CONTRACT NUMBER 91454

08-05-11 LETTING ITEM 093

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
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3	SUMMARY OF QUANTITIES
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6	TIE POINTS
7	PLAN & PROFILE
8	EROSION CONTROL PLAN
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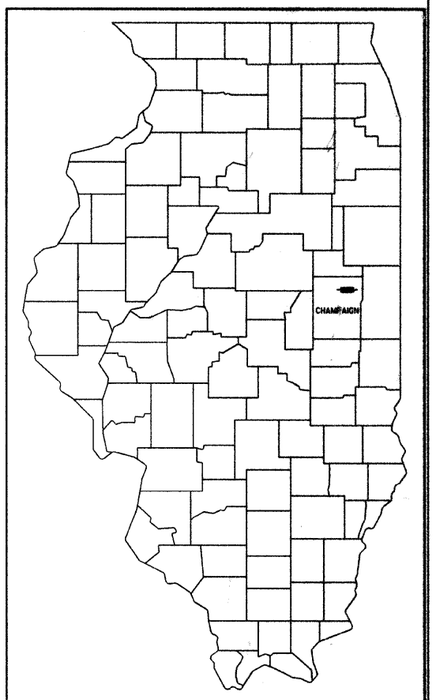
30	GUARDRAIL DETAILS
31	BORING LOGS
32-40	CROSS SECTIONS
27	INTENTIONALLY LEFT BLANK

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
BRIDGE REPLACEMENT

SCALES:

PLAN	0' 20' 40'	
PROFILE HORIZ.	0' 5' 10'	
PROFILE VERT.	0' 5' 10'	
CROSS SECTION HORIZ.	0' 5' 10'	
CROSS SECTION VERT.	0' 5' 10'	

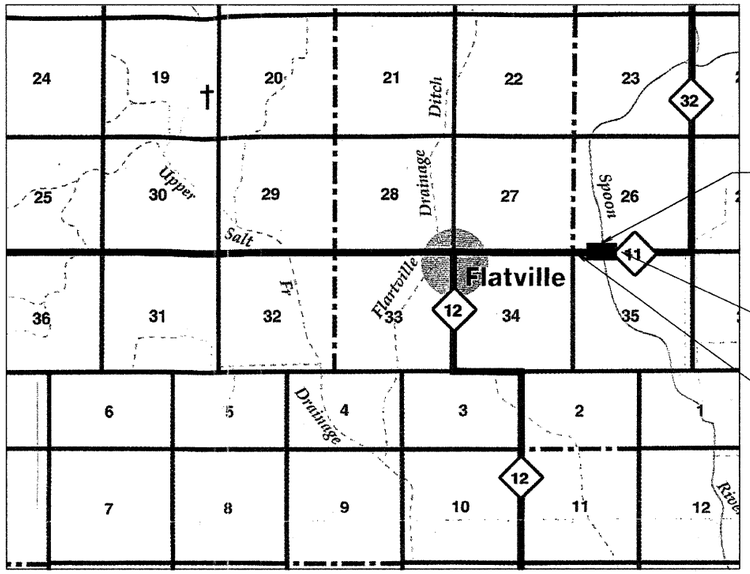
CHAMPAIGN COUNTY
SECTION 10-00962-00-BR
PROJECT NO. BRS-0516(113)
JOB NO. C-95-315-11
COUNTY HIGHWAY 11
BRIDGE REPLACEMENT PROGRAM



LOCATION INDICATED THUS:

ILLINOIS DEPT. OF TRANSPORTATION STANDARD DRAWINGS

STANDARD NO.	DESCRIPTION
000001-06	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND A FOOT
280001-05	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
542401-01	METAL END SECTIONS FOR PIPE CULVERTS
609006-05	BRIDGE APPROACH PAVEMENT (DRAIN DETAIL)
630001-09	STEEL PLATE BEAM GUARDRAIL
631011-07	TRAFFIC BARRIER TERMINAL, TYPE 2
631026-05	TRAFFIC BARRIER TERMINAL, TYPE 5
631031-09	TRAFFIC BARRIER TERMINAL, TYPE 6
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-02	REFLECTOR MARKER AND MOUNTING DETAILS
701001-02	OFF-ROAD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY
701006-03	OFF-ROAD OPERATIONS, 2L, 2W, 15' TO 24' FROM PAVEMENT EDGE
701201-04	LANE CLOSURE, 2L, 2W, DAY ONLY FOR SPEED > 45 MPH
701301-04	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701311-03	LANE CLOSURE, 2L, 2W, MOVING OPERATIONS, DAY ONLY
701901-01	TRAFFIC CONTROL DEVICES
780001-02	TYPICAL PAVEMENT MARKINGS
BLR 21-8	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS



LOCATION MAP

NOT TO SCALE

NET LENGTH OF SECTION = 381 FEET = 0.07 MILES
FUNCTIONAL CLASSIFICATION - RURAL TWO-WAY COLLECTOR
CURRENT ADT = 1050
FUTURE ADT = 1400

FOR JOINT UTILITY INFORMATION
CALL J.U.L.I.E. 1-800-892-0123

APPROVED 4/15 20 11
CHAMPAIGN COUNTY ENGINEER

PASSED 5/11 20 11
DISTRICT FIVE ENGINEER OF LOCAL ROADS & STREETS

Released For Bid Based on Limited Review MAY 11 20 11
DEPUTY DIRECTOR OF HIGHWAYS, REGION THREE ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RYAN T. MUMM
062-059507
REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

Ryan T. Mumm 4/15/2011
RYAN T. MUMM
ILLINOIS REGISTERED PROFESSIONAL ENGINEER NO. 062-059507
LICENSE EXPIRES 11-30-11

Sodemann and Associates, Inc.
340 NORTH NEIL STREET
POST OFFICE BOX 557
CHAMPAIGN, ILLINOIS 61824-0557
TEL 217 352-7688 FAX 217 352-7922
ENGINEERING / ANALYSIS / MANAGEMENT

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	2
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

GENERAL NOTES

All elevations shown are referred to the U.S.G.S. datum.

Any reference standards throughout the plans shall be interpreted to be the latest standards of the department as shown on the schedule of standard drawings on the cover sheet.

English units of measurement shall govern over and supersede any metric units shown in this contract. Where included, metric units are for information only.

Utilities - these drawings illustrate the approximate location of all known underground utilities. The contractor may expect to find such utilities within approximately five feet of the position indicated on the drawings. But in every case the contractor shall locate and uncover such utilities, with the assistance of the respective utility companies, before any excavation is started.

Call J.U.L.I.E. 1-800-892-0123 for underground utility location marking prior to start of construction.

Utility companies may be adjusting their facilities at the time of construction of this project. The contractor shall cooperate with those organizations while they perform their work.

During construction the contractor may encounter various types of underground utilities that may not be shown on the plans. The contractor shall cooperate with the engineer and the owner of the utility while the utility company adjusts their facilities if necessary. If it is determined that the utility has been abandoned, the contractor will be directed to remove the utility lines that conflict with his work and cap or plug the lines as directed by the engineer. this work will not be paid for separately and will be considered as included in the contract.

The contractor shall notify all utility companies 48 hours prior to excavation operations.

The excavation for this project is classified as earth excavation in accordance with the Standard Specifications and as provided in the contract specifications. The earth excavation shall include the removal of the earth and unclassified materials. The contractor shall notify all utility companies 48 hours prior to excavation operations.

Grading shall be done by hand around light poles, utility poles, sign posts, shrubs, trees and other natural or man-made objects where shallow fills or cuts are adjacent to these items. It is the intent that items that do not need to be disturbed by the construction shall be preserved. The decision as to items to remain in place shall be as directed by the engineer. This work will not be paid for separately, but shall be considered included in the contract unit price per cubic yard of earth excavation and no additional compensation shall be allowed.

Seeding shall be done at locations shown on the plans where the existing earth has been disturbed, and at locations directed by the engineer. Any existing areas outside the limits of construction damaged by the contractor shall be seeded at his own expense and no additional compensation will be allowed.

Special attention is called to Article 250.07 regarding seeding dates.

When required by Article 420.18, a protective coat shall be applied to concrete pavement, gutter flags, curb surfaces and other concrete appurtenances adjacent to the pavement.

Before ordering pipe culverts, the contractor shall consult with the engineer as to the exact length and quantity required.

The material of the pipe culvert end sections shall match the material of the pipe culvert on which they are to be installed.

Tthe contractor shall not begin any construction operations until all survey monuments have been sufficiently witnessed or referenced by the engineer. The contractor shall take all necessary precautions to preserve and not disturb the existing iron pipe monuments or right-of-way markers. any iron pipe monuments or right-of-way markers so disturbed by the contractor shall be reset by a Registered Illinois Land Surveyor. The cost for resetting these monuments shall be paid for by the contractor.

The existing traffic signs and delineators which interfere with the construction operations shall be removed and reset as directed by the engineer. The cost for doing this work will be considered included in the contract and no additional compensation will be allowed.

GN 406H MIXTURE REQUIREMENTS		
Location	CH 11	CH 11
Mixture Use	Level Binder	Surface
AC/PG	PG 64-22	PG 64-22
RAP % (Max)	25	15
Design Air Voids	4.0% @ Ndes=50	4.0% @ Ndes=50
Mix Comp (Gradation)	IL 9.5	IL 9.5
Friction Aggregate	Mix C	Mix C

GENERAL NOTES
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	3
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

SUMMARY OF QUANTITIES

	CODE #	ITEM NAME	UNIT	QUANTITY
	20200100	EARTH EXCAVATION	CU YD	*144.0*
	20700220	POROUS GRANULAR EMBANKMENT	CU YD	*77.0*
	25000200	SEEDING, CLASS 2	ACRE	*0.14*
	25000400	NITROGEN FERTILIZER NUTRIENT	POUND	*12.6*
	25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	*12.6*
	25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	*12.6*
	25100115	MULCH METHOD 2	ACRE	*0.14*
	28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	*280.0*
*	28000305	TEMPORARY DITCH CHECKS	FOOT	*24.0*
	28000400	PERIMETER EROSION BARRIER	FOOT	*468.0*
	28000500	INLET AND PIPE PROTECTION	EACH	*1.0*
	40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	*54.0*
	40600300	AGGREGATE PRIME COAT	TON	*0.8*
	40600625	LEVEL BINDER (MACHINE METHOD), N50	TON	*12.0*
	40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C" N50	TON	*40.1*
	44000100	PAVEMENT REMOVAL	SQ YD	*249.0*
	44000157	HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ. YD	*268.0*
	48101500	AGGREGATE SHOULDERS TYPE B, 6"	SQ. YD	*129.8*
	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	*1.0*
	50105220	PIPE CULVERT REMOVAL	FOOT	*40.0*
	50200100	STRUCTURE EXCAVATION	CU YD	*220.0*
	50300100	FLOOR DRAINS	EACH	*14.0*
	50300225	CONCRETE STRUCTURES	CU YD	*138.2*
	50300255	CONCRETE SUPERSTRUCTURE	CU YD	*263.1*
	50300260	BRIDGE DECK GROOVING	SQ YD	*605.0*
	50300300	PROTECTIVE COAT	SQ YD	*561.0*
	50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L SUM	*1.0*
	50500505	STUD SHEAR CONNECTORS	EACH	*3,564.0*
	50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	*74,050.0*
	50800515	BAR SPLICERS	EACH	*68.0*
	51201400	FURNISHING STEEL PILES HP10X42	FOOT	*1,577.0*
	51202305	DRIVING PILES	FOOT	*1,577.0*
	51203400	TEST PILE STEEL HP10X42	EACH	*4.0*
	51204650	PILE SHOES	EACH	*28.0*
	51500100	NAME PLATES	EACH	*1.0*
	52100520	ANCHOR BOLTS, 1"	EACH	*48.0*
	54213447	END SECTIONS 12"	EACH	*5.0*
	59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	*45.0*
	60100945	PIPE DRAINS 12"	FOOT	*60.0*
	60900140	TYPE B INLET BOX STANDARD 609006	EACH	*4.0*
	60900515	CONCRETE THRUST BLOCKS	EACH	*4.0*
Δ	63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	*112.5*
Δ	63100045	TRAFFIC BARRIER TERMINAL, TYPE 2	EACH	*2.0*
Δ	63100070	TRAFFIC BARRIER TERMINAL, TYPE 5	EACH	*1.0*
Δ	63100085	TRAFFIC BARRIER TERMINAL, TYPE 6	EACH	*3.0*
	63200310	GUARDRAIL REMOVAL	FOOT	*162.0*
Δ *	63300725	STEEL PLATE BEAM GUARDRAIL, (SHORT RADIUS)	FOOT	*50.0*
	67100100	MOBILIZATION	L SUM	*1.0*
	70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	*1.0*
Δ	78008210	POLYUREA PAVEMENT MARKING TYPE 1 - LINE 4"	FOOT	*675.0*
*	X5020501	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 1	EACH	*1.0*
*	X5020502	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 2	EACH	*1.0*
	XX004565	GROUTED RIPRAP	SQ YD	*427.0*
	XX004566	CONCRETE CUT-OFF WALL	CU YD	*6.2*
	Z0013798	CONSTRUCTION LAYOUT	L SUM	*1.0*
	Z0046304	PIPE UNDERDRAINS FOR STRUCTURES, 4"	FOOT	*120.0*
	*SEE SPECIAL PROVISIONS			

Δ SPECIALTY ITEMS

SCHEDULE OF QUANTITIES

28000300 **TEMPORARY DITCH CHECKS**

LOCATION		FOOT
9+25	RT	6
8+60	LT	6
10+75	RT	6
10+75	LT	6
TOTAL		**24**

28000500 **INLET AND PIPE PROTECTION**

LOCATION		EACH
8+10	RT	1
TOTAL		**1**

28000400 **PERIMETER EROSION BARRIER**

STATION TO STATION					FOOT
8+30	30' LT	-	9+32	30' LT	102.0
9+32	30' LT	-	9+32	17' LT	13.0
8+50	30' RT	-	9+32	30' RT	82.0
9+32	30' RT	-	9+32	17' RT	13.0
10+68	30' LT	-	12+18	30' LT	150.0
10+68	17' LT		10+68	30' LT	13.0
10+68	30' RT	-	11+50	30' RT	82.0
10+68	17' RT		10+68	30' RT	13.0
				TOTAL	**468.0**

25000200 **SEEDING CLASS 2 AND** 25100115 **MULCH METHOD 2**

STATION TO STATION			ACRE
8+30	9+33	LT	0.04
8+50	9+33	RT	0.02
10+67	11+57	RT	0.05
10+67	12+18	LT	0.03
		TOTAL	**0.14**

NOTE: 90 LBS PER ACRE FOR EACH NUTRIENT; NITROGEN, PHOSPHORUS & POTASSIUM.

50105220 **PIPE CULVERT REMOVAL**

STATION TO STATION			TYPE	FOOT
10+28	10+68	RT	15" CMP	40.0
			TOTAL	**40.0**

63200310 **GUARDRAIL REMOVAL**

STATION TO STATION			FOOT
9+11	9+51.5	LT	40.5
9+11	9+51.5	RT	40.5
10+48.5	10+89	LT	40.5
10+48.5	10+89	RT	40.5
		TOTAL	**162.0**

44000100 **PAVEMENT REMOVAL**

STATION TO STATION			SQ YD
9+03	9+52	LT	62.9
9+03	9+52	RT	62.9
10+49	10+97	LT	61.7
10+49	10+97	RT	61.7
		TOTAL	**249**

EARTHWORK SCHEDULE	**CU YD**
EARTH EXCAVATION	**144**
STRUCTURE EXCAVATION	220
CONCRETE CUT-OFF WALL EXCAVATION	6
TOTAL CUT	371
EMBANKMENT	132
TOTAL FILL	132
BORROW = **FURNISHED EXCAVATION** =	**0**
WASTE = EXCAVATION - (FILL x 1.25) =	206
1.25 REPRESENTS 25% SHRINKAGE FACTOR	

SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	4
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

SCHEDULE OF QUANTITIES

60900140
TYPE B INLET BOX STANDARD 609006

LOCATION		EACH
9+18.75	RT	1
9+18.75	LT	1
10+81.00	RT	1
10+81.00	LT	1
TOTAL		**4**

60100945
PIPE DRAINS, 12"

LOCATION		FOOT
9+18.75	RT	15
9+18.75	LT	15
10+81.00	RT	15
10+81.00	LT	15
TOTAL		**60**

60900515
CONCRETE THRUST BLOCKS

LOCATION		EACH
9+18.75	RT	1
9+18.75	LT	1
10+81.00	RT	1
10+81.00	LT	1
TOTAL		**4**

54213447 **END SECTIONS 12"**

LOCATION		EACH
9+18.75	RT	1
9+18.75	LT	1
10+81.00	RT	1
10+81.00	LT	1
8+70.00	RT	1
TOTAL		**5**

48101500
AGGREGATE SHOULDERS, TYPE B, 6"

STATION TO STATION			SQ YD
8+37	9+03	LT	29.2
8+50	9+03	RT	23.4
10+97	12+18	LT	53.7
10+97	11+50	RT	23.4
	TOTAL		**129.8**

63100085
TRAFFIC BARRIER TERMINAL, TYPE 6

STATION TO STATION			EACH
8+74.60	9+17.75	LT	1
10+82.25	11+25.40	LT	1
10+82.25	11+25.40	RT	1
	TOTAL		**3**

63100045
TRAFFIC BARRIER TERMINAL, TYPE 2

STATION TO STATION			EACH
8+37.10	8+49.60	LT	1
11+37.90	11+50.40	RT	1
	TOTAL		**2**

63000001
STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS

STATION TO STATION			FOOT
8+49.60	8+74.60	LT	25.0
11+25.40	12+00.40	LT	75.0
11+25.40	11+37.90	RT	12.5
	TOTAL		**112.5**

78008210
POLYUREA PAVEMENT MARKING TYPE 1 - LINE 4"

STATION TO STATION			FOOT	COLOR/TYPE
8+50	11+50	RT	300.0	WHITE/EDGE
8+50	11+50	LT	300.0	WHITE/EDGE
8+50	11+50	CL	75.0	YELLOW/CL
		TOTAL	**675**	

63100070
TRAFFIC BARRIER TERMINAL, TYPE 5

STATION TO STATION			EACH
9+18.08	9+32.75	RT	1
		TOTAL	**1**

63300725
STEEL PLATE BEAM GUARDRAIL (SHORT RADIUS)

STATION TO STATION			FOOT
8+97.93	9+18.08	RT	25
12+00.40	12+16.90	LT	25
		TOTAL	**50**

40600100
BITUMINOUS MATERIALS (PRIME COAT)

ON THIS BASE	GALLON
MILLED SURFACE	27.0
LEVELING BINDER	27.0
TOTAL	**54.0**
NOTE: CALCULATED @ 0.1 GAL/SY	

40600300
AGGREGATE (PRIME COAT)

ON THIS BASE	TON
MILLED SURFACE	0.40
LEVELING BINDER	0.40
TOTAL	**0.8**
NOTE: CALCULATED @ 3LB/SY	

40600625
LEVELING BINDER (MACHINE METHOD), N50

STATION TO STATION			LENGTH FOOT	WIDTH FOOT	THICK INCHES	TON
LT 8+50	9+03		53	11.5	3/4	2.8
RT 8+50	9+03		53	11.5	3/4	2.8
LT 10+97	11+50		53	11.5	3/4	2.8
RT 10+97	11+50		53	11.5	3/4	2.8
					CONTINGENCY	0.8
					TOTAL	**12.0**

40603310
HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50

STATION TO STATION			LENGTH FOOT	WIDTH FOOT	THICK INCHES	TON
LT 8+50	9+03		53	11.5	VARIES	9.1
RT 8+50	9+03		53	11.5	VARIES	9.1
LT 10+97	11+50		53	11.5	VARIES	9.9
RT 10+97	11+50		53	11.5	VARIES	9.9
						0.0
					CONTINGENCY	2.0
					TOTAL	**40.1**
NOTE: CALCULATIONS USED 112 LB/SY/INCH						

44000157
HOT-MIX ASPHALT SURFACE REMOVAL, 2"

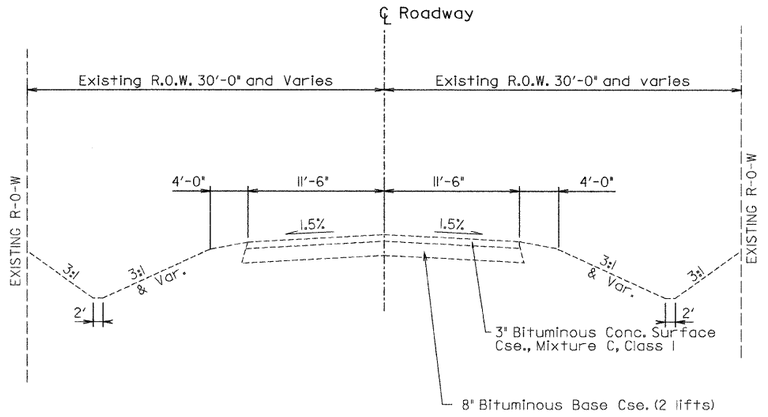
STATION TO STATION		LENGTH FOOT	WIDTH FOOT	SQ YD
LT 8+50	9+03	53	11.5	67.0
RT 8+50	9+03	53	11.5	67.0
LT 10+97	11+50	53	11.5	67.0
RT 10+97	11+50	53	11.5	67.0
			TOTAL	**268.0**

SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	5
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

EXISTING TYPICAL PAVEMENT SECTION



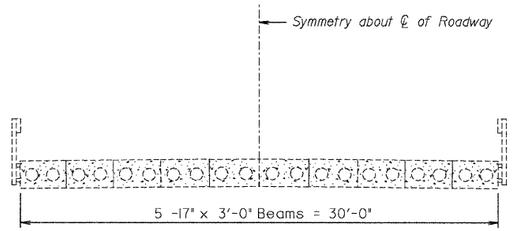
EXISTING TYPICAL PAVEMENT

NOTES:
FUNCTIONAL CLASS - RURAL MAJOR COLLECTOR
CURRENT ADT = 1050

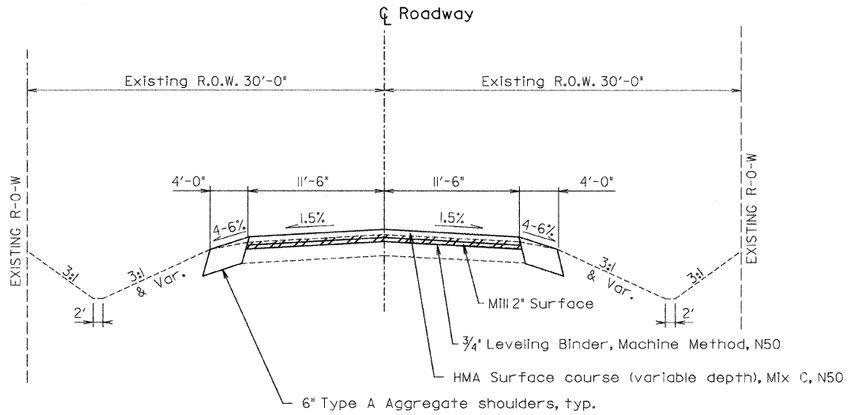
SEE PLAN AND PROFILE SHEETS FOR TAPERS.

STA. 8+37 TO STA. 9+55.50
STA. 10+45.5 TO STA. 12+18

EXISTING BRIDGE SECTION



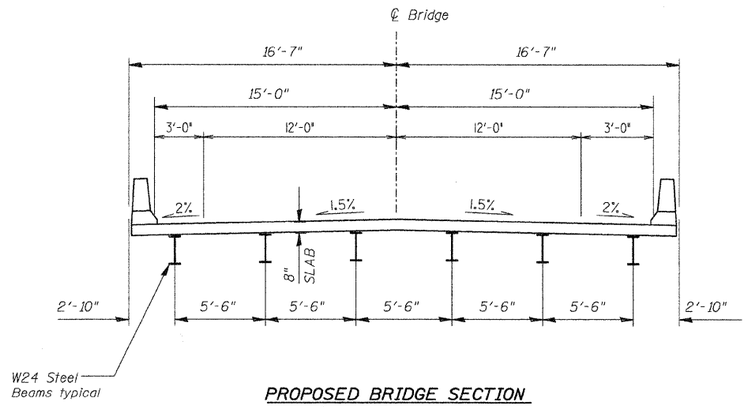
PROPOSED TYPICAL PAVEMENT SECTION



PROPOSED TYPICAL PAVEMENT

STA. 8+50 TO STA. 9+02.75
STA. 10+97.25 TO STA. 11+50

PROPOSED BRIDGE SECTION



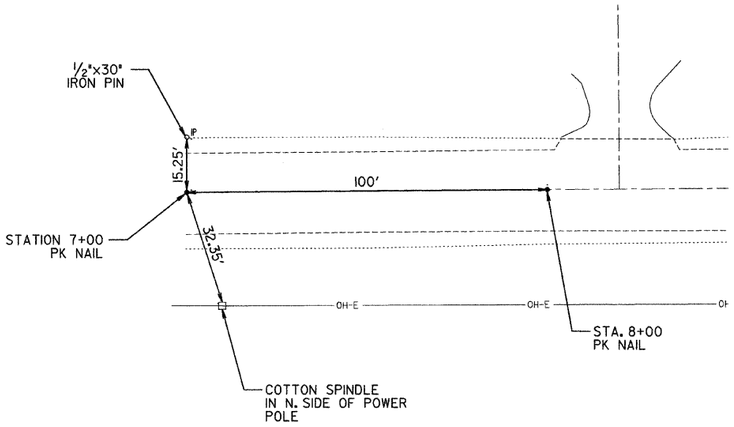
PROPOSED BRIDGE SECTION
(Looking East)

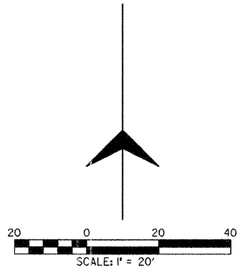
TYPICAL SECTIONS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

Typical Sections.dgn 4/14/2011 7:42:52 AM

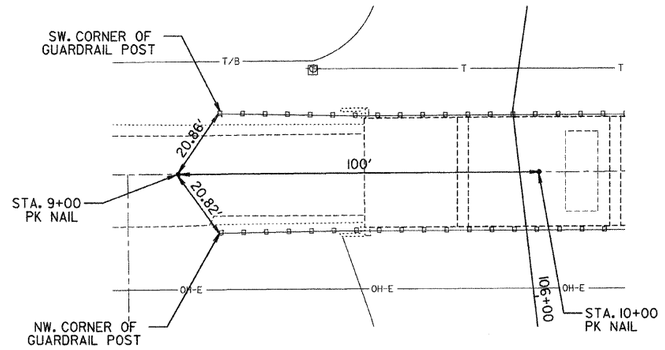
CONTRACT NUMBER 91454

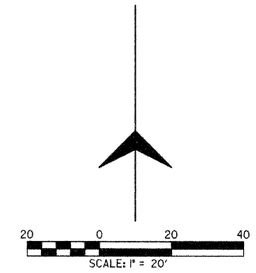
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	6
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			



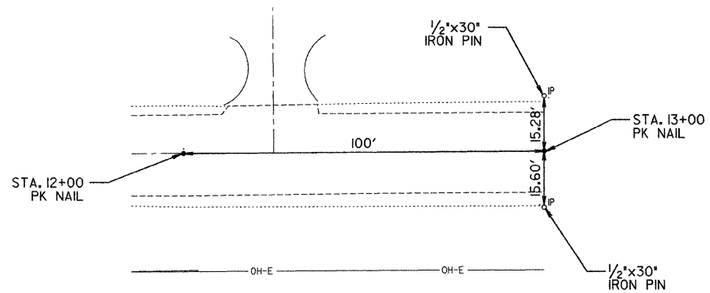


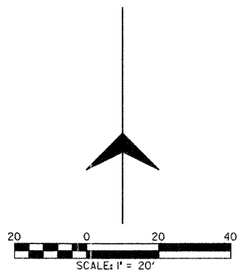
STATION 7+00
PK NAIL





STATION 9+00
PK NAIL





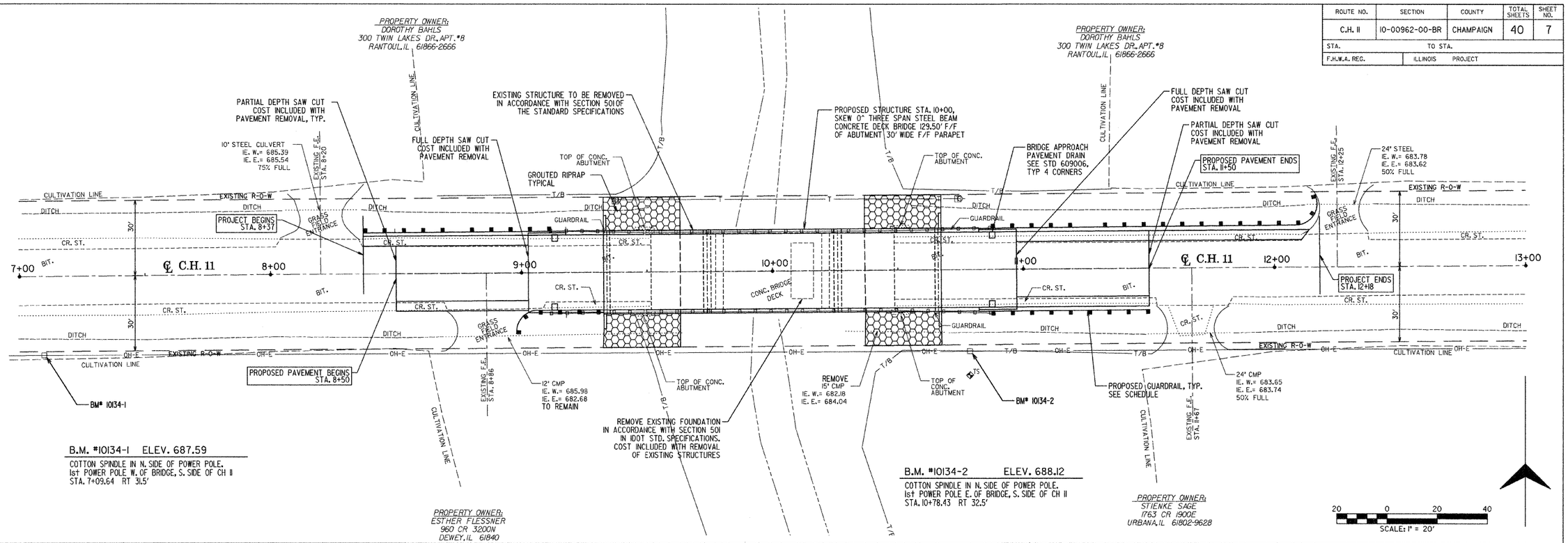
STATION 13+00
PK NAIL

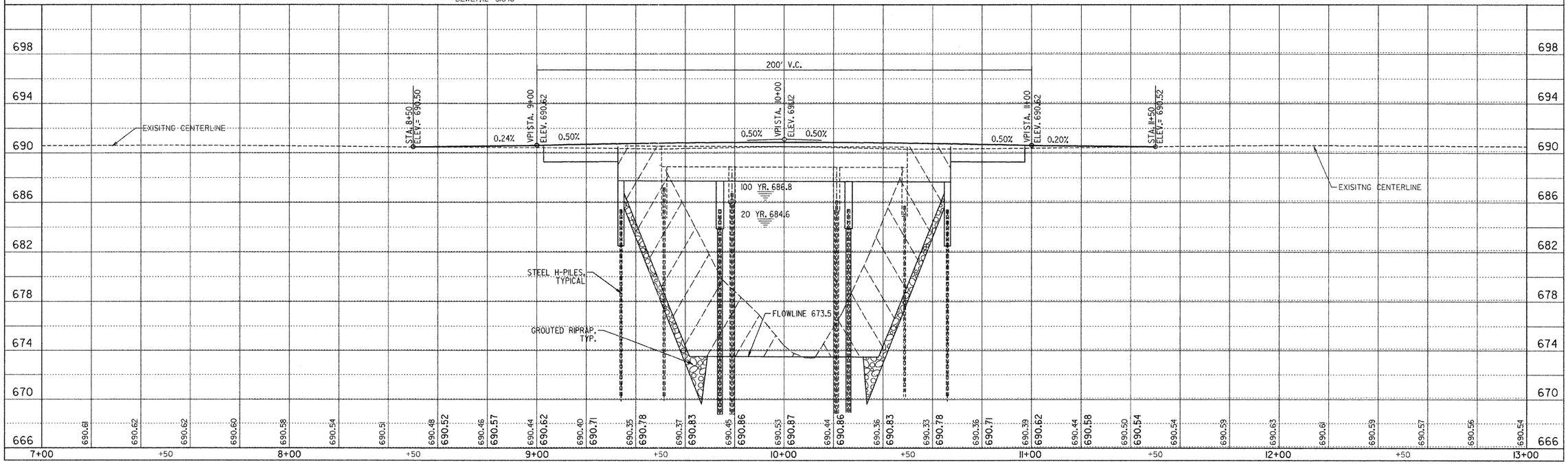
TIE POINTS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

Tie Points.dgn 4/14/2011 7:42:56 AM

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	7
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			



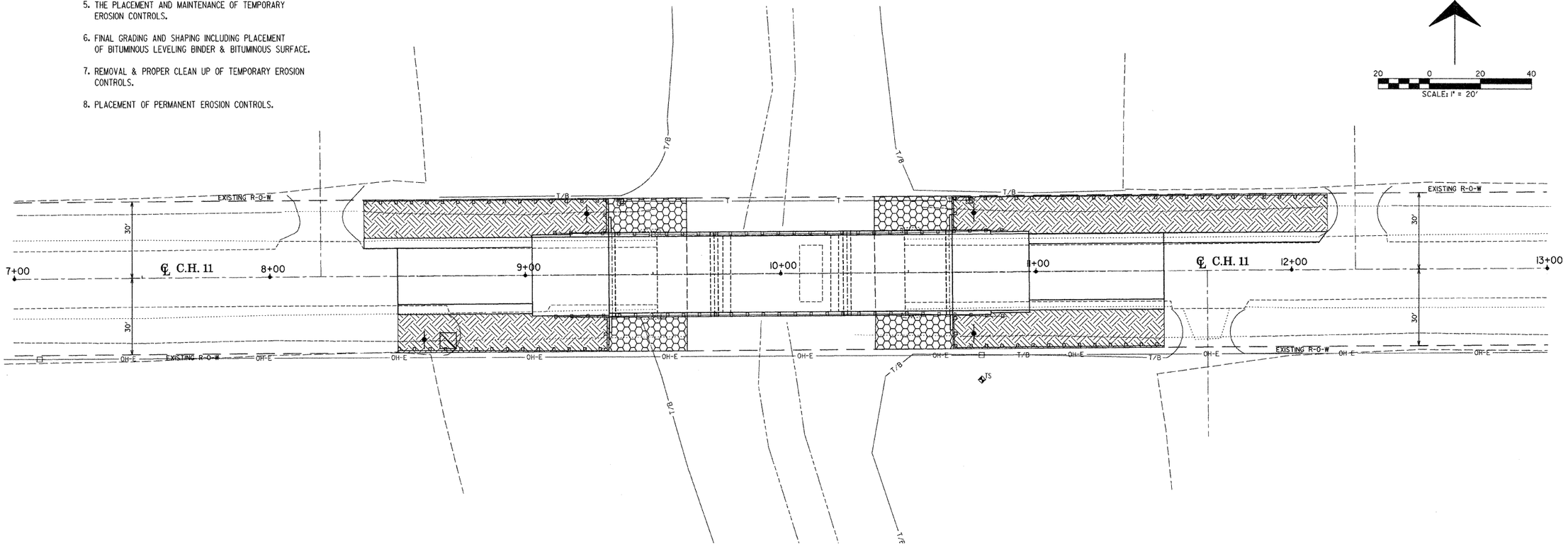


CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	8
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

INTENDED SEQUENCE

1. PLACEMENT OF PERIMETER EROSION CONTROL BARRIER PRIOR TO COMMENCEMENT OF ANY WORK. SEE STANDARD 280011.
2. REMOVAL OF THE EXISTING STRUCTURE.
3. CONSTRUCTION OF THE NEW SUB STRUCTURE.
4. CONSTRUCTION OF THE NEW SUPERSTRUCTURE.
5. THE PLACEMENT AND MAINTENANCE OF TEMPORARY EROSION CONTROLS.
6. FINAL GRADING AND SHAPING INCLUDING PLACEMENT OF BITUMINOUS LEVELING BINDER & BITUMINOUS SURFACE.
7. REMOVAL & PROPER CLEAN UP OF TEMPORARY EROSION CONTROLS.
8. PLACEMENT OF PERMANENT EROSION CONTROLS.



20 0 20 40
SCALE: 1" = 20'

PERMANENT EROSION CONTROL

GROUTED RIPRAP

SEEDING, CLASS 2

TEMPORARY EROSION CONTROL

PERIMETER EROSION BARRIER

TEMPORARY DITCH CHECK

INLET AND PIPE PROTECTION

25000200 SEEDING CLASS 2
25100115 MULCH METHOD 2

STA	TO	STA	OFFSET	ACRE
8+30		9+33	LT	0.04
8+50		9+33	RT	0.02
10+67		11+57	RT	0.05
10+67		12+18	LT	0.03
			TOTAL	0.14

28000400
PERIMETER EROSION BARRIER

STA	OFFSET	TO	STA	OFFSET	LENGTH
8+30	30' LT		9+32	30' LT	102 FT
9+32	30' LT		9+32	17' LT	13 FT
8+50	30' RT		9+32	30' RT	82 FT
9+32	30' RT		9+32	17' RT	13 FT
10+68	30' LT		12+18	30' LT	150 FT
10+68	17' LT		10+68	30' LT	13 FT
10+68	30' RT		11+50	30' RT	82 FT
10+68	17' RT		10+68	30' RT	13 FT
				TOTAL	468 FT

28000300
TEMPORARY DITCH CHECKS

STA	OFFSET	FOOT
8+60	RT	6
9+25	LT	6
10+75	LT	6
10+75	RT	6
	TOTAL	24 FEET

28000500
INLET AND PIPE PROTECTION

LOCATION	EACH
8+10 RT	1
TOTAL	1

TEMPORARY EROSION CONTROL

THE FOLLOWING QUANTITIES ARE ESTIMATES ONLY. ACTUAL QUANTITIES FOR EROSION CONTROL WILL BE DETERMINED BY THE ENGINEER IN THE FIELD, AND THERE WILL BE NO CHANGE IN PRICE DUE TO A CHANGE IN PLAN QUANTITY.

TEMPORARY EROSION CONTROL
BILL OF MATERIALS

ITEM	UNIT	TOTALS
TEMPORARY EROSION CONTROL SEEDING	POUND	280
PERIMETER EROSION BARRIER	FOOT	468
TEMPORARY DITCH CHECKS	EACH	4
INLET AND PIPE PROTECTION	EACH	1

EROSION CONTROL PLAN
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

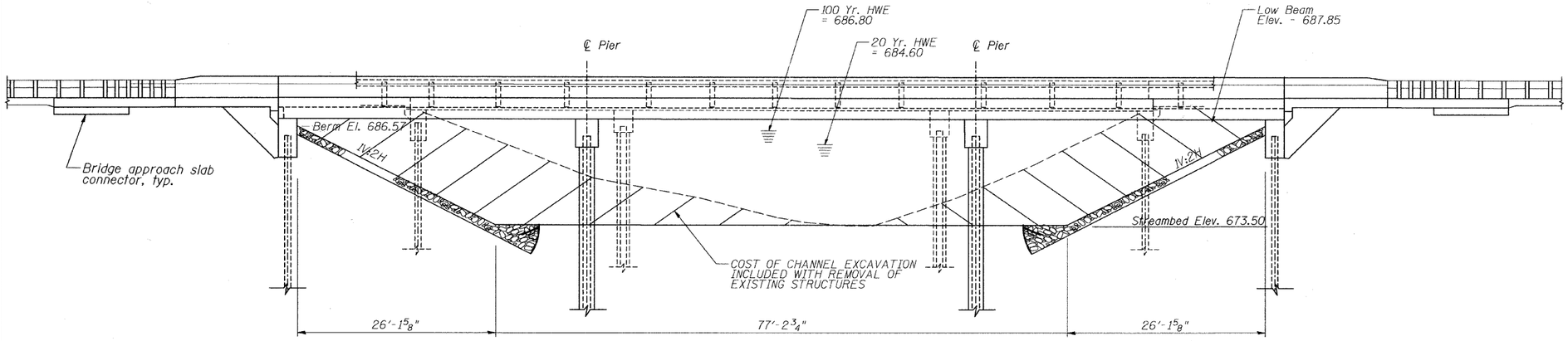
CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	9
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

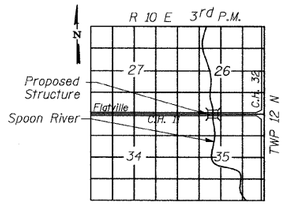
Sheet 1 of 23

BENCHMARK DATA:
BM #1 - Cotton spindle in north side of 1st power pole west of bridge. Sta. 7+09.64, 31.5' Rt., Elev. 687.59
BM #2 - Cotton spindle in north side of 1st power pole east of bridge. Sta. 10+78.43, 32.5' Rt., Elev. 688.12

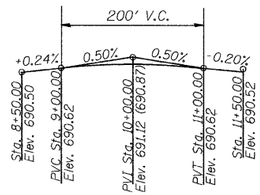
EXISTING STRUCTURE DESCRIPTION
NO. 010-4306, three span 99'-0" long, back to back abutments, with a 30'-0" roadway surface, with precast concrete deck beams supported on concrete abutments and concrete piers supported by precast concrete piles. Built as Sec. 84-00620-00-BR at sta. 9+86.50 in 1985. The contractor shall remove the existing structure as required. The existing structure shall be replaced with a three span steel girder concrete deck bridge at a 0° Skew



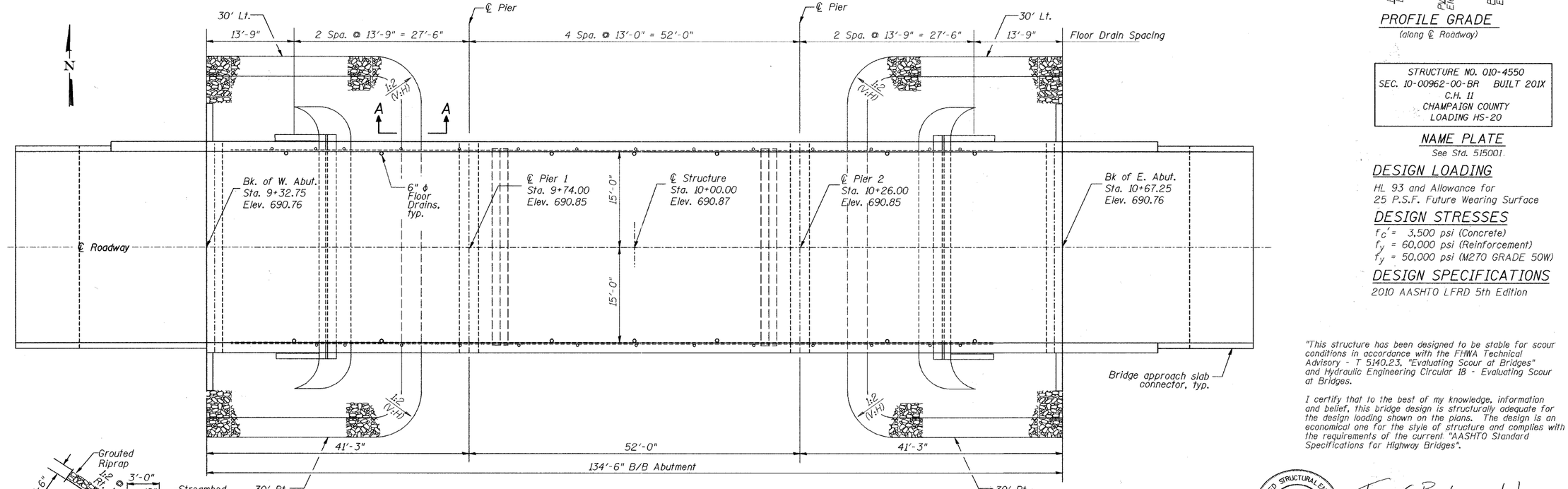
ELEVATION



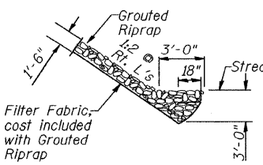
LOCATION SKETCH



PROFILE GRADE
(along ℄ Roadway)



PLAN



SECTION A-A THRU TOE OF RIPRAP
R-O-W TO R-O-W

WATERWAY DATA

Drainage Area	11.00	Sq. Mi.
Existing Opening (20 Year)	470	Sq. Ft.
Required Opening (20 Year)	416	Sq. Ft.
Proposed Opening (20 Year)	1048	Sq. Ft.
Design Discharge (20 Year)	2108	C.F.S.
Computed Discharge (100 Year)	3140	C.F.S.

STRUCTURE NO. 010-4550
SEC. 10-00962-00-BR BUILT 201X
C.H. 11
CHAMPAIGN COUNTY
LOADING HS-20

NAME PLATE
See Std. 515001

DESIGN LOADING
HL 93 and Allowance for
25 P.S.F. Future Wearing Surface

DESIGN STRESSES
f'_c = 3,500 psi (Concrete)
f_y = 60,000 psi (Reinforcement)
f_y = 50,000 psi (M270 GRADE 50W)

DESIGN SPECIFICATIONS
2010 AASHTO LFRD 5th Edition

"This structure has been designed to be stable for scour conditions in accordance with the FHWA Technical Advisory - T 5140.23, "Evaluating Scour at Bridges" and Hydraulic Engineering Circular 18 - Evaluating Scour at Bridges.

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with the requirements of the current "AASHTO Standard Specifications for Highway Bridges".

LICENSED STRUCTURAL ENGINEER
KEITH E. BRANDAU
81-4905
CHAMPAIGN
STATE OF ILLINOIS

6/13/11
KEITH E. BRANDAU DATE
Illinois Licensed Structural Engineer Number 4905
License Expires 11/30/12

GENERAL PLAN AND ELEVATION
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

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CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	10
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

GENERAL NOTES

Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts in painted areas and M164 Type 3 in unpainted areas. Bolts $\frac{7}{8}$" dia., holes $\frac{15}{16}$" dia., unless otherwise noted.

Calculated weight of Structural Steel = 63,501 pounds.

All structural steel shall be AASHTO M270 Grade 50W. All structural steel shall be cleaned as specified in the Special Provision for "Surface Preparation and Painting Requirements for Weathering Steel".

No field welding is permitted except as specified in the contract documents.

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

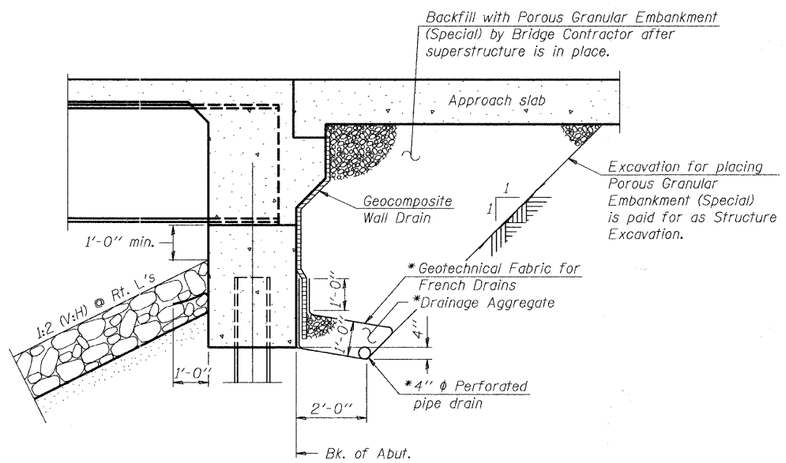
Reinforcement bars designated (E) shall be epoxy coated.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of $\frac{1}{8}$ in. (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.

Structural steel shall only be painted for a distance equal to the depth of embedment into the concrete cap plus 3 in. Painted areas shall be primed in the shop with a Department approved zinc rich primer. Field painting will not be required.

Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.



SECTION THRU INTEGRAL ABUTMENT

(Horiz. dim. @ Rt. L's)

* Included in the cost of Pipe Underdrains for Structures 4".

Note:

All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

INDEX OF SHEETS

TOTAL BILL OF MATERIAL

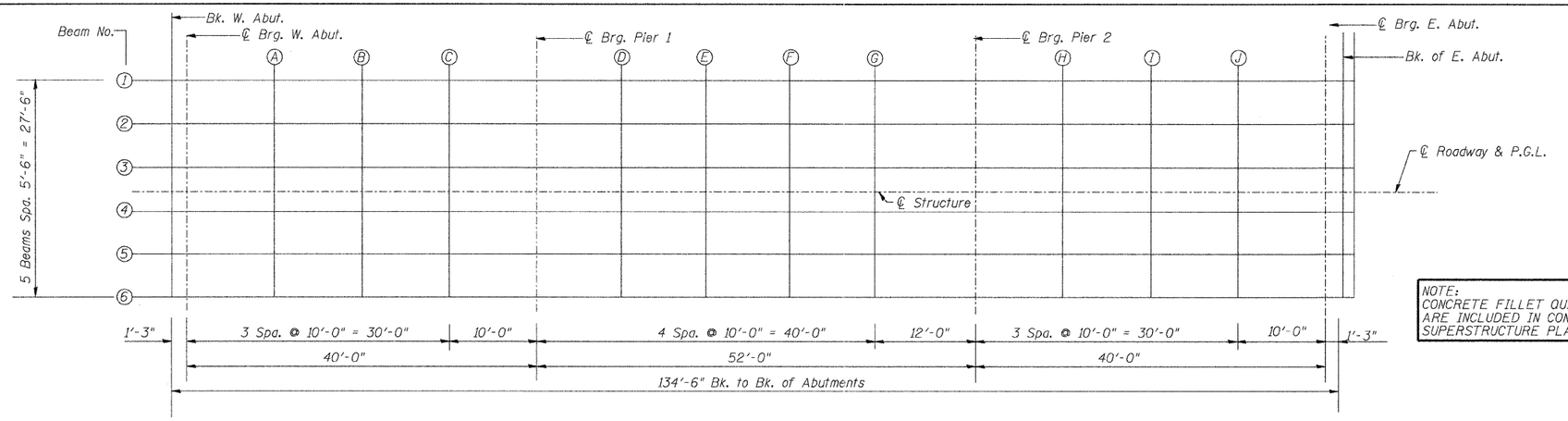
ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures	Each	1		1
Bridge Deck Grooving	Sq. Yd.	605		605
Concrete Superstructures	Cu. Yd.	263.1		263.1
Concrete Structures	Cu. Yd.		138.2	138.2
Reinforcement Bars, Epoxy Coated	Pound	62,790	11,260	74,050
Protective Coat	Sq. Yd.	561		561
Name Plates	Each	1		1
Structure Excavation	Cu. Yd.		220	220
Porous Granular Embankment	Cu. Yd.		77	77
Stud Shear Connectors	Each	3528		3528
Furnishing and Erecting Structural Steel	L. Sum	1		1
Furnishing Steel Piles HP 10X42	Foot		1577	1577
Driving Piles	Foot		1577	1577
Pile Shoes	Each		28	28
Test Pile Steel HP 10x42	Each		4	4
Grouted Riprap	Sq. Yd.		427	427
Concrete Cut-Off Wall	Cu. Yd.		6.2	6.2
Floor Drains	Each	14		14
Underwater Structure Excavation Protection - Location 1	Each		1	1
Underwater Structure Excavation Protection - Location 2	Each		1	1
Bar Splicers	Each		68	68
Anchor Bolts, 1"	Each		48	48
Geocomposite Wall Drain	Sq. Yd.		45	45
Pipe Underdrains for Structures 4"	Foot		120	120

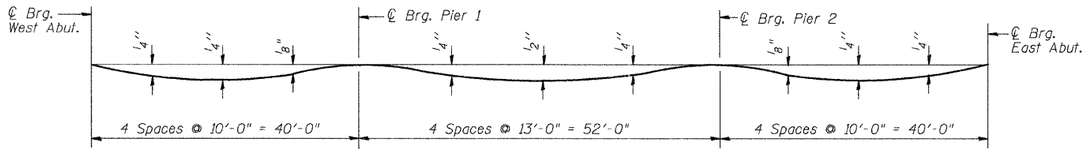
GENERAL PLAN AND ELEVATION
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	11
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

Sheet 3 of 23

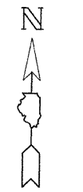




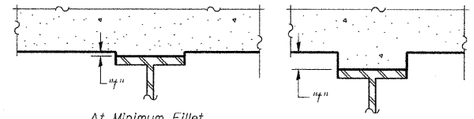
DEAD LOAD DEFLECTION DIAGRAM

(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 on sheets 3 & 4 of 23.



NOTE:
CONCRETE FILLET QUANTITIES ARE INCLUDED IN CONCRETE SUPERSTRUCTURE PLAN QUANTITIES



At Minimum Fillet

At Maximum Fillet

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown on sheets 3 & 4 of 23. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

BEAM 1

LOCATION	STATION	OFFSET		THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. Of W. Abut	9+32.75	13.75	Lt.	690.53	690.53
Cl. W. Abut	9+34.00	13.75	Lt.	690.54	690.54
A	9+44.00	13.75	Lt.	690.57	690.59
B	9+54.00	13.75	Lt.	690.59	690.61
C	9+64.00	13.75	Lt.	690.61	690.62
Cl. Pier 1	9+74.00	13.75	Lt.	690.63	690.63
D	9+84.00	13.75	Lt.	690.64	690.66
E	9+94.00	13.75	Lt.	690.65	690.68
F	10+04.00	13.75	Lt.	690.65	690.68
G	10+14.00	13.75	Lt.	690.64	690.66
Cl. Pier 2	10+26.00	13.75	Lt.	690.63	690.63
H	10+36.00	13.75	Lt.	690.61	690.62
I	10+46.00	13.75	Lt.	690.59	690.61
J	10+56.00	13.75	Lt.	690.57	690.59
Cl. E. Abut	10+66.00	13.75	Lt.	690.54	690.54
Bk. Of E. Abut	10+67.25	13.75	Lt.	690.53	690.53

BEAM 2

LOCATION	STATION	OFFSET		THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. Of W. Abut	9+32.75	8.25	Lt.	690.63	690.63
Cl. W. Abut	9+34.00	8.25	Lt.	690.63	690.63
A	9+44.00	8.25	Lt.	690.66	690.68
B	9+54.00	8.25	Lt.	690.69	690.71
C	9+64.00	8.25	Lt.	690.71	690.72
Cl. Pier 1	9+74.00	8.25	Lt.	690.72	690.72
D	9+84.00	8.25	Lt.	690.73	690.75
E	9+94.00	8.25	Lt.	690.74	690.78
F	10+04.00	8.25	Lt.	690.74	690.78
G	10+14.00	8.25	Lt.	690.74	690.76
Cl. Pier 2	10+26.00	8.25	Lt.	690.72	690.72
H	10+36.00	8.25	Lt.	690.71	690.72
I	10+46.00	8.25	Lt.	690.69	690.71
J	10+56.00	8.25	Lt.	690.66	690.68
Cl. E. Abut	10+66.00	8.25	Lt.	690.63	690.63
Bk. Of E. Abut	10+67.25	8.25	Lt.	690.63	690.63

BEAM 3

LOCATION	STATION	OFFSET		THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. Of W. Abut	9+32.75	2.75	Lt.	690.71	690.71
Cl. W. Abut	9+34.00	2.75	Lt.	690.72	690.72
A	9+44.00	2.75	Lt.	690.75	690.77
B	9+54.00	2.75	Lt.	690.77	690.80
C	9+64.00	2.75	Lt.	690.79	690.80
Cl. Pier 1	9+74.00	2.75	Lt.	690.81	690.81
D	9+84.00	2.75	Lt.	690.82	690.84
E	9+94.00	2.75	Lt.	690.83	690.86
F	10+04.00	2.75	Lt.	690.83	690.86
G	10+14.00	2.75	Lt.	690.82	690.84
Cl. Pier 2	10+26.00	2.75	Lt.	690.81	690.81
H	10+36.00	2.75	Lt.	690.79	690.80
I	10+46.00	2.75	Lt.	690.77	690.80
J	10+56.00	2.75	Lt.	690.75	690.77
Cl. E. Abut	10+66.00	2.75	Lt.	690.72	690.72
Bk. Of E. Abut	10+67.25	2.75	Lt.	690.71	690.71

TOP OF SLAB ELEVATIONS 1
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

03 Top of Slab Elevations.dgn 5/3/2011 4:11:16 PM

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	12
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

CL ROADWAY AND PGL

LOCATION	STATION	OFFSET	THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. Of W. Abut	9+32.75	0	690.76	690.76
Cl. W. Abut	9+34.00	0	690.76	690.76
A	9+44.00	0	690.79	690.81
B	9+54.00	0	690.82	690.84
C	9+64.00	0	690.84	690.85
Cl. Pier 1	9+74.00	0	690.85	690.85
D	9+84.00	0	690.86	690.88
E	9+94.00	0	690.87	690.91
F	10+04.00	0	690.87	690.91
G	10+14.00	0	690.87	690.89
Cl. Pier 2	10+26.00	0	690.85	690.85
H	10+36.00	0	690.84	690.85
I	10+46.00	0	690.82	690.84
J	10+56.00	0	690.79	690.81
Cl. E. Abut	10+66.00	0	690.76	690.76
Bk. Of E. Abut	10+67.25	0	690.76	690.76

BEAM 4

LOCATION	STATION	OFFSET		THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. Of W. Abut	9+32.75	2.75	Rt.	690.71	690.71
Cl. W. Abut	9+34.00	2.75	Rt.	690.72	690.72
A	9+44.00	2.75	Rt.	690.75	690.77
B	9+54.00	2.75	Rt.	690.77	690.80
C	9+64.00	2.75	Rt.	690.79	690.80
Cl. Pier 1	9+74.00	2.75	Rt.	690.81	690.81
D	9+84.00	2.75	Rt.	690.82	690.84
E	9+94.00	2.75	Rt.	690.83	690.86
F	10+04.00	2.75	Rt.	690.83	690.86
G	10+14.00	2.75	Rt.	690.82	690.84
Cl. Pier 2	10+26.00	2.75	Rt.	690.81	690.81
H	10+36.00	2.75	Rt.	690.79	690.80
I	10+46.00	2.75	Rt.	690.77	690.80
J	10+56.00	2.75	Rt.	690.75	690.77
Cl. E. Abut	10+66.00	2.75	Rt.	690.72	690.72
Bk. Of E. Abut	10+67.25	2.75	Rt.	690.71	690.71

BEAM 5

LOCATION	STATION	OFFSET		THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. Of W. Abut	9+32.75	8.25	Rt.	690.63	690.63
Cl. W. Abut	9+34.00	8.25	Rt.	690.63	690.63
A	9+44.00	8.25	Rt.	690.66	690.68
B	9+54.00	8.25	Rt.	690.69	690.71
C	9+64.00	8.25	Rt.	690.71	690.72
Cl. Pier 1	9+74.00	8.25	Rt.	690.72	690.72
D	9+84.00	8.25	Rt.	690.73	690.75
E	9+94.00	8.25	Rt.	690.74	690.78
F	10+04.00	8.25	Rt.	690.74	690.78
G	10+14.00	8.25	Rt.	690.74	690.76
Cl. Pier 2	10+26.00	8.25	Rt.	690.72	690.72
H	10+36.00	8.25	Rt.	690.71	690.72
I	10+46.00	8.25	Rt.	690.69	690.71
J	10+56.00	8.25	Rt.	690.66	690.68
Cl. E. Abut	10+66.00	8.25	Rt.	690.63	690.63
Bk. Of E. Abut	10+67.25	8.25	Rt.	690.63	690.63

BEAM 6

LOCATION	STATION	OFFSET		THEORETICAL GRADE ELEVATIONS	THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION
Bk. Of W. Abut	9+32.75	13.75	Rt.	690.54	690.54
Cl. W. Abut	9+34.00	13.75	Rt.	690.55	690.55
A	9+44.00	13.75	Rt.	690.58	690.60
B	9+54.00	13.75	Rt.	690.60	690.62
C	9+64.00	13.75	Rt.	690.62	690.63
Cl. Pier 1	9+74.00	13.75	Rt.	690.64	690.64
D	9+84.00	13.75	Rt.	690.65	690.67
E	9+94.00	13.75	Rt.	690.65	690.69
F	10+04.00	13.75	Rt.	690.65	690.69
G	10+14.00	13.75	Rt.	690.65	690.67
Cl. Pier 2	10+26.00	13.75	Rt.	690.64	690.64
H	10+36.00	13.75	Rt.	690.62	690.63
I	10+46.00	13.75	Rt.	690.60	690.62
J	10+56.00	13.75	Rt.	690.58	690.60
Cl. E. Abut	10+66.00	13.75	Rt.	690.55	690.55
Bk. Of E. Abut	10+67.25	13.75	Rt.	690.54	690.54

TOP OF SLAB ELEVATIONS 2
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	13
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

NORTH CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
End W. Appr. Pav't.	9+02.75	15' LT	690.38
A	9+12.75	15' LT	690.43
B	9+22.75	15' LT	690.47
Bk. of W. Abut.	9+32.75	15' LT	690.51

NORTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
End W. Appr. Pav't.	9+02.75	12' LT	690.44
A	9+12.75	12' LT	690.49
B	9+22.75	12' LT	690.53
Bk. of W. Abut.	9+32.75	12' LT	690.57

℄ ROADWAY & P.G.L.

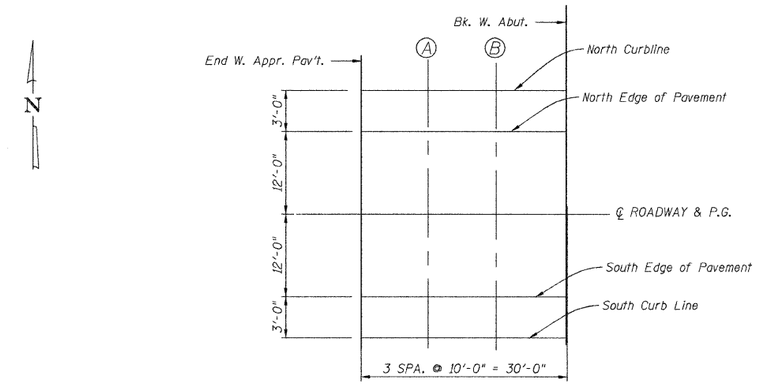
Location	Station	Offset	Theoretical Grade Elevations
End W. Appr. Pav't.	9+02.75	0' LT	690.63
A	9+12.75	0' LT	690.68
B	9+22.75	0' LT	690.72
Bk. of W. Abut.	9+32.75	0' LT	690.76

SOUTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
End W. Appr. Pav't.	9+02.75	12' RT	690.44
A	9+12.75	12' RT	690.49
B	9+22.75	12' RT	690.53
Bk. of W. Abut.	9+32.75	12' RT	690.57

SOUTH CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
End W. Appr. Pav't.	9+02.75	15' RT	690.38
A	9+12.75	15' RT	690.43
B	9+22.75	15' RT	690.47
Bk. of W. Abut.	9+32.75	15' RT	690.51



PLAN

TOP OF WEST APPROACH SLAB ELEVATIONS

TOP OF WEST APPROACH SLAB ELEVATIONS

SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	14
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

NORTH CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
Bk. of E. Abut.	10+67.25	15' LT	690.51
A	10+77.25	15' LT	690.47
B	10+87.25	15' LT	690.43
End E. Appr. Pav't.	10+97.25	15' LT	690.38

NORTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
Bk. of E. Abut.	10+67.25	12' LT	690.57
A	10+77.25	12' LT	690.53
B	10+87.25	12' LT	690.49
End E. Appr. Pav't.	10+97.25	12' LT	690.44

℄ ROADWAY & P.G.L.

Location	Station	Offset	Theoretical Grade Elevations
Bk. of E. Abut.	10+67.25	0' LT	690.76
A	10+77.25	0' LT	690.72
B	10+87.25	0' LT	690.68
End E. Appr. Pav't.	10+97.25	0' LT	690.63

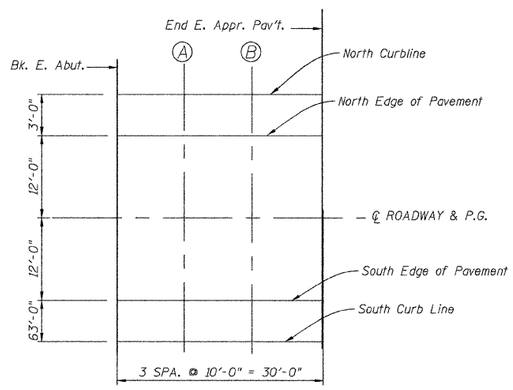
SOUTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
Bk. of E. Abut.	10+67.25	12' RT	690.57
A	10+77.25	12' RT	690.53
B	10+87.25	12' RT	690.49
End E. Appr. Pav't.	10+97.25	12' RT	690.44

SOUTH CURB LINE

Location	Station	Offset	Theoretical Grade Elevations
Bk. of E. Abut.	10+67.25	15' RT	690.51
A	10+77.25	15' RT	690.47
B	10+87.25	15' RT	690.43
End E. Appr. Pav't.	10+97.25	15' RT	690.38

N



PLAN

TOP OF EAST APPROACH SLAB ELEVATIONS

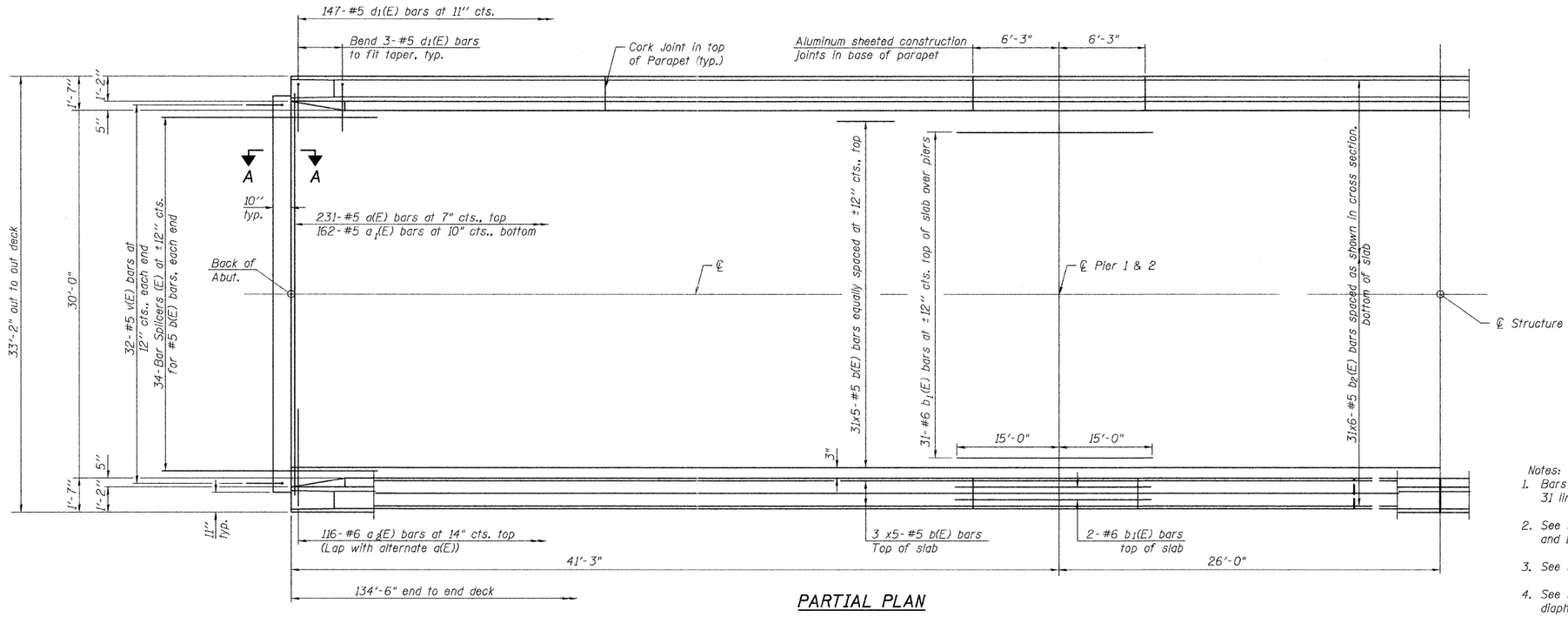
TOP OF EAST APPROACH SLAB ELEVATIONS

SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

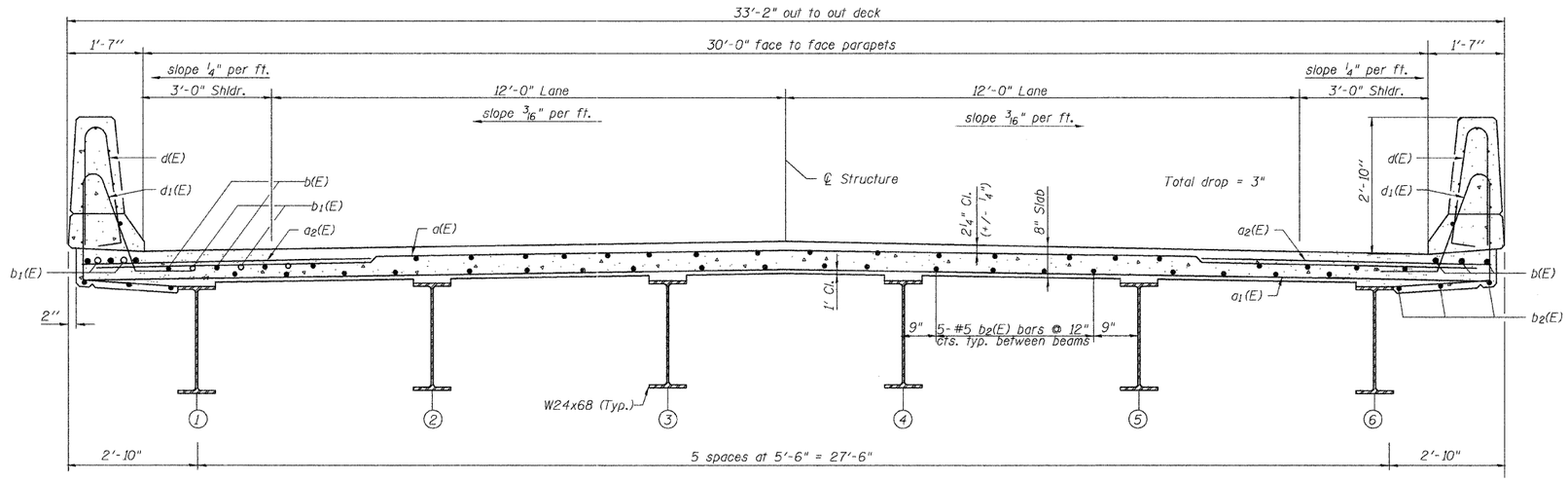
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	15
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

Sheet 7 of 23



PARTIAL PLAN

Notes:
1. Bars indicated thus 31 x 5-#5 etc. indicates 31 lines of bars with 5 lengths per line.
2. See Sheet 8 of 23 for superstructure details and Bill of Material.
3. See Sheet 8 of 23 for parapet reinforcement.
4. See Sheet 12 of 23 for Section A-A and diaphragm details.



NEAR PIER — NEAR MIDSPAN

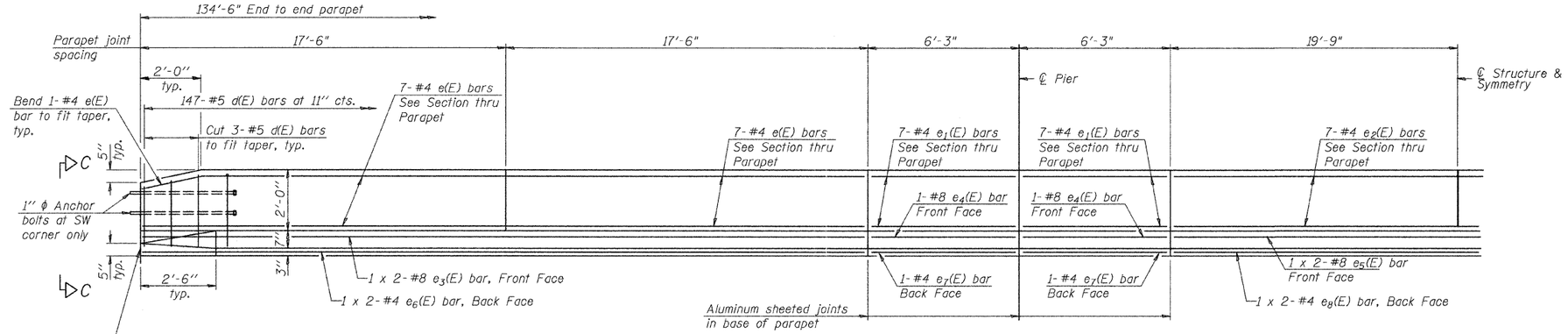
CROSS SECTION
(Looking North)

SUPERSTRUCTURE
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

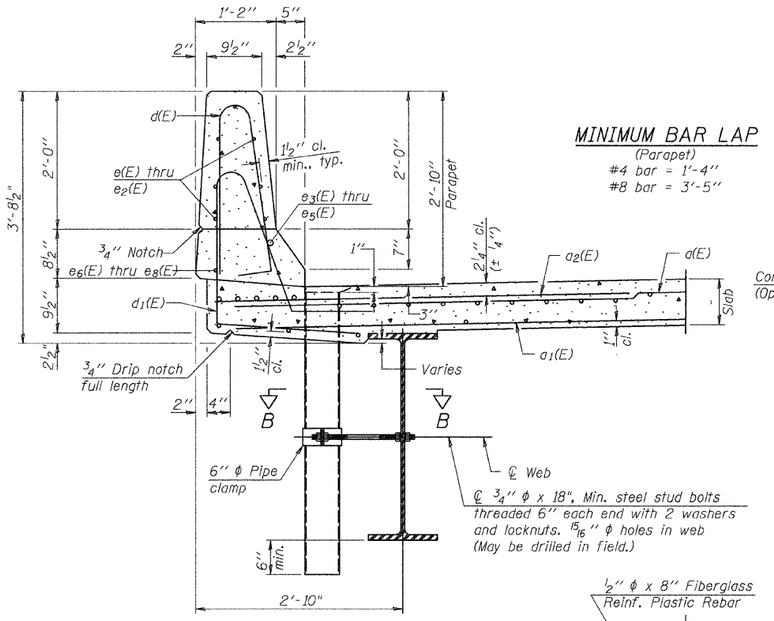
CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	16
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

Sheet 8 of 23



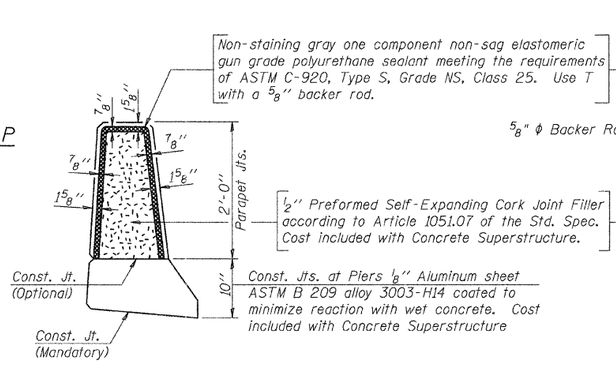
INSIDE ELEVATION OF PARAPET



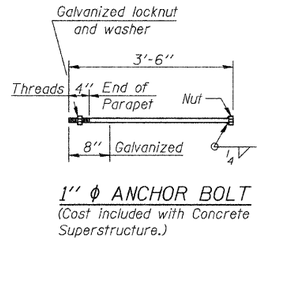
SECTION THRU PARAPET

MINIMUM BAR LAP

(Parapet)
#4 bar = 1'-4"
#8 bar = 3'-5"



PARAPET JOINT DETAILS



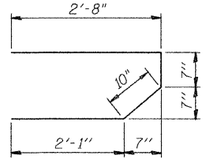
1" ϕ ANCHOR BOLT

(Cost included with Concrete Superstructure.)

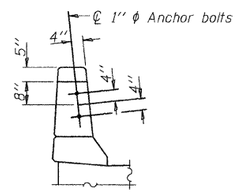
Notes:

The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to Society of Protective Coatings Spec. SSPC-SP1 prior to painting.

Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.



BAR s(E)

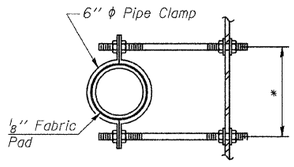


VIEW C-C

SUPERSTRUCTURE BILL OF MATERIAL

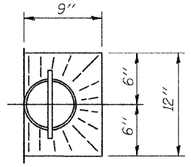
Bar	No.	Size	Length	Shape
d(E)	231	#5	32'-6"	
a1(E)	162	#5	32'-6"	
a2(E)	232	#6	6'-0"	
b(E)	185	#5	29'-0"	
b1(E)	70	#6	30'-0"	
b2(E)	186	#5	24'-6"	
d(E)	294	#5	5'-7"	
d1(E)	294	#5	7'-8"	
e(E)	56	#4	17'-2"	
e1(E)	56	#4	5'-11"	
e2(E)	28	#4	19'-5"	
e3(E)	8	#8	19'-9"	
e4(E)	8	#8	5'-11"	
e5(E)	4	#8	22'-0"	
e6(E)	8	#4	18'-6"	
e7(E)	8	#4	5'-11"	
e8(E)	4	#4	21'-0"	
m(E)	36	#6	7'-9"	
m1(E)	10	#6	32'-6"	
s(E)	72	#5	6'-2"	
s1(E)	72	#4	7'-2"	
v(E)	64	#5	3'-4"	
Reinforcement Bars. Epoxy Coated		Pound	37,110	
Concrete Superstructure		Cu. Yds.	157.6	

Bars indicated thus 1 x 2 - #5 etc. indicates 1 line of bars with 2 lengths per line.

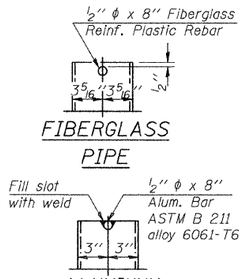


SECTION B-B

*Dimension as required by Pipe Clamp

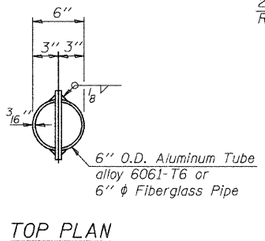


TOP PLAN



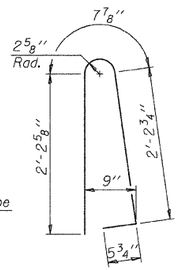
FIBERGLASS PIPE

ALUMINUM TUBE

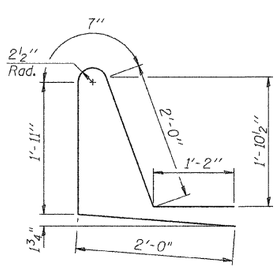


TOP PLAN

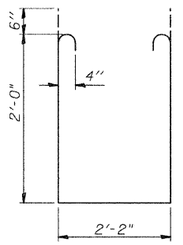
(Showing Aluminum Tube)



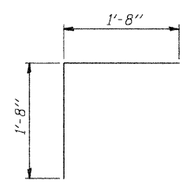
BAR d(E)



BAR d1(E)



BAR s1(E)



BAR v(E)

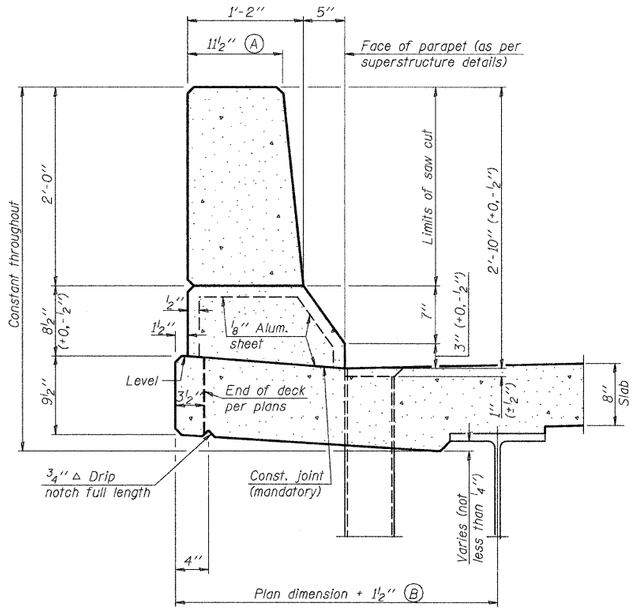
S-I-D 10-1-08

SUPERSTRUCTURE DETAILS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

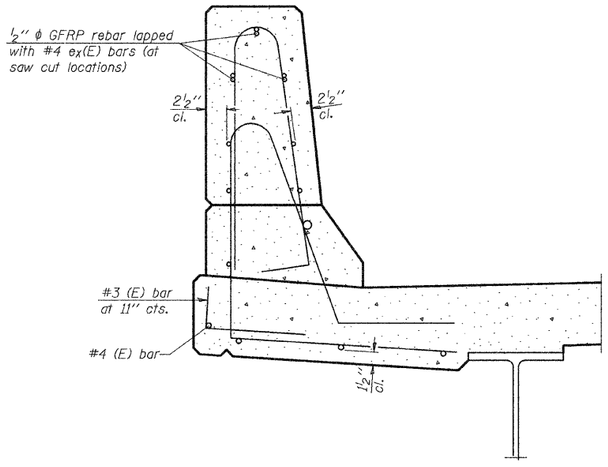
CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	17
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

Sheet 9 of 23



SECTION
(Showing dimensions)

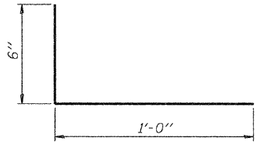


SECTION
(Showing reinforcement clearances for slip forming and additional reinforcement bars)

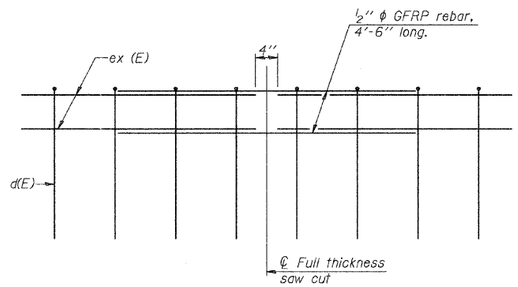
GENERAL NOTES

All dimensions shall remain the same as shown on contract plans, except dimensions A and B which are to be revised as shown to provide additional clearance. Additional concrete needed to revise dimension A and B= 0.0165 cu. yds./ft. of parapet.

Place aluminum sheet in curb portion at and near piers. Full thickness saw cut at all joint locations in lieu of cork joint filler.



#3 (E) BAR



GFRP REBAR STIFFENING DETAIL
(Place as shown in parapet section at each parapet joint location.)

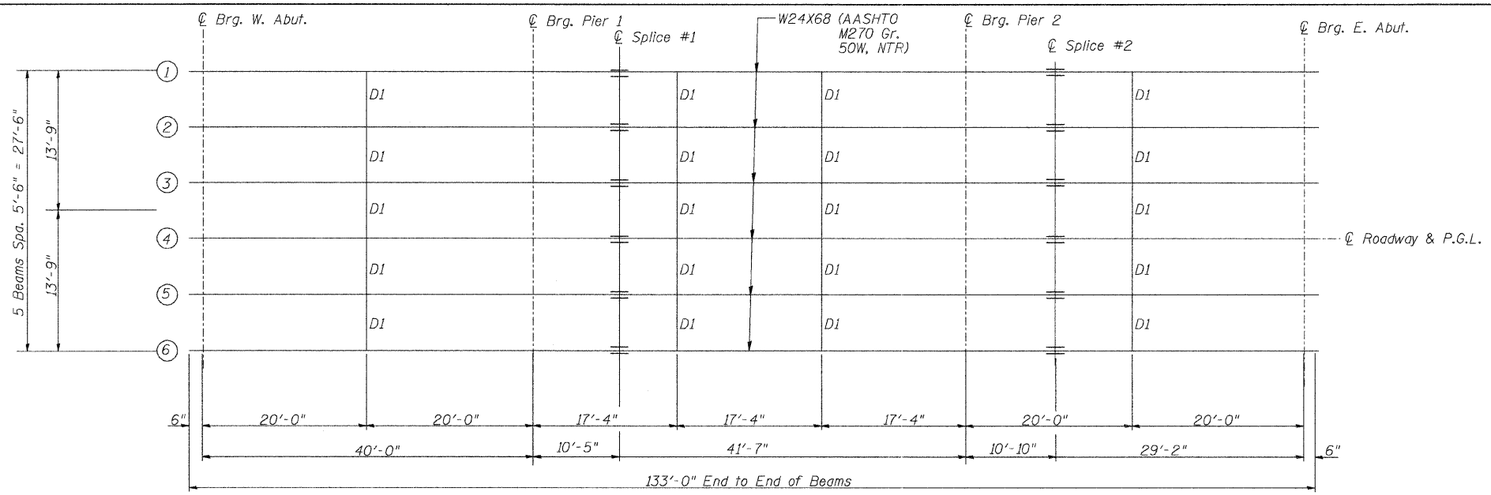
CONCRETE PARAPET
SLIPFORMING OPTION
STRUCTURE NO. 010-4550

SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

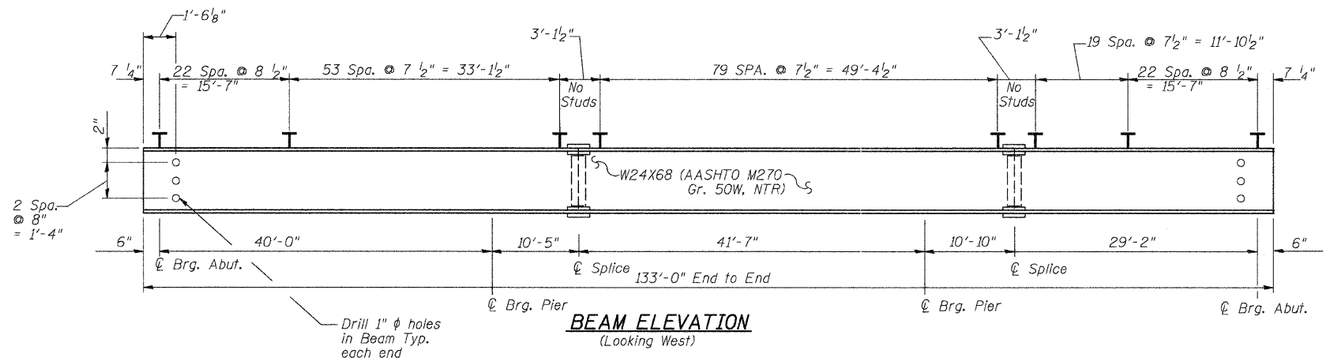
CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	18
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

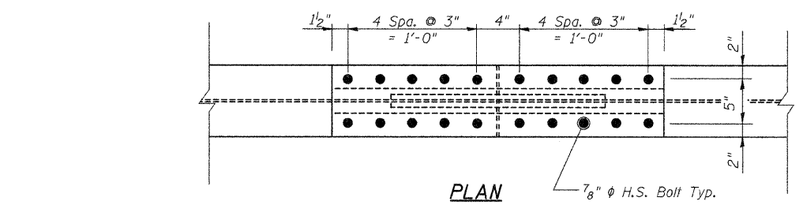
Sheet 10 of 23



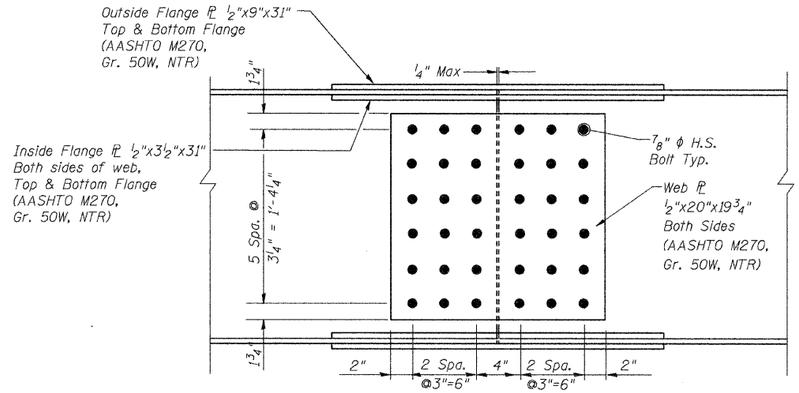
FRAMING PLAN



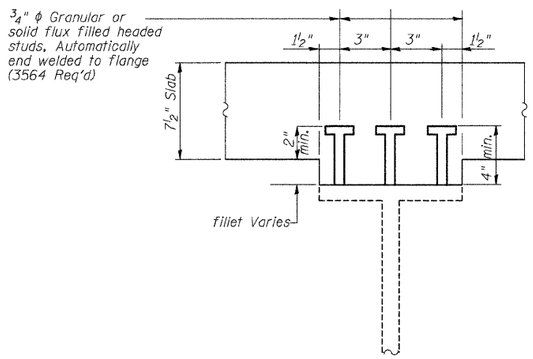
BEAM ELEVATION
(Looking West)



PLAN



ELEVATION
SPLICE



SECTION A-A

TOP OF BEAM ELEVATIONS *

Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6
℄ Brg. West Abut.	689.83	689.92	690.01	690.01	689.92	689.83
℄ Brg. Pier 1	689.92	690.02	690.10	690.10	690.02	689.92
℄ Splice 1	689.92	690.02	690.10	690.10	690.02	689.92
℄ Brg. Pier 2	689.92	690.02	690.10	690.10	690.02	689.92
℄Splice 2	689.90	690.00	690.08	690.08	690.00	689.90
℄ Brg. East Abut	689.83	689.92	690.01	690.01	689.92	689.83

*For Fabrication Only

Notes:

Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

FRAMING PLAN & BEAM DETAILS 1
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

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CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	19
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

INTERIOR GIRDER MOMENT TABLE				
		0.4 Span 1 or 0.6 Span 3	Pier 1 or Pier 2	0.5 Span 2
I_S	(in^4)	1,830	1,830	1,830
I_C (n)	(in^4)	6,152	6,152	6,152
I_C(3n)	(in^4)	4,592	4,592	4,592
S_S	(in^3)	154	154	154
S_C (n)	(in^3)	256	256	256
S_C(3n)	(in^3)	230	230	230
DC1	(K/ft.)	0.636	0.636	0.636
M_{DC1}	('K)	67.65	137.91	77.15
DC2	(K/ft.)	0.150	0.150	0.150
M_{DC2}	('K)	15.95	32.51	18.19
DW	(K/ft.)	0.275	0.275	0.275
M_{DW}	('K)	29.24	59.60	33.35
M_{L}+IM	('K)	335.25	302.92	335.25
M_U (Strength I)	('K)	735.03	832.54	755.88
$\phi_f M_n$, $\phi_f M_{nc}$	('K)	1,257	985.3	1,257
fs DC1	(k.s.i.)	5.27	10.75	6.01
fs DC2	(k.s.i.)	0.83	1.70	0.95
fs DW	(k.s.i.)	1.53	3.11	1.74
fs 1.3(M_L+IM)	(k.s.i.)	20.43	20.55	20.43
fs (Service II)	(k.s.i.)	28.06	36.11	29.13
fs (Total)(StrengthI)		37.42	40.41	38.81
Vf	(K)	34.8		37.6

I_S, S_S: Non-composite moment of inertia and section modulus of the steel section used for computing f_S (Toral-Strength I, and Service II) due to non-composite dead loads ($in.^4$ and $in.^3$).

I_C(n), S_C(n): Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_S (Total-Strength I, and Service II) due to short-term composite live loads ($in.^4$ and $in.^3$).

I_C(3n), S_C(3n): Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_S (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads ($in.^4$ and $in.^3$).

DC1: Un-factored non-composite dead load (kips/ft.).

M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

M_L+ Imp: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

M_U (Strength I): Factored design moment (kip-ft.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_L + Imp$

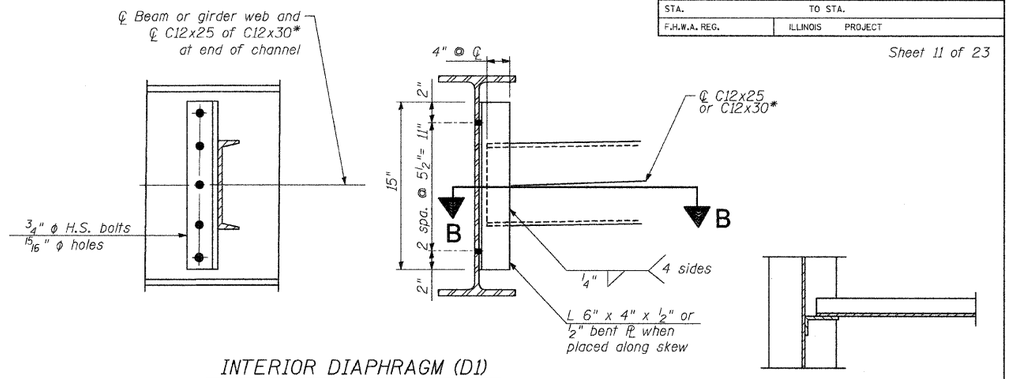
$\phi_f\ M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

$\phi_f\ M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).

f_S (Service II): Sum of stresses as computed from the moments below (ksi).
$M_{DC1} + M_{DC2} + M_{DW} + 1.3\ M_L + Imp$

f_S (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_L + Imp$

V_f: Factored shear range computed according to Article 6.10.10.



INTERIOR DIAPHRAGM (D1)

(20 Required)

SECTION B-B

INTERIOR GIRDER REACTION TABLE			
		Abuts.	Pier 1 or Pier 2
R DC1	(K)	9.27	32.71
R DC2	(K)	2.19	7.71
R DW	(K)	4.01	14.14
R L +IM	(K)	42.12	57.53
R (Total)	(K)	57.59	112.09

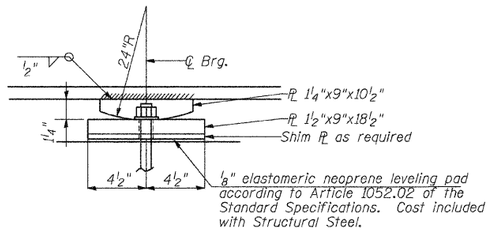
Notes:

Two hardened washers required for each set of oversized holes.

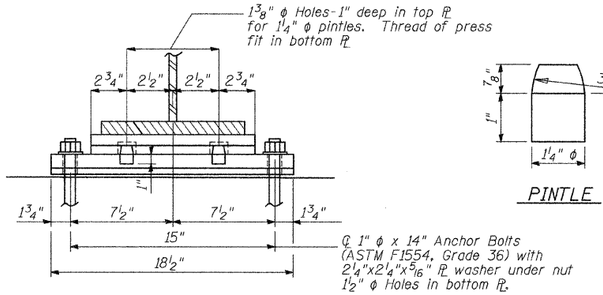
*Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.

The alternate, if utilized, shall be provided at no extra cost to the contract.

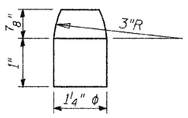
All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.



ELEVATION AT PIER



SECTION B-B



PINTLE

FIXED BEARING

Notes:

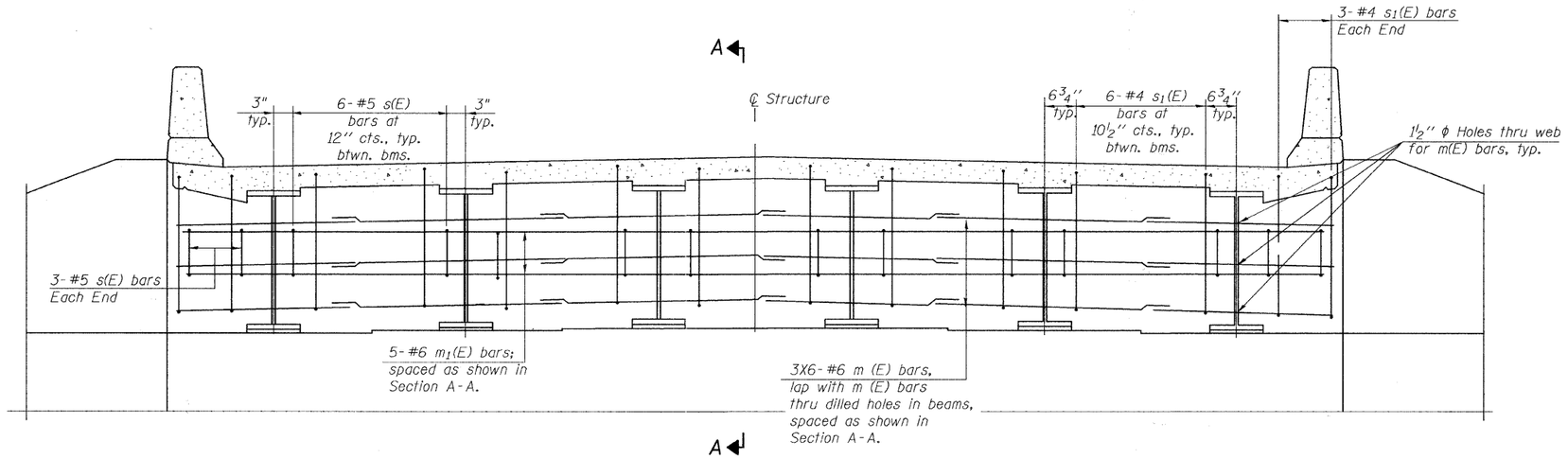
1. Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
2. Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
3. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
4. Two ⅛" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
5. The structural steel plates of the bearing assembly shall conform to the requirements of AASHTO M270, Grade 50W.

FRAMING PLAN & BEAM DETAILS 2
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

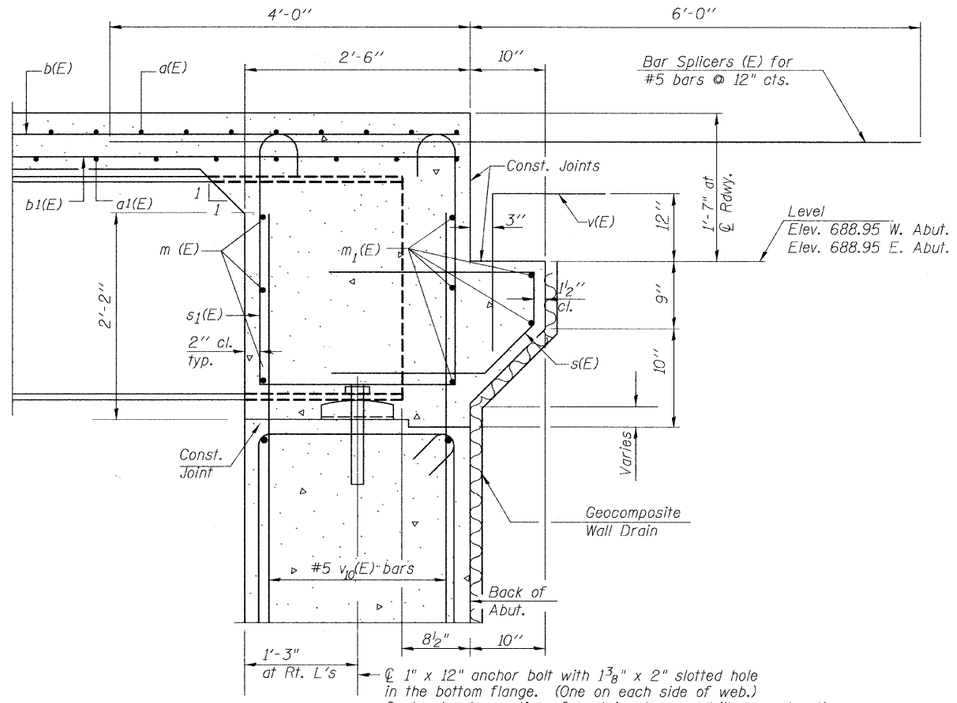
CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	20
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

Sheet 12 of 23



DIAPHRAGM ELEVATION AT ABUTMENT



℄ 1" x 12" anchor bolt with $1\frac{3}{8}$" x 2" slotted hole in the bottom flange. (One on each side of web.) Contractor has option of cast in place or drilled construction.

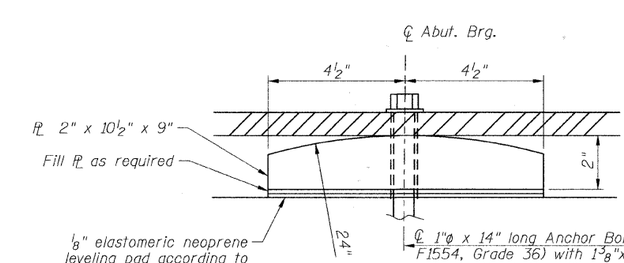
SECTION A-A

Dimensions at right angles to abutment, except as shown.

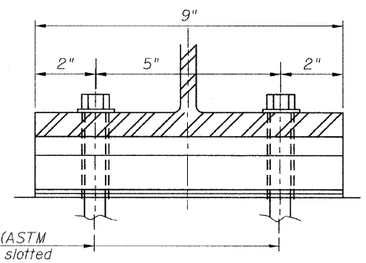
*Included in the cost of "Concrete Structures".

**Included in the cost of "Porous Granular Embankment".

Notes:
Reinforcement bars in diaphragm are billed with superstructure on sheet 8 of 23.
Concrete in diaphragm is included with Concrete Superstructure on sheet 8 of 23.
For details of bars s(E) and s_1(E) see sheet 8 of 23.



ELEVATION AT ABUT



SECTION B-B

ROCKER PLATE DETAIL

12 REQUIRED

Notes:

1. Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
2. Rocker Plates shall be AASHTO M270 Gr. 50W
3. Two ⅛" adjusting shims shall be provided for each bearing in addition to all other plates or shims as placed as shown on the bearing details.
4. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
5. Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

MIN. BAR LAP

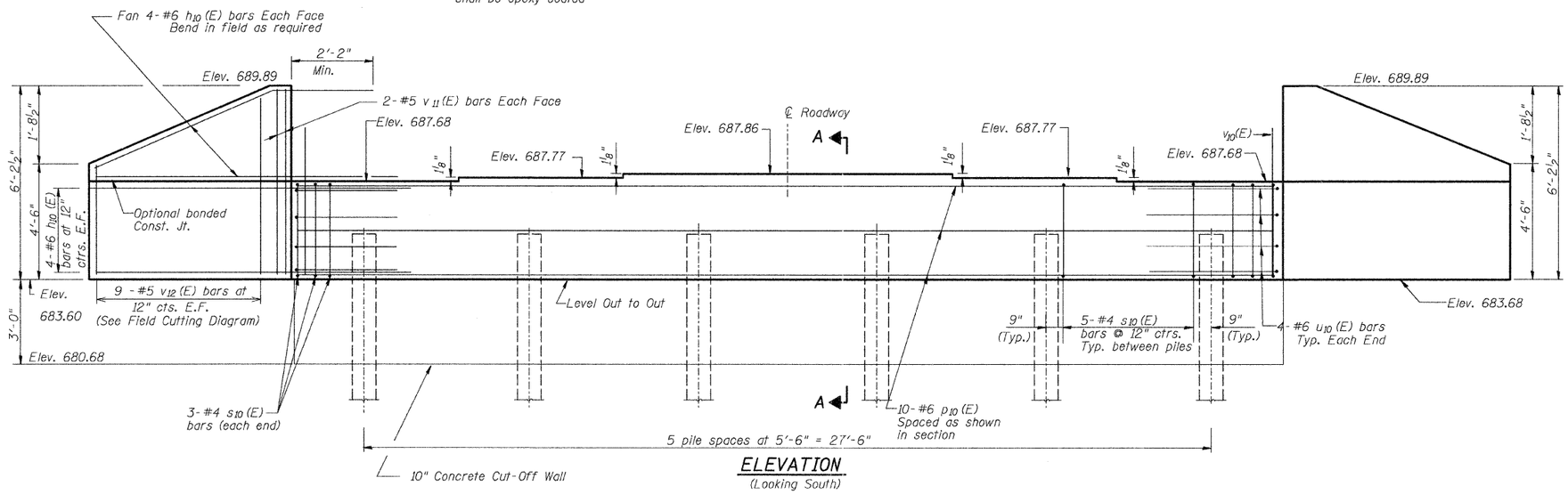
#6 bar = 2'-9"

DIAPHRAGM DETAILS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

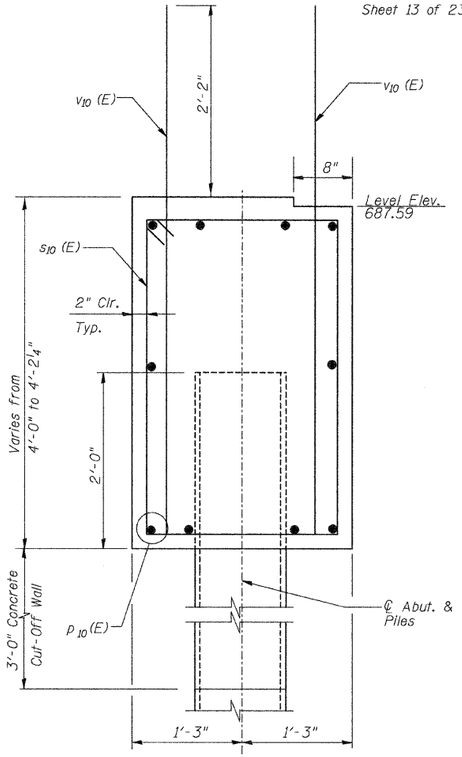
CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	21
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

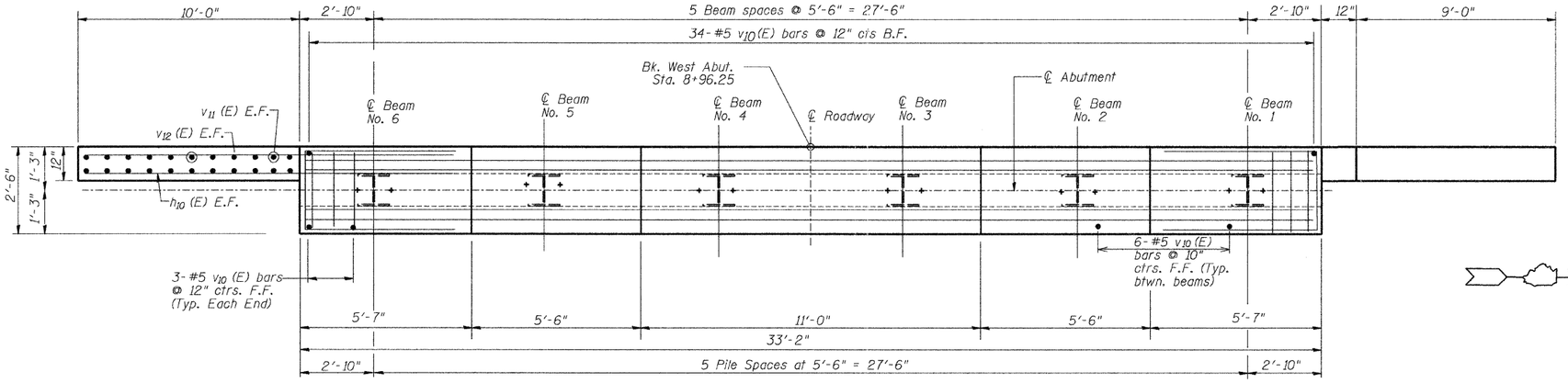
Notes: Pour steps monolithically with cap. Reinforcement bars designated (E) shall be epoxy coated



ELEVATION
(Looking South)

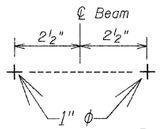


SECTION A-A

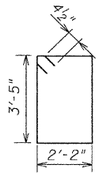


PLAN

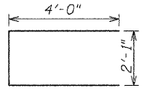
Note: All edges shall have a standard ¾" chamfer except as noted. One test pile is required at West Abutment.



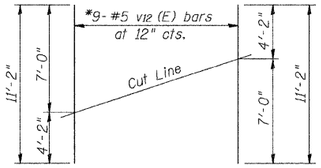
ANCHOR BOLT LAYOUT
Typical @ all Beams



s10 (E)



u10 (E)



FIELD CUTTING DIAGRAM
* Order v12 (E) full length. Cut as shown and use remainder of bars in opposite face.

PILE DATA
Type : Steel HP10X42
Nominal Req'd Bearing : 222 kips
Allowable Resistance Available : 74 kips
Est. Length : 45'
No. Required : 5
Test Pile : 1

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h10(E)	32	#6	12'-6"	
p10(E)	10	#6	32'-10"	
s10(E)	31	#4	11'-11"	
u10(E)	8	#6	10'-1"	
v10(E)	70	#5	6'-0"	
v11(E)	8	#5	7'-0"	
v12(E)	18	#5	11'-2"	
Structure Excavation		Cu. Yd.	79	
Concrete Structures		Cu. Yd.	16.6	
Reinforcement Bars Epoxy Coated		Pound	2170	
Furnishing Steel Piles HP10X42		Foot	225	
Driving Piles		Foot	225	
Concrete Cut-Off Wall		Cu. Yd.	3.1	
Pile Shoes		Each	6	
Test Pile HP10X42		Each	1	

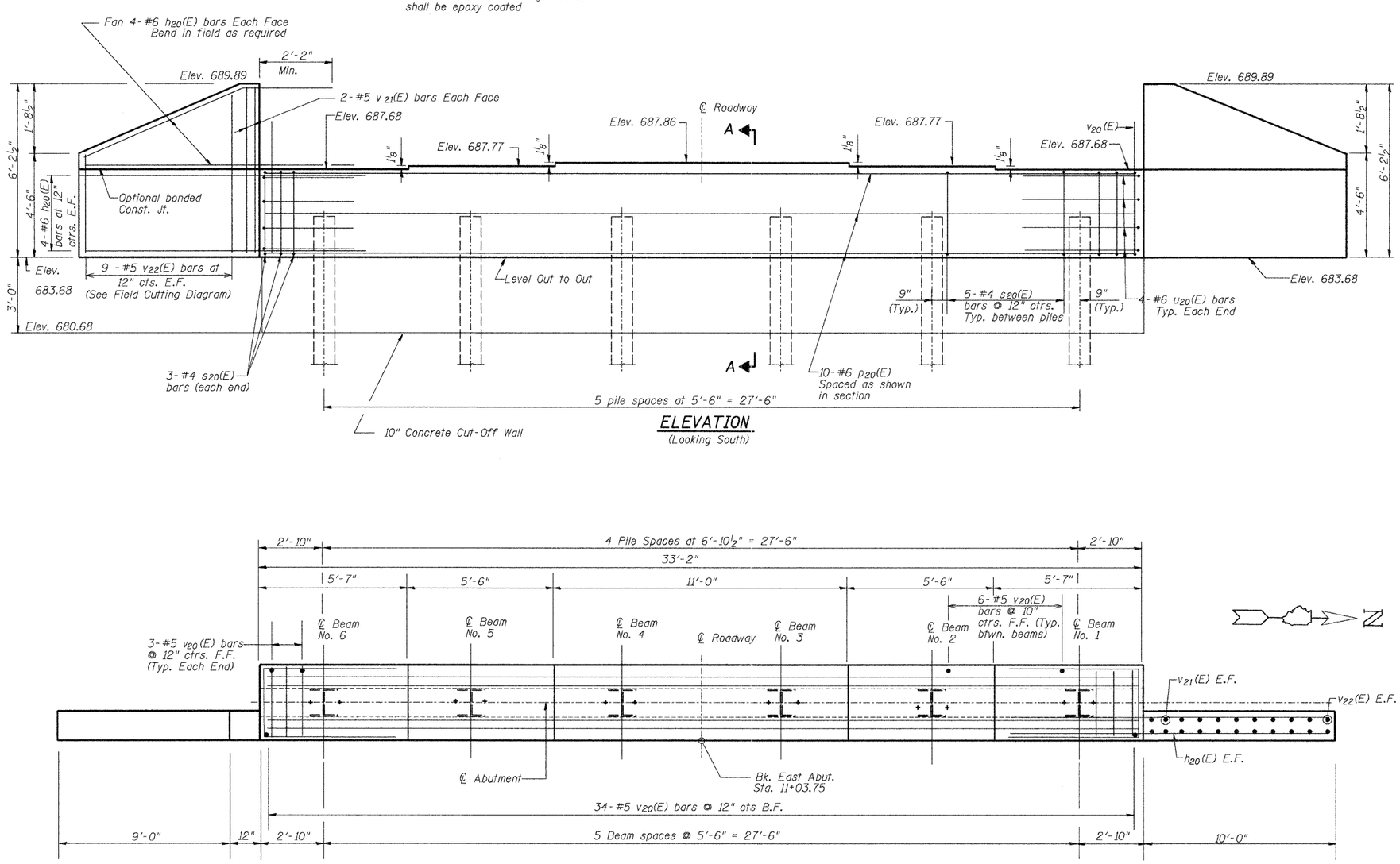
WEST ABUTMENT
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	22
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

Sheet 14 of 23

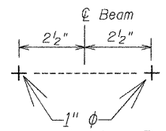
Notes: Pour steps monolithically with cap. Reinforcement bars designated (E) shall be epoxy coated



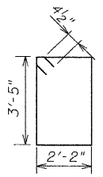
ELEVATION
(Looking South)

PLAN

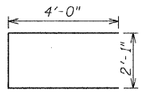
Note: All edges shall have a standard ¾" chamfer except as noted. One test pile is required at East Abutment.



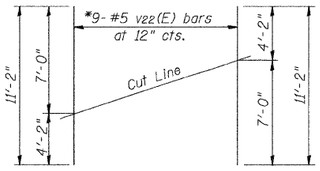
ANCHOR BOLT LAYOUT
Typical @ all Beams



s20(E)

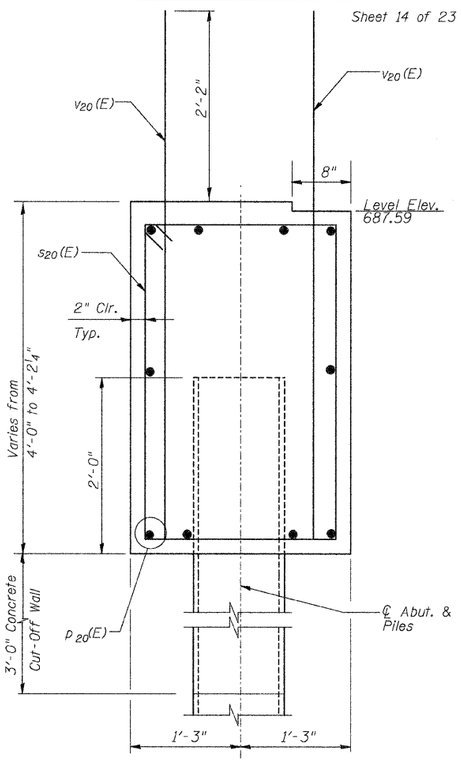


u20(E)



FIELD CUTTING DIAGRAM
* Order v_{22}(E) full length. Cut as shown and use remainder of bars in opposite face.

PILE DATA
Type : Steel HP10X42
Nominal Req'd Bearing : 222 kips
Allowable Resistance Available : 74 kips
Est. Length : 52'
No. Required : 5
Test Pile : 1



SECTION A-A

BILL OF MATERIAL

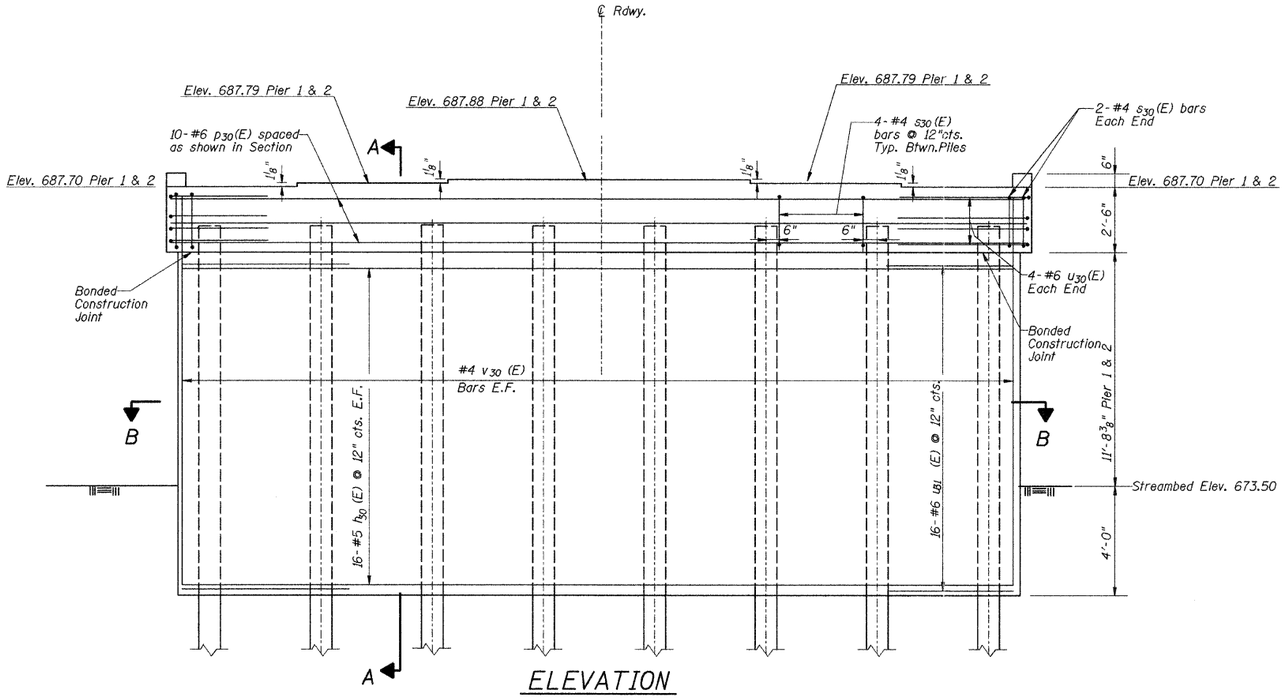
Bar	No.	Size	Length	Shape
h_{20}(E)	32	#6	12'-6"	——
p_{20}(E)	10	#6	32'-10"	——
s_{20}(E)	31	#4	11'-11"	□
u_{20}(E)	8	#6	10'-1"	⊐
v_{20}(E)	70	#5	6'-0"	——
v_{21}(E)	8	#5	7'-0"	——
v_{22}(E)	18	#5	11'-2"	——
Structure Excavation		Cu. Yd.	79	
Concrete Structures		Cu. Yd.	16.6	
Reinforcement Bars Epoxy Coated		Pound	2170	
Furnishing Steel Piles HP10X42		Foot	260	
Driving Piles		Foot	260	
Concrete Cut-Off Wall		Cu. Yd.	3.1	
Pile Shoes		Each	6	
Test Pile HP10X42		Each	1	

EAST ABUTMENT
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

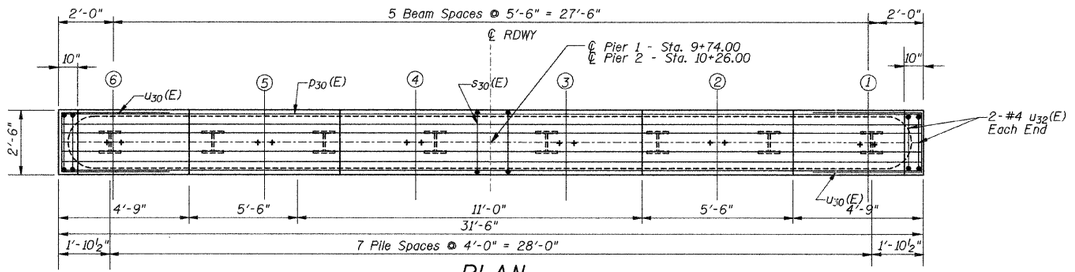
CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	23
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

Sheet 15 of 23

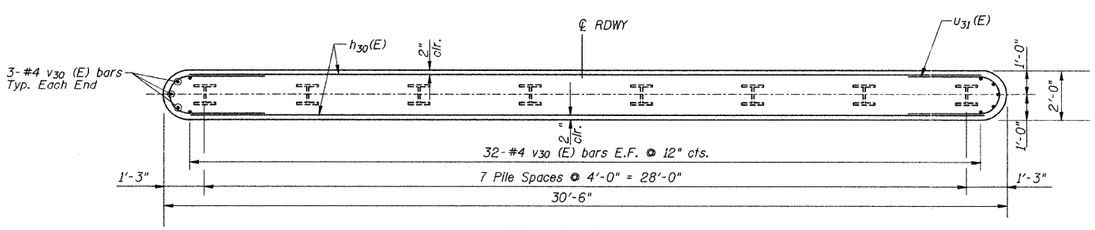


ELEVATION
(LOOKING WEST)

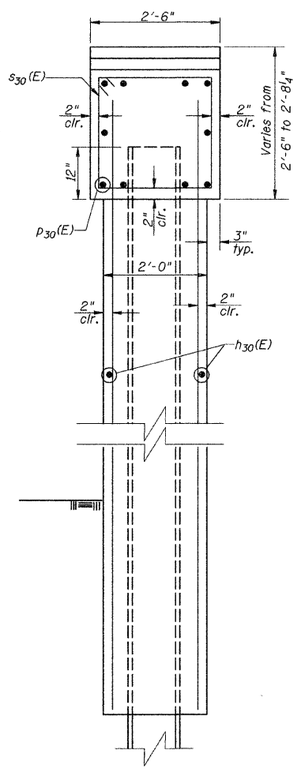


PLAN

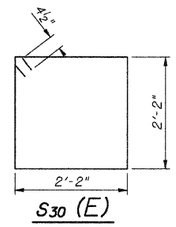
Note: All edges shall have a standard ¾" chamfer except as noted.



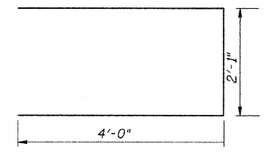
SEC B-B



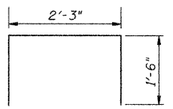
SEC. A-A



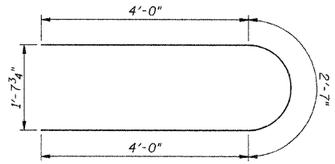
S_{30} (E)



U_{30} (E)



U_{32} (E)



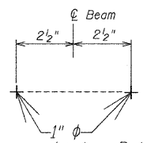
U_{31} (E)

Notes:

If a portion of the pier wall or concrete encasement is under water, reinforcement may be placed underwater in forms. Concrete shall be fremied according to Article 503.08 of the Standard Specifications to an elevation of 1'-0" above the water line at the time of construction.

BILL OF MATERIAL (2 PIERS)

Bar	No.	Size	Length	Shape
h_{30}(E)	64	#5	28'-6"	——
p_{30}(E)	20	#6	31'-2"	——
s_{30}(E)	64	#4	9'-5"	□
u_{30}(E)	16	#6	10'-1"	⊐
u_{31}(E)	64	#6	10'-7"	⊃
u_{32}(E)	8	#4	5'-3"	⊓
v_{30}(E)	140	#4	17'-9"	——
Concrete Structures			Cu. Yd.	85.3
Reinforcement Bars Epoxy Coated			Pound	6920
Furnishing Steel Piles HP 10x42			Foot	1092
Driving Piles			Foot	1092
Pile Shoes			Each	16
Structure Excavation			Cu. Yd.	62
Test Pile HP10X42			Each	2
Underwater Structure Excavation Protection - Location 1			Each	1
Underwater Structure Excavation Protection - Location 2			Each	1



Anchor Bolts

ANCHOR BOLT LAYOUT
Typical @ all Beams

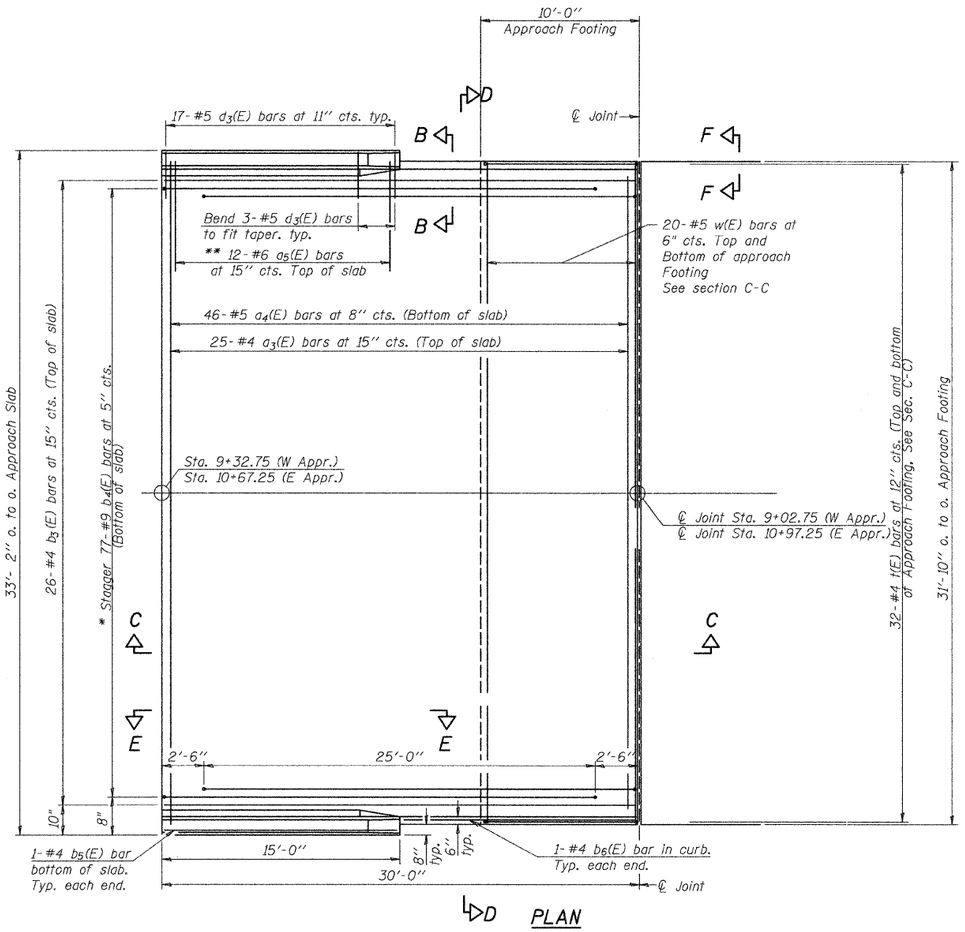
PILE DATA
Type : Steel HP10X42
Nominal Req'd Bearing : 246 kips
Allowable Resistance Available : 82 kips
Est. Length : 78'
No. Required : 14
Test Pile: 2, 1 @ Pier 1, 1 @ Pier 2

PIER DETAILS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

15 Piers 1 and 2.dgn 4/14/2011 7:44:05 AM

CONTRACT NUMBER 91454

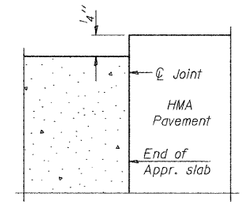
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	24
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			



D PLAN

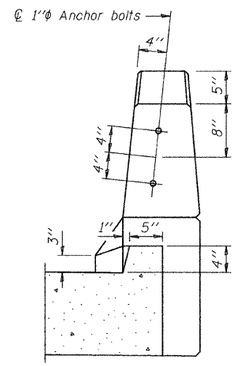
* Tilt #9 $b_4(E)$ bars as required to maintain clearance.
** Alternate with $a_3(E)$, typ. ea. parapet.

Notes:
See sheet 17 of 23 for Sections C-C & D-D and View E-E. $a_3(E)$, $a_4(E)$, $a_5(E)$, $a_6(E)$, and $w(E)$ bar spacings measured perpendicular to ℄ Rdwy.



FLEXIBLE PAVEMENT

DETAIL A



VIEW B-B
(Exit ends only)

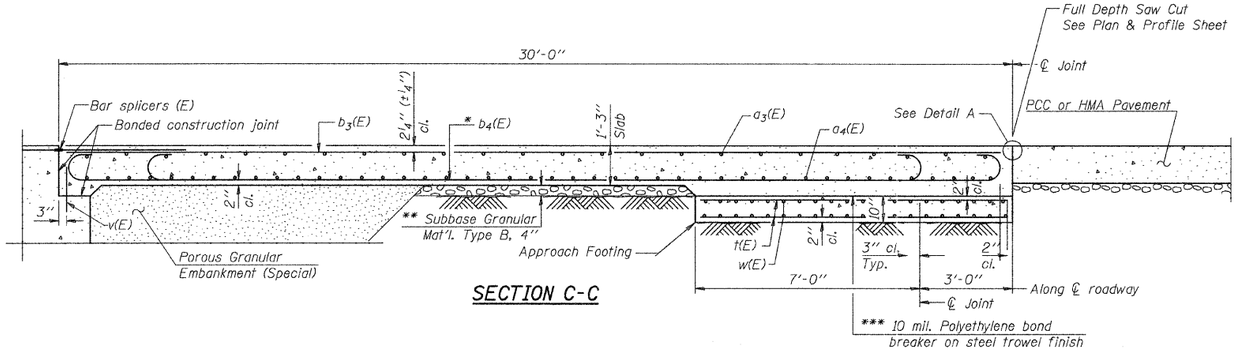
BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 010-4306
(Sheet 1 of 2)

BRIDGE APPROACH SLAB DETAILS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

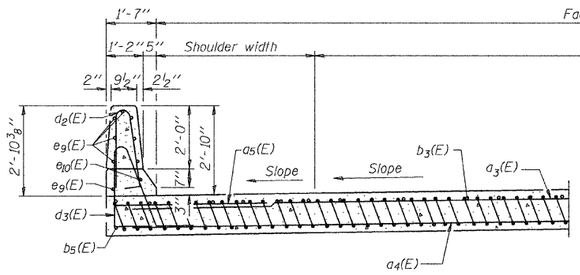
CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	25
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

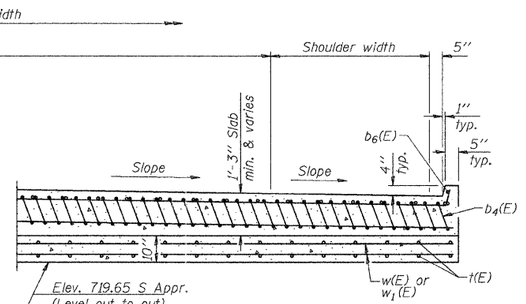
Sheet 17 of 23



SECTION C-C



NEAR ABUTMENT



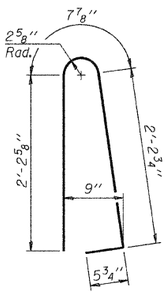
AT APPROACH FOOTING

SECTION D-D

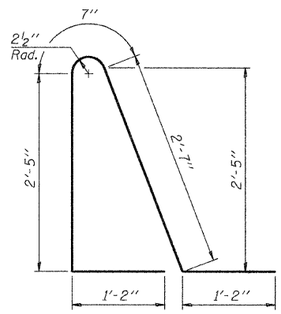
(See Plan for dimensions not shown)

* Tilt #9 b_4(E) bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.



BAR d_2(E)



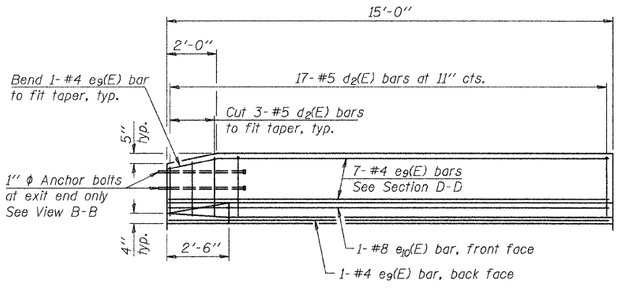
BAR d_3(E)

TWO APPROACHES
BILL OF MATERIAL

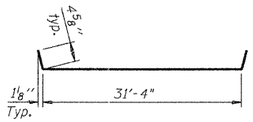
Bar	No.	Size	Length	Shape
a_3(E)	50	#4	32'-1"	
a_4(E)	92	#5	31'-6"	
a_5(E)	48	#6	6'-0"	
b_3(E)	52	#4	29'-8"	
b_4(E)	154	#9	29'-9"	
b_5(E)	4	#4	14'-8"	
b_6(E)	4	#4	14'-8"	
d_2(E)	68	#5	5'-7"	
d_3(E)	68	#5	7'-11"	
e_9(E)	32	#4	14'-8"	
e_{10}(E)	4	#8	14'-8"	
t(E)	64	#4	9'-8"	
w(E)	80	#5	31'-6"	
Concrete Superstructure		Cu. Yd.	105.5	
Concrete Structures		Cu. Yd.	19.7	
Reinforcement Bars, Epoxy Coated		Pound	25,680	

Notes:

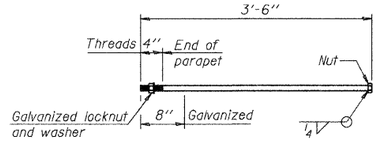
See sheet 16 of 23 for Detail A and View B-B.
Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
Approach footing concrete shall be paid for as Concrete Structures.
Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
For v(E) bar details, see sheet 8 of 23.
The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
For bar splicer details, see sheet 19 of 23.
Cost of excavation for approach footing included with Concrete Structures.
For Porous Granular Embankment (Special) and drainage treatment details, see sheet 2 of 23.



VIEW E-E

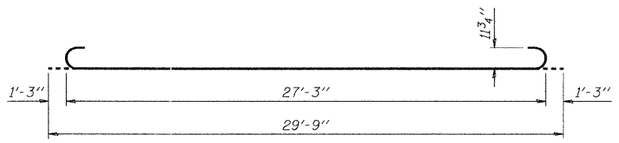


BAR a_3(E)



1"ϕ ANCHOR BOLT

(Cost Included with Concrete Superstructure)



BAR b_4(E)

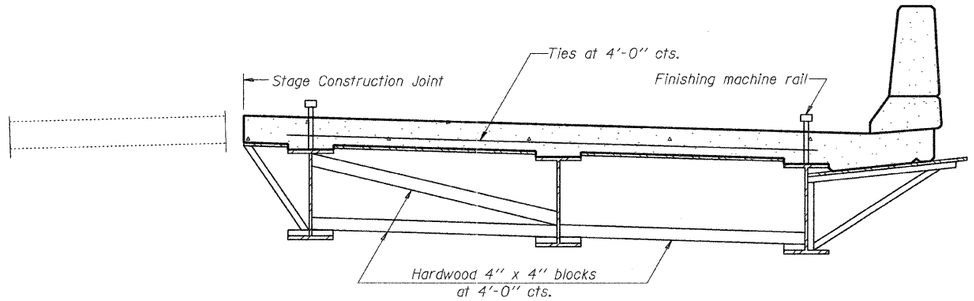
BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 010-4306

(Sheet 2 of 2)

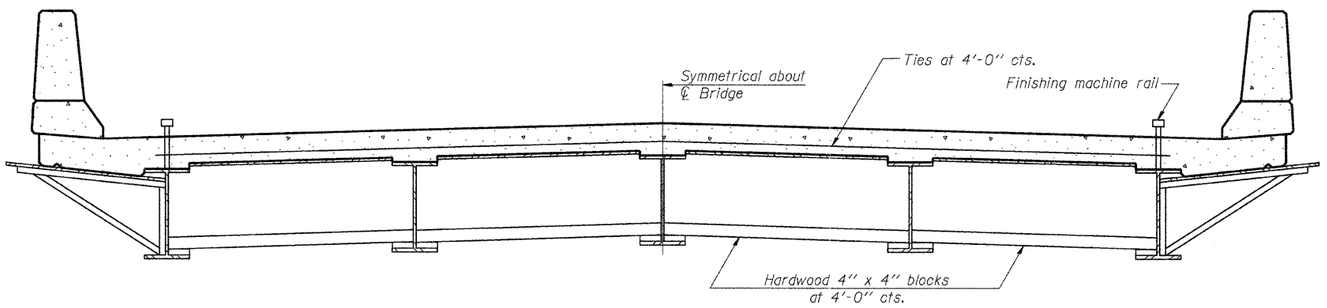
BRIDGE APPROACH SLAB DETAILS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	26
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			



FORM BRACES FOR
STAGE CONSTRUCTION



FORM BRACES FOR
STANDARD CONSTRUCTION

When cantilever forming brackets are used, the work shall be done according to Article 503.06(b) of the Standard Specifications, except as modified below and in the details shown on this sheet.

The finishing machine rails shall be placed on the top flange of the exterior beams.

The beams or girders, supporting cantilever forming brackets, shall be tied together at 4 foot intervals.

For Standard construction, or Stage Construction the Hardwood bracing materials shall be placed as shown between webs of beams in each bay.

SB-1 7-1-10

CANTILEVER FORMING BRACKETS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	27
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

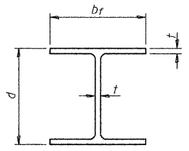
THIS SHEET INTENTIONALLY LEFT BLANK

ANCHOR BOLT DETAILS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

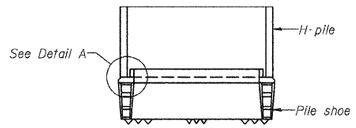
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	28
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

Sheet 20 of 23

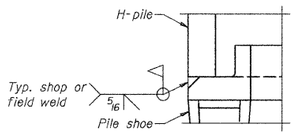


STEEL PILE TABLE

Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	$14\frac{1}{4}''$	$14\frac{7}{8}''$	$\frac{13}{16}''$	30''
x102	14''	$14\frac{3}{4}''$	$\frac{11}{16}''$	30''
x89	$13\frac{7}{8}''$	$14\frac{3}{4}''$	$\frac{5}{8}''$	30''
x73	$13\frac{5}{8}''$	$14\frac{5}{8}''$	$\frac{1}{2}''$	30''
HP 12x84	$12\frac{1}{4}''$	$12\frac{1}{4}''$	$\frac{11}{16}''$	24''
x74	$12\frac{1}{8}''$	$12\frac{1}{4}''$	$\frac{5}{8}''$	24''
x63	12''	$12\frac{1}{8}''$	$\frac{1}{2}''$	24''
x53	$11\frac{3}{4}''$	12''	$\frac{7}{16}''$	24''
HP 10x57	10''	$10\frac{1}{4}''$	$\frac{9}{16}''$	24''
x42	$9\frac{3}{4}''$	$10\frac{1}{8}''$	$\frac{7}{16}''$	24''
HP 8x36	8''	$8\frac{1}{8}''$	$\frac{7}{16}''$	18''

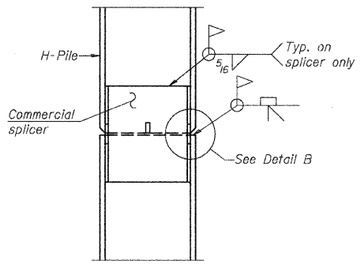


ELEVATION

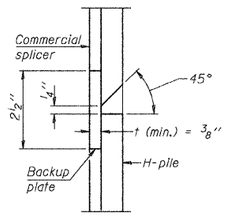


DETAIL A

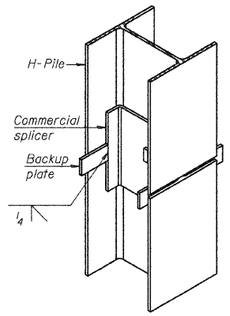
H-PILE SHOE ATTACHMENT



ELEVATION

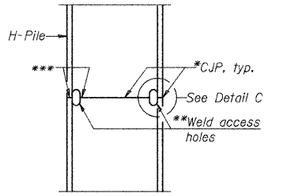


DETAIL "B"

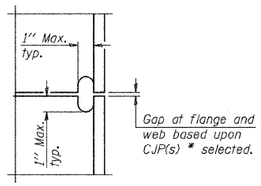


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



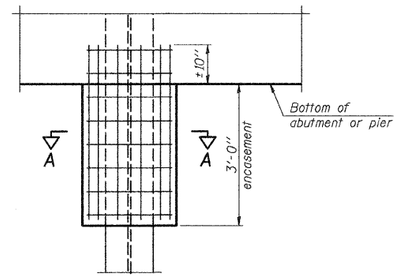
ELEVATION



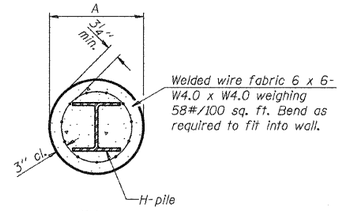
DETAIL C

COMPLETE PENETRATION WELD SPLICE

* Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code - Steel.
** Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.
*** Interrupt welds ¼" from end of each pile.



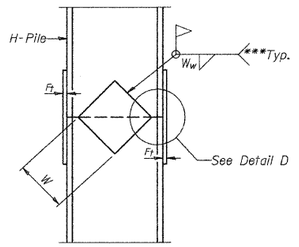
ELEVATION



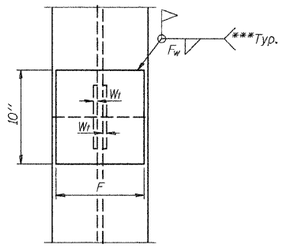
Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

PILE ENCASEMENT

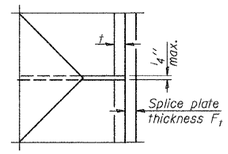


ELEVATION



END VIEW

WELDED PLATE FIELD SPLICE

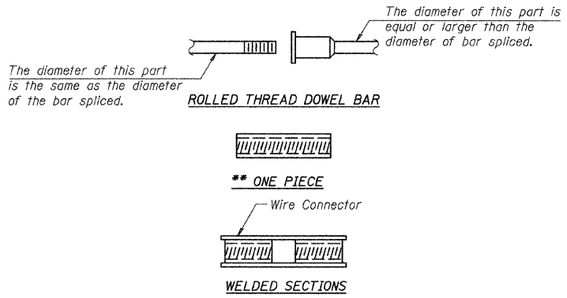


DETAIL D

Designation	F	F_f	F_w	W	W_f	W_w
HP 14x117	$12\frac{1}{2}''$	1''	$\frac{7}{8}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x102	$12\frac{1}{2}''$	$\frac{7}{8}''$	$\frac{3}{4}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x89	$12\frac{1}{2}''$	$\frac{3}{4}''$	$\frac{11}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x73	$12\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{9}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
HP 12x84	10''	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x74	10''	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x63	10''	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x53	10''	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 10x57	8''	$\frac{3}{4}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x42	8''	$\frac{5}{8}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 8x36	7''	$\frac{5}{8}''$	$\frac{7}{16}''$	$4\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$

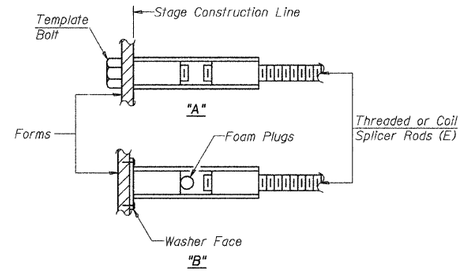
Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

STEEL H-PILE DETAILS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00



BAR SPLICER ASSEMBLY ALTERNATIVES

**Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.

NOTES

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.

Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.

All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.

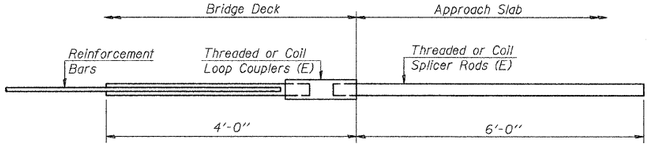
Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

① Minimum Capacity (Tension in kips) = $1.25 \times f_y \times A_t$

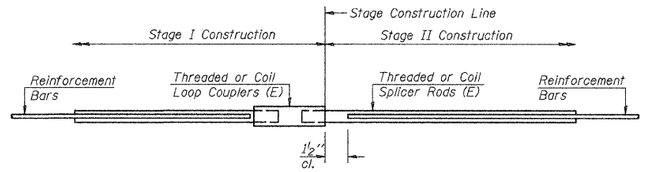
② Minimum *Pull-out Strength (Tension in kips) = $0.66 \times f_y \times A_t$

Where f_y = Yield strength of lapped reinforcement bars in ksi.
A_t = Tensile stress area of lapped reinforcement bars.
* = 28 day concrete

BAR SPLICER ASSEMBLIES			
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	7.9
#5	2'-2"	23.0	12.3
#6	2'-7"	33.1	17.4
#7	3'-5"	45.1	23.8
#8	4'-6"	58.9	31.3
#9	5'-9"	75.0	39.6
#10	7'-3"	95.0	50.3
#11	9'-0"	117.4	61.8



FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS



STANDARD

Bar Size	No. Assemblies Required	Location
#5	68	Approach Slabs

BAR SPLICER ASSEMBLY DETAILS
STRUCTURE NO. 010-4306

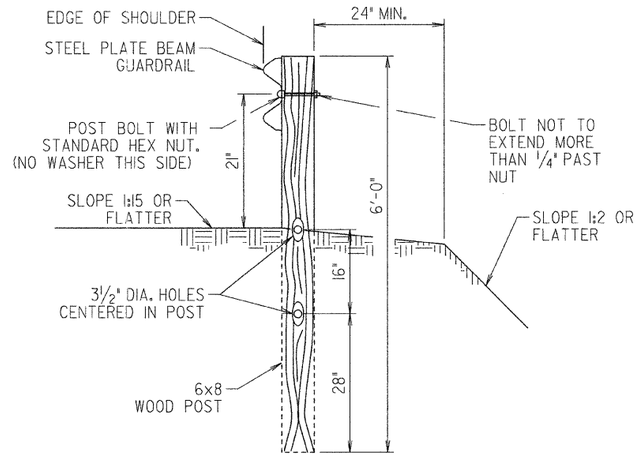
BAR SPLICER ASSEMBLY DETAILS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

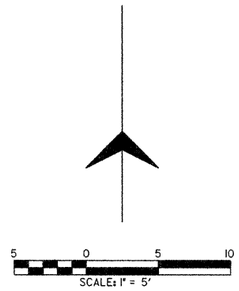
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	30
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

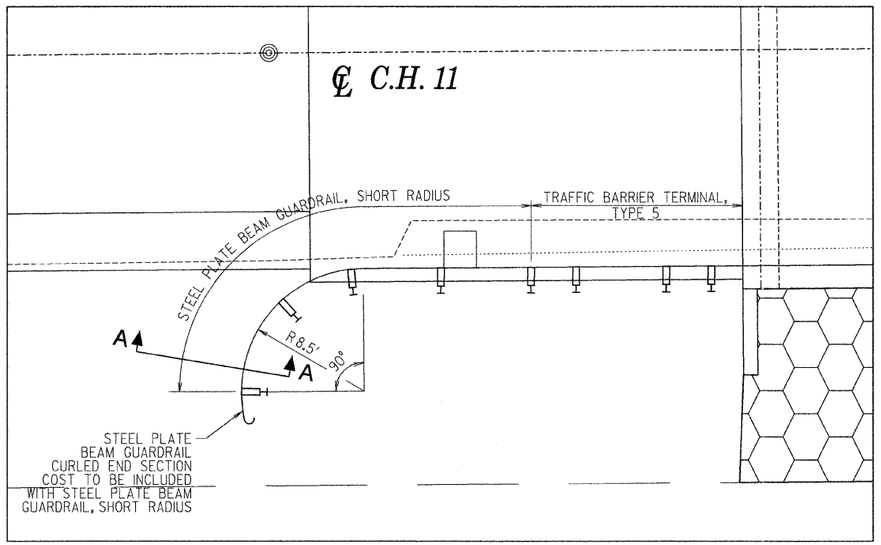
NOTES:

1. CONSTRUCT ACCORDING TO STANDARD 631011 FOR TRAFFIC BARRIER TERMINAL TYPE 2, EXCEPT DELETE END SECTION AND SPLICE INTO RADIUS GUARDRAIL.
2. FOR THE 8'-6" RADIUS, THE RAIL IS NOT BOLTED TO THE POST LOCATED AT THE MIDPOINT OF THE CURVE.

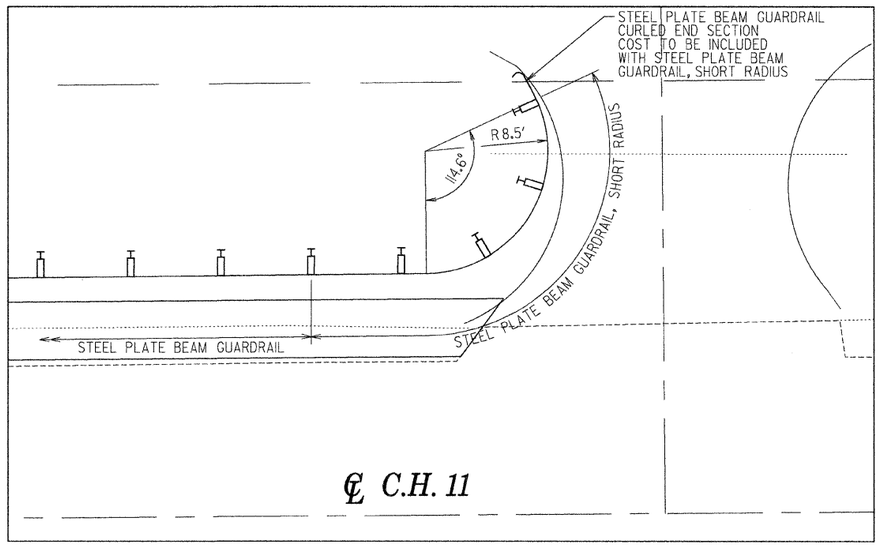


SECTION A-A





WEST GUARDRAIL DETAIL



EAST GUARDRAIL DETAIL

GUARDRAIL DETAILS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 11	10-00962-00-BR	CHAMPAIGN	40	31
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

GENERAL NOTES

Boring Data is shown only as a guide to bidders in estimating soil conditions which may be encountered during construction.

The contractor shall drive 4 test piles in a permanent location, one at each abutment and one at each pier as directed by the Engineer before ordering the remainder of piles.

The contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at the substructures specified or approved by the Engineer before ordering the remainder of the piles.

BORING DATA

N - Standard Penetration Test - Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with 140 lb. hammer falling 30"
Qu - Unconfined Compression Strength - Tons/Sq.Ft.
Mc - Water Content - Percentage of oven dry weight - %
D - Depth
P - Penetrometer
B - Bulge Failure
S - Shear Failure
E - Estimated Value

D	N	Qu	Mc	
Surface 690.3				
				1.0' 12" Asphalt Pav't
	8	3.0	10.2	Clay Fill - Dark Brown, brown, gray silty clay, trace sand, stiff to very stiff, moist
	6	2.0	23.8	
5				6.0'
	2	0.6	23.9	Silty Clay Brown and gray silty clay,
				8.0' stiff to very stiff, moist
	14	--	9.1	Sand - Brown fine to medium sand, loose to dense, moist
10				
	20	--	4.9	12.0'
	9	--	19.0	Sand - Gray fine sand, medium dense, wet
15				
	7	--	22.2	
				19.0'
	5	1.7	13.6	
20				
	7	2.0	12.7	
	11	2.8	11.3	
25				
	10	2.9	11.7	Silty Clay Gray silty clay, trace sand & gravel, stiff to very stiff, moist
	13	2.7	11.9	
30				
	12	4.6	12.0	
35				
	23	4.9	10.6	
40				
	9	--	19.1	44.0'
45				
				Sand - Gray fine to medium sand, medium dense, wet
	12	--	20.6	50.0' End of Boring
50				

BORING NO. B-1
Sta. 10+73, 7.5' Lt.

D	N	Qu	Mc	
Surface 690.3				Ground Surface
	13	1.0	12.1	Clay Fill - Dark brown, black, brown silty clay and clayey sand, trace rubble, medium dense, moist
	13	--	19.1	
5				
	7	2.5	18.6	
				9.0'
	18	--	8.0	
10				Sand - Brown fine to medium sand, medium dense to dense, moist
	25	--	5.5	13.0'
	16	--	17.8	
15				Sand - Gray fine sand, dense, wet
	28	--	21.8	
				19.0'
	13	--	23.0	
20				Sand - Gray fine sand, dense, wet
	12	3.8	10.7	22.0'
	4	1.6	13.4	
25				
	7	0.8	13.7	
	5	0.2	14.7	
30				Silty Clay - Gray silty clay, trace sand and gravel, very stiff, moist
	8	2.6	12.8	
35				
	18	4.4	11.4	
40				
				43.0'
	10	--	18.0	Sand - Gray fine to medium sand, dense, wet
45				46.5'
				Sand - Gray fine sand, medium dense, wet
	10	--	21.1	50.0' End of Boring
50				

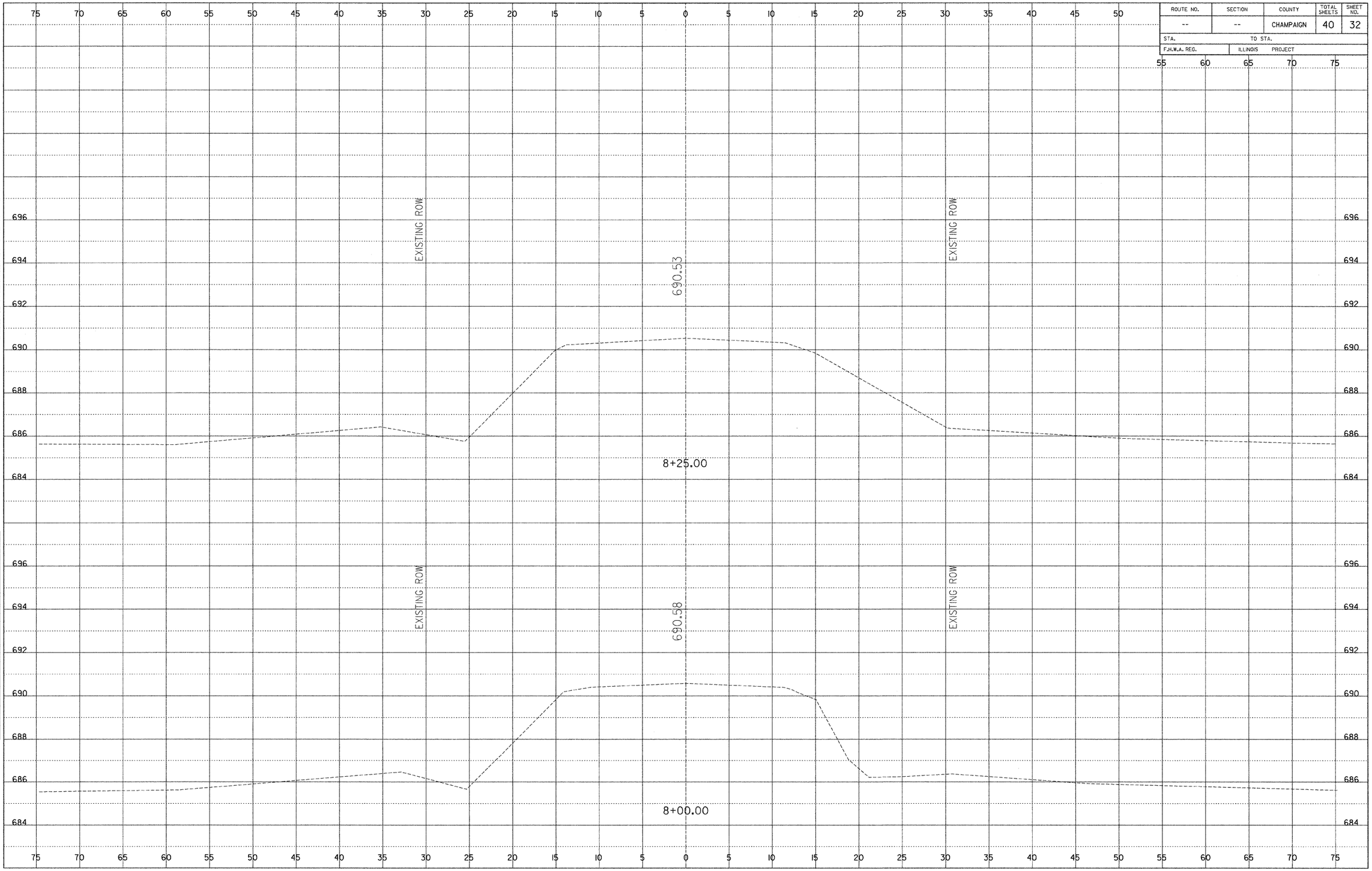
BORING NO. B-2
Sta. 9+09, 15' Rt.

BORING LOGS
SECTION: 10-00962-00-BR
CHAMPAIGN COUNTY
℄ STATION 10+00

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
--	--	CHAMPAIGN	40	32
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

FINAL SURVEY
NOTE BOOK NO. _____
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE



ORIGINAL SURVEY
NOTE BOOK NO. _____
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

Cross Section Sheets.dgn 4/14/2011 7:44:51 AM

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
--	--	CHAMPAIGN	40	33
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

FINAL SURVEY
NOTE BOOK NO. _____
SURVEYED _____
PLOTTED _____
TRACED _____
AREAS _____
AREAS CHECKED _____
BY
DATE

EXISTING ROW
690.46
690.52
CUT= 4 S.F.
FILL= 11 S.F.
8+75.00
EXISTING ROW

ORIGINAL SURVEY
NOTE BOOK NO. _____
SURVEYED _____
PLOTTED _____
TRACED _____
AREAS _____
AREAS CHECKED _____
BY
DATE

EXISTING ROW
690.49
690.50
CUT= 3 S.F.
FILL= 18 S.F.
8+50.00
EXISTING ROW

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

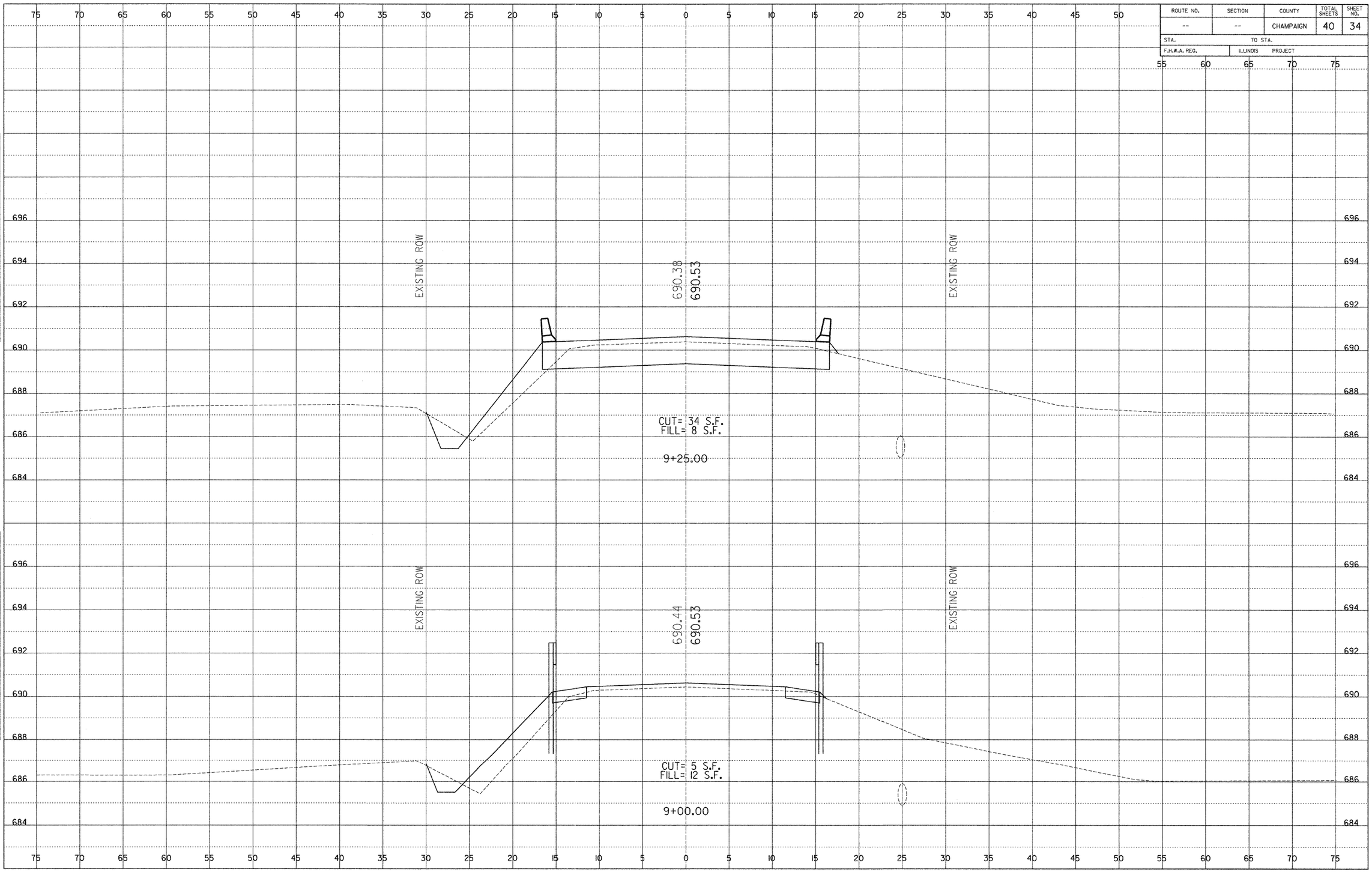
696 694 692 690 688 686 684

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
--	--	CHAMPAIGN	40	34
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

FINAL SURVEY — SURVEYED — PLOTTED — TEMPLATE — AREAS — NOTE BOOK NO. — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — SURVEYED — PLOTTED — TEMPLATE — AREAS — NOTE BOOK NO. — AREAS CHECKED — BY — DATE

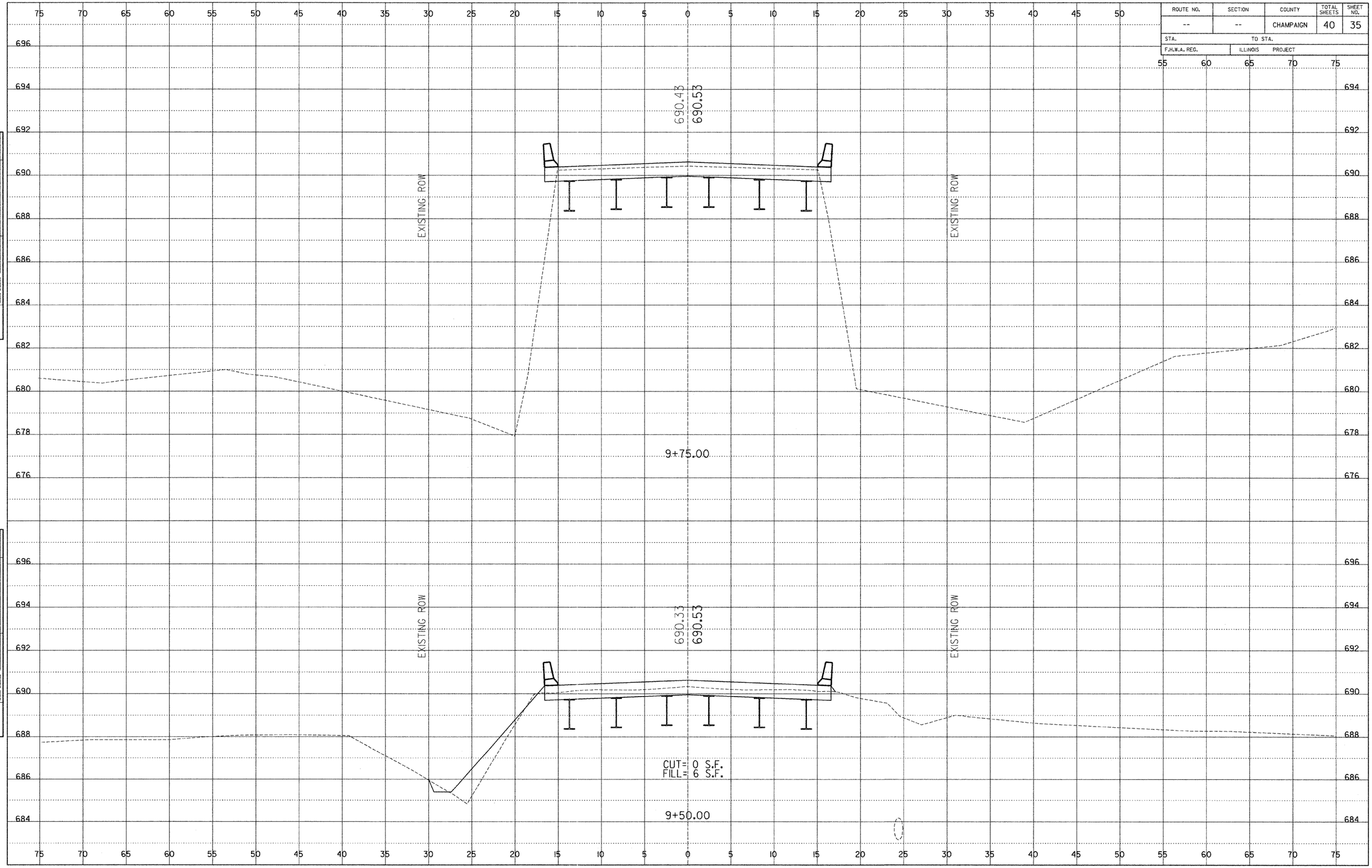


CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
--	--	CHAMPAIGN	40	35
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

FINAL SURVEY
NOTE BOOK NO. _____
SURVEYED _____ BY _____
PLOTTED _____
TEMPLATE _____
AREAS _____ AREAS CHECKED _____
DATE
BY

ORIGINAL SURVEY
NOTE BOOK NO. _____
SURVEYED _____ BY _____
PLOTTED _____
TEMPLATE _____
AREAS _____ AREAS CHECKED _____
DATE
BY



SECTION 10-00962-00-BR CHAMPAIGN COUNTY

SHEET 35 OF 40 SHEETS 10134

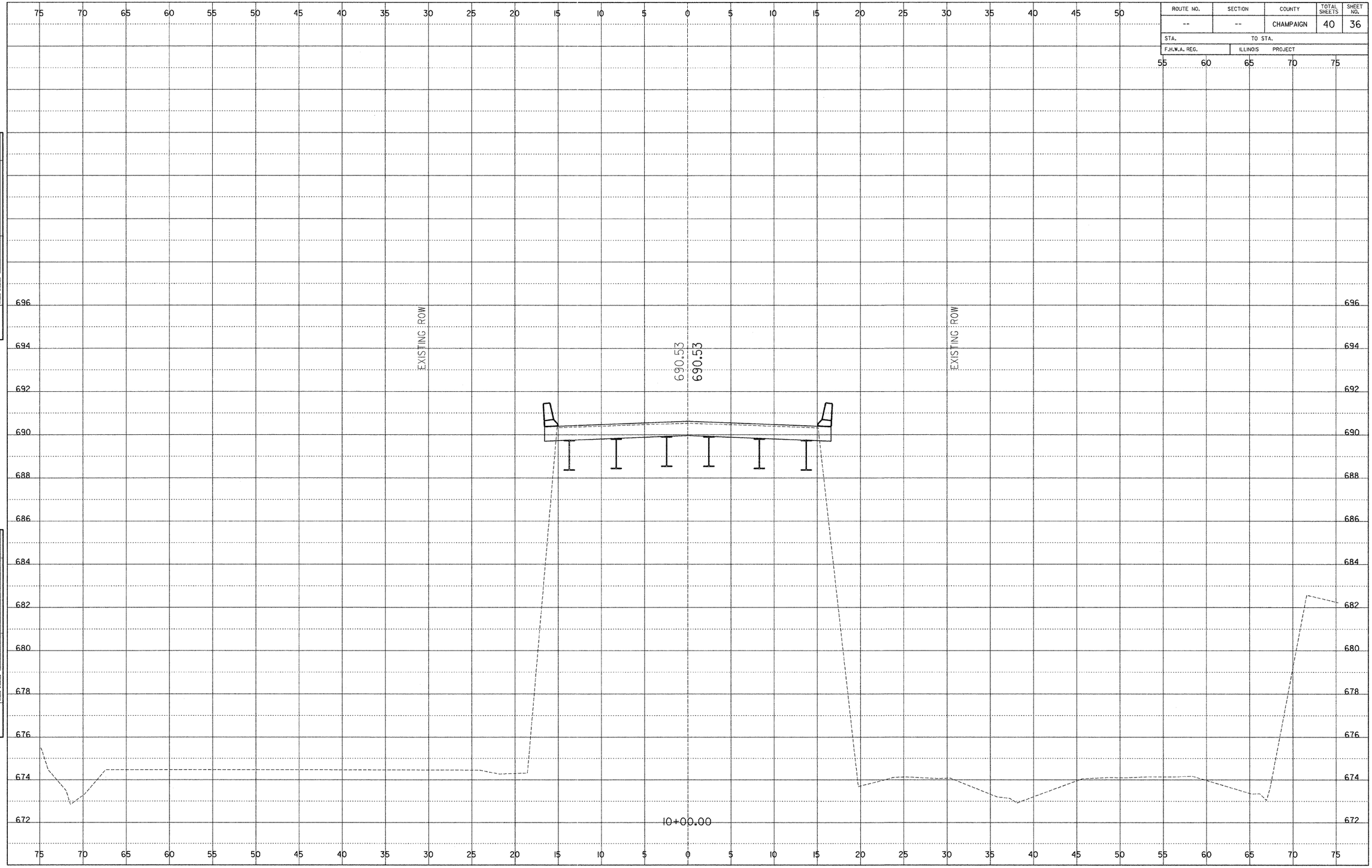
Cross Section Sheets.dgn 4/14/2011 7:44:57 AM

CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
--	--	CHAMPAIGN	40	36
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

FINAL SURVEY — NOTE BOOK NO. ____ — SURVEYED ____ PLOTTED ____ TEMPLATE ____ AREAS ____ AREAS CHECKED ____ — BY ____ DATE ____

ORIGINAL SURVEY — NOTE BOOK NO. ____ — SURVEYED ____ PLOTTED ____ TEMPLATE ____ AREAS ____ AREAS CHECKED ____ — BY ____ DATE ____



SECTION 10-00962-00-BR CHAMPAIGN COUNTY SHEET 36 OF 40 SHEETS 10134

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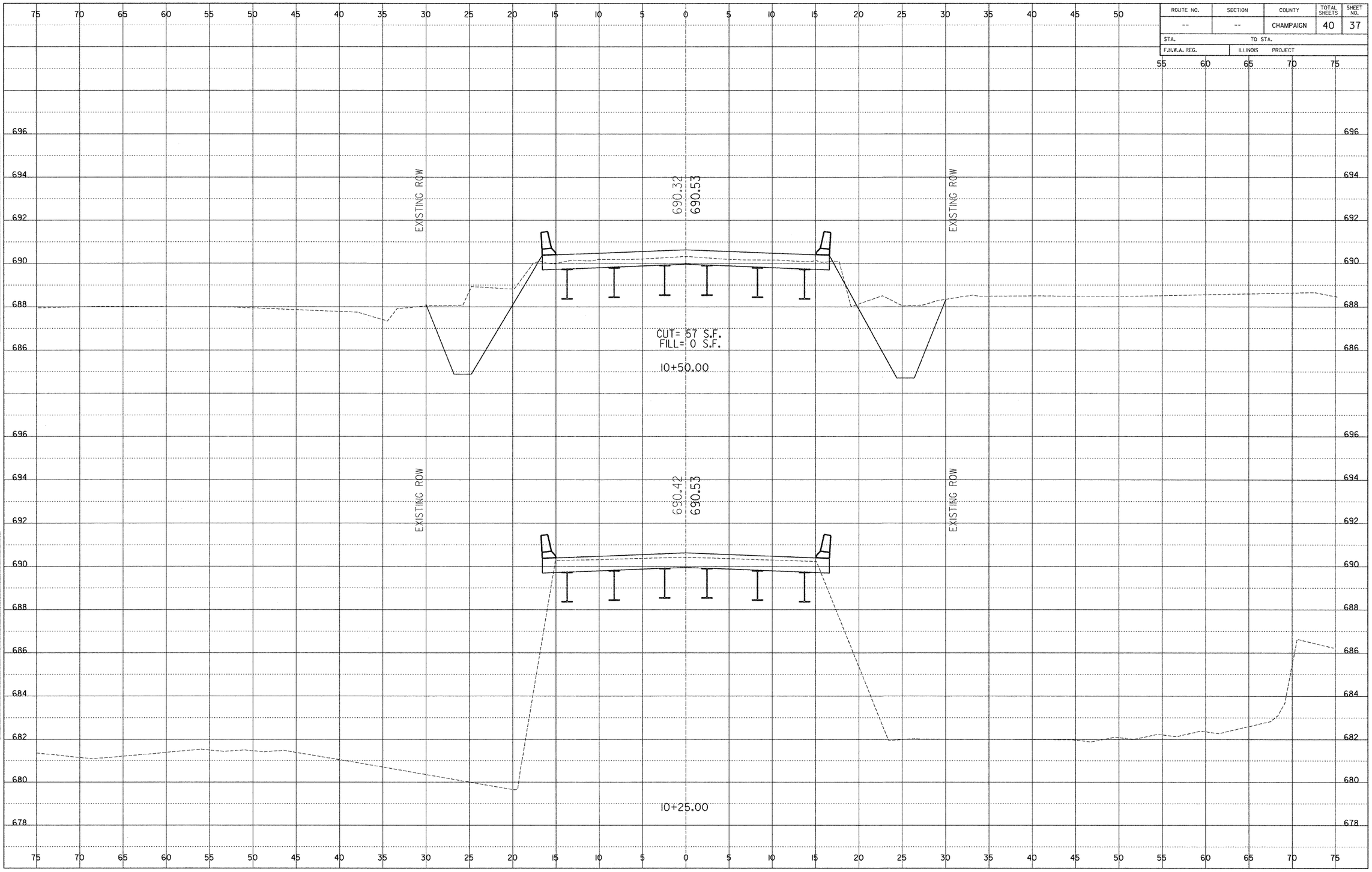
CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
--	--	CHAMPAIGN	40	37
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

FINAL SURVEY
NOTE BOOK NO. _____
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE



ORIGINAL SURVEY
NOTE BOOK NO. _____
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

CONTRACT NUMBER 91454

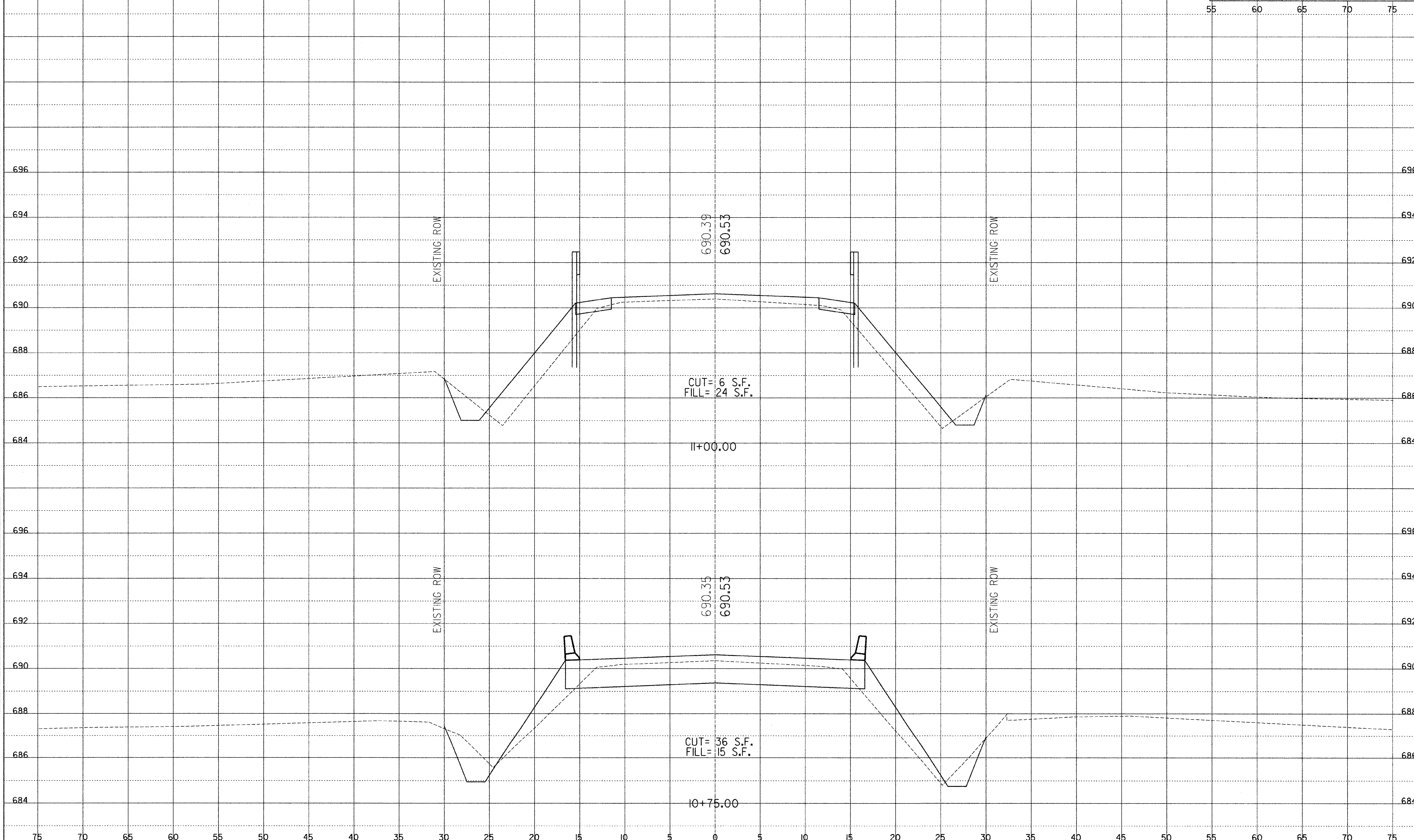
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
--	--	CHAMPAIGN	40	38

STA. TO STA.

F.H.W.A. REG. ILLINOIS PROJECT

FINAL SURVEY
NOTE BOOK NO. ___ SURVEYED ___ PLOTTED ___ TEMPLATE ___ AREAS ___ AREAS CHECKED ___ BY DATE

ORIGINAL SURVEY
NOTE BOOK NO. ___ SURVEYED ___ PLOTTED ___ TEMPLATE ___ AREAS ___ AREAS CHECKED ___ BY DATE

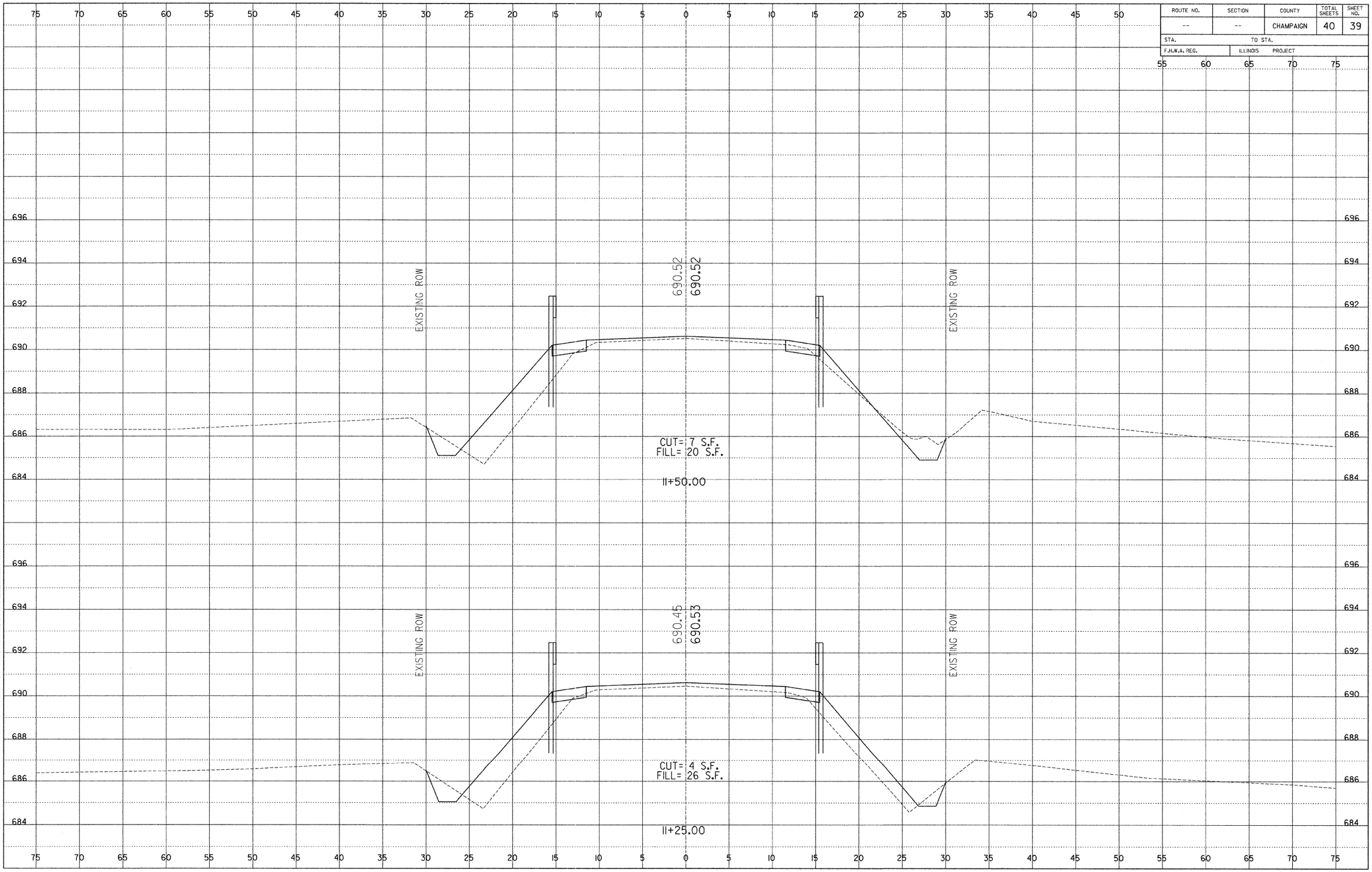


CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
--	--	CHAMPAIGN	40	39
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

FINAL SURVEY — NOTE BOOK NO. ____ — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK NO. ____ — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE



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CONTRACT NUMBER 91454

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
--	--	CHAMPAIGN	40	40
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		

FINAL SURVEY — NOTE BOOK NO. ____ — SURVEYED ____ PLOTTED ____ TEMPLATE ____ AREAS ____ AREAS CHECKED ____ — BY ____ — DATE ____

ORIGINAL SURVEY — NOTE BOOK NO. ____ — SURVEYED ____ PLOTTED ____ TEMPLATE ____ AREAS ____ AREAS CHECKED ____ — BY ____ — DATE ____