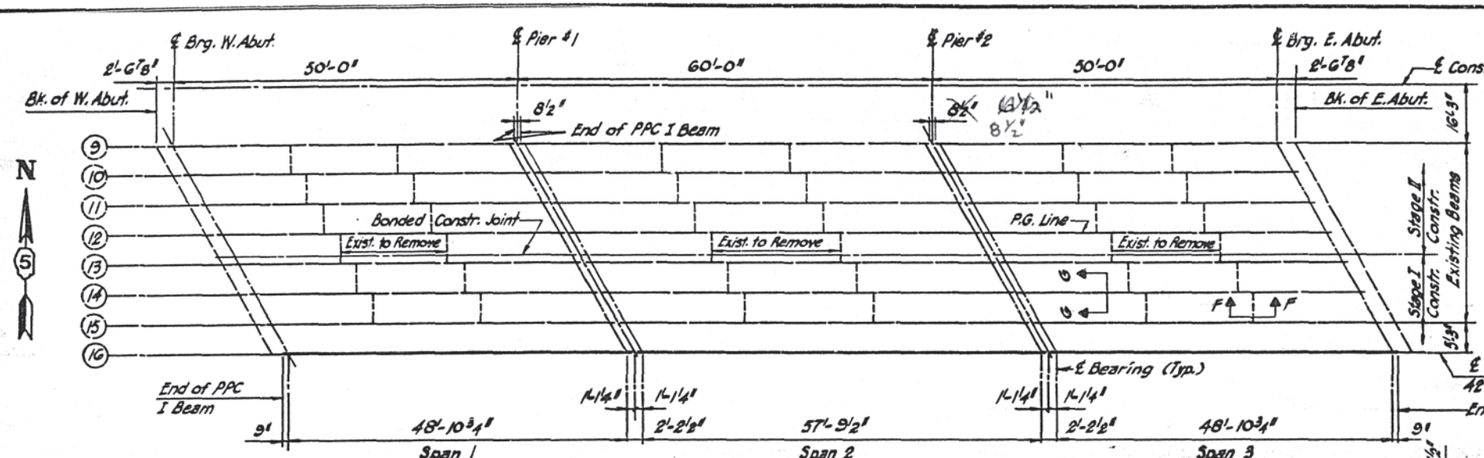
AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

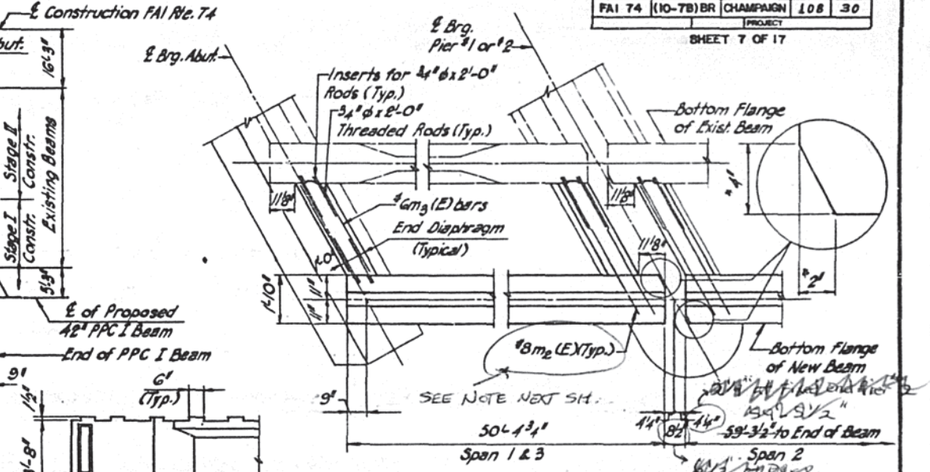
DECK PLAN AND SECTION
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

DATE

FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B) BR	CHAMPAIGN	108	30
		PROJECT		

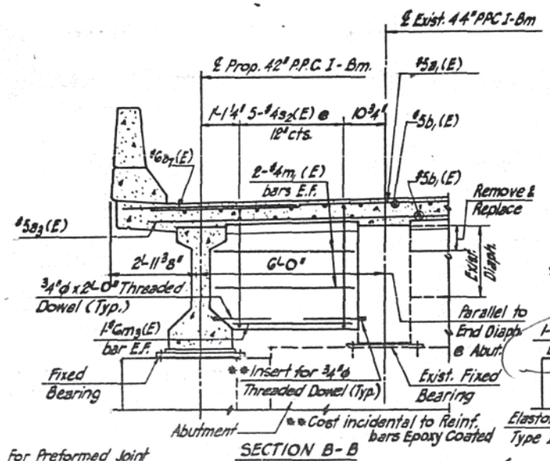
SHEET 7 OF 17

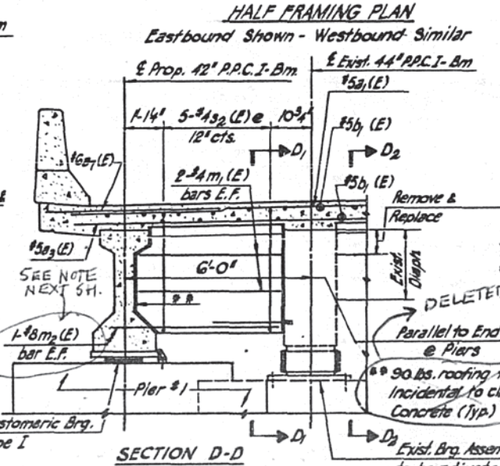


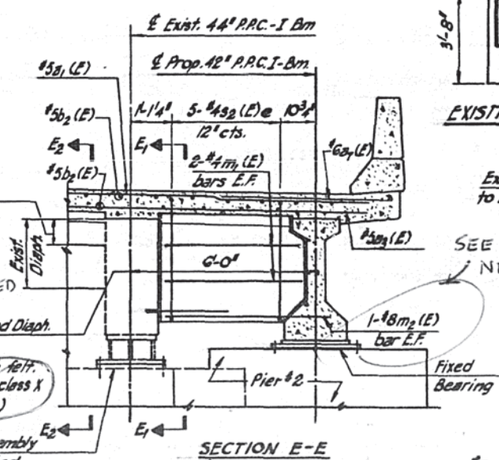


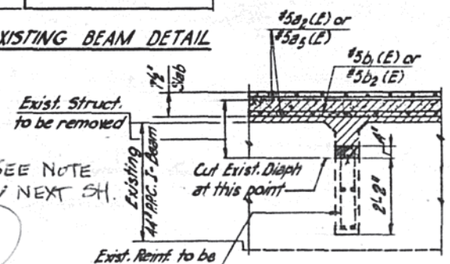
NEW BEAM & DIAPHRAGM DETAILS
& Bottom Flange Only

EXISTING BEAM DETAIL

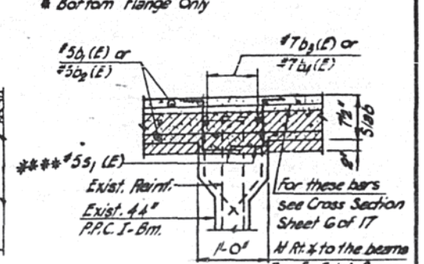




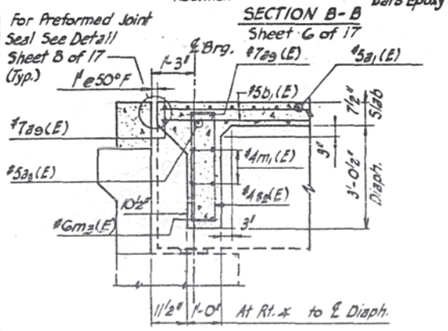




SECTION F-F
At Existing Intermediate Diaphragm (Typ.)

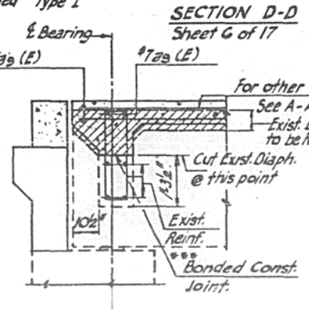


SECTION G-G
Typical @ Existing Beams

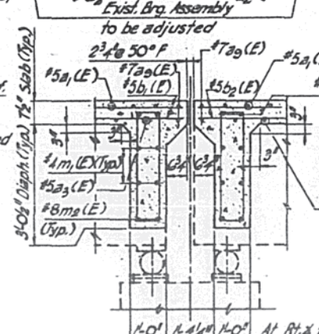


SECTION A - A

SECTION B-B
Sheet G of 17

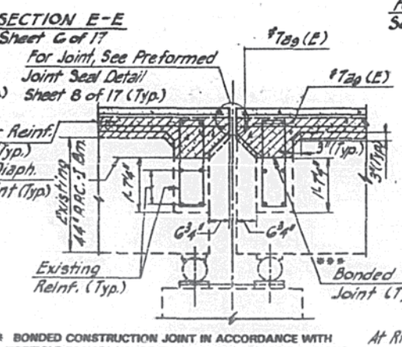


SECTION D-D
Sheet G of 17

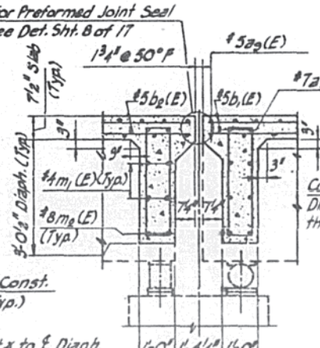


SECTION D1-D1

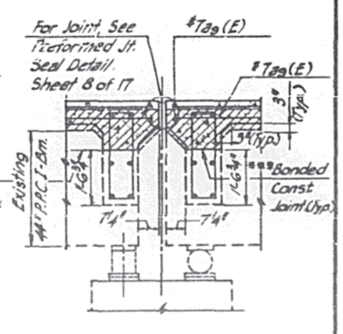
SECTION E-E
Sheet G of 17



SECTION D2-D2



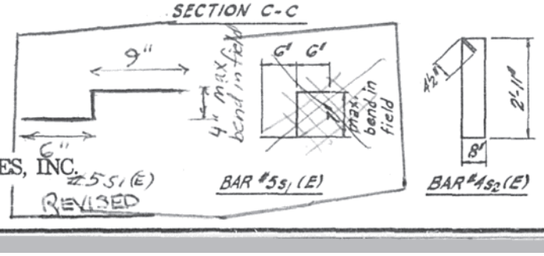
SECTION E1-E1



SECTION E2-E2

*** BONDED CONSTRUCTION JOINT IN ACCORDANCE WITH "ARTICLE 504.13(a)(2) OF THE STANDARD SPECIFICATIONS

At Rt. ℄ to ℄ Diaph. Typ. @ Fixed Connection | Typ. @ Exp. Connection



DESIGNED BY N.A.F.
DRAWN BY b.a.
CHECKED BY O.M.D.

AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

DIAPHRAGM DETAILS

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Repair Concrete Structure	Sq.Ft.	220

NOTE
EXISTING REINFORCEMENT BARS TO BE CLEANED, STRAIGHTENED AND INCORPORATED INTO NEW CONSTRUCTION. COST INCIDENTAL TO "CLASS X CONCRETE SUPERSTRUCTURE".

*** WELD #5 S1E BARS TO EXISTING BEAM STIRRUPS. COST INCIDENTAL TO "REINFORCEMENT BARS, EPOXY COATED".

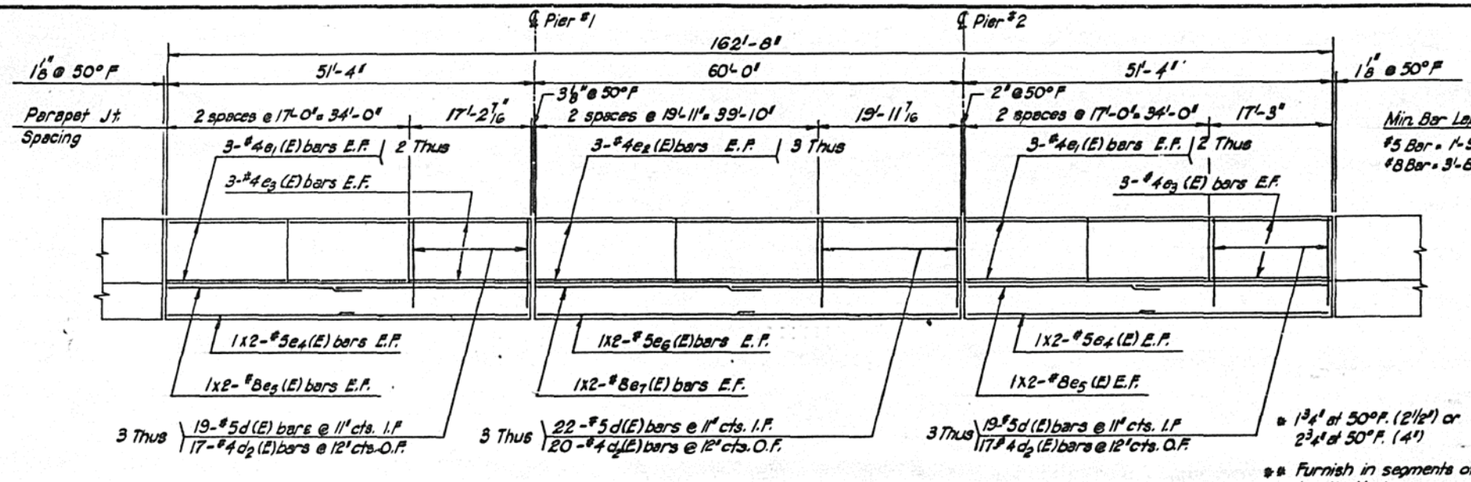
HATCHED PORTIONS INDICATE CONCRETE TO BE REMOVED.

FRAMING PLAN & DIAPHRAGM DETAILS
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

DATE

FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B) BR	CHAMPAIGN	108	31
		PROJECT		

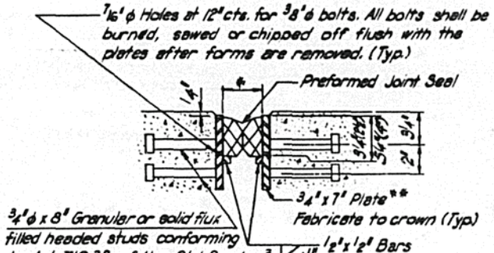
SHEET 8 OF 17



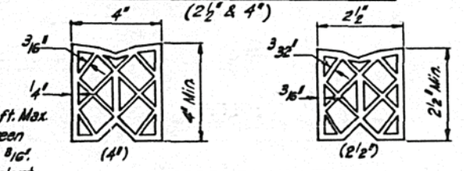
INSIDE ELEVATION OF PARAPET

* 1¾" at 50°F. (2 1/16") or 2¾" at 50°F. (4")

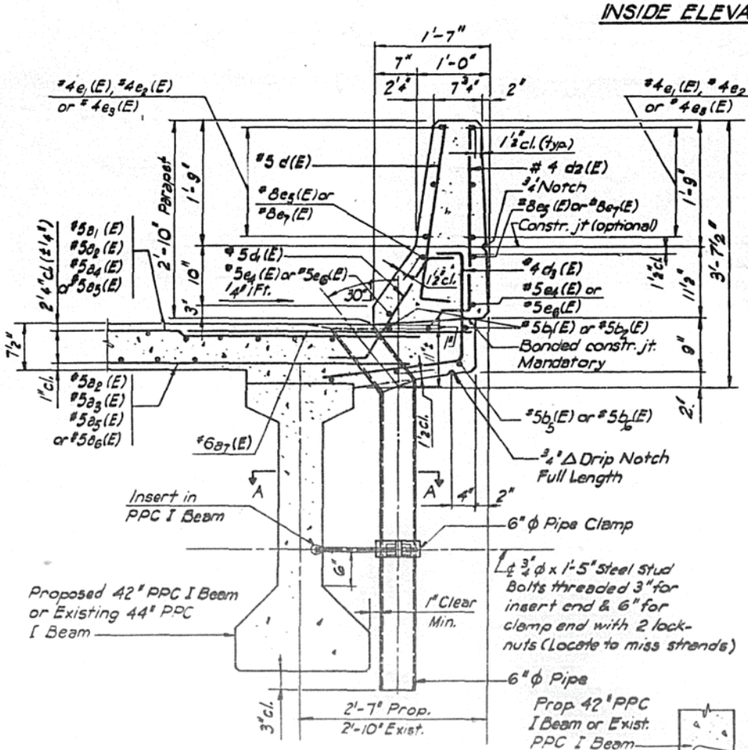
** Furnish in segments of 20 ft. Max. length. Maximum space between installed segments shall be 3/16". Seal space with Silicone Sealant suitable for Structural Steel.



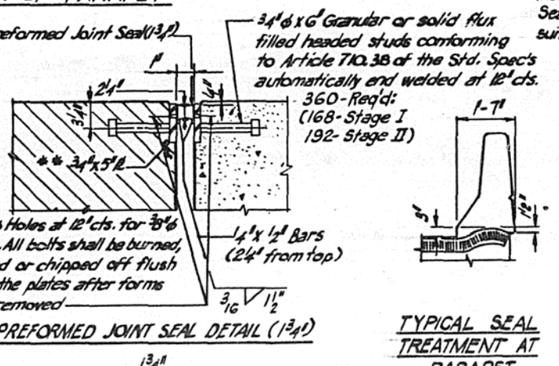
PREFORMED JOINT SEAL DETAIL (2½" & 4")



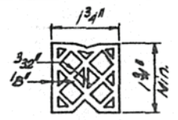
PREFORMED JOINT SEAL



SECTION THRU PARAPET

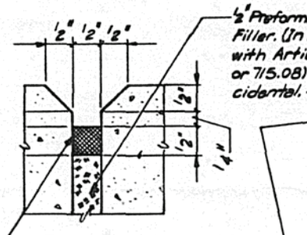


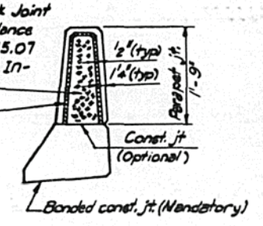
PREFORMED JOINT SEAL DETAIL (1¾")



PREFORMED JOINT SEAL (1¾")

TYPICAL SEAL TREATMENT AT PARAPET

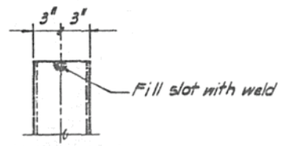




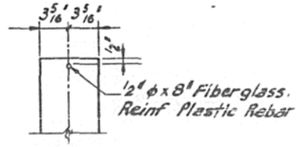
REPLACED BY COIL LOOP INSERTS & COIL THREADED BARS

NOTE:
After fabrication all surfaces of the steel plates shall be given one shop coat of paint specified for Structural Steel. No field painting required

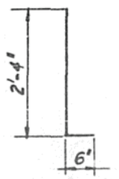
DETAILS OF PARAPET JOINT



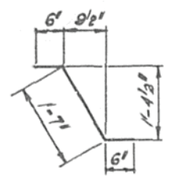
ALUMINUM TUBE (Optional)



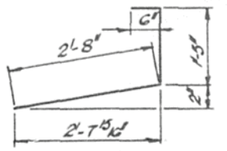
FIBERGLASS PIPE



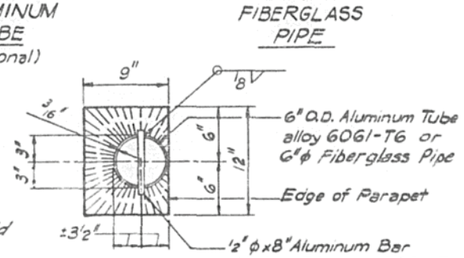
BAR #5d(E)
BAR #4d2(E)



BAR #5d1(E)



BAR #4d3(E)



SECTION A-A

TOP PLAN
(Showing Aluminum Tube)

6" DIA. FLOOR DRAIN DETAIL (40 Required)

SUPERSTRUCTURE BILL OF MATERIAL

BAR	No	SIZE	LENGTH	SHAPE
a1(E)	84	#5	19'-4"	
a2(E)	680	#5	21'-0"	
a3(E)	60	#5	20'-5"	
a4(E)	96	#5	22'-0"	
a5(E)	646	#5	21'-6"	
a6(E)	78	#5	21'-0"	
a7(E)	472	#6	31'-0"	
a8(E)	48	#7	27'-4"	
a9(E)	48	#7	22'-6"	
a10(E)	144	#5	3'-0"	
b1(E)	360	#5	26'-4"	
b2(E)	180	#5	30'-8"	
b3(E)	112	#7	26'-10"	
b4(E)	56	#7	31'-2"	
b5(E)	408	#5	18'-1"	
b6(E)	204	#5	21'-0"	
d(E)	720	#5	2'-10"	
d1(E)	700	#5	2'-7"	
d2(E)	648	#4	2'-10"	
d3(E)	648	#4	4'-7"	
e1(E)	96	#4	16'-9"	
e2(E)	72	#4	19'-8"	
e3(E)	48	#4	17'-0"	
e4(E)	32	#5	22'-3"	
e5(E)	32	#8	27'-4"	
e6(E)	16	#5	30'-3"	
e7(E)	16	#8	31'-8"	
m1(E)	48	#4	4'-6"	
m2(E)	16	#8	5'-2"	
m3(E)	8	#6	4'-3"	
s1(E)	5768	#5	1'-7"	
s2(E)	60	#4	7'-11"	

ITEM	UNIT	QUANTITY
Class X Concrete Superstructure	Cu. Yd.	425
Reinforcement Bars (Epoxy Coated)	Lbs.	108,000

NOTES

FIBERGLASS PIPE SHALL CONFORM TO ASTM D2996, WITH SHORT-TIME RUPTURE STRENGTH HOOP TENSILE STRESS OF 30,000 psi MINIMUM. THE SURFACE OF THE FIBERGLASS PIPE SHALL BE FREE OF BOND INHIBITING AGENTS.

THE EXTERIOR SURFACES OF THE FIBERGLASS FLOOR DRAINS SHALL BE PAINTED WITH ONE COAT OF ALUMINUM PAINT. PAINTING OF THE FIBERGLASS FLOOR DRAINS WILL NOT BE REQUIRED WHEN THE EXTERIOR SURFACES OF THE FURNISHED DRAINS ARE COATED BY THE MANUFACTURER WITH SILVER PIGMENT OR A PIGMENT THAT MATCHES THE COLOR OF THE CONCRETE BEAM.

THE CLAMPING DEVICE AND INSERTS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M-232.

BARS DESIGNATED (E) SHALL BE EPOXY COATED.

BARS INDICATED THUS 1 X 2 #5 etc., INDICATES ONE LINE OF BARS WITH TWO LENGTHS PER LINE.

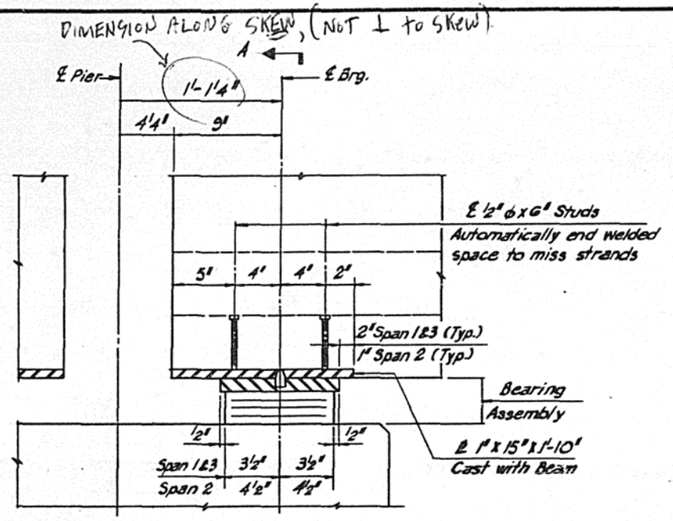
DESIGNED BY N.A.F
DRAWN BY b.a.
CHECKED BY O.M.D

AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

PARAPET DETAILS
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

DATE

FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B) BR	CHAMPAIGN	108	32
		PROJECT		

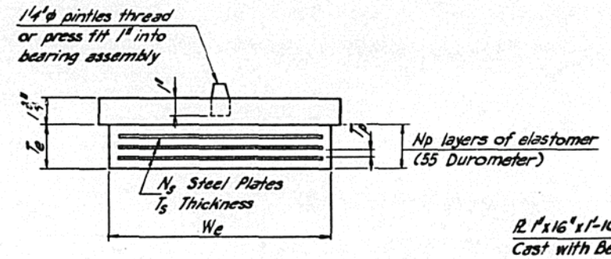


SECTION AT PIER #1 - SPAN 2

Type I Elastomeric Exp. Bearing

Details for Span 1 Expansion Brg. Similar by Rotation

Details for Expansion Brg. @ Pier #2 are Similar

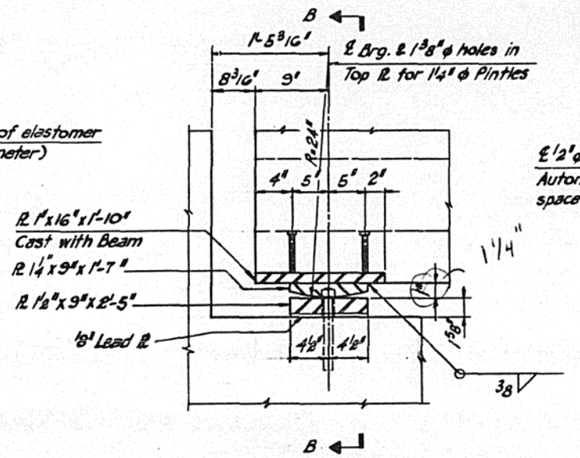


BEARING ASSEMBLY

Note: Shim plates shall not be placed under bearing Assembly

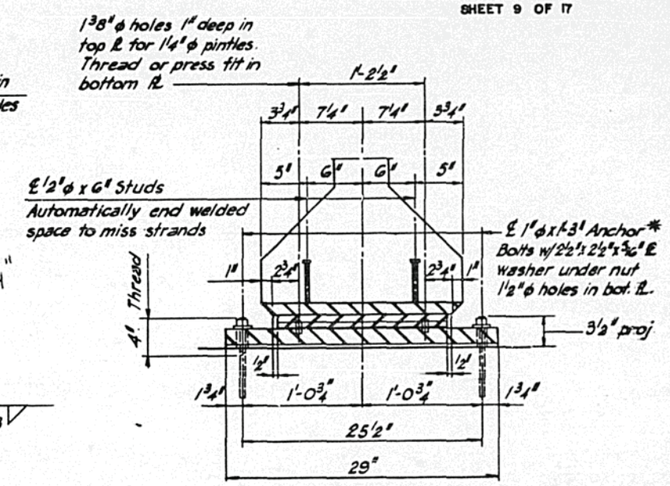
TYPE I - BEARING

Span	W_e	L_e	Tp	Np	T_s	N_s	T_e	A
1 & 3	7"	12"	⅜"	4	3/32"	3	1¾"	1½" x 8" x 23"
2	9"	12"	⅜"	5	3/32"	4	2¼"	1½" x 10" x 23"



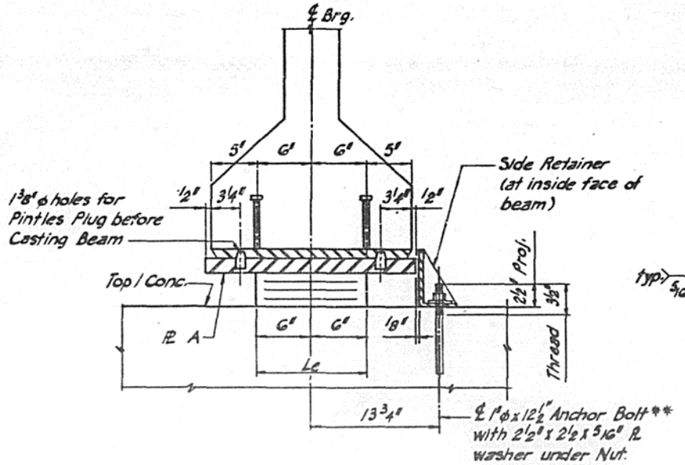
SECTION AT ABUTMENTS

(Fixed Bearing)

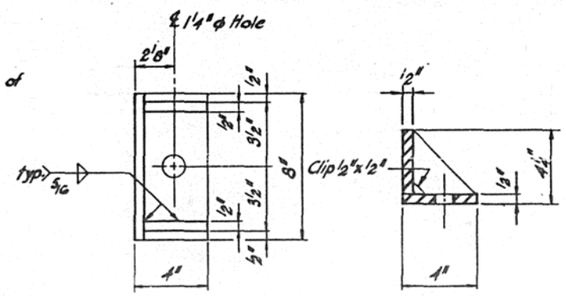


SECTION B-B

Total Number of Fixed Bearing 4



SECTION A-A

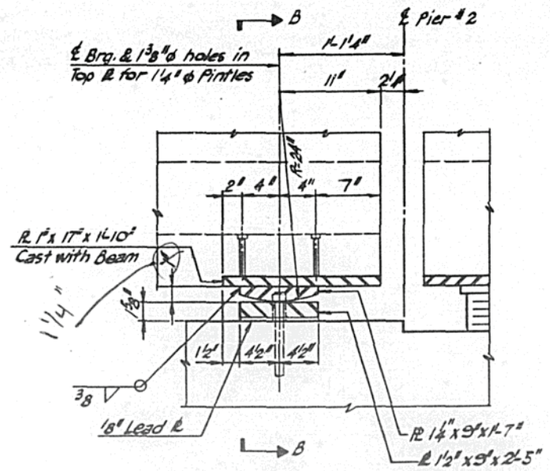


PLAN

SIDE RETAINER

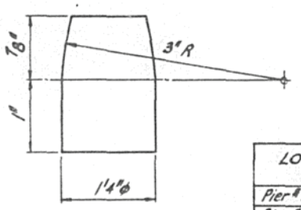
6 Required

SECTION



SECTION AT PIER #2 - SPAN 2

(Fixed Bearing)



PINTLE

LOCATION	No. of Elast. Brg. Type I
Pier #1 (E.B. & W.B.)	4
Pier #2 (E.B. & W.B.)	2
Total	6

NOTES

THE STRUCTURAL STEEL BEARING PLATES OF ELASTOMERIC BEARING ASSEMBLIES AND FIXED BEARING ASSEMBLIES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M223, GRADE 50.

ALL EXPOSED SHIM PLATES AND BEARING PLATES AND SHALL BE AASHTO M223, GRADE 50. COST INCIDENTAL TO THE ITEM INVOLVED.

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES FOR SIDE RETAINER.

ALL ANCHORED BEARING PLATES IN PRESTRESSED CONCRETE BEAMS ARE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS (3'-6" DEPTH).

* ANCHOR BOLTS MAY BE BUILT INTO THE MASONRY OR DRILLED AND GROUTED IN PLACE AFTER BEAMS HAVE BEEN ERECTED. SEE SHEET 10 OF 17 FOR INSTALLATION.

** AFTER BEAMS HAVE BEEN ERECTED, HOLES SHALL BE DRILLED AND ANCHOR BOLTS GROUTED IN PLACE. SEE SHEET 10 OF 17 FOR ANCHOR BOLT INSTALLATION.

DESIGNED BY N.A.F A.A

DRAWN BY b.a.

CHECKED BY O.M.D.

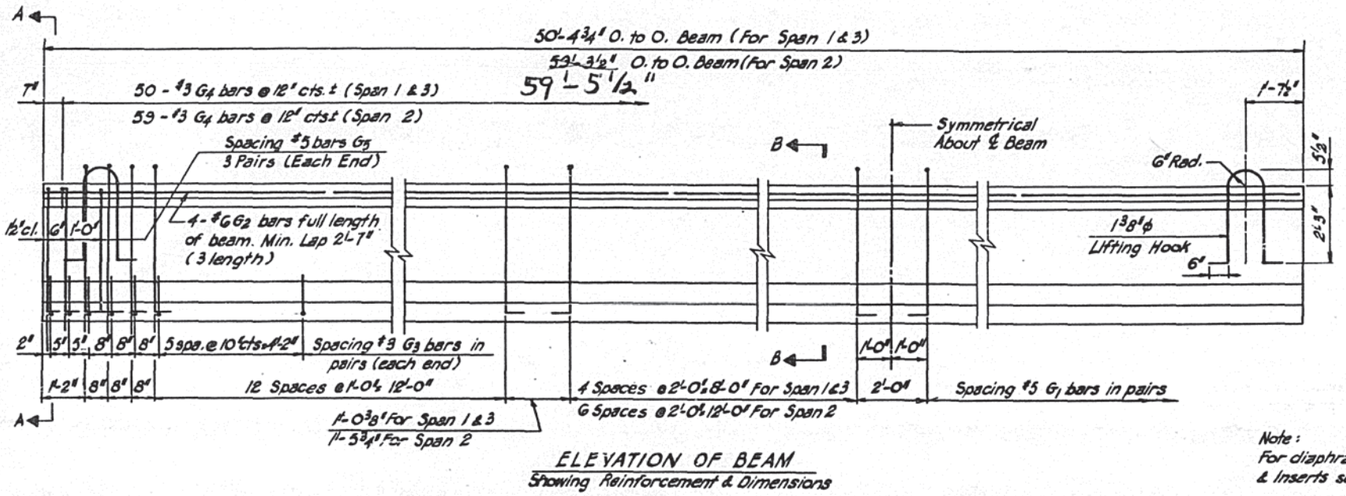
AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

ELASTOMERIC AND FIXED BEARINGS
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

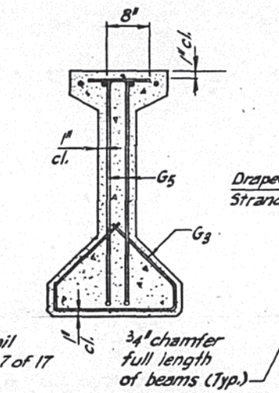
DATE

FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B)BR	CHAMPAIGN	105	34
	PROJECT			

SHEET 11 OF 17

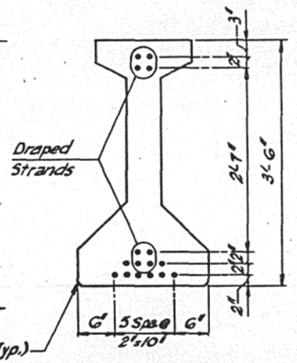


ELEVATION OF BEAM
Showing Reinforcement & Dimensions

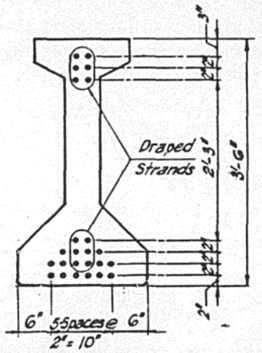


Note:
For diaphragm detail & Inserts see Sheet 7 of 17

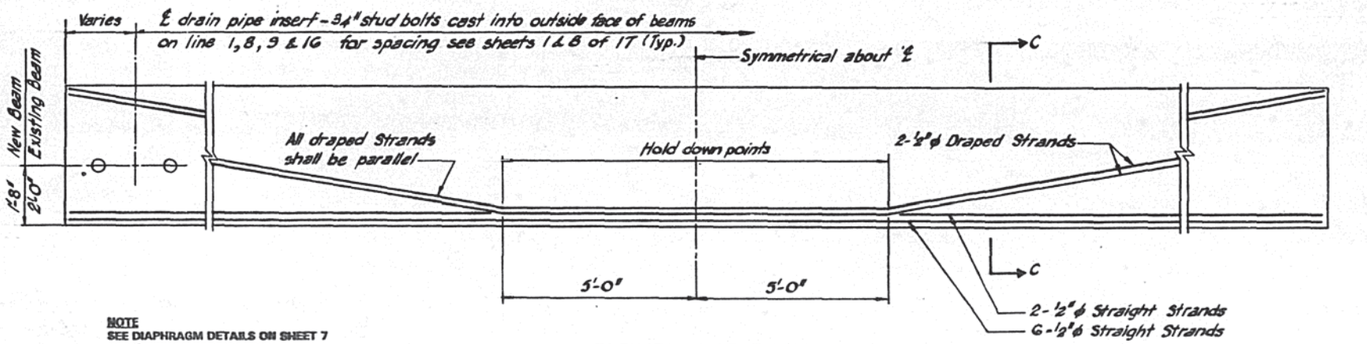
SECTION A-A
(For Span 1, 2 & 3)



SECTION C-C
(For Span 1 & 3)

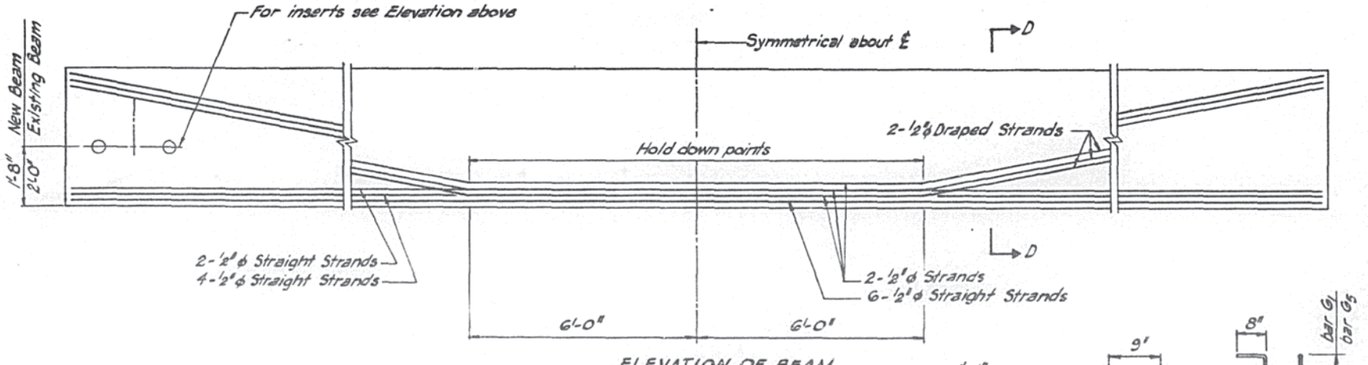


SECTION D-D
(For Span 2)

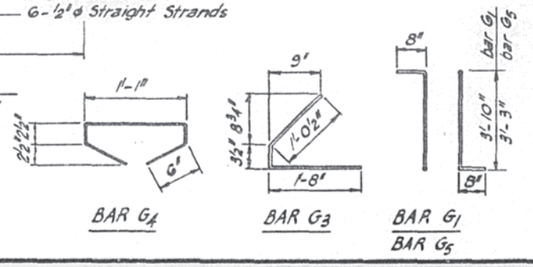


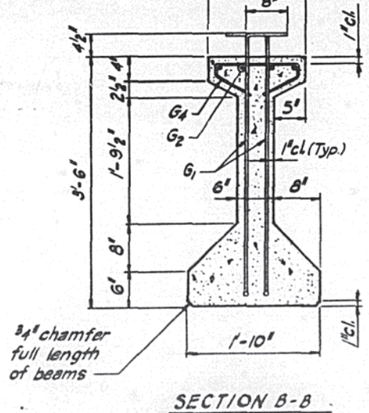
NOTE
SEE DIAPHRAGM DETAILS ON SHEET 7 OF 17 BEFORE FABRICATING.

ELEVATION OF BEAM
Showing Prestressing steel
(For Span 1 & 3)



ELEVATION OF BEAM
Showing Prestressed Steel
(For Span 2)





SECTION B-B
(For Span 1, 2 & 3)

NOTES

PRESTRESSING STEEL SHALL BE NON-GALVANIZED HIGH STRENGTH LOW RELAXATION 7 WIRE STRAND, GRADE 270.

ALL INSERTS AND THREADED RODS FOR INSERTS, REINFORCING AND PRESTRESSING STEEL AND OTHER ITEMS WHICH ARE CAST INTO THE PRECAST CONCRETE GIRDERS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER LINEAL FOOT OF "FURNISHING AND ERECTING PRECAST PRESTRESSED CONCRETE I BEAM 42".

PRESTRESSING STEEL SHALL BE A NOMINAL DIAMETER OF 1/2" AND A NOMINAL CROSS-SECTIONAL AREA SHALL BE 0.153 SQ.IN.

INSERTS FOR 3/4" ϕ THREADED RODS ARE TO BE TWO STRUT, SINGLE COIL, FLARED LOOP TYPE FOR EXTERIOR GIRDERS.

STEEL FOR LIFTING HOOKS SHALL BE NON-DEFORMED BARS f'y = 40,000 psi.

REQUIRED RELEASE STRENGTH f'ci SHALL BE 4,200 psi.

NON-PRESTRESSING STEEL SHALL CONFORM TO AASHTO DESIGNATION M-31, M-42, OR M-53, GRADE 60.

SEE DIAPHRAGM DETAILS ON SHEET 7 OF 17 BEFORE BEFORE FABRICATING.

BAR LIST (One Beam), For Span 1 & 3

Bar	No.	Size	Length	Shape
G_1	84	#5	5'-2"	
G_2	12	#6	18'-5"	
G_3	44	#3	3'-0"	
G_4	30	#3	2'-6"	
G_5	12	#5	4'-7"	

4 Beams Required

BAR LIST (One Beam), For Span 2

Bar	No.	Size	Length	Shape
G_1	92	#5	5'-2"	
G_2	12	#6	21'-9"	
G_3	44	#3	3'-0"	
G_4	39	#3	2'-6"	
G_5	12	#5	4'-7"	

2 Beams Required

BILL OF MATERIAL (For Span 1 & 3)

Item	Unit	Total
Furnishing & Erecting Precast Prestressed Concrete I-Beams, 42'	Lin.Ft.	202

BILL OF MATERIAL (For Span 2)

Item	Unit	Total
Furnishing & Erecting Precast Prestressed Concrete I-Beams, 42'	Lin.Ft.	119

DESIGNED BY N.A.F.
DRAWN BY E.A.
CHECKED BY A.A.

AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

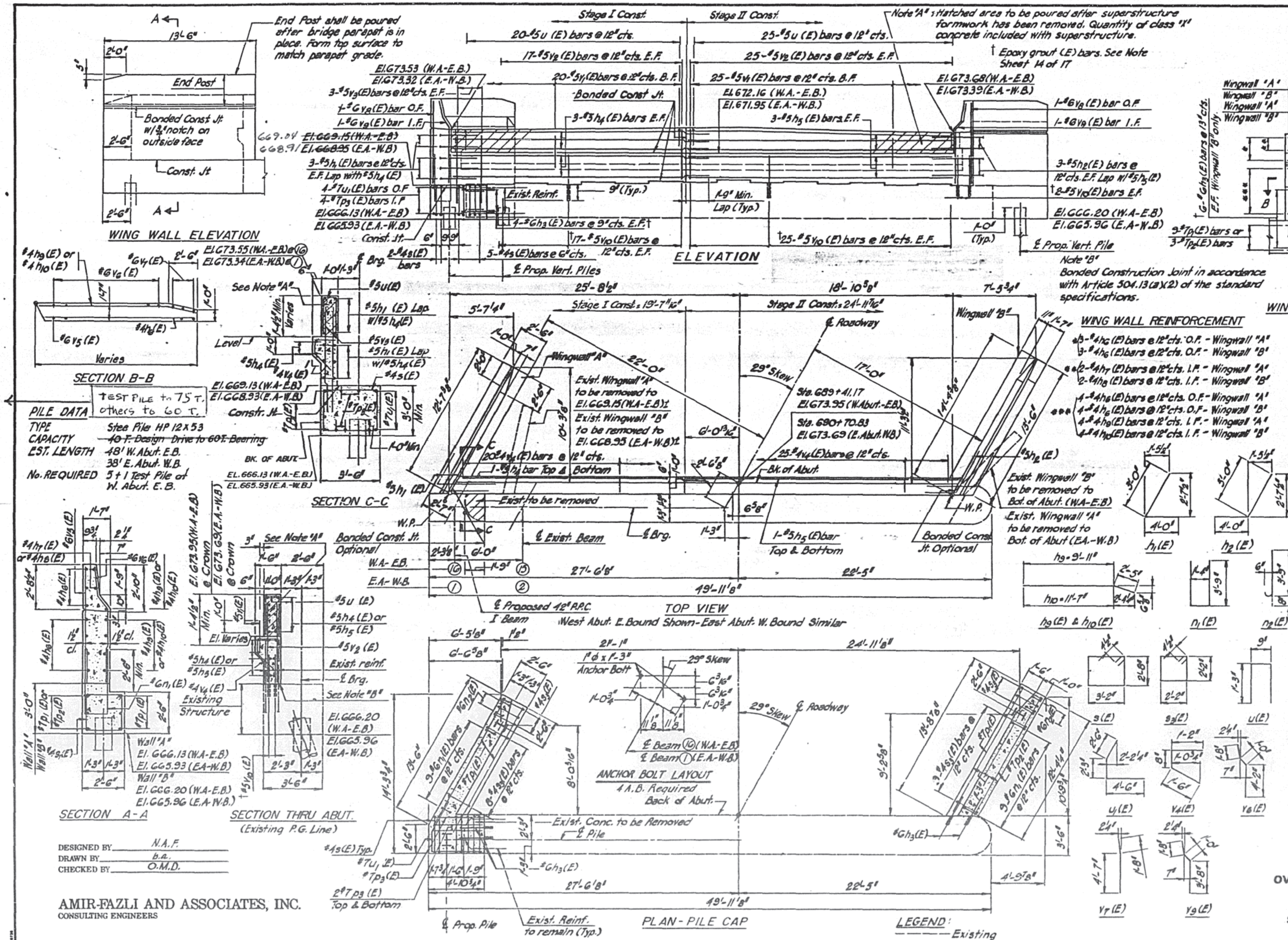
PRESTRESSED BEAMS - SPANS 1, 2 & 3
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

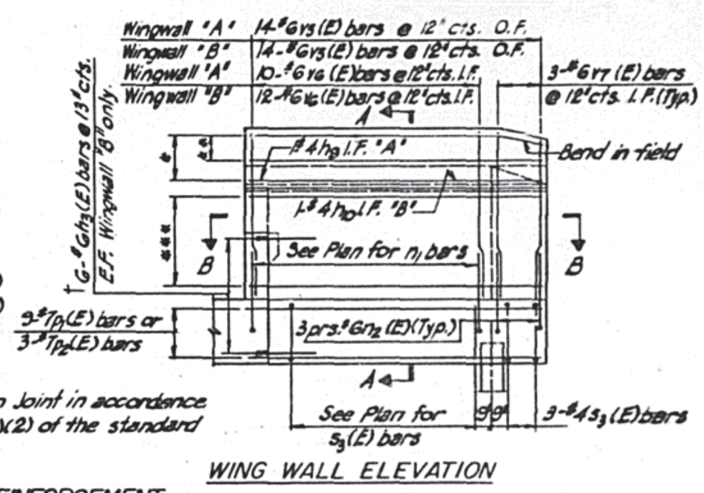
DATE

NEW BRG. SEAT ELEVS: E. ABUT. - WB → 668.91 ; W. ABUT. - EB → 669.04 ← CHANGES MADE DUE TO EFFECTS OF BEAM CAMBER

FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B)BR	CHAMPAIGN	108	35
		PROJECT		

SHEET 12 OF 17





W. ABUT. E.B. & E. ABUT. W.B.

BILL OF MATERIAL

BAR	No.	SIZE	LENGTH	SHAPE
h1(E)	24	#5	7'-0"	
h2(E)	24	#5	7'-0"	
h3(E)	40	#6	2'-10"	
h4(E)	28	#5	21'-0"	
h5(E)	28	#5	25'-0"	
h6(E)	28	#4	19'-2"	
h7(E)	4	#4	12'-3"	
h8(E)	4	#4	19'-9"	
h9(E)	10	#4	12'-4"	
h10(E)	10	#4	14'-0"	
n1(E)	36	#6	8'-10"	
n2(E)	24	#6	4'-5"	
p1(E)	18	#7	19'-3"	
p2(E)	6	#7	12'-0"	
p3(E)	16	#7	4'-3"	
s(E)	14	#4	12'-3"	
s3(E)	46	#4	9'-3"	
u(E)	30	#5	3'-3"	
u1(E)	8	#7	9'-3"	
v1(E)	30	#5	2'-0"	
v2(E)	168	#5	3'-9"	
v3(E)	12	#5	5'-0"	
v4(E)	90	#4	3'-4"	
v5(E)	36	#6	6'-9"	
v6(E)	44	#6	6'-10"	
v7(E)	12	#6	6'-3"	
v8(E)	4	#6	6'-6"	
v9(E)	4	#6	6'-4"	
v10(E)	176	#5	2'-6"	

ITEM	UNIT	QUANTITY
Reinforcement Bars (Epoxy Coated)	Lbs.	7,500
Class X Concrete	Cu. Yd.	30
Steel Pile HP 12x53	Lin. Ft.	210
Test Piles	Each	1
Concrete Removal	Cu. Yd.	33

For additional notes see Sheet 14 of 17

DESIGNED BY N.A.F.
DRAWN BY b.a.
CHECKED BY O.M.D.

AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

ABUTMENTS
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

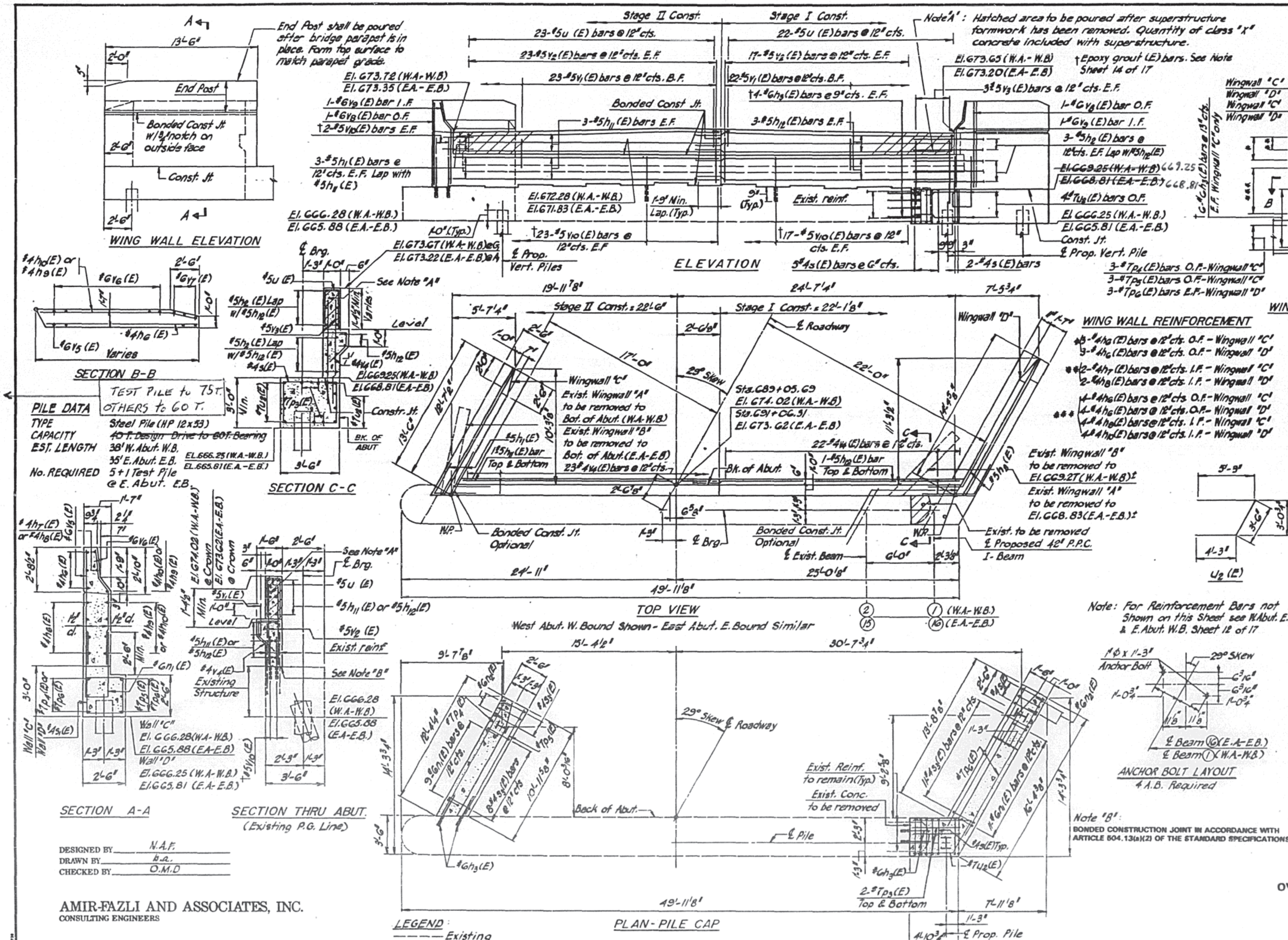
DATE

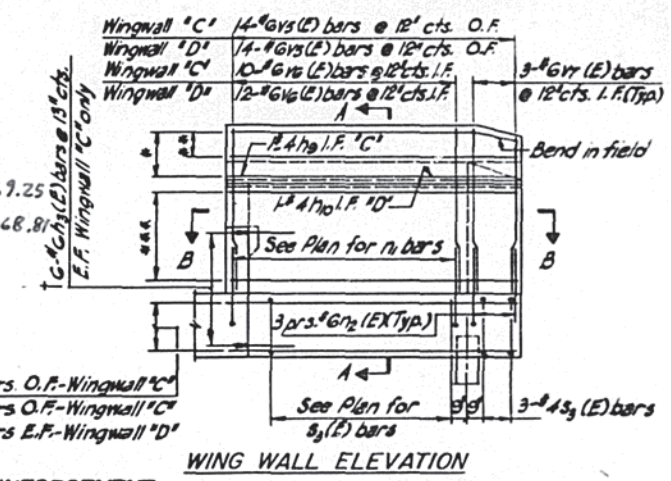
NEW BRG SEAT ELEVS: W. ABUT. - WB → 669.25 ; E. ABUT - EB → 668.81 ← CHANGES MADE DUE TO EFFECT OF BEAM CAMBER

AL GOODFIELD
BRIDGE OFFICE, SPRINGFIELD, IL.
12-22-92

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAI. 74	(10-7B) BR	CHAMPAIGN	108	36

SHEET 13 OF 17





DESIGNED BY N.A.F.
DRAWN BY b.a.
CHECKED BY O.M.D.

AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

W. ABUT. W.B & E. ABUT. E.B
BILL OF MATERIAL

BAR	No	SIZE	LENGTH	SHAPE
h_1(E)	24	#5	7'-0"	
h_2(E)	24	#5	7'-0"	
h_3(E)	40	#6	2'-10"	
h_6(E)	28	#4	13'-2"	
h_7(E)	4	#4	12'-3"	
h_8(E)	4	#4	13'-9"	
h_9(E)	10	#4	12'-4"	
h_{10}(E)	10	#4	14'-0"	
h_{11}(E)	28	#5	22'-2"	
h_{12}(E)	28	#5	23'-6"	
n_1(E)	40	#6	8'-10"	
n_2(E)	24	#6	4'-5"	
p_3(E)	8	#7	4'-3"	
p_4(E)	6	#7	11'-9"	
p_5(E)	6	#7	10'-7"	
p_6(E)	12	#7	14'-9"	
s(E)	14	#4	12'-5"	
s_3(E)	50	#4	9'-5"	
u(E)	90	#5	3'-3"	
u_2(E)	8	#7	13'-0"	
v_1(E)	90	#5	2'-0"	
v_2(E)	160	#5	3'-9"	
v_3(E)	12	#5	5'-0"	
v_4(E)	90	#4	3'-4"	
v_5(E)	56	#6	6'-9"	
v_6(E)	44	#6	6'-10"	
v_7(E)	12	#6	6'-3"	
v_8(E)	4	#6	6'-6"	
v_9(E)	4	#6	6'-4"	
v_{10}(E)	164	#5	2'-6"	

ITEM	UNIT	QUANTITY
Reinforcement Bars (Epoxy Coated)	Lbs.	7,500
Class X Concrete	Cu. Yd.	50
Steel Pile HP 12x53	Lin. Ft	184
Test Piles	Each	1
Concrete Removal	Cu. Yd.	35

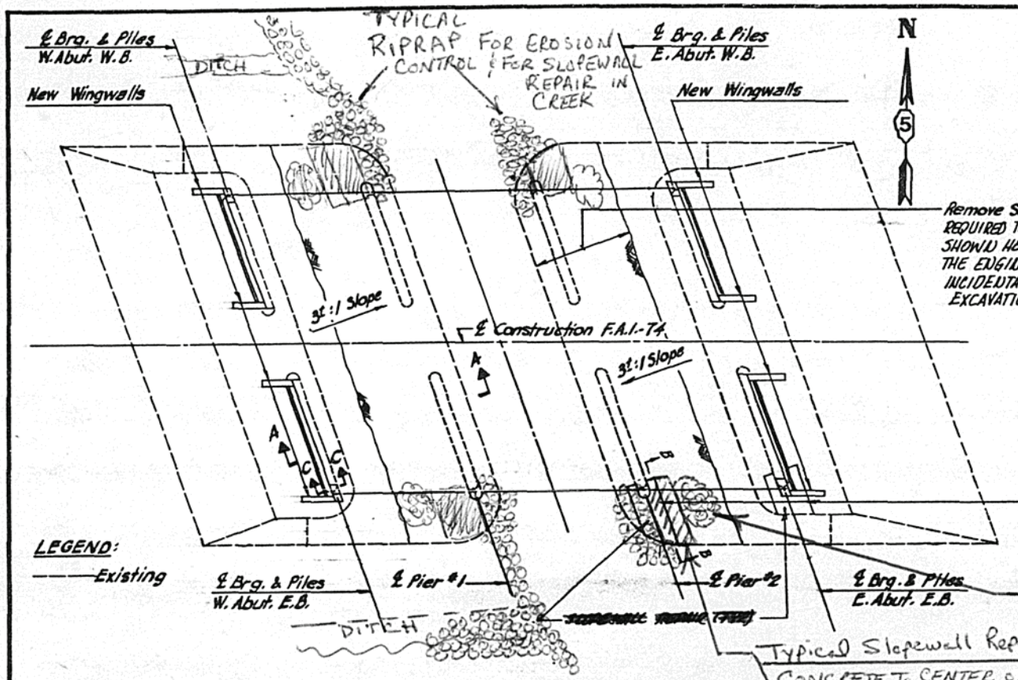
For additional notes see Sheet 14 of 17

ABUTMENTS
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

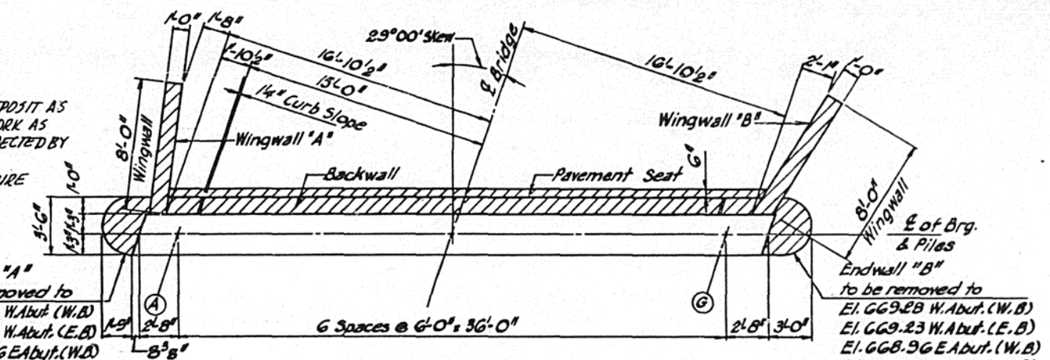
DATE

FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B) BR	CHAMPAIGN	108	37
		PROJECT		

SHEET 14 OF 17

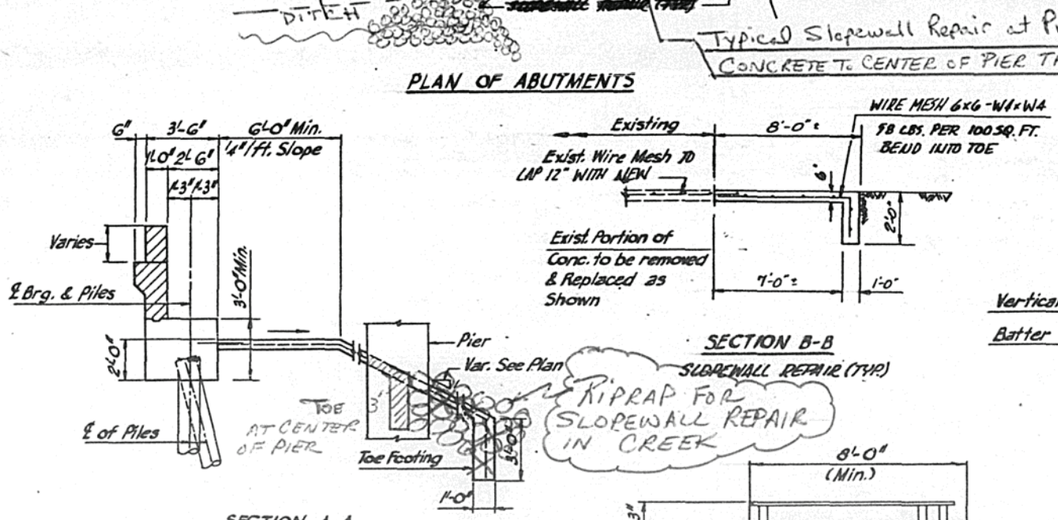


PLAN OF ABUTMENTS



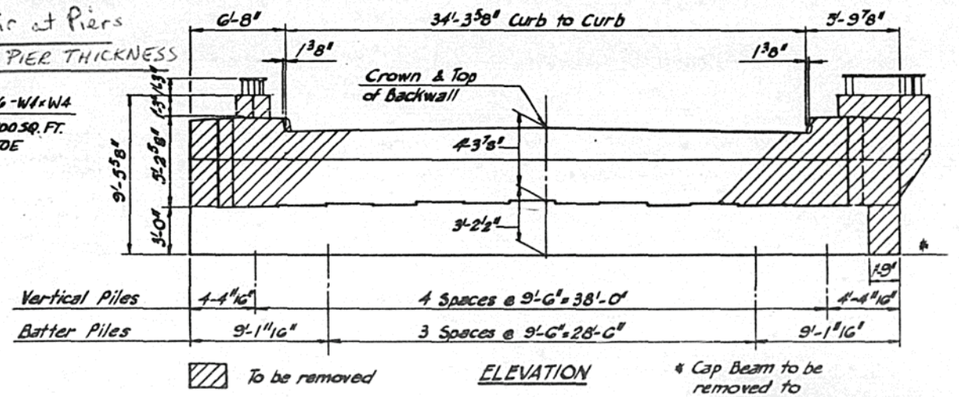
PLAN

West Abut. Westbound or West Abut. Eastbound Shown
East Abut. Westbound or East Abut. Eastbound Similar



SECTION A-A

SECTION B-B



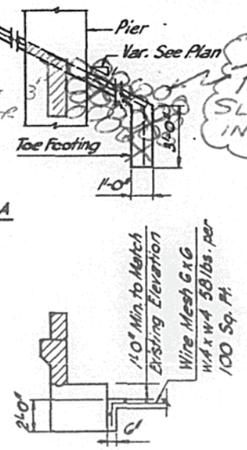
To be removed

ELEVATION

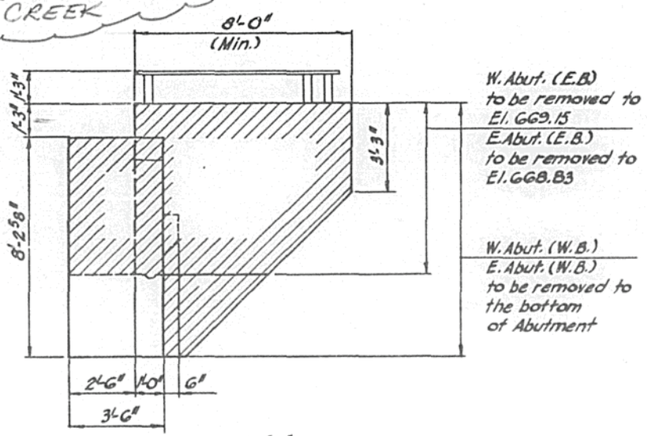
* Cap Beam to be removed to El. 666.28 W. Abut. (W.B.) North End
El. 666.20 W. Abut. (E.B.) South End
El. 665.96 E. Abut. (W.B.) North End
El. 665.88 E. Abut. (E.B.) South End

SLOPEWALL REPAIR (TYP.)

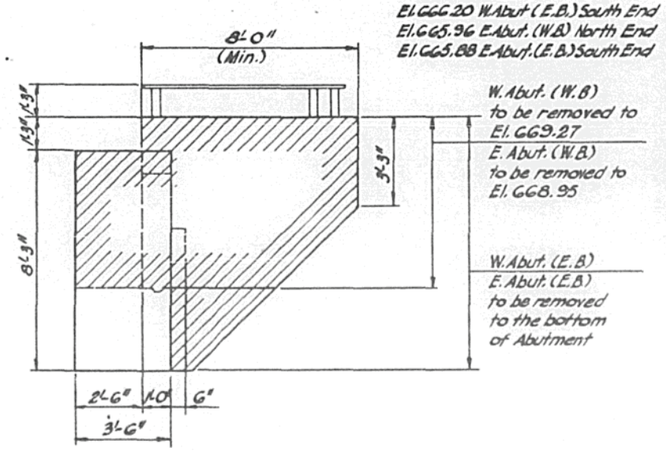
RIPRAP FOR SLOPEWALL REPAIR IN CREEK



SECTION C-C



WINGWALL "A" (Existing)



WINGWALL "B" (Existing)

NOTES

REMOVE EXISTING CONCRETE AS SHOWN. EXISTING VERTICAL REINFORCING BARS TO BE CLEANED AND INCORPORATED INTO NEW CONCRETE. COST INCIDENTAL TO "CLASS X CONCRETE".

REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.

THE MINIMUM HOLE DIAMETER FOR EPOXY GROUTED VERTICAL OR HORIZONTAL BARS SHALL BE THE DIAMETER OF THE BAR PLUS 1/4" AND THE MINIMUM DEPTH SHALL BE 9". SEE SPECIAL PROVISIONS. FOR HORIZONTAL BARS USE A GROUT APPROVED BY THE DEPARTMENT OR EPOXY GROUT IN ACCORDANCE WITH BSP-11. THE METHOD OF GROUT APPLICATION SHALL BE APPROVED BY THE ENGINEER. SEE SHEETS 12 AND 13 OF 17.

SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.

DESIGNED BY N.A.F.
DRAWN BY A.A.
CHECKED BY O.M.D

AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

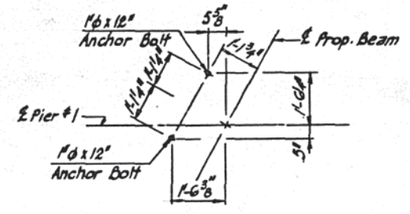
ABUTMENTS
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00

DATE

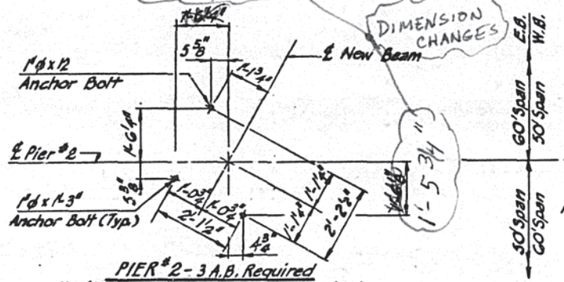
SOME PIER CAP ELEVATIONS WERE CHANGED DURING CONSTRUCTION DUE TO A DESIGNER ERROR IN NOT CALCULATING THE "CAMBER" EFFECT OF BEAMS

FA. RTE.	SECTION	COUNTY	TOTAL	SHEET
FAI 74	(10-7B) BR	CHAMPAIGN	106	88
	PROJECT			

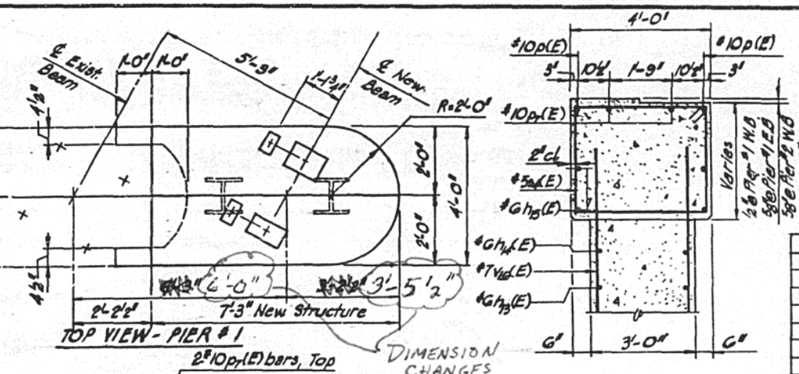
SHEET 15 OF 17



PIER #1 - 2 A.B. Required
(Inside of Exterior Beam (1))
Westbound Shown - Eastbound Similar



PIER #2 - 3 A.B. Required
Westbound Shown - Eastbound Similar



TOP VIEW - PIER #1

SECTION THRU CAP

4- PIERS
BILL OF MATERIAL

BAR	No.	SIZE	LENGTH	SHAPE
h3(E)	168	#6	2'-10"	
h13(E)	120	#6	12'-6"	
h14(E)	8	#6	3'-9"	
h15(E)	16	#6	6'-3"	
h16(E)	24	#6	7'-9"	
p(E)	8	#10	3'-0"	
p4(E)	8	#10	6'-6"	
p8(E)	8	#6	7'-11"	
s4(E)	32	#5	15'-2"	
s5(E)	4	#4	12'-9"	
V13(E)	76	#6	7'-11"	
V14(E)	12	#6	9'-6"	
V1(E)	8	#7	14'-7"	
V2(E)	8	#7	14'-9"	
V3(E)	8	#7	14'-11"	
V4(E)	8	#7	17'-4"	
V5(E)	8	#7	17'-6"	
V16(E)	52	#7	20'-0"	

ITEM	UNIT	QUANTITY
Reinforcement Bars (Epoxy Coated)	Lbs.	9,000
Class X Concrete	Cu. Yd.	113
Steel Pile HP 12x53	Lin. Ft.	228
Test Piles	Each	2
Concrete Removal	Cu. Yd.	10

† For #6h4 Epoxy grout (E) bars. See Sheet 14 of 17

NEW PIER CAP ELEVATIONS FROM BRIDGE OFFICE.

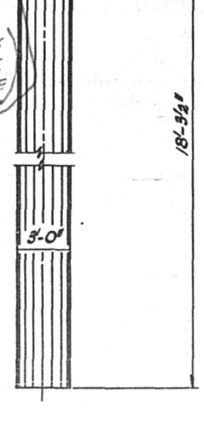
PIER 2 WEST - EB → 668.77

PIER 2 EAST - EB → 668.77

(ALL OTHER PIER CAPS WERE BUILT BEFORE BRIDGE OFFICE MADE CHANGES)

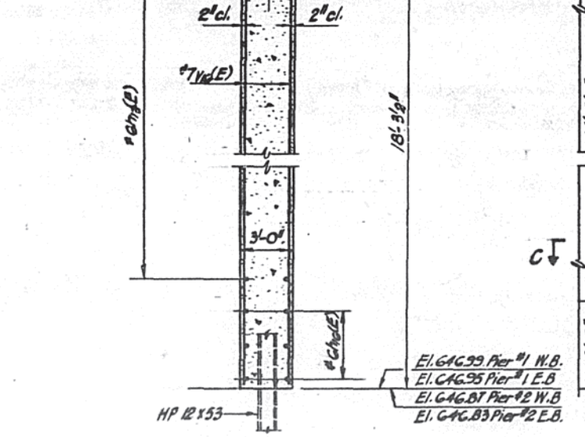
NO STEP ON CAP

AL GOODFIELD
BRIDGE OFFICE, SPRINGFIELD, IL.
12-22-92

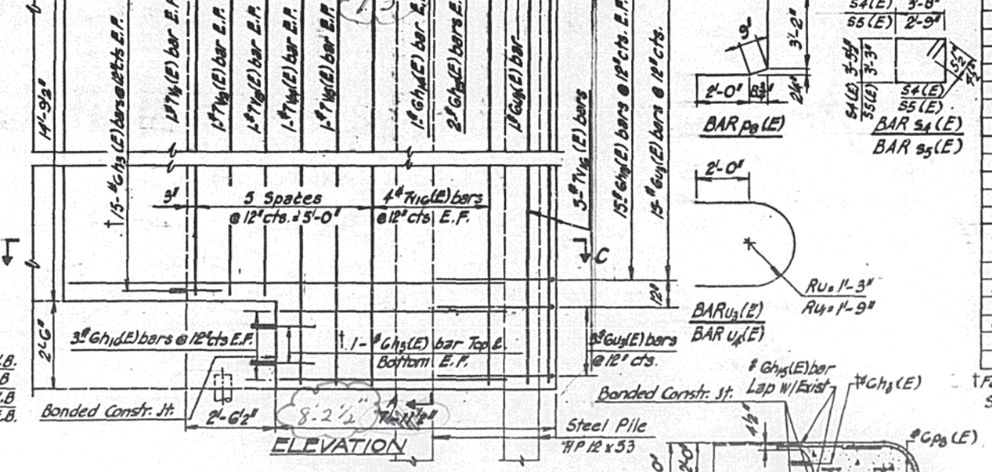


END ELEVATION

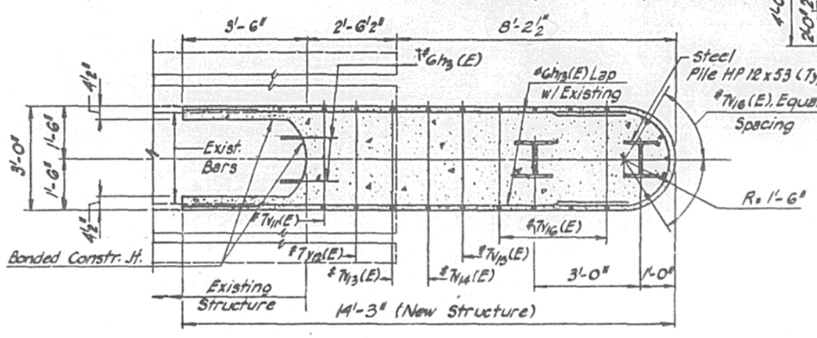
TEST PILE to 90 T.
OTHERS to 75 T.



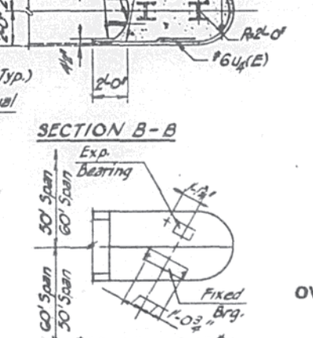
SECTION A-A



ELEVATION



SECTION C-C



PILE DATA

TYPE:	Steel Pile HP 12 x 53
CAPACITY:	~~45 Ton. Design Drive to 60T. Brg.~~
EST. LENGTH:	38 Ft.
No. REQUIRED:	6 + 2 Test Piles (1 of Pier #1 W.B. & 1 of Pier #2 W.B.

DESIGNED BY N.A.F.
DRAWN BY b.a.
CHECKED BY O.M.D.

AMIR-FAZLI AND ASSOCIATES, INC.
CONSULTING ENGINEERS

NOTE

EXISTING REINFORCEMENT BARS TO BE CLEANED, STRAIGHTENED AND INCORPORATED INTO NEW CONSTRUCTION. COST INCIDENTAL TO "CLASS X CONCRETE".

ALL EDGES SHALL HAVE STANDARD 3/4" CHAMFER EXCEPT AS NOTED.

POUR STEPS MONOLITHICALLY WITH CAP.

SPACE REINFORCEMENT IN CAP TO MISS ANCHOR BOLTS.

REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.

BONDED CONSTRUCTION JOINT IN ACCORDANCE WITH ARTICLE 504.13(a)(2) OF THE STANDARD SPECIFICATIONS.

PIERS
FAI RTE. 74
OVER SALINE DRAINAGE DITCH
SEC. (10-7B) BR
CHAMPAIGN COUNTY
STR. NOS. 010-0027,0028
STA. 690 + 06.00 DATE