

040

11-08-2019 LETTING ITEM 040

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.P. DATE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
11/15	11BR-1BR	SHELBY	31	1
CONTRACT NO. 74321				

D.97.036.08

FOR INDEX OF SHEETS, SEE SHEET NO. 02

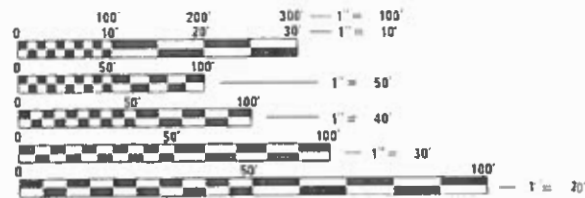
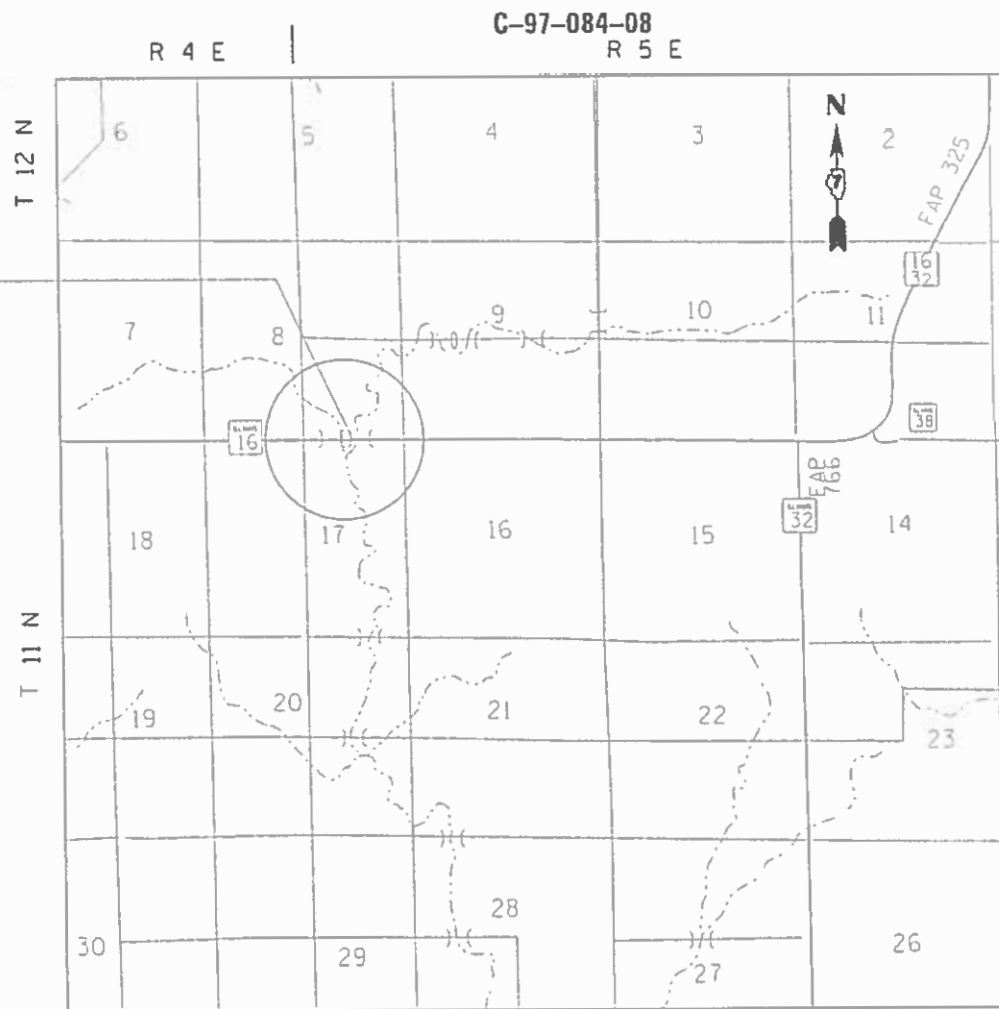
PROPOSED HIGHWAY PLANS

FAP ROUTE 325 (IL 16)
SECTION (11BR-1)BR
PROJECT NHPP-SMMZ(455)
BRIDGE SUPERSTRUCTURE REPLACEMENT
SHELBY COUNTY



ADT = 4150

LOCATION OF PROPOSED IMPROVEMENT



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
DR 811

PROJECT ENGINEER BRIAN LEWIS
PROJECT MANAGER EDWIN TIPSWORD
MINDY JANSEN

CONTRACT NO. 74321

GROSS LENGTH = 540 FT. = 0.102 MILE
NET LENGTH = 540 FT. = 0.102 MILE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED August 15 2019
Jeffrey P. Myers Regional Engineer
Oct 4 2019
SAE A. ETS
Oct 4 2019
Paul E. Chaffin Director of Highways Project Implementation

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OF THE STATE OF ILLINOIS

80% FED
20% STATE

80% FED
20% STATE

SUMMARY OF QUANTITIES			TOTAL QUANTITIES	CONSTRUCTION TYPE CODE		
CODE NO	ITEM	UNIT		0013		
20300100	CHANNEL EXCAVATION	CU YD	450	450		
28100109	STONE RIPRAP, CLASS A5	SO YD	449	449		
28200200	FILTER FABRIC	SO YD	449	449		
35501324	HOT-MIX ASPHALT BASE COURSE, 10"	SO YD	904	904		
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	46	46		
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	942	942		
40600990	TEMPORARY RAMP	SO YD	171	171		
40602970	HOT-MIX ASPHALT BINDER COURSE, IL-9.5FG, N70	TON	22	22		
40604052	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N70	TON	164	164		
42000080	PAVEMENT CONNECTOR (PCC) FOR BRIDGE APPROACH SLAB	SO YD	147	147		
44000100	PAVEMENT REMOVAL	SO YD	144	144		
44004250	PAVED SHOULDER REMOVAL	SO YD	332	332		
48101200	AGGREGATE SHOULDERS, TYPE B	TON	224	224		

SUMMARY OF QUANTITIES			TOTAL QUANTITIES	CONSTRUCTION TYPE CODE		
CODE NO	ITEM	UNIT		0013		
50101500	REMOVAL OF EXISTING SUPERSTRUCTURES	EACH	1	1		
50102400	CONCRETE REMOVAL	CU YD	4.8	4.8		
50300225	CONCRETE STRUCTURES	CU YD	33.4	33.4		
50300260	BRIDGE DECK GROOVING	SO YD	496	496		
50300300	PROTECTIVE COAT	SO YD	520	520		
50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	130.9	130.9		
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SO FT	1980	1980		
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	52550	52550		
50800515	BAR SPLICERS	EACH	341	341		
50901050	STEEL RAILING, TYPE SM	FOOT	148	148		
51500100	NAME PLATES	EACH	1	1		
* 63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	352	352		
* 63000370	LONG-SPAN GUARDRAIL OVER CULVERT, 25 FT SPAN	FOOT	100	100		

* SPECIALTY ITEM

REV. - MS

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PLOT DATE = 8/16/2019	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: SHEET 1 OF 3 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	3
			CONTRACT NO. 74321	
ILLINOIS FED. AID PROJECT				

80% FED
20% STATE

80% FED
20% STATE

SUMMARY OF QUANTITIES			TOTAL QUANTITIES	CONSTRUCTION TYPE CODE		
CODE NO	ITEM	UNIT		0013		
* 6310087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4	4		
* 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4	4		
63200310	GUARDRAIL REMOVAL	FOOT	1047	1047		
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	6	6		
67100100	MOBILIZATION	L SUM	1	1		
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	1	1		
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1	1		
70100500	TRAFFIC CONTROL AND PROTECTION, STANDARD 701326	L SUM	1	1		
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1	1		
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	2	2		
70107005	PAVEMENT MARKING BLACKOUT TAPE, 5"	FOOT	936	936		
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	28	28		
70300100	SHORT TERM PAVEMENT MARKING	FOOT	151	151		
70300150	SHORT TERM PAVEMENT MARKING REMOVAL	SO FT	440	440		

SUMMARY OF QUANTITIES			TOTAL QUANTITIES	CONSTRUCTION TYPE CODE		
CODE NO	ITEM	UNIT		0013		
70400100	TEMPORARY CONCRETE BARRIER	FOOT	388	388		
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	388	388		
70600250	IMPACT ATTENUATORS, TEMPORARY (NON- REDIRECTIVE), TEST LEVEL 3	EACH	2	2		
70600350	IMPACT ATTENUATORS, RELOCATE (NON- REDIRECTIVE), TEST LEVEL 3	EACH	2	2		
72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4		
78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1215	1215		
78200005	GUARDRAIL REFLECTORS, TYPE A	EACH	21	21		
X4401198	HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH	SO YD	1990	1990		
X5030305	CONCRETE WEARING SURFACE, 5"	SO YD	220	220		
X6330725	STEEL PLATE BEAM GUARDRAIL (SHORT RADIUS)	FOOT	80	80		
X7040125	PINNING TEMPORARY CONCRETE BARRIER	EACH	39	39		

* SPECIALTY ITEM

REV. - MS

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

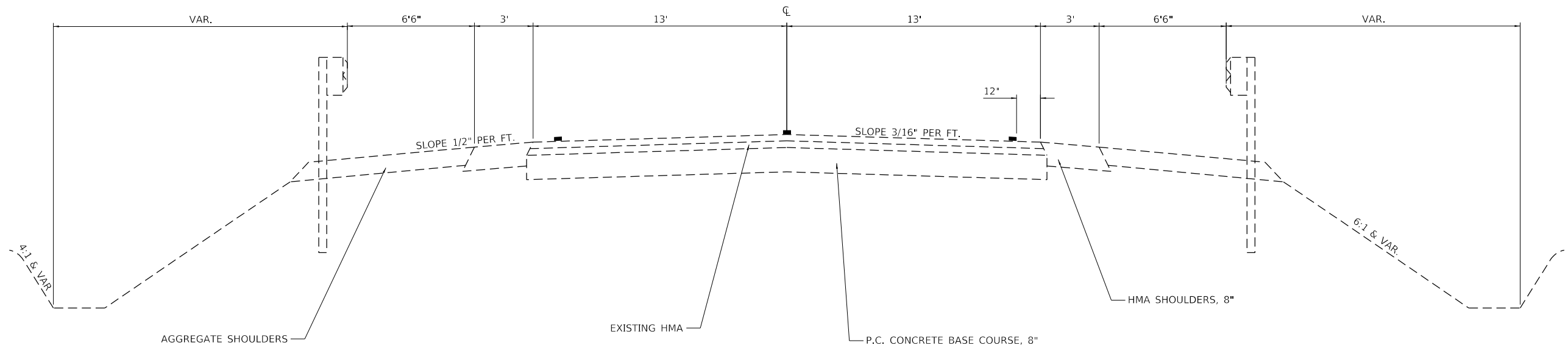
SUMMARY OF QUANTITIES

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F.A.P. RTE. 325	SECTION (11BR-1)BR	COUNTY SHELBY	TOTAL SHEETS 31	SHEET NO. 4
CONTRACT NO. 74321			ILLINOIS FED. AID PROJECT	

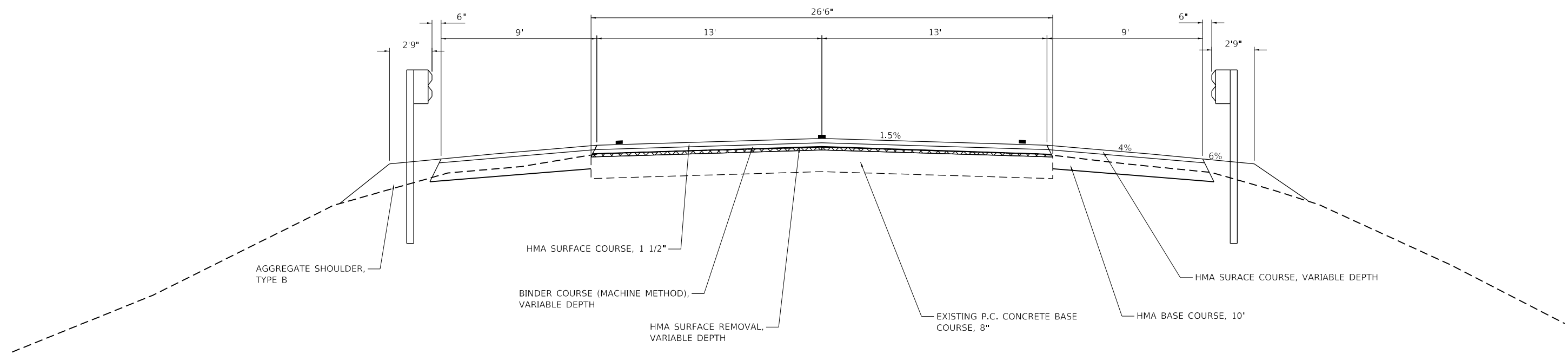
EXISTING TYPICAL CROSS SECTION FAP 325

STA. 443+00 TO STA. 450+02
 STA. 450+87 TO STA. 458+00



PROPOSED TYPICAL CROSS SECTION FAP 325

STA. 447+80 TO STA. 449+79
 STA. 451+12 TO STA. 453+20



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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTIONS

SCALE: N/A SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	6
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				

PAVEMENT REMOVAL				
STATION TO	STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
449+79.00	450+04.00	25.00	26	72.2
450+87.00	451+12.00	25.00	26	72.2
TOTAL =				144

HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH					
STATION	TO	STATION	LENGTH (FT)	MAINLINE WIDTH (FT)	AREA (SQ YD)
447+80.00		449+79.00	199.00	26	575
451+12.00		453+20.00	208.00	26	600.9
STATION	TO	STATION	LENGTH (FT)	SHOULDER WIDTH (FT)	AREA (SQ YD)
447+80.00		449+79.00	199.00	18	398
451+12.00		453+20.00	208.00	18	416.0
TOTAL =					1990

STATION	REMOVAL DEPTH (FT)
447+80.00	0.12
448+00.00	0.11
448+25.00	0.10
448+50.00	0.08
448+75.00	0.07
449+00.00	0.05
449+15.00	0.04
449+25.00	0.04
449+50.00	0.04
449+75.00	0.04
449+79.00	0.04
451+12.00	0.04
451+25.00	0.04
451+50.00	0.04
451+75.00	0.04
452+00.00	0.04
452+10.00	0.04
452+25.00	0.05
452+50.00	0.07

APPROACH SLAB REMOVAL				
STATION TO	STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ YD)
450+04.00	450+24.00	20.00	26	58
450+67.00	450+87.00	20.00	26	58
TOTAL =				116

PAVEMENT MARKING BLACKOUT TAPE, 5"			
	STATION TO	STATION	LENGTH (FT)
STAGE 1			
CENTERLINE	447+33.00	449+07.00	43.50
CENTERLINE	451+87.00	453+60.00	43.25
LT	448+56.00	452+37.00	381.00
STAGE 2			
CENTERLINE	447+33.00	449+07.00	43.50
CENTERLINE	451+87.00	453+60.00	43.25
RT	448+56.00	452+37.00	381.00
TOTAL =			936

SHORT TERM PAVEMENT MARKING			
	STATION TO	STATION	LENGTH (FT)
CENTERLINE STAGE 1	447+80.00	453+20.00	54.00
CENTERLINE STAGE 2	447+80.00	453+20.00	54.00
LT	447+80.00	453+20.00	21.60
RT	447+80.00	453+20.00	21.60
TOTAL =			151

SHORT TERM PAVEMENT MARKING REMOVAL					
	STATION TO	STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ FT)
CENTERLINE	447+80.00	453+20.00	54.00	0.33	18.0
CENTERLINE	447+80.00	453+20.00	54.00	0.33	18.0
LT	447+80.00	453+20.00	21.60	0.33	7.2
RT	447+80.00	453+20.00	21.60	0.33	7.2

REMOVAL FOR BLACKOUT TAPE 5"					
	STATION TO	STATION	LENGTH (FT)	WIDTH (FT)	AREA (SQ FT)
STAGE 1					
CENTERLINE	447+33.00	449+07.00	43.50	0.42	18.13
CENTERLINE	451+87.00	453+60.00	43.25	0.42	18.02
RT	448+56.00	452+37.00	381.00	0.42	158.75
STAGE 2					
CENTERLINE	447+33.00	449+07.00	43.50	0.42	18.13
CENTERLINE	451+87.00	453+60.00	43.25	0.42	18.02
LT	448+56.00	452+37.00	381.00	0.42	158.75
TOTAL =					440

PAINT PAVEMENT MARKING - LINE 4"				
	STATION TO	STATION	LENGTH (FT)	COLOR
CENTERLINE	447+80.00	453+20.00	135.00	YELLOW
LT	447+80.00	453+20.00	540.00	WHITE
RT	447+80.00	453+20.00	540.00	WHITE
TOTAL =			1215	

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES

SCALE: N/A SHEET 2 OF 3 SHEETS STA. N/A TO STA. N/A

F A P RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	8
CONTRACT NO. 74321				
ILLINOIS FED AID PROJECT				

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STEEL PLATE BEAM GUARDRAIL TYPE A, 6 FOOT POSTS	LONG-SPAN GUARDRAIL OVER CULVERT, 25' SPANS (FOOT)	STEEL PLATE BEAM GUARDRAIL (SHORT RADIUS)	TRAFFIC BARRIER TERMINAL, TYPE 6A	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	GUARDRAIL REFLECTORS, TYPE A
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	STATION	TO	STATION	FOOT	FOOT	FOOT	EACH	EACH	EACH
LT	447+26		447+76					1	
LT	447+76		447+88	12.5					4
LT	447+88		448+38		50				
LT	448+38		448+88	50					
LT	448+88		449+13			40			
LT	449+45		449+70			40			4
LT	449+70		450+08				1		
LT	450+82		451+25				1		
LT	451+25		451+87	62.5					4
LT	451+87		452+37					1	
RT	446+38		446+88					1	
RT	446+88		447+88	100					5
R	447+88		448+38		50				
RT	448+38		449+65	126.50'					
RT	449+65		450+08				1		
RT	450+82		451+14				1		4
R	451+14		451+64					1	
TOTAL =				352	100	80	4	4	21

NOTES: 1- QUANTITIES, LOCATIONS, AND STATION RANGES OF SOME ITEMS MAY VARY BASED ON THE MANUFACTURER'S SPECIFICATIONS OF THE TYPE 1 TERMINAL BEING INSTALLED IN THE FIELD. THESE QUANTITIES, STATIONS, AND LOCATIONS ARE BASED ON A 50' TYPE 1 TERMINAL WITH 37.5' OF THE TERMINAL BEING INCLUDED IN THE LENGTH OF NEED. TRAFFIC BARRIER TERMINAL, TYPE 6A SHALL BE FIELD MODIFIED TO ACHIEVE DESIRED LENGTHS NEAR FIELD ENTRANCES.

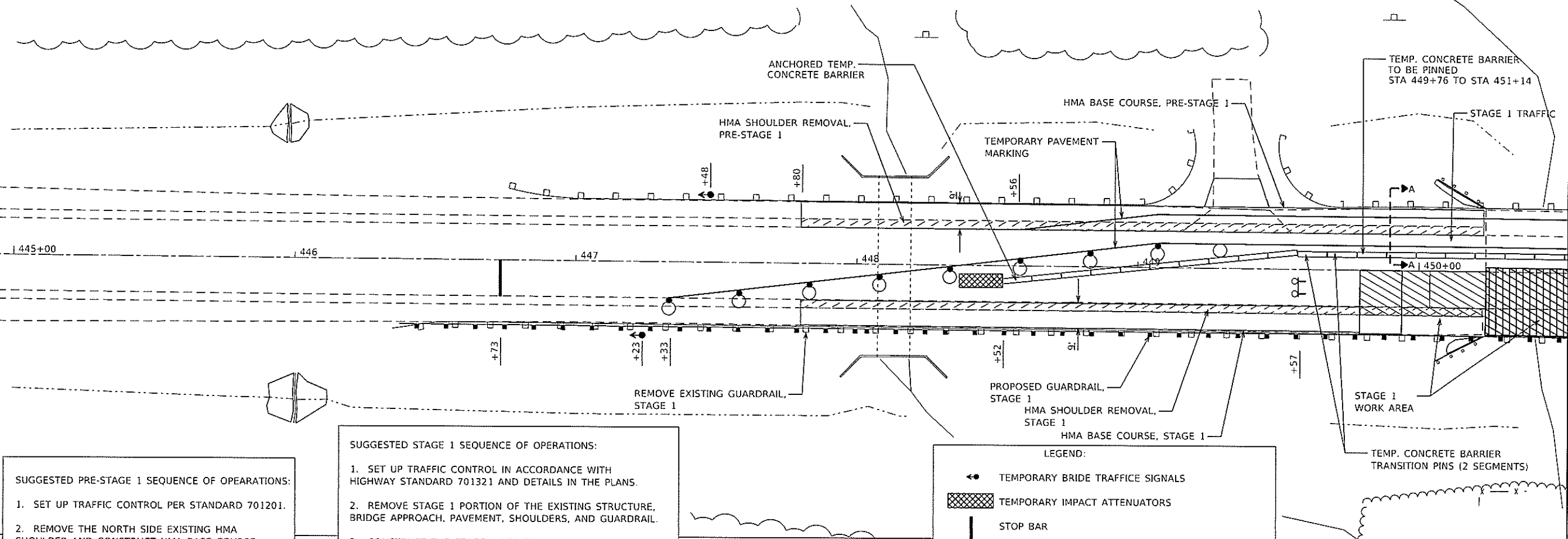
GUARDRAIL REMOVAL				
	STATION	TO	STATION	LENGTH (FT)
LT	446+76.00		449+19.00	243.0
RT	449+50.00		450+23.00	73.0
RT	450+67.00		453+32.00	265.0
LT	446+34.00		450+23.00	389.0
RT	450+67.00		451+44.00	77.0
TOTAL =				1047

TEMPORARY CONCRETE BARRIER				
	STATION	TO	STATION	LENGTH (FT)
STAGE 1	448+52.00		452+40.00	388.00
TOTAL =				388

RELOCATE TEMPORARY CONCRETE BARRIER				
	STATION	TO	STATION	LENGTH (FT)
STAGE 2	448+52.00		452+40.00	388.00
TOTAL =				388

PINNING TEMPORARY CONCRETE BARRIER					
	STATION	TO	STATION	LENGTH (FT)	EACH
STAGE 1	449+76.00		451+13.50	137.50	33
TRANSITIONS ON EACH END 3 PINS EACH					6
TOTAL =					39

CHANNEL EXCAVATION (CU YD)	
CHANNEL EXCAVATION = 420 CU YD + 30 CY YD (EXTRA) = 450 CU YD	
NOTES: CHANNEL EXCAVATION SHALL BE CONSTRUCTED FOR FILTER FABRIC AND RIP RAP AS SHOWN ON THE PLANS. APPROXIMATELY 30 CU YD HAS BEEN CALCULATED AS 'EXTRA' FOR AREAS AROUND THE WING WALLS.	



SUGGESTED PRE-STAGE 1 SEQUENCE OF OPERATIONS:

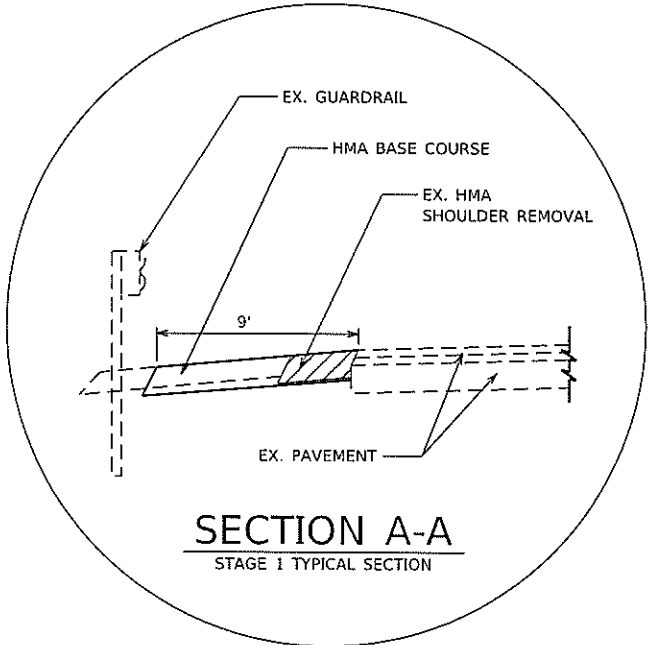
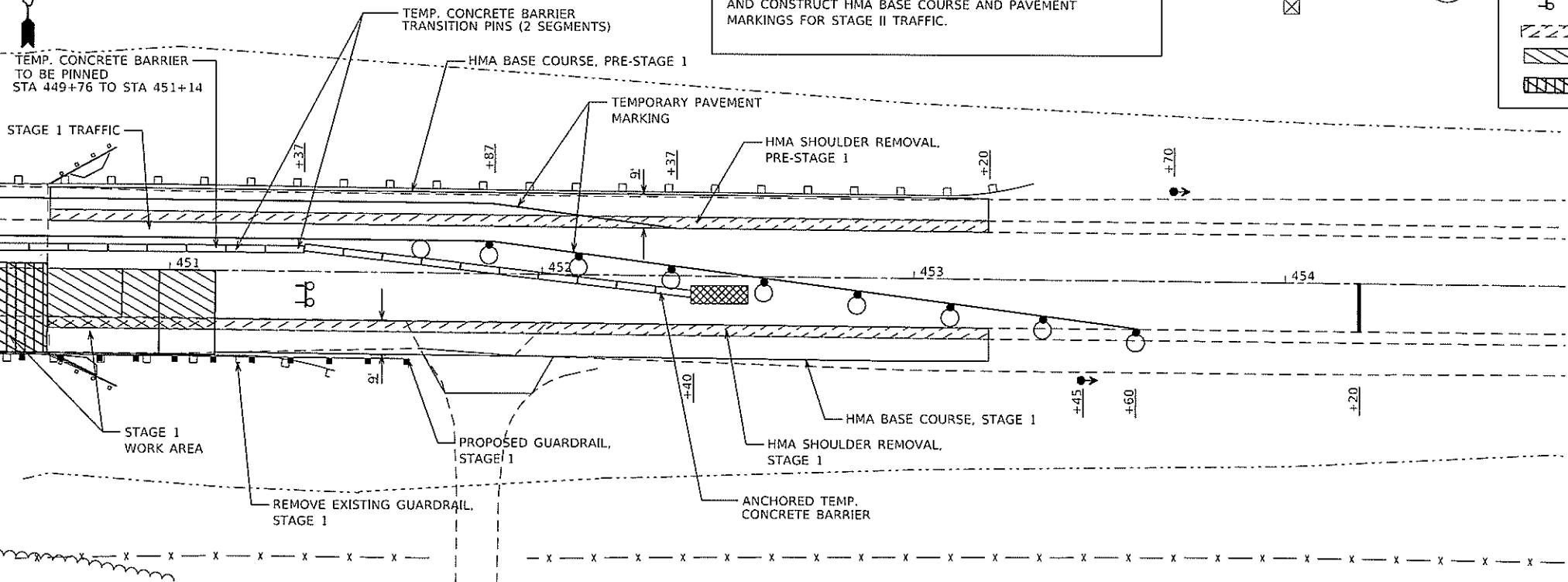
1. SET UP TRAFFIC CONTROL PER STANDARD 701201.
2. REMOVE THE NORTH SIDE EXISTING HMA SHOULDER AND CONSTRUCT HMA BASE COURSE TO MATCH EXISTING PROFILE AND CONSTRUCT PAVEMENT MARKINGS.

SUGGESTED STAGE 1 SEQUENCE OF OPERATIONS:

1. SET UP TRAFFIC CONTROL IN ACCORDANCE WITH HIGHWAY STANDARD 701321 AND DETAILS IN THE PLANS.
2. REMOVE STAGE 1 PORTION OF THE EXISTING STRUCTURE, BRIDGE APPROACH, PAVEMENT, SHOULDERS, AND GUARDRAIL.
3. CONSTRUCT THE STAGE 1 PORTION OF THE PROPOSED STRUCTURE, BRIDGE APPROACH, PAVEMENT CONNECTOR, RIP RAP, TEMPORARY RAMPS AND GUARDRAIL.
4. REMOVE THE SOUTH SIDE EXISTING HMA SHOULDER AND CONSTRUCT HMA BASE COURSE AND PAVEMENT MARKINGS FOR STAGE II TRAFFIC.

LEGEND:

- TEMPORARY BRIDGE TRAFFIC SIGNALS
- TEMPORARY IMPACT ATTENUATORS
- STOP BAR
- TEMPORARY CONCRETE BARRIER
- DRUMS WITH STEADY BURNING LIGHT
- TYPE III BARRICADE WITH FLASHING LIGHT
- SHOULDER REMOVAL/HMA BASE COURSE
- PAVEMENT REMOVAL
- CONCRETE SUPERSTRUCTURE REMOVAL



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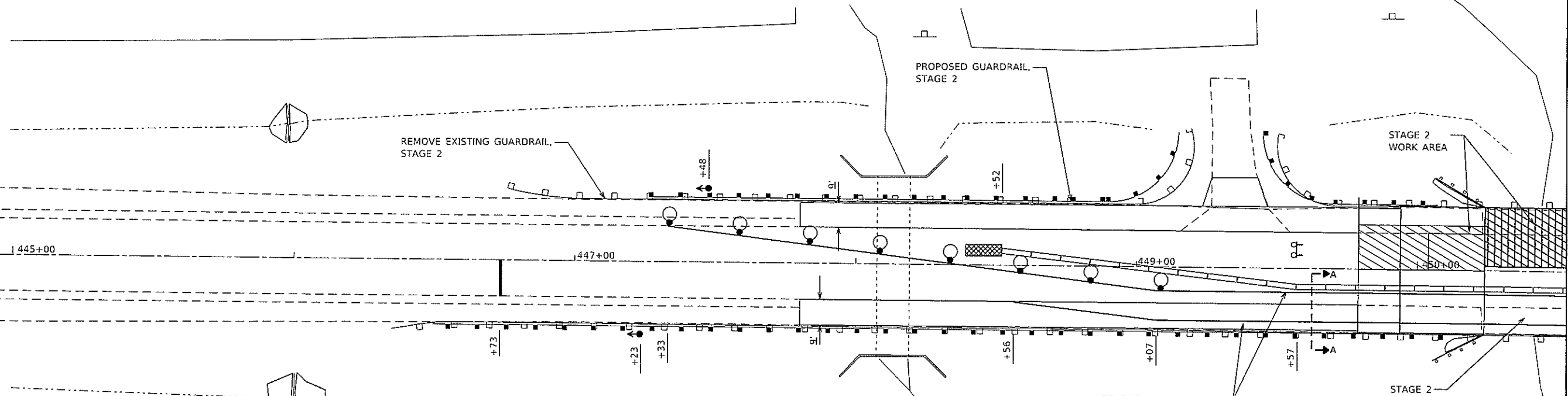
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

STAGE 1 CONSTRUCTION

SCALE: SHEET 1 OF 2 SHEETS STA. TO STA.

F.A.P. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	11
CONTRACT NO. 74321				

ILLINOIS FED AID PROJECT



SUGGESTED STAGE 2 SEQUENCE OF OPERATIONS:

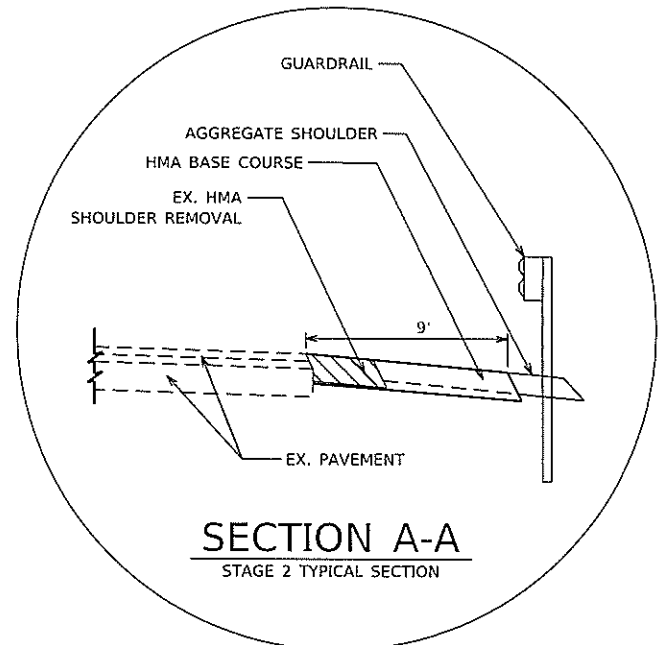
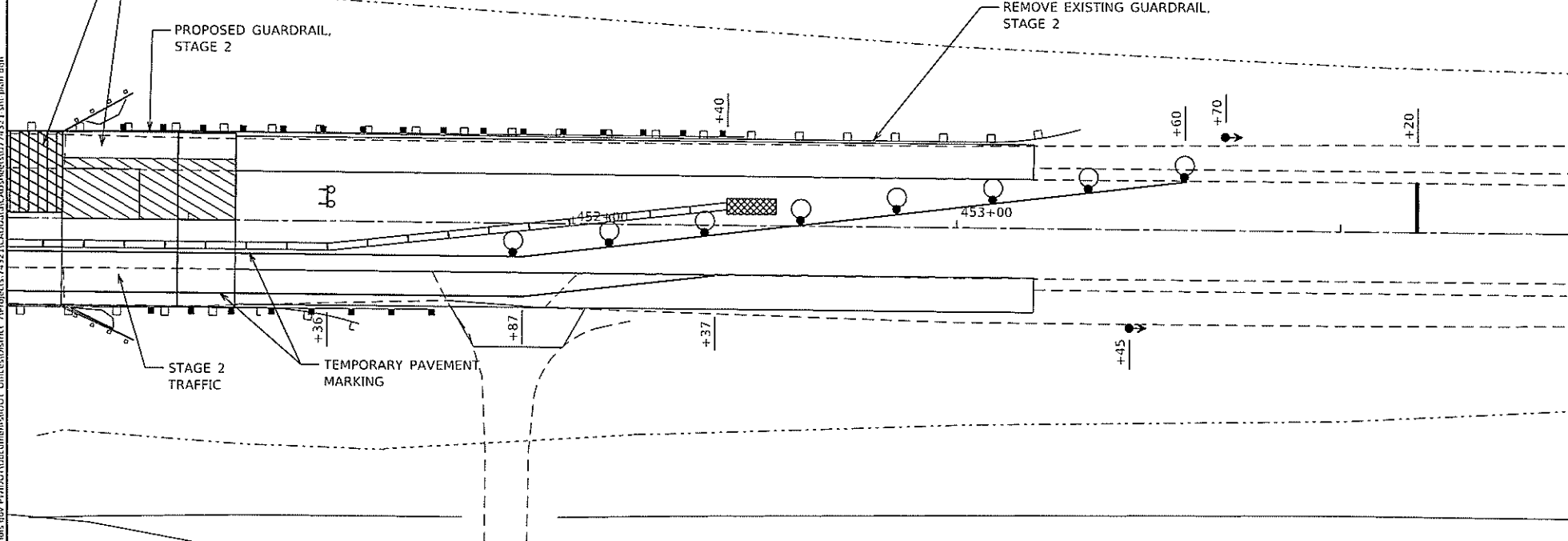
1. SET UP TRAFFIC CONTROL IN ACCORDANCE WITH HIGHWAY STANDARD 701321 AND DETAILS IN THE PLANS.
2. REMOVE STAGE 2 PORTION OF THE EXISTING STRUCTURE, BRIDGE APPROACH, PAVEMENT, SHOULDERS, AND GUARDRAIL.
3. CONSTRUCT THE STAGE 2 PORTION OF THE PROPOSED STRUCTURE, BRIDGE APPROACH, PAVEMENT CONNECTOR, TEMPORARY RAMPS AND GUARDRAIL.

LEGEND:

- TEMPORARY BRIDGE TRAFFIC SIGNALS
- TEMPORARY IMPACT ATTENUATORS
- STOP BAR
- TEMPORARY CONCRETE BARRIER
- DRUMS WITH STEADY BURNING LIGHT
- TYPE III BARRICADE WITH FLASHING LIGHT
- PAVEMENT REMOVAL
- CONCRETE SUPERSTRUCTURE REMOVAL

SUGGESTED POST-STAGE SEQUENCE OF OPERATIONS:

1. REMOVE TRAFFIC CONTROL IN ACCORDANCE WITH STANDARD 701321.
2. SHIFT TRAFFIC AS NEEDED TO PERFORM MILLING AND CONSTRUCT FINAL SURFACE COURSE, HMA SHOULDERS, AND STRIPING USING TRAFFIC CONTROL STANDARD 701201.



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	DATE -	REVISED -

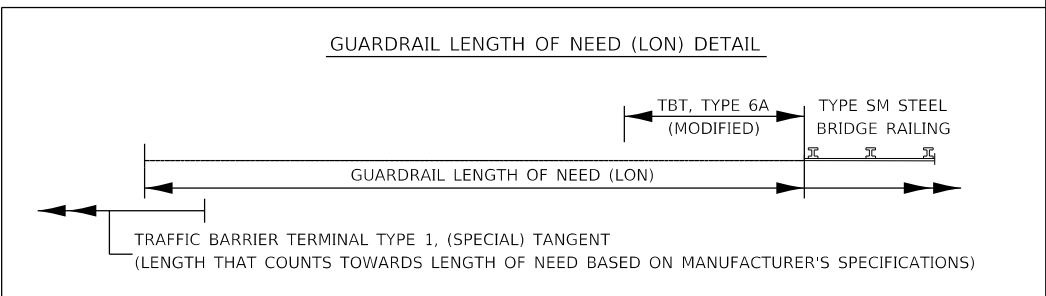
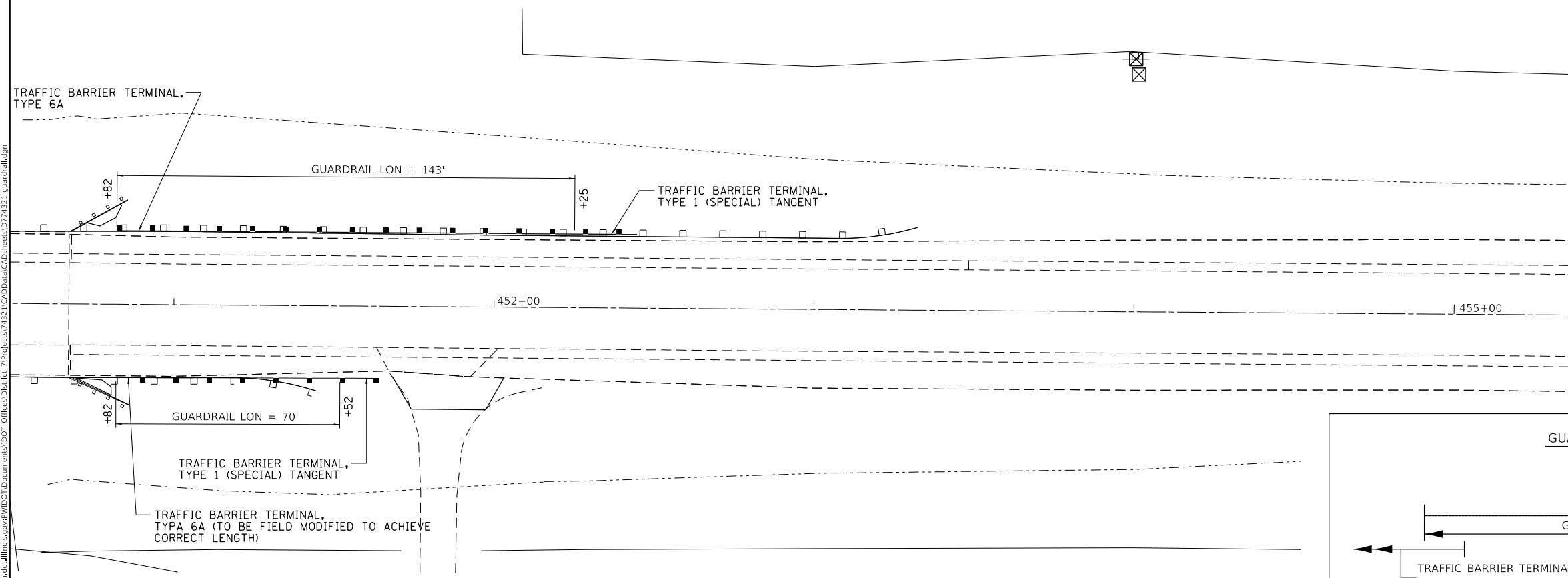
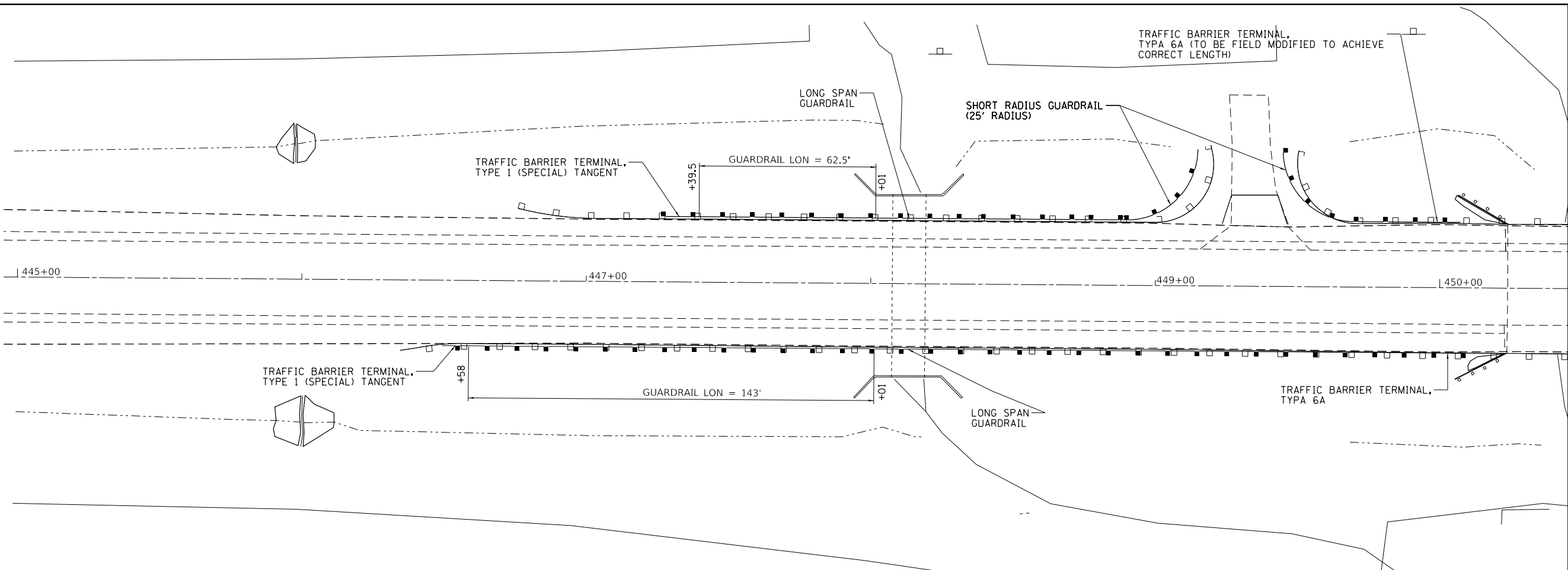
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

STAGE 2 CONSTRUCTION

SCALE SHEET 2 OF 2 SHEETS STA. TO STA.

F.A.P. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	12
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				

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USER NAME = steffemk	DESIGNED -	REVISED -
DRAWN -	REVISED -	
PLOT SCALE = 40.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 8/16/2019	DATE -	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

GUARDRAIL DETAIL SHEET

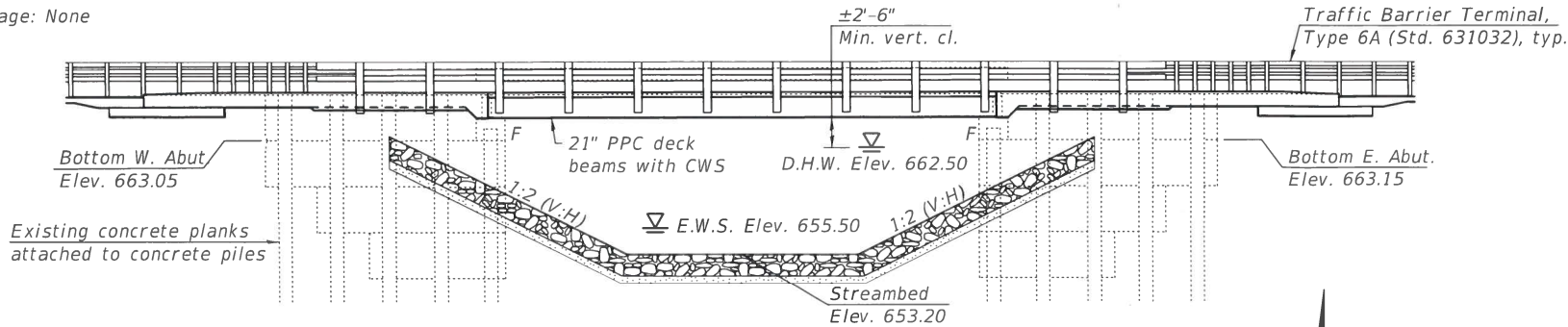
SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	13
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				

Benchmark: 202 Chiseled "d" on the East end of box culvert S.N. 087-2005, 33' South of Illinois Route 16; Elev. 664.89

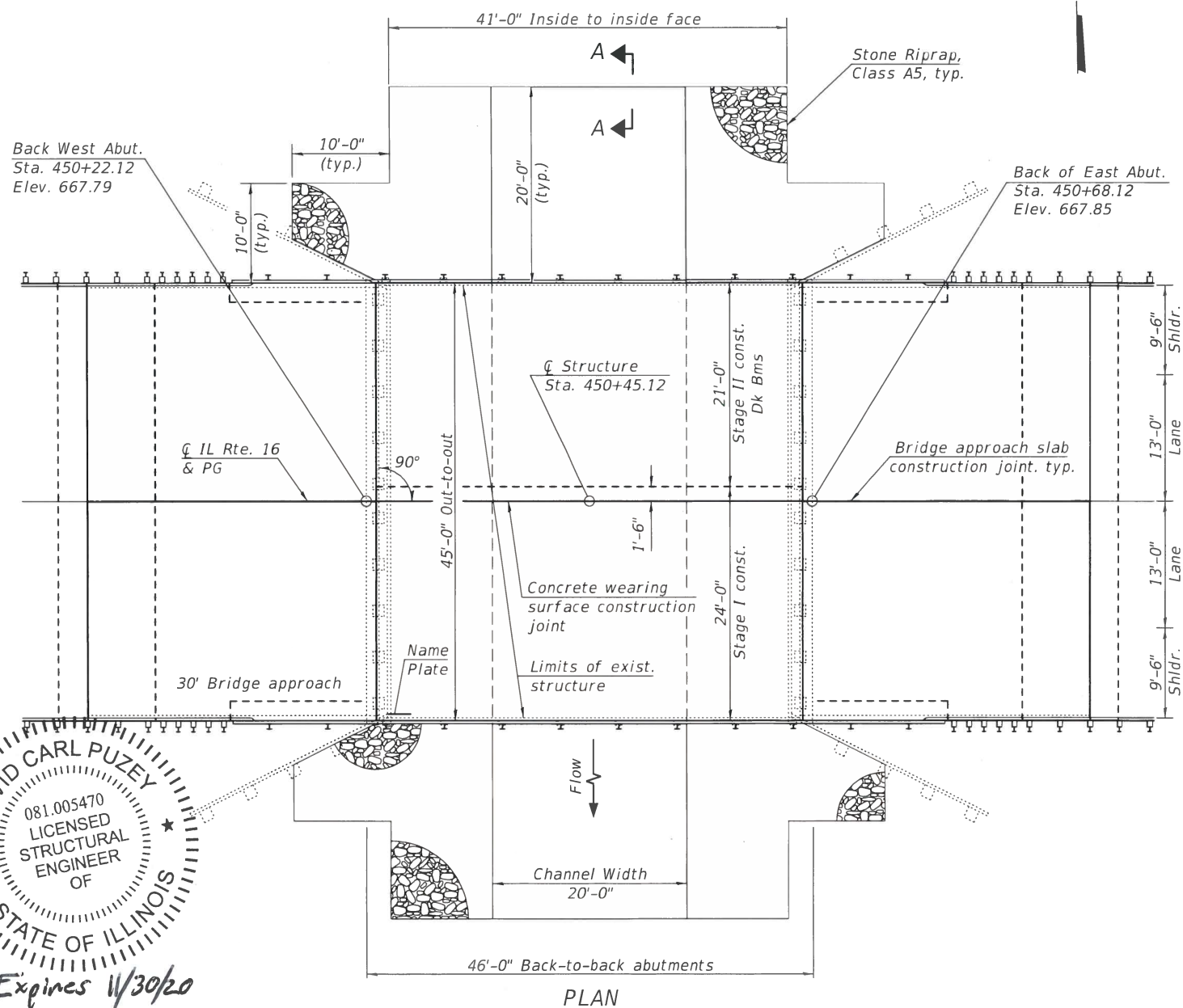
Existing Structure: S.N. 087-0024 originally built in 1979 as F.A. Route 91, Section 11BR-1 at Sta. 450+45.12. The existing structure consists of a single span simply supported precast prestressed concrete deck beam superstructure supported on open stub concrete abutments with concrete piles. Back-to-back of abutment length is 46'-0" and out-to-out width of deck is 45'-0" with a clear roadway width of 44'-6" and no skew. The existing superstructure is to be removed and replaced in kind. Traffic is to be maintained using stage construction.

Salvage: None

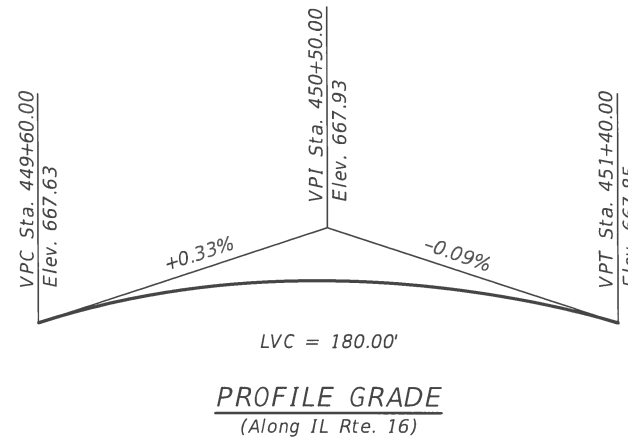


Existing concrete planks attached to concrete piles

ELEVATION



PLAN



PROFILE GRADE
(Along IL Rte. 16)

INDEX OF SHEETS

- 1 - General Plan and Elevation
- 2 - General Data
- 3 - Stage Construction Details
- 4 - Temporary Concrete Barrier for Stage Construction
- 5 - Top of Slab Elevations
- 6-7 - Top of Approach Slab Elevations
- 8-9 - Superstructure Details
- 10-11 - 21" x 36" PPC Deck Beam Details
- 12-13 - Bridge Approach Slab Details
- 14 - Steel Railing, Type SM with Concrete Wearing Surface
- 15 - Concrete Removal at Abutment
- 16 - Bar Splicer Assembly and Mechanical Splicer Details

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 and 2016 Interims
1995 Seismic Retrofitting Manual for Highway Bridges

DESIGN STRESSES

FIELD & EXISTING UNITS

- $f'_c = 3,500$ psi (Existing)
- $f'_c = 3,500$ psi (Field)
- $f'_c = 4,000$ psi (Concrete Superstructure, Appr. Slab)
- $f'_c = 5,000$ psi (Concrete Wearing Surface)*
- $f_y = 60,000$ psi (Reinforcement)

* Concrete Wearing Surface shall have 28 days mix design with a compressive strength of 5,000 psi.

PRECAST PRESTRESSED UNITS

- $f'_c = 6,000$ psi
- $f'_{ci} = 5,000$ psi
- $f_{pu} = 270,000$ psi ($\frac{1}{2}$ " \emptyset low relax strands)
- $f_{pb} = 201,960$ psi ($\frac{1}{2}$ " \emptyset low relax strands)

STATION 450+45.12
RE-BUILT 20__ BY
STATE OF ILLINOIS
F.A.P. RTE. 325 SEC. (11BR-1)BR
LOADING HL-93
STRUCTURE NO. 087-0024

NAME PLATE

See Std. 515001

Existing name plate shall be cleaned and relocated next to new name plate. Cost included with Name Plates.

LOADING HL-93

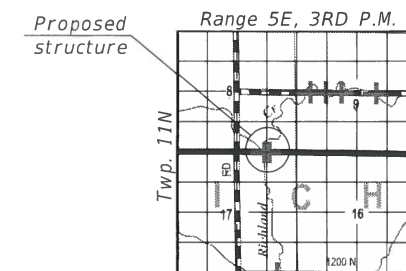
Allow 50#/sq. ft. for future wearing surface.

SEISMIC DATA

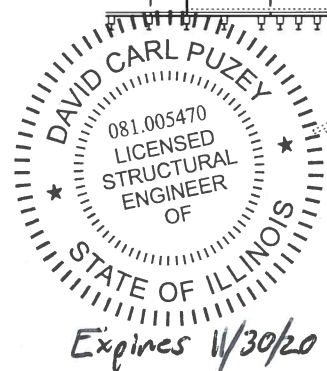
Seismic Performance Zone (SPZ) = A
Horizontal Bedrock Acceleration Coefficient (A) = 0.058g
Site Coefficient (S) = 1.5

GENERAL PLAN & ELEVATION

**ILLINOIS ROUTE 16
OVER RICHLAND CREEK**
F.A.P. RTE. 325 - SEC. (11BR-1)BR
SHELBY COUNTY
STATION 450+45.12
STRUCTURE NO. 087-0024



LOCATION SKETCH



DESIGNED - <i>g48</i>	EXAMINED - <i>Jan F. Schmitt</i>	DATE - <i>7/30/19</i>
CHECKED - <i>IAN J. ANDREWS</i>	PASSED - <i>David Carl Puzey</i>	REVIS -
DRAWN - <i>IAN J. ANDREWS</i>	ENGINEER OF BRIDGES AND STRUCTURES	REVIS -
CHECKED - <i>g48/HIDIGRA</i>		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	16
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				

MODEL: 0870024-74321-001 FILE NAME: p:\planroom\dot\illinois.gov\p\p\DOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321

WATERWAY INFORMATION

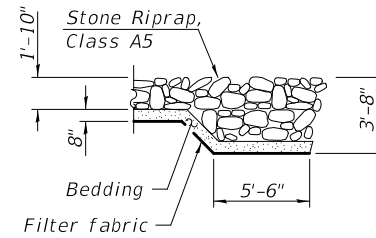
Proposed Low Grade Elev. = 667.04 @ Sta. 447+00
 Drainage Area = 3.68 sq. mi. Existing Low Grade Elev. = 667.04 @ Sta. 447+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	10	781	221		661.6	0.0		661.6	661.6
Design	50	1260	259		662.5	0.2		662.7	662.5
Base	100	1480	271		662.8	0.6		663.4	662.8
Overtopping									
Max. Calc.	500	2000	305		663.6	0.7		664.2	663.6

10 Year velocity through existing bridge = 3.53 ft./sec.
 10 Year velocity through proposed bridge = 3.53 ft./sec.
 All-time H.W.E. & date: Unknown

DESIGN SCOUR ELEVATION TABLE

Event / Limit State	Design Scour Elevations (ft.)		
	W. Abutment	E. Abutment	Item 113
Q100	663.05'	663.15'	8
Q200	663.05'	663.15'	
Design	663.05'	663.15'	



SECTION A-A

TOTAL BILL OF MATERIAL

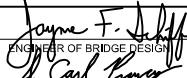
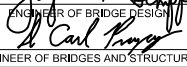
ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A5	Sq. Yd.		449	449
Filter Fabric	Sq. Yd.		449	449
Removal of Existing Superstructures	Each	1		1
Concrete Removal	Cu. Yd.		4.8	4.8
Concrete Structures	Cu. Yd.		33.4	33.4
Concrete Superstructure (Approach Slab)	Cu. Yd.	130.9		130.9
Bridge Deck Grooving	Sq. Yd.		496	496
Protective Coat	Sq. Yd.		520	520
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	1980		1980
Reinforcement Bars, Epoxy Coated	Pound	52550		52550
Bar Splicers	Each	341		341
Steel Railing, Type SM	Foot	148		148
Name Plates	Each	1		1
Concrete Wearing Surface, 5"	Sq. Yd.	220		220

GENERAL NOTES

Reinforcement bars designated (E) shall be epoxy coated.
 Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
 Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
 The Contractor is advised that the existing PPC deck beams are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the beams when developing construction procedures for removal and replacement of the superstructure.

MODEL: 0870024-74321-002
 FILE NAME: p:\planroom\dot.illinois.gov\p\DOT\Documents\DOT Offices and Structures\Bureau of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321

DESIGNED -	JOE G. YOUNG
CHECKED -	HAREEM I. DAR
DRAWN -	IAN J. ANDREWS
CHECKED -	J.G.Y. / H.J.D. / G.R.A.

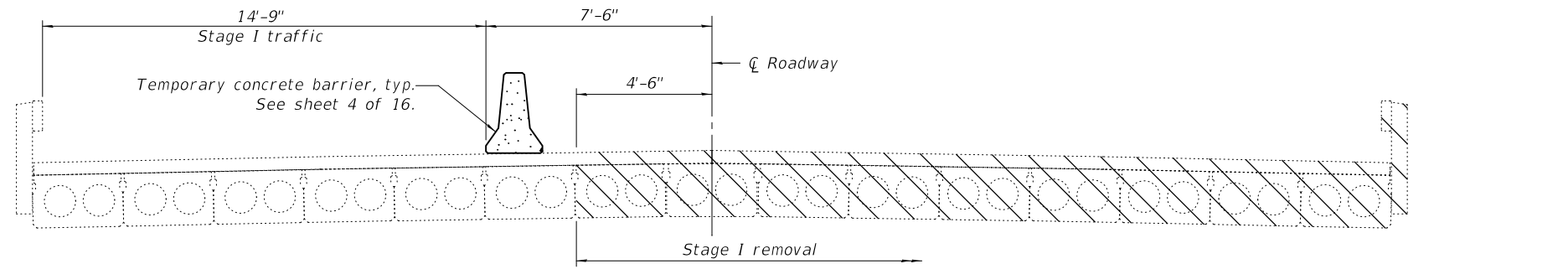
EXAMINED		DATE -	SEPTEMBER 30, 2019
PASSED		REVISED -	
	ENGINEER OF BRIDGES AND STRUCTURES	REVISED -	

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

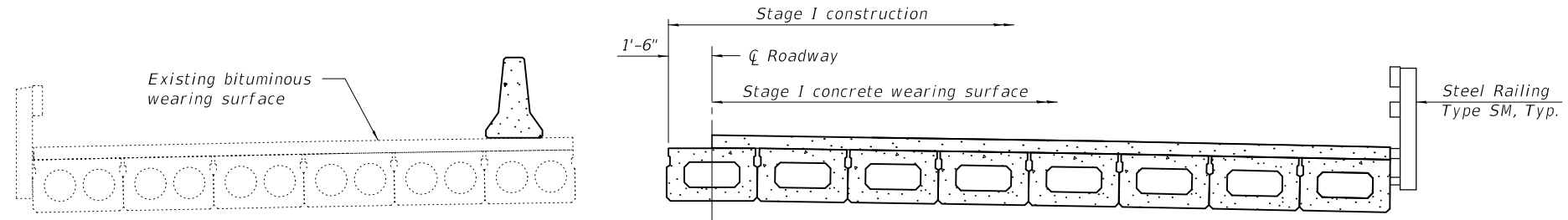
**GENERAL DATA
 STRUCTURE NO. 087 - 0024**

SHEET 2 OF 16 SHEETS

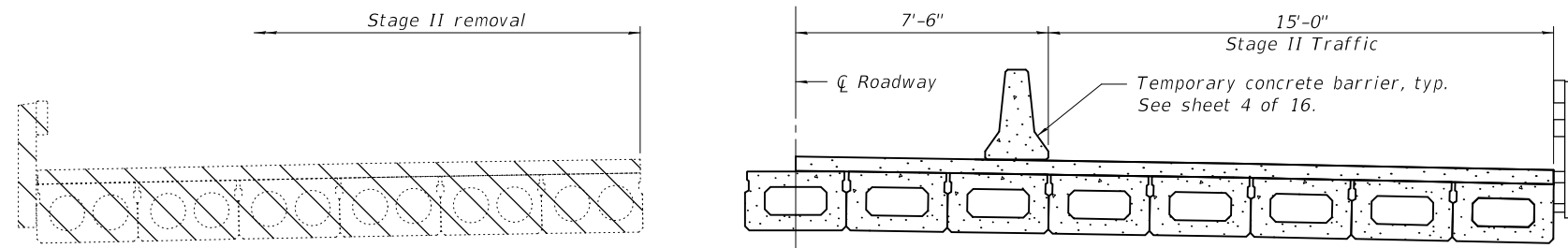
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	17
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				



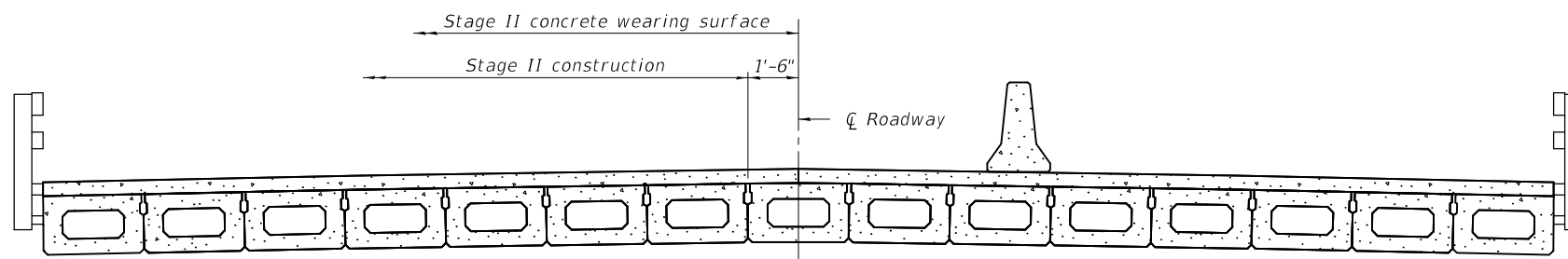
STAGE I REMOVAL



STAGE I CONSTRUCTION



STAGE II REMOVAL

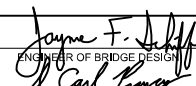



STAGE II CONSTRUCTION

Notes:
 All staging cross-sections are looking East.
 For quantity of Temporary Concrete Barrier, see roadway plans.
 Hatched area indicates Removal of Existing Superstructures.
 Existing bituminous wearing surface removal included in the cost of Removal of Existing Superstructures.
 Removal of existing steel railing is included in the cost of Removal of Existing Superstructures.

MODEL: 0870024-74321-003
 FILE NAME: p:\v\planroom-dot.illinois.gov\p\DOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321

DESIGNED -	JOE G. YOUNG
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CHECKED -	J.G.Y. / H.J.D. / G.R.A.

EXAMINED	
PASSED	
ENGINEER OF BRIDGES AND STRUCTURES	

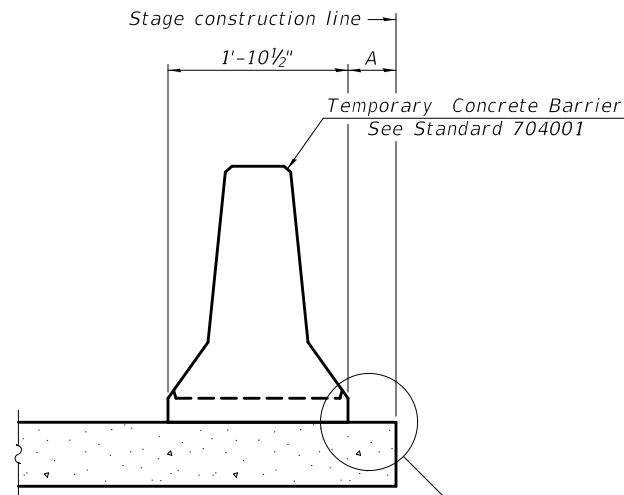
DATE -	SEPTEMBER 30, 2019
REVISED -	
REVISED -	

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**STAGE CONSTRUCTION DETAILS
 STRUCTURE NO. 087 - 0024**

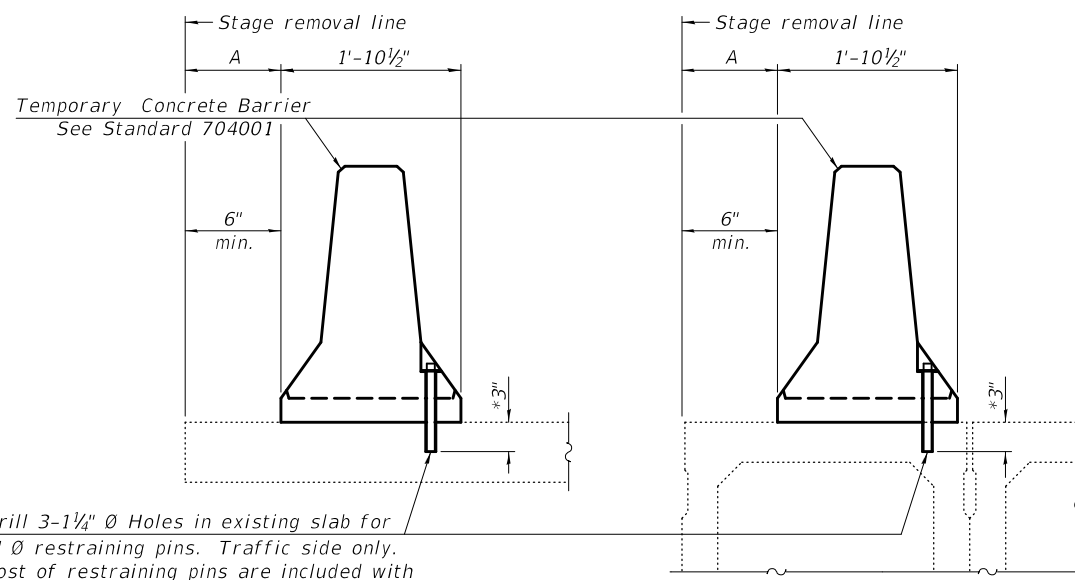
SHEET 3 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	18
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				



When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

NEW SLAB OR NEW DECK BEAM

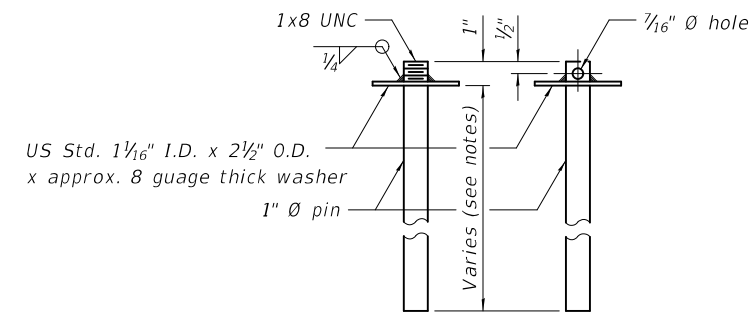


Drill 3-1/4" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

EXISTING SLAB

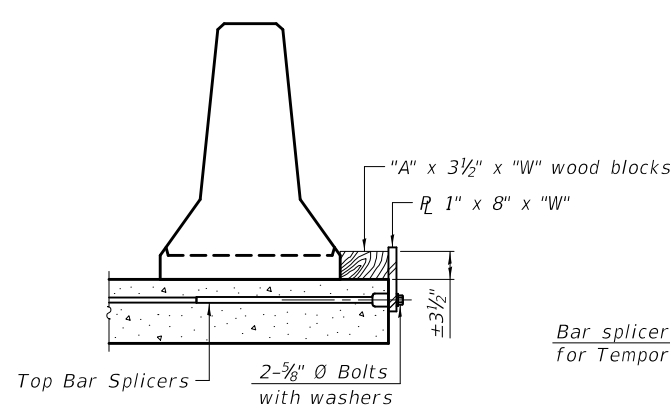
* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM



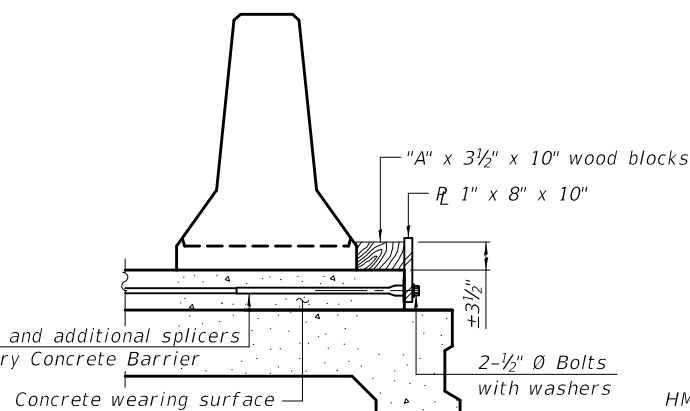
RESTRAINING PIN

SECTIONS THRU SLAB OR DECK BEAM

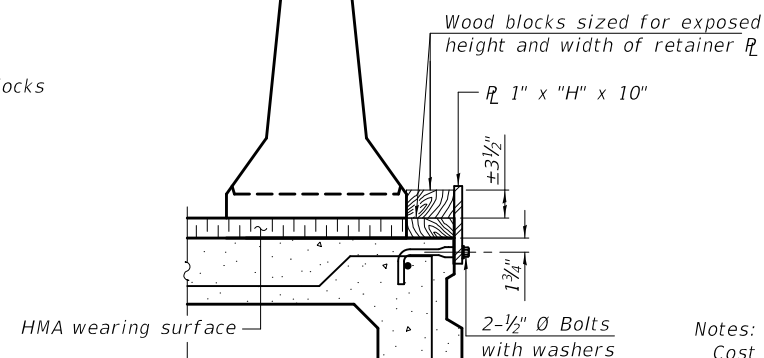


DETAIL I

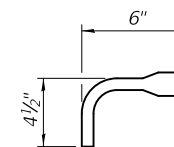
Bar splicers and additional splicers for Temporary Concrete Barrier



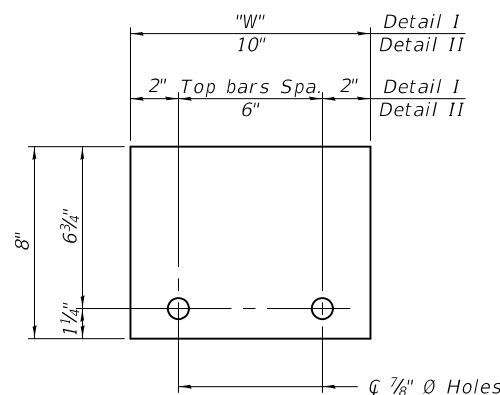
DETAIL II



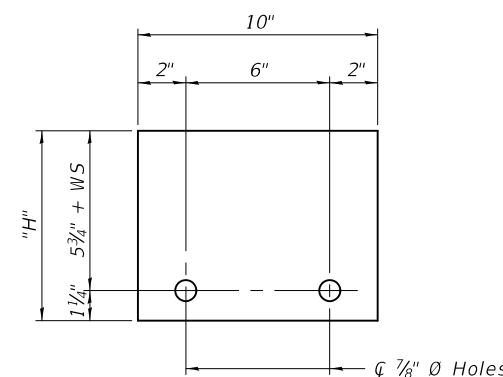
DETAIL III



BAR SPLICER FOR #4 BAR - DETAIL III



STEEL RETAINER 1" x 8" x "W"
(Detail I and II)



STEEL RETAINER 1" x "H" x 10"
(Detail III)

Notes:

Cost of retainer assembly is included with Temporary Concrete Barrier. A retainer assembly shall be located at the approximate center of each temporary concrete barrier.

The retainer plate shall not be removed until the concrete on the adjacent stage is ready to be poured. For Detail III applications the retainer plate shall not be removed until just prior to placing the adjacent beam.

When the 'A' dimension is less than 1 1/2', the wood block shall be omitted and the barrier shall be placed in direct contact with the steel retainer plate. For deck beam applications the minimum required 'A' distance is 6' to accommodate the shear key clamping device.

Detail I - Installation for a new bridge deck or bridge slab.

Detail II - Installation for a new deck beam with an initial concrete wearing surface. Additional bar splicers shall be provided at 6'-0" centers and paired with the bar splicers of the concrete wearing surface reinforcement to accommodate the installation of the retainer assemblies. The cost of the additional bar splicers is included with the concrete wearing surface.

Detail III - Installation for a new deck beam with no initial wearing surface or with an initial hot-mix asphalt (HMA) wearing surface present. The deck beam directly beneath the temporary concrete barrier shall be fabricated with bar splicer inserts in the side of the beam, as detailed, to accommodate the installation of the retainer assemblies. A pair of bar splicers, 6" apart, shall be placed at 6'-0" centers along the length of the beam. The cost of the bar splicers is included with the deck beam.

MODEL: 0870024-74321-004
FILE NAME: pw:\planroom-dot\illinois-gov-pw\DOT\Documents\DOT Offices of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321

R-27 2-17-2017

DESIGNED -	JOE G. YOUNG
CHECKED -	HAREEM I. DAR
DRAWN -	IAN J. ANDREWS
CHECKED -	J.G.Y. / H.J.D. / G.R.A.

EXAMINED	<i>Joanne F. Joffe</i>	DATE -	SEPTEMBER 30, 2019
PASSED	<i>Carl Kroyer</i>	REVISIONS	

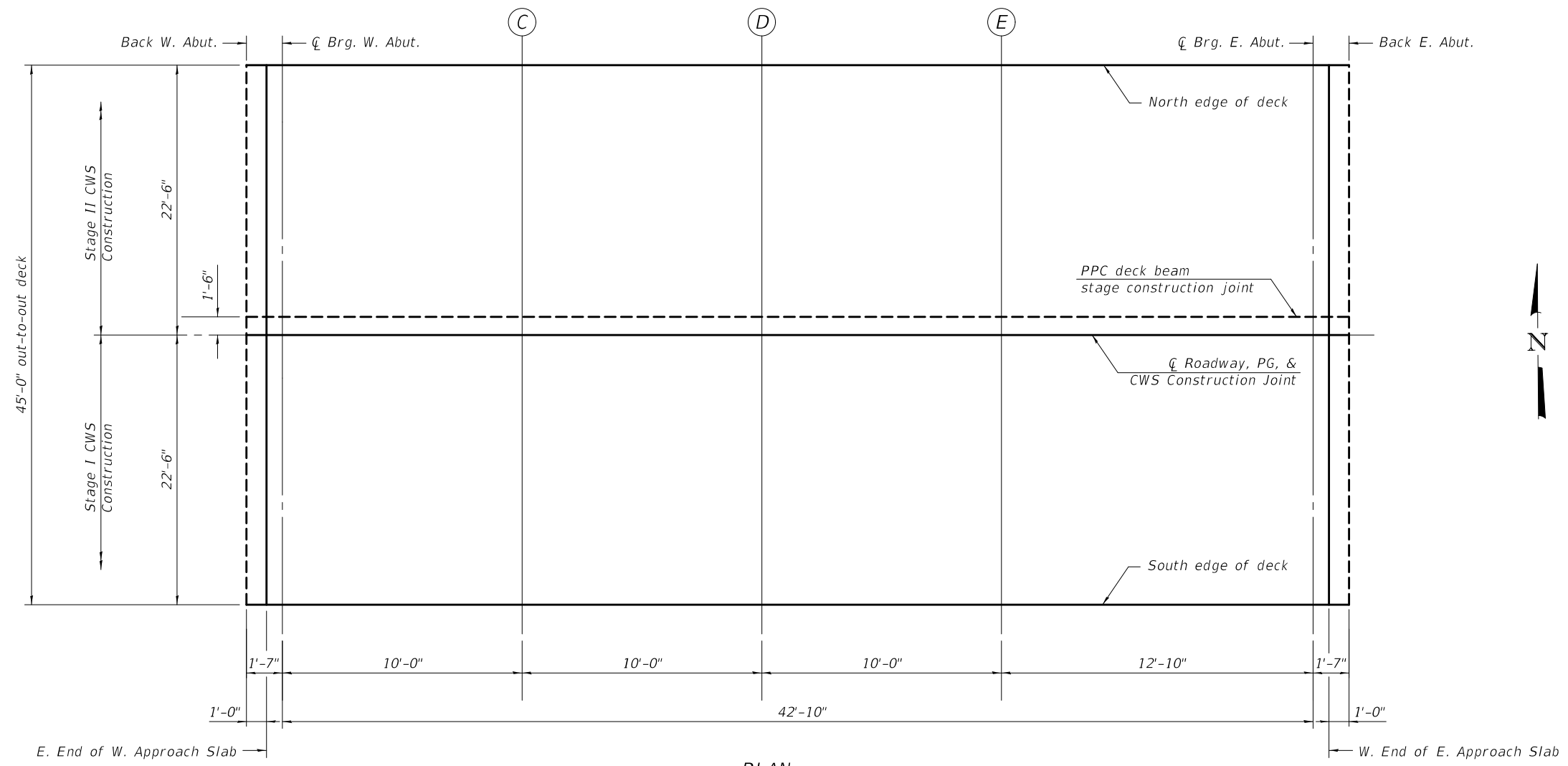
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
STRUCTURE NO. 087 - 0024

SHEET 4 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	19
CONTRACT NO. 74321				

ILLINOIS FED. AID PROJECT



PLAN

NORTH EDGE OF DECK

Location	Station	Offset	Theoretical Grade Elevations
Back W. Abut.	450+22.12	-22.50	667.45
E. End of W. Appr. Slab	450+23.12	-22.50	667.46
☐ Brg. W. Abut.	450+23.70	-22.50	667.46
C	450+33.70	-22.50	667.47
D	450+43.70	-22.50	667.49
E	450+53.70	-22.50	667.50
☐ Brg. E. Abut.	450+66.54	-22.50	667.51
W. End of E. Appr. Slab	450+67.12	-22.50	667.51
Back E. Abut.	450+68.12	-22.50	667.52

☐ ROADWAY, PG, & CWS CONSTRUCTION JOINT

Location	Station	Offset	Theoretical Grade Elevations
Back W. Abut.	450+22.12	0.00	667.79
E. End of W. Appr. Slab	450+23.12	0.00	667.79
☐ Brg. W. Abut.	450+23.70	0.00	667.79
C	450+33.70	0.00	667.81
D	450+43.70	0.00	667.83
E	450+53.70	0.00	667.84
☐ Brg. E. Abut.	450+66.54	0.00	667.85
W. End of E. Appr. Slab	450+67.12	0.00	667.85
Back E. Abut.	450+68.12	0.00	667.85

SOUTH EDGE OF DECK

Location	Station	Offset	Theoretical Grade Elevations
Back W. Abut.	450+22.12	22.50	667.45
E. End of W. Appr. Slab	450+23.12	22.50	667.46
☐ Brg. W. Abut.	450+23.70	22.50	667.46
C	450+33.70	22.50	667.47
D	450+43.70	22.50	667.49
E	450+53.70	22.50	667.50
☐ Brg. E. Abut.	450+66.54	22.50	667.51
W. End of E. Appr. Slab	450+67.12	22.50	667.51
Back E. Abut.	450+68.12	22.50	667.52

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DESIGNED - JOE G. YOUNG
 CHECKED - HAREEM I. DAR
 DRAWN - IAN J. ANDREWS
 CHECKED - J.G.Y. / H.J.D. / G.R.A.

EXAMINED
 PASSED

 ENGINEER OF BRIDGES AND STRUCTURES

DATE - SEPTEMBER 30, 2019
 REVISED -
 REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS
 STRUCTURE NO. 087 - 0024

SHEET 5 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	20
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				

NORTH EDGE OF SHOULDER

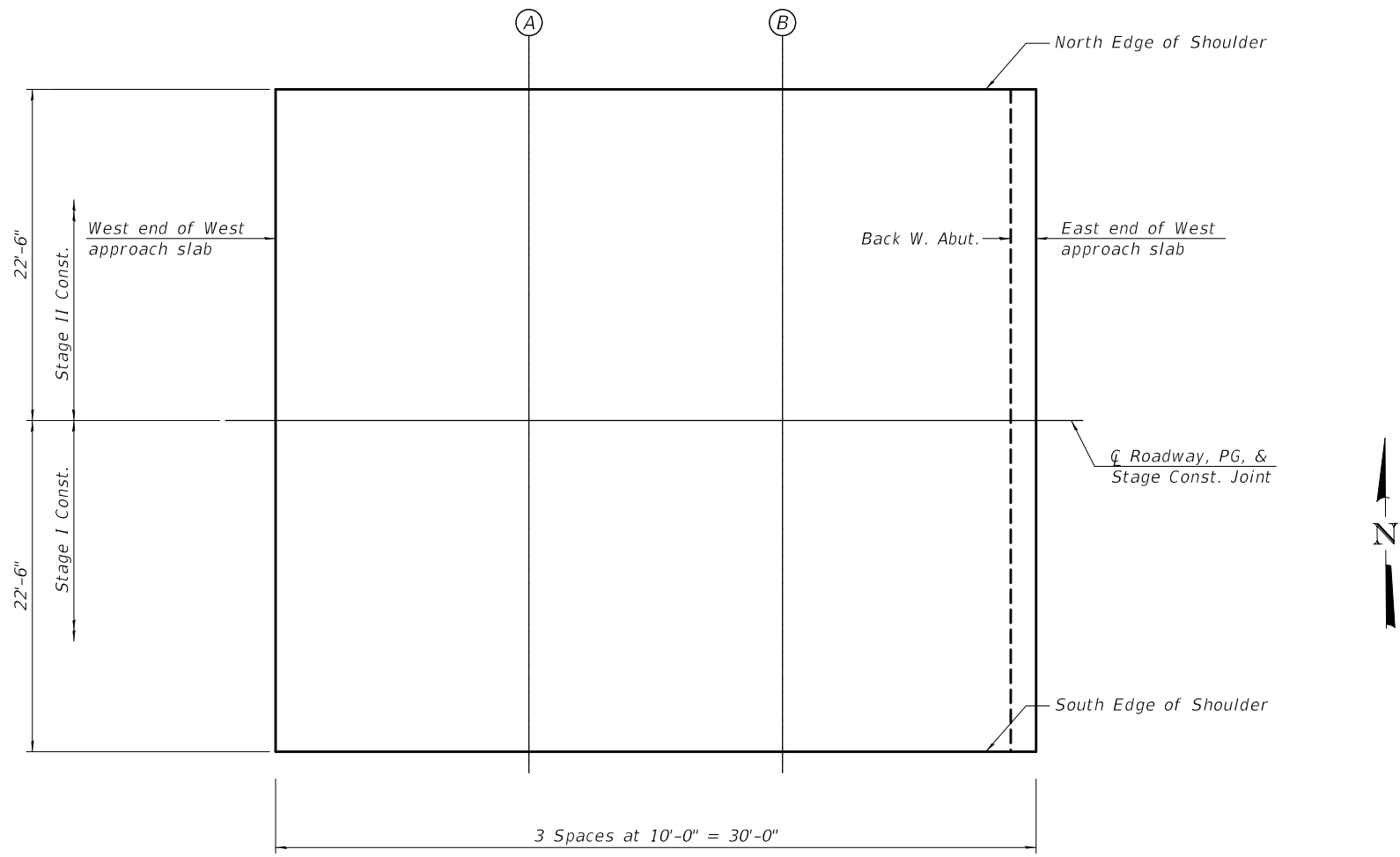
Location	Station	Offset	Theoretical Grade Elevations
W. End of W. Appr. Slab	449+93.12	-22.50	667.39
A	450+03.12	-22.50	667.41
B	450+13.12	-22.50	667.44
E. End of W. Appr. Slab	450+23.12	-22.50	667.46

CL ROADWAY, PG, & STAGE CONST. JOINT

Location	Station	Offset	Theoretical Grade Elevations
W. End of W. Appr. Slab	449+93.12	0.00	667.73
A	450+03.12	0.00	667.75
B	450+13.12	0.00	667.77
E. End of W. Appr. Slab	450+23.12	0.00	667.79

SOUTH EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
W. End of W. Appr. Slab	449+93.12	22.50	667.39
A	450+03.12	22.50	667.41
B	450+13.12	22.50	667.44
E. End of W. Appr. Slab	450+23.12	22.50	667.46



PLAN

MODEL: 0870024-74321-006
 FILE NAME: p:\planroom\dot.illinois.gov\PWIDOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321

DESIGNED -	JOE G. YOUNG
CHECKED -	HAREEM I. DAR
DRAWN -	IAN J. ANDREWS
CHECKED -	J.G.Y. / H.J.D. / G.R.A.

EXAMINED	<i>Joanne F. J. [Signature]</i>	DATE -	SEPTEMBER 30, 2019
PASSED	<i>Carl [Signature]</i>	REVISED -	
	ENGINEER OF BRIDGES AND STRUCTURES	REVISED -	

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**TOP OF WEST APPROACH SLAB ELEVATIONS
 STRUCTURE NO. 087 - 0024**

SHEET 6 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	21
CONTRACT NO. 74321				
ILLINOIS		FED. AID PROJECT		

NORTH EDGE OF SHOULDER

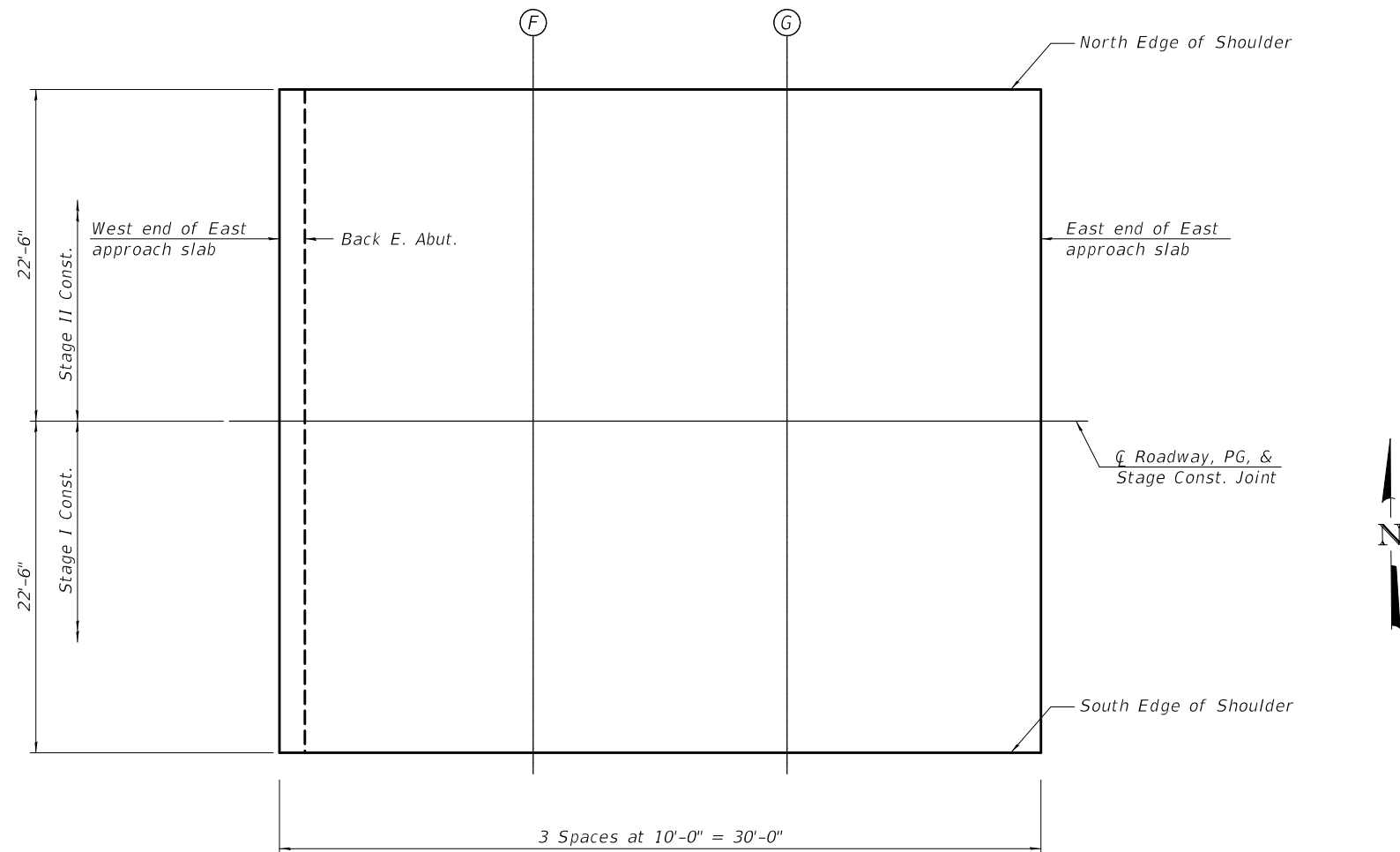
Location	Station	Offset	Theoretical Grade Elevations
W. End of E. Appr. Slab	450+67.12	-22.50	667.51
F	450+77.12	-22.50	667.52
G	450+87.12	-22.50	667.53
E. End of E. Appr. Slab	450+97.12	-22.50	667.53

CL ROADWAY, PG, & CWS CONST. JOINT

Location	Station	Offset	Theoretical Grade Elevations
W. End of E. Appr. Slab	450+67.12	0.00	667.85
F	450+77.12	0.00	667.86
G	450+87.12	0.00	667.86
E. End of E. Appr. Slab	450+97.12	0.00	667.87

SOUTH EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
W. End of E. Appr. Slab	450+67.12	22.50	667.51
F	450+77.12	22.50	667.52
G	450+87.12	22.50	667.53
E. End of E. Appr. Slab	450+97.12	22.50	667.53



PLAN

MODEL: 0870024-74321-007
 FILE NAME: p:\planroom\dot.illinois.gov\PWIDOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321

DESIGNED -	JOE G. YOUNG
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DRAWN -	IAN J. ANDREWS
CHECKED -	J.G.Y. / H.J.D. / G.R.A.

EXAMINED	<i>Joanne F. J. [Signature]</i>	DATE -	SEPTEMBER 30, 2019
PASSED	<i>Carl [Signature]</i>	REVISED -	
	ENGINEER OF BRIDGES AND STRUCTURES	REVISED -	

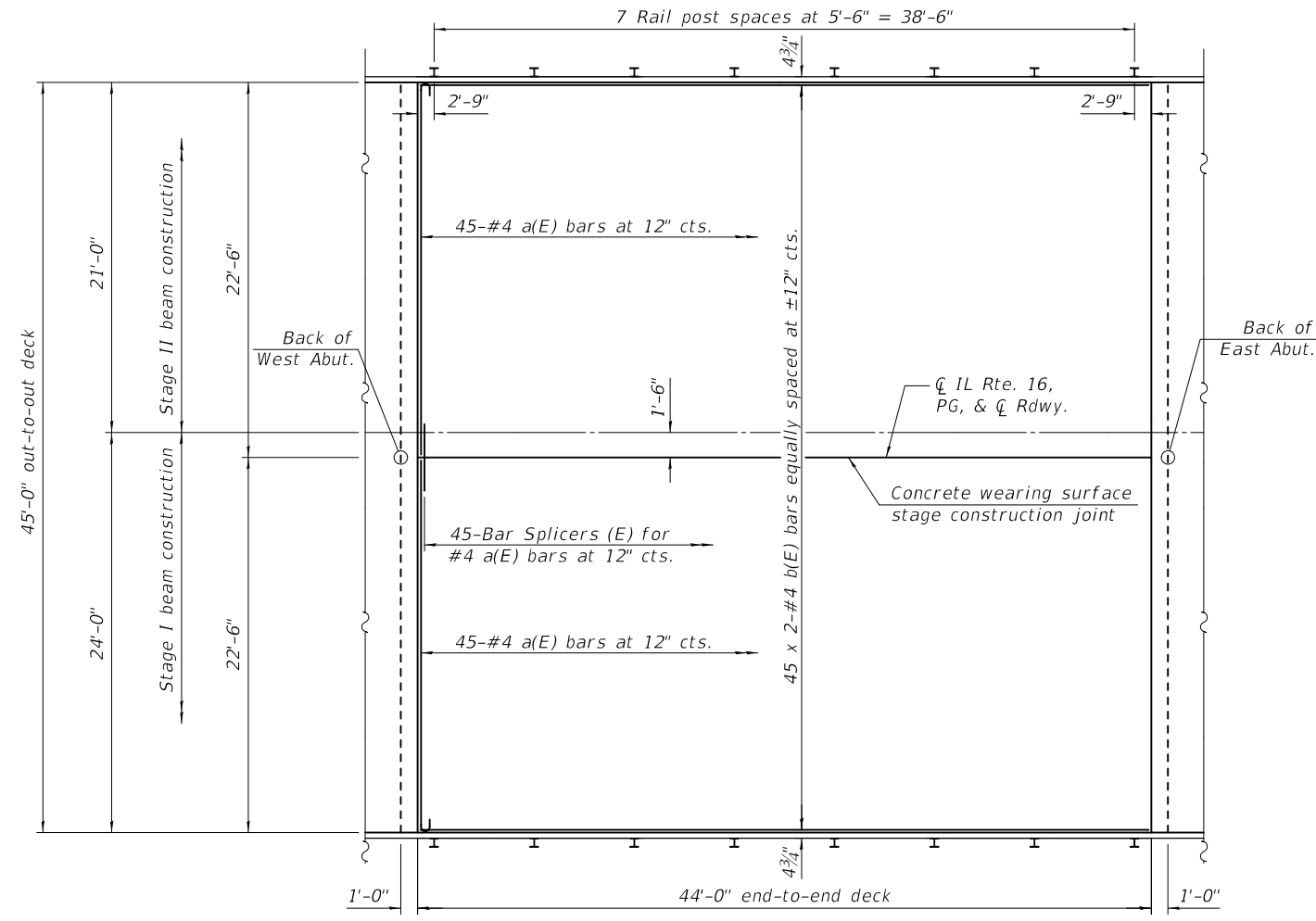
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**TOP OF EAST APPROACH SLAB ELEVATIONS
 STRUCTURE NO. 087 - 0024**

SHEET 7 OF 16 SHEETS

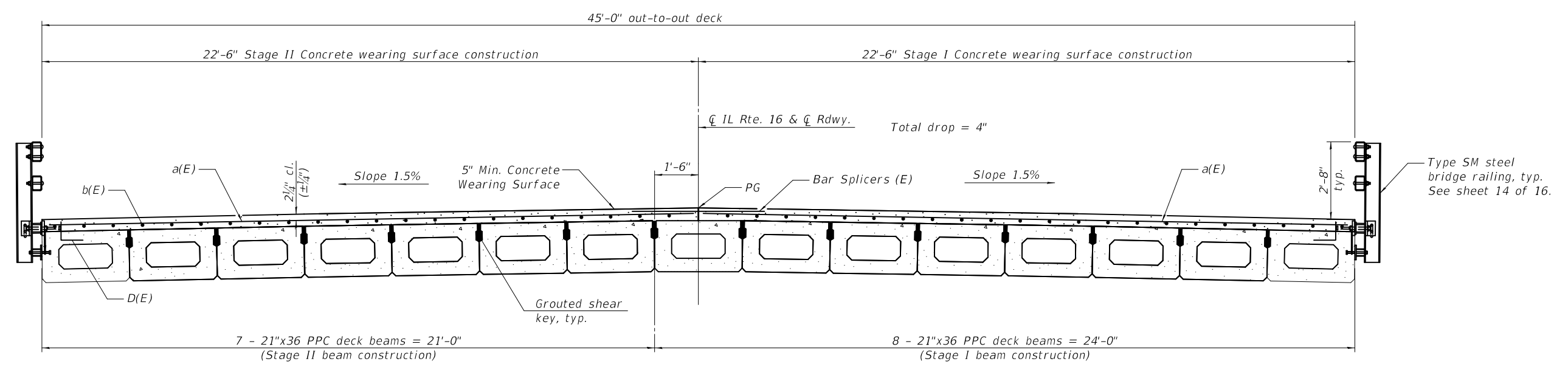
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	22
CONTRACT NO. 74321				
ILLINOIS		FED. AID PROJECT		

MODEL: 0870024-74321-008
 FILE NAME: pw:\planroom\dot.illinois.gov\pww\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321



MINIMUM BAR LAP
 #4 bar = 2'-2"

Notes:
 See sheet 9 of 16 for Bill of Material.
 Bars indicated thus, 45 x 2-#4 etc. indicates 45 lines of bars with 2 lengths per line.
 All concrete wearing surfaces shall be placed prior to casting approach slab.



CROSS SECTION
 (Looking East)

DESIGNED -	JOE G. YOUNG
CHECKED -	HAREEM I. DAR
DRAWN -	IAN J. ANDREWS
CHECKED -	J.G.Y. / H.J.D. / G.R.A.

EXAMINED
 PASSED
Joanne F. J...
 ENGINEER OF BRIDGE DESIGN
Carl...
 ENGINEER OF BRIDGES AND STRUCTURES

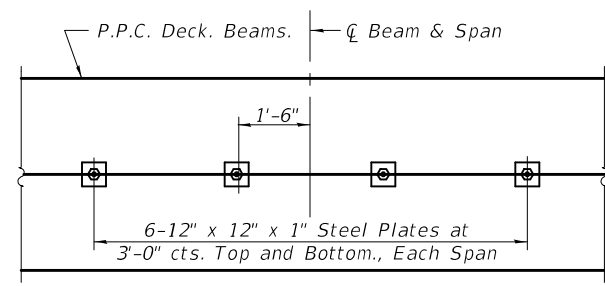
DATE -	SEPTEMBER 30, 2019
REVISED -	
REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

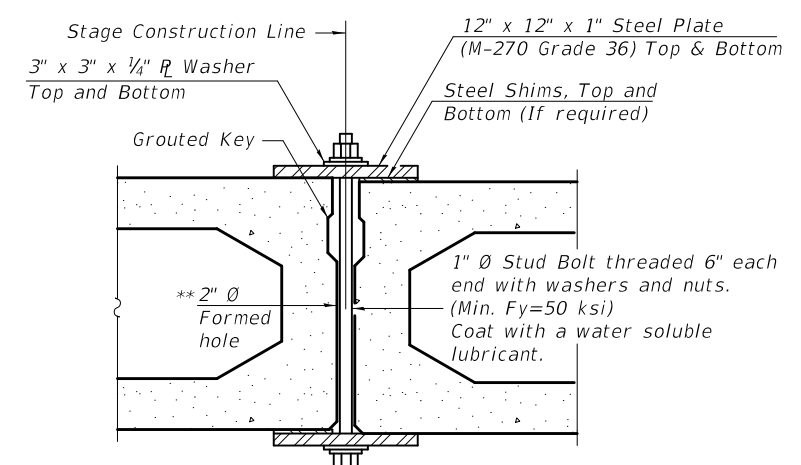
SUPERSTRUCTURE
STRUCTURE NO. 087 - 0024

SHEET 8 OF 16 SHEETS

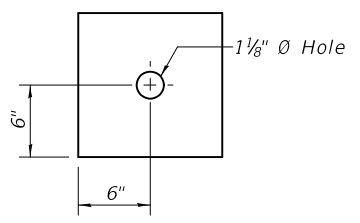
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	23
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				



PLAN



SECTION

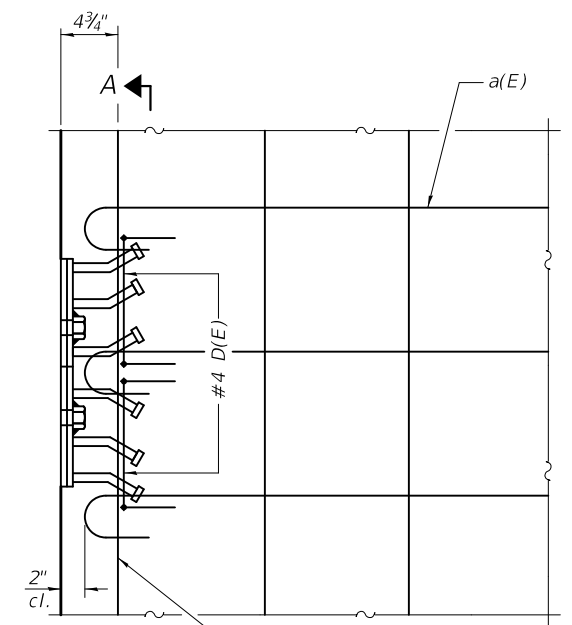


CLAMPING PLATE

SHEAR KEY CLAMPING DETAILS AT STAGE CONST. JT.

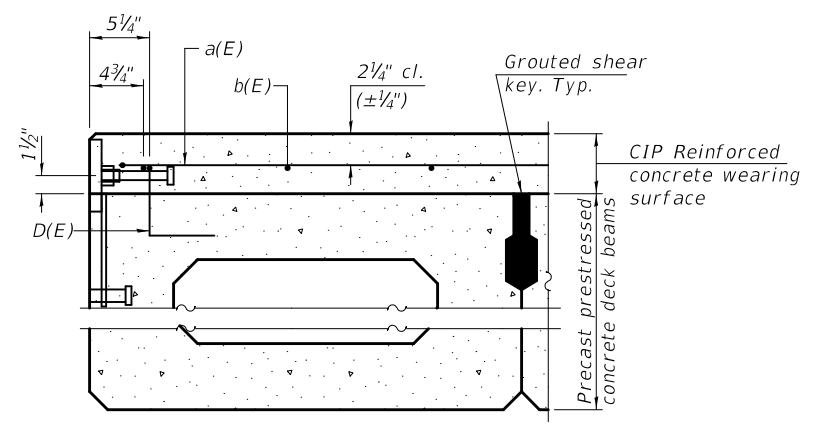
Cost included with Precast Prestressed Concrete Deck Beams.
See Stage Construction Details for traffic lanes.

** Cast semicircular recesses in the sides of each beam adjacent to the stage construction line. These recesses should align to form a hole at the appropriate locations for the clamping device bolts.

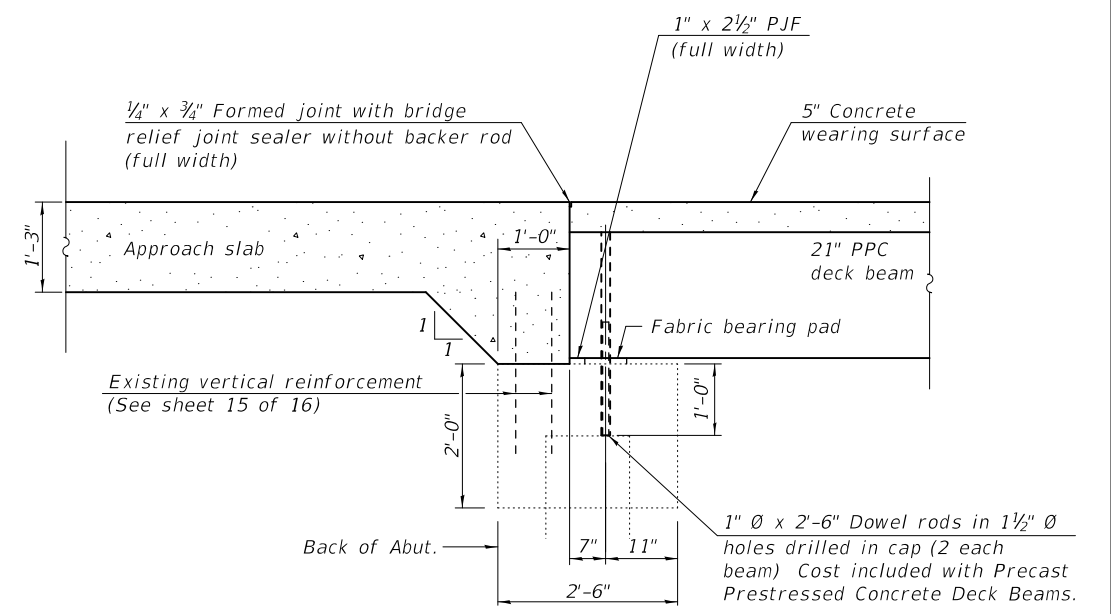


PLAN

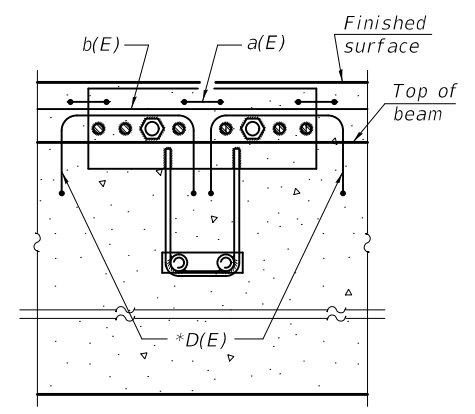
Notes:
Formwork necessary for the wearing surface may be secured utilizing the bottom rail anchorage inserts and/or additional inserts cast into the beam.
See sheet 11 of 16 for fabric bearing pad details.



SECTION THRU FASCIA BEAM



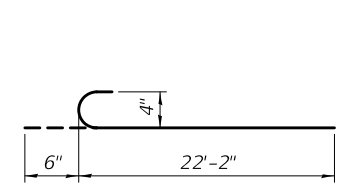
SECTION THRU ABUTMENT



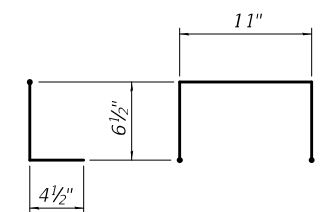
SECTION A-A

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	90	#4	22'-8"	C
b(E)	90	#4	23'-0"	—
Reinforcement Bars, Epoxy Coated			Pound	2,750
Concrete Wearing Surface, 5"			Sq. Yd.	220

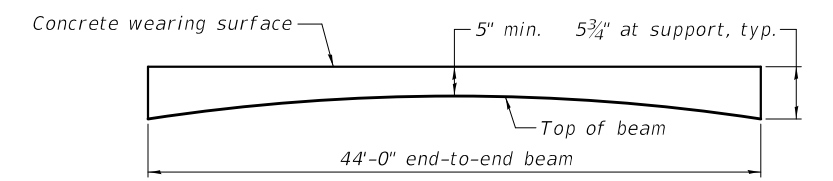


BAR a(E)



BAR D(E)

* Place 2-#4 D(E) bars in beam at each post location as shown. D(E) bar included in cost of beam.



ANTICIPATED CONCRETE WEARING SURFACE PROFILE
(For information only)

MODEL: 0870024-74321-009
FILE NAME: pw:\planroom\pww\DOT\Documents\DOT Offices and Structures\Projects\0870024\CADD Plans\0870024-74321

DESIGNED -	JOE G. YOUNG
CHECKED -	HAREEM I. DAR
DRAWN -	IAN J. ANDREWS
CHECKED -	J.G.Y. / H.J.D. / G.R.A.

EXAMINED
PASSED

 ENGINEER OF BRIDGE DESIGN

 ENGINEER OF BRIDGES AND STRUCTURES

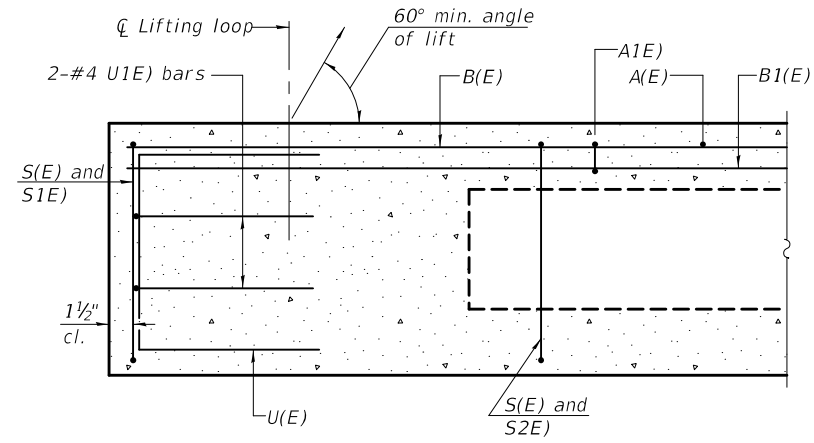
DATE -	SEPTEMBER 30, 2019
REVISED -	
REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 087 - 0024

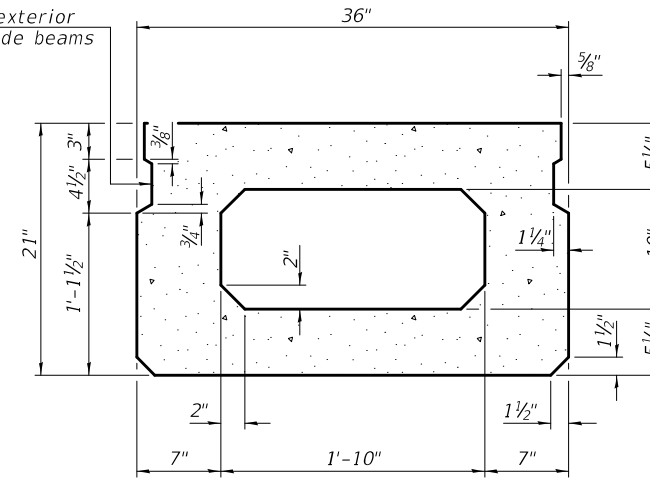
SHEET 9 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	24
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				

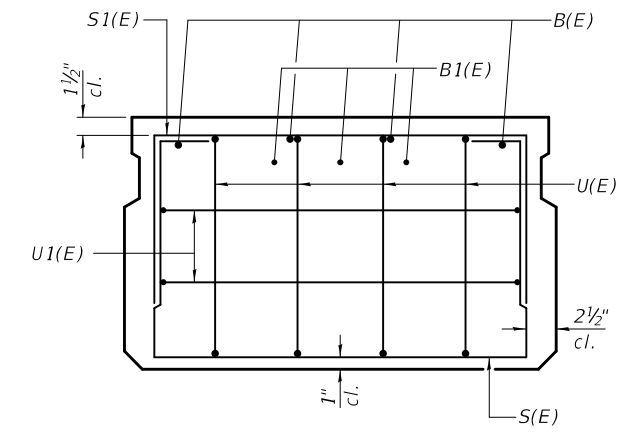


SECTION A-A

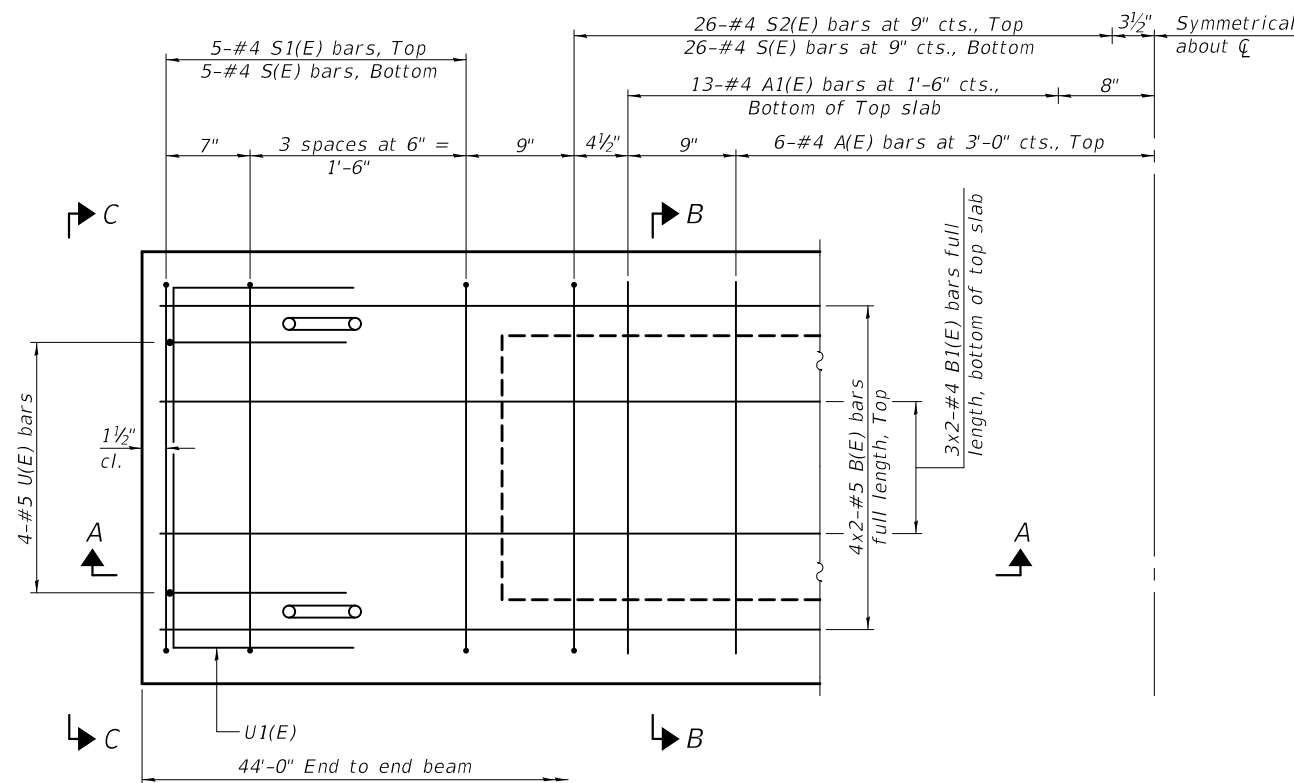
Omit key on exterior face of outside beams



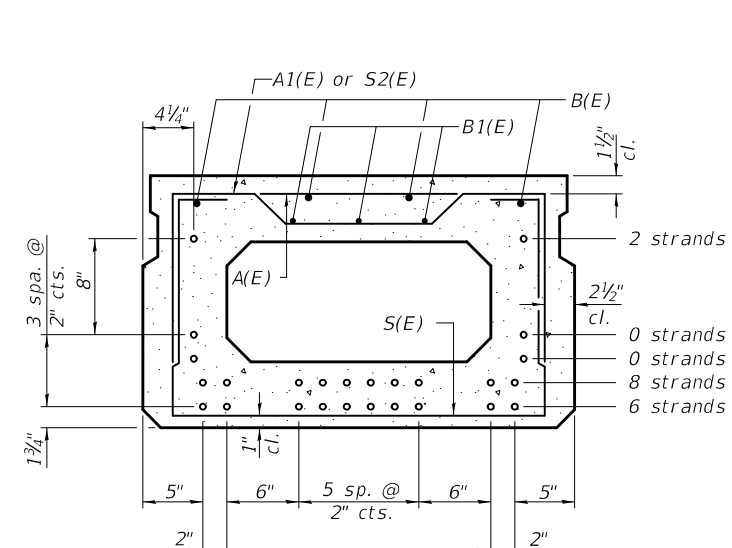
SECTION B-B
(Showing dimensions)



VIEW C-C



PLAN VIEW



SECTION B-B
(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

BAR LIST
ONE BEAM ONLY

(For information only)

Bar	No.	Size	Length	Shape
A(E)	12	#4	2'-7"	—
A1(E)	26	#4	2'-10"	~
B(E)	8	#5	23'-2"	—
B1(E)	6	#4	22'-11"	—
S(E)	62	#4	6'-5"	⌋
S1(E)	10	#4	4'-11"	⌋
S2(E)	52	#4	5'-2"	⌋
U(E)	8	#5	4'-0"	⌋
U1(E)	4	#4	5'-0"	⌋

Note: See sheet 11 of 16 for additional details and Bill of Material.

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

MINIMUM BAR LAP

#4 bar = 1'-11"
#5 bar = 2'-6"

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PD-2136-0

2-17-2017

DESIGNED -	JOE G. YOUNG
CHECKED -	HAREEM I. DAR
DRAWN -	IAN J. ANDREWS
CHECKED -	J.G.Y. / H.J.D. / G.R.A.

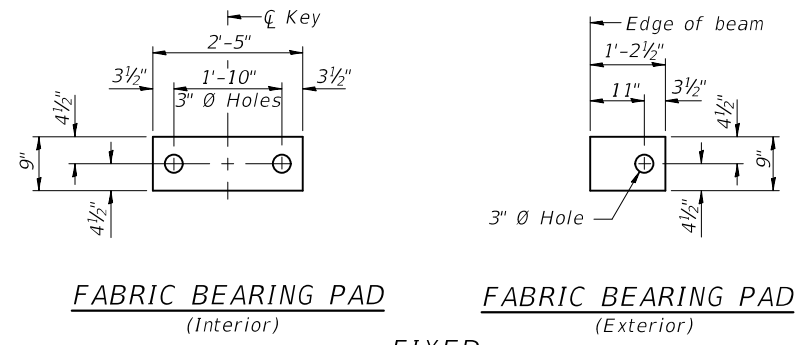
EXAMINED	<i>Joanne F. Jaffe</i>	DATE -	SEPTEMBER 30, 2019
PASSED	<i>Carl Kasper</i>	REVISOR -	
	ENGINEER OF BRIDGES AND STRUCTURES	REVISOR -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

21" x 36" PPC DECK BEAM
STRUCTURE NO. 087 - 0024

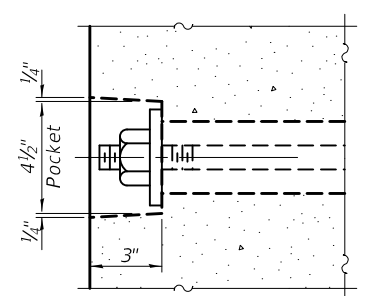
SHEET 10 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	25
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				

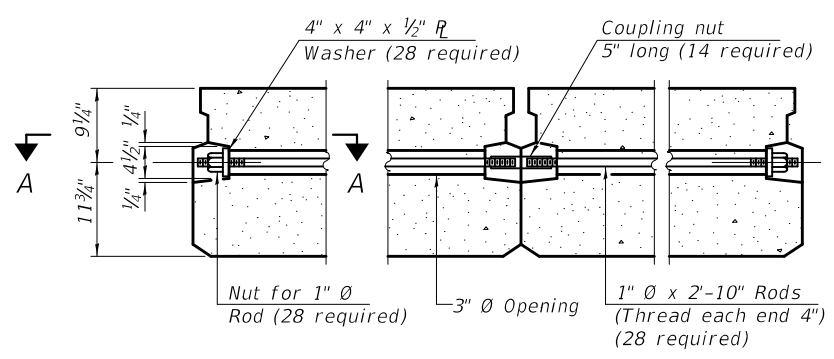


FABRIC BEARING PAD
(Interior) **FIXED** **FABRIC BEARING PAD**
(Exterior)

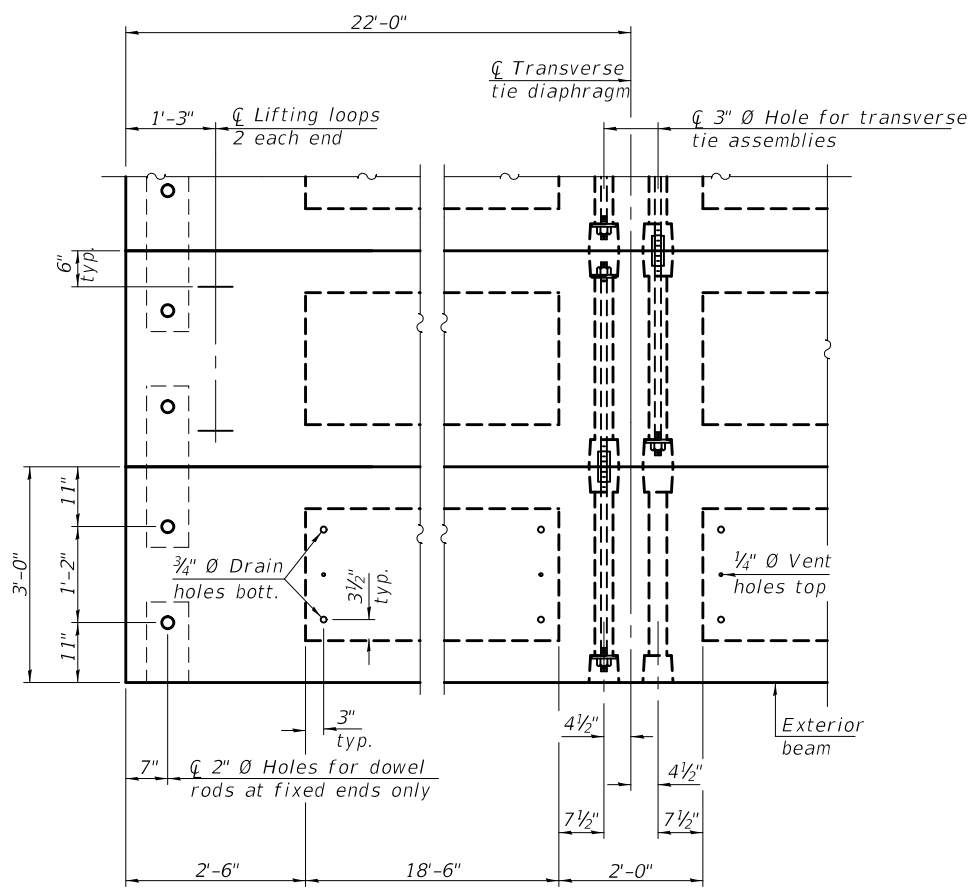
Notes:
All bearing pads shall be 1" thick.



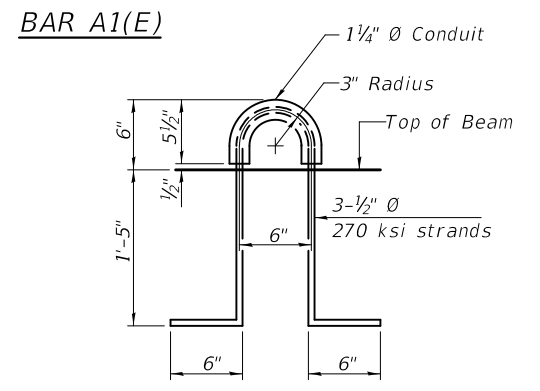
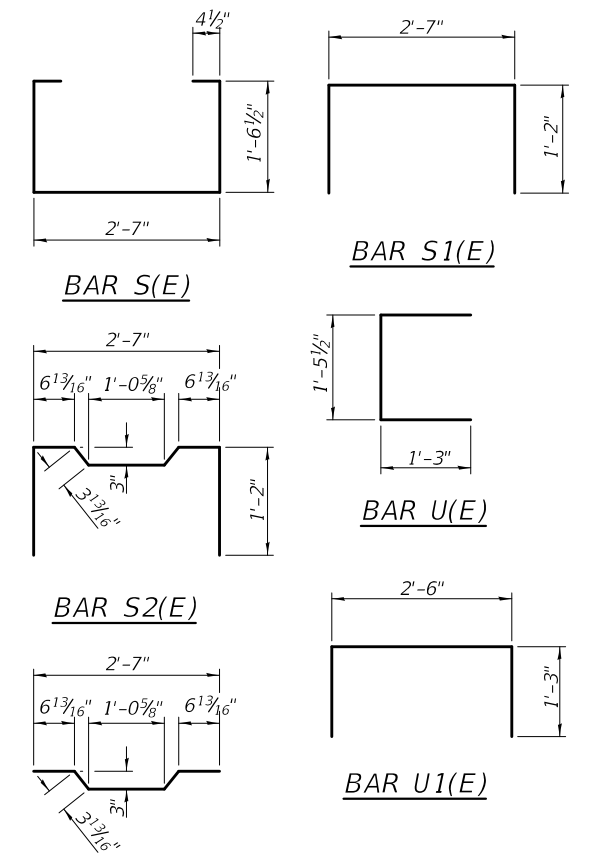
SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY



PLAN VIEW



LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (21" depth)	Sq. Ft.	1980

NOTES

- Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.
- The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
- Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
- A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.
- Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
- Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
- Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

Note: Connect beams in pairs with the transverse tie configuration shown.

MODEL: 0870024-74321-011 FILE NAME: pw:\planroom\dot.illinois.gov\PWIDOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321

PD-2136-0D 2-17-2017

DESIGNED - JOE G. YOUNG	EXAMINED
CHECKED - HAREEM I. DAR	PASSED
DRAWN - IAN J. ANDREWS	
CHECKED - J.G.Y. / H.J.D. / G.R.A.	

DATE - SEPTEMBER 30, 2019

 ENGINEER OF BRIDGE DESIGN

 ENGINEER OF BRIDGES AND STRUCTURES

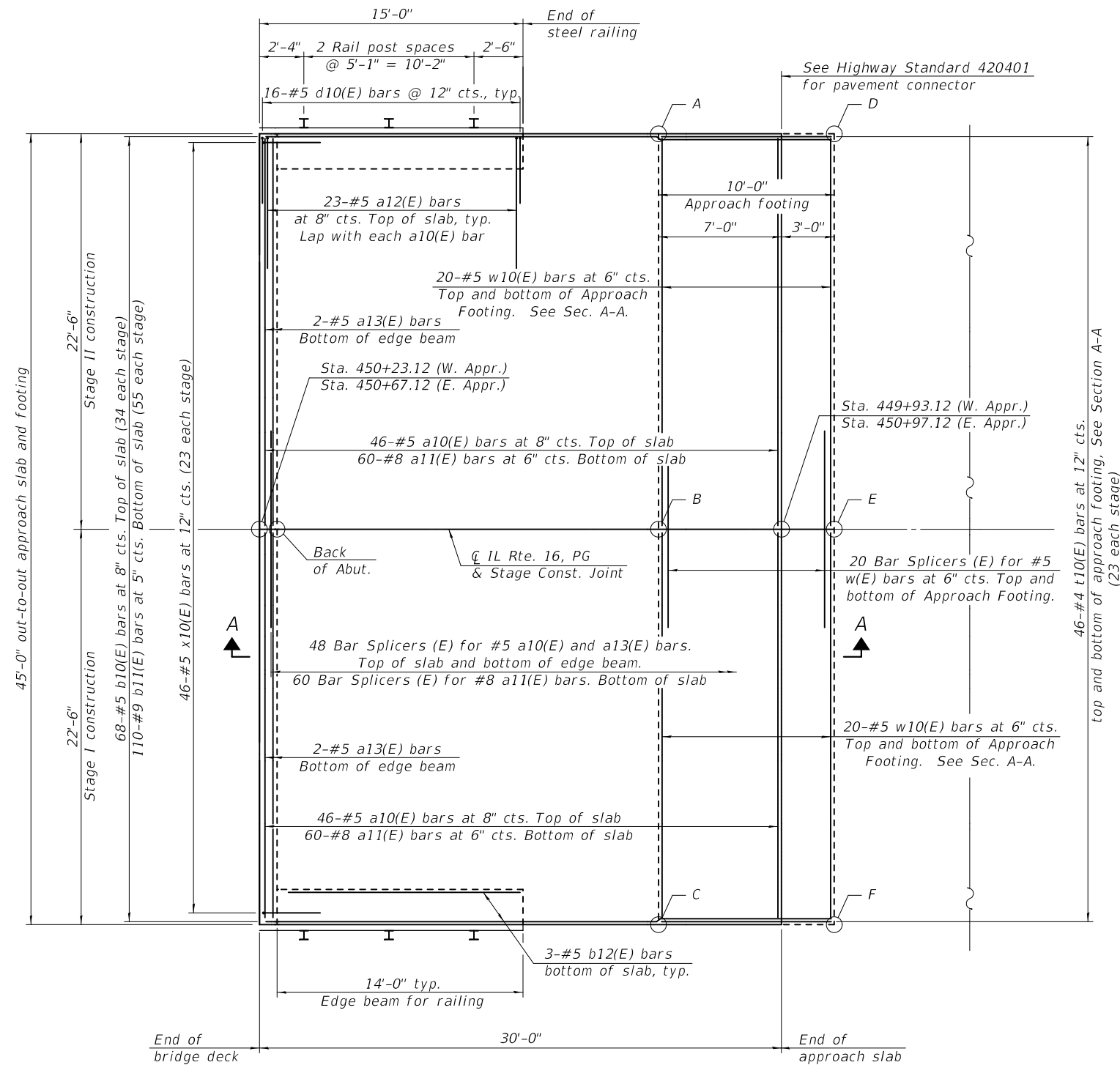
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

21" x 36" PPC DECK BEAM DETAILS
STRUCTURE NO. 087 - 0024

SHEET 11 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	26
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				

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PLAN
 (East approach slab shown; West approach slab similar by 180° rotation)

**TOP AND BOTTOM ELEVATIONS
 FOR APPROACH FOOTING**

Point	West Approach		East Approach	
	Top	Bottom	Top	Bottom
A	666.16	665.33	666.28	665.45
B	666.49	665.66	666.61	665.78
C	666.16	665.33	666.28	665.45
D	666.14	665.31	666.28	665.45
E	666.47	665.64	666.61	665.78
F	666.14	665.31	666.28	665.45

(Sheet 1 of 2)

DESIGNED - JOE G. YOUNG
 CHECKED - HAREEM I. DAR
 DRAWN - IAN J. ANDREWS
 CHECKED - J.G.Y. / H.J.D. / G.R.A.

EXAMINED
 PASSED
 ENGINEER OF BRIDGES AND STRUCTURES

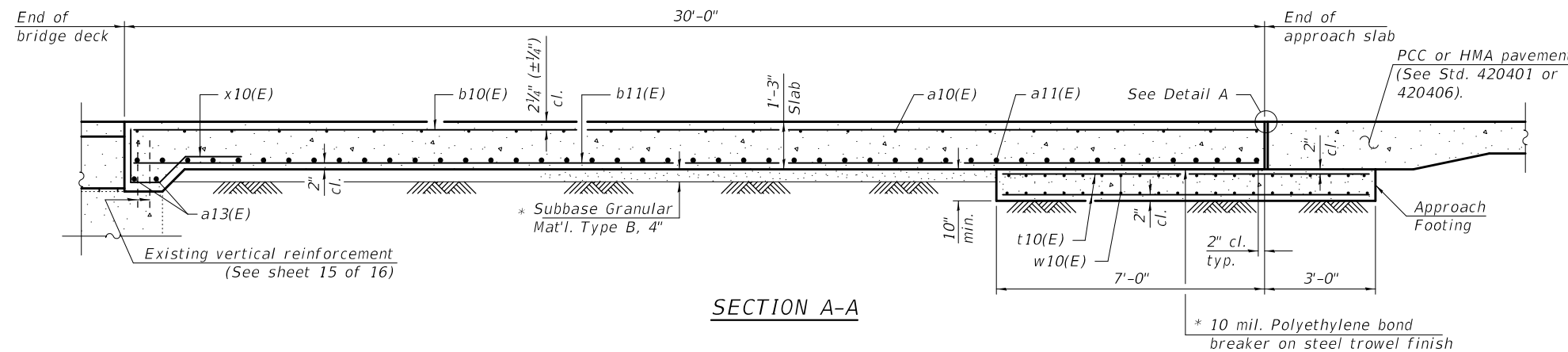
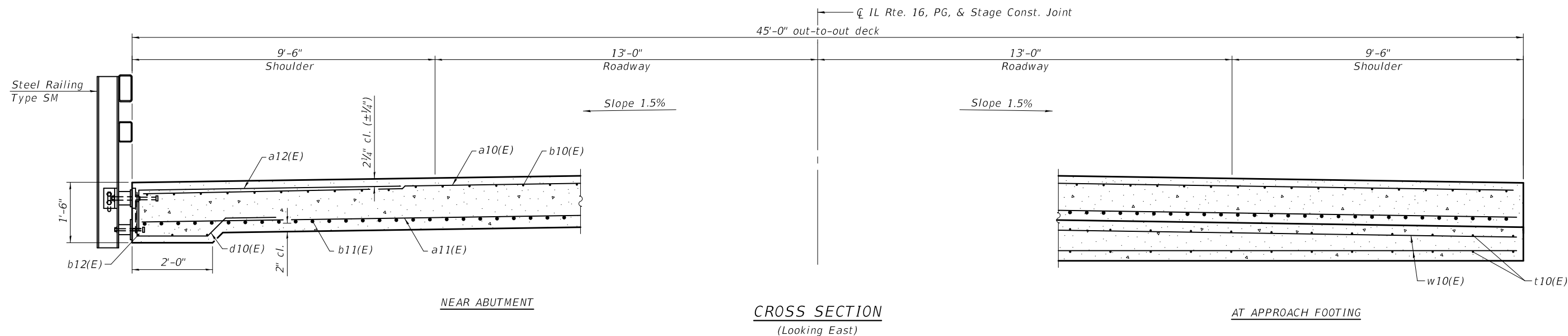
DATE - SEPTEMBER 30, 2019
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**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

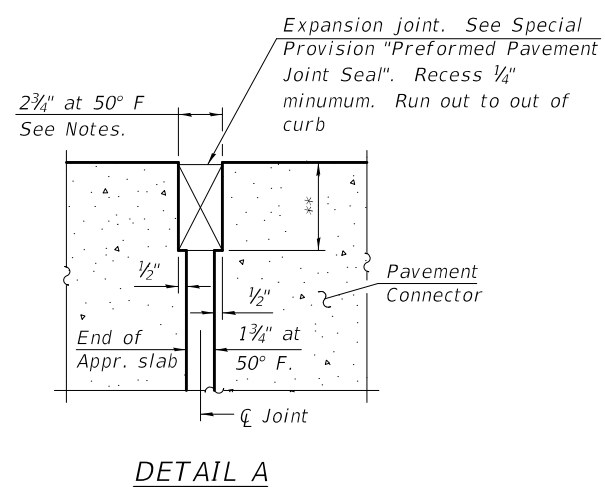
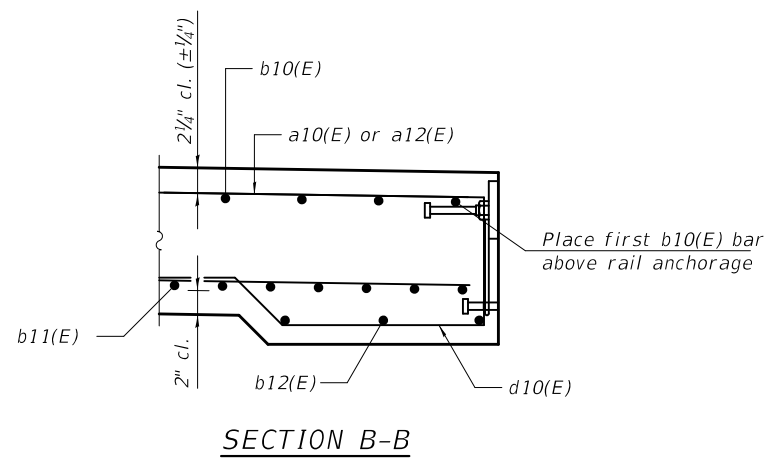
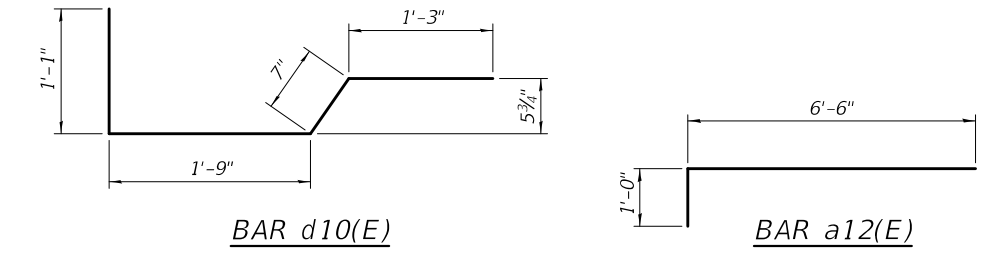
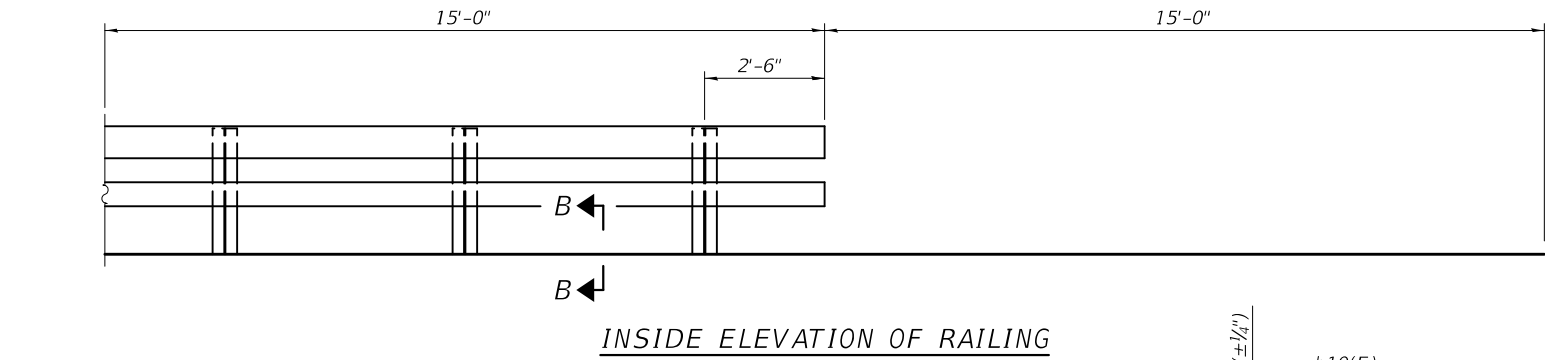
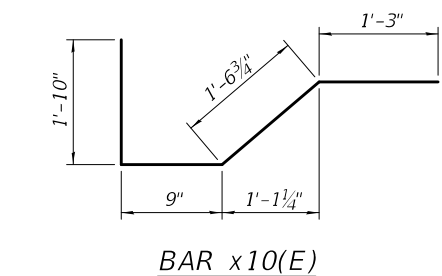
**BRIDGE APPROACH SLAB DETAILS
 STRUCTURE NO. 087 - 0024**

SHEET 12 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	27
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				



Notes:
 The joint opening shall be adjusted for temperature per Article 520.04 of the Standard Specifications. However, since this detail is for jointless structures, the length of bridge used to calculate the adjustment shall be equal to half the total bridge length plus the length of the bridge approach slab.
 Approach slab shall be paid for as Concrete Superstructure (Approach Slab).
 Approach footing concrete shall be paid for as Concrete Structures.
 The approach footing maximum applied service bearing pressure (Q_{max}) = 2.0 ksf.
 Cost of excavation for approach footing included with Concrete Structures.
 For railing details, see sheet 14 of 16.



**TWO APPROACHES
 BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a10(E)	184	#5	22'-2"	—
a11(E)	240	#8	22'-2"	—
a12(E)	92	#5	7'-6"	—
a13(E)	8	#5	22'-2"	—
b10(E)	136	#5	29'-8"	—
b11(E)	220	#9	29'-8"	—
b12(E)	12	#5	13'-8"	—
d10(E)	64	#5	4'-8"	⌋
t10(E)	184	#4	9'-8"	—
w10(E)	80	#5	22'-2"	—
x10(E)	92	#5	5'-5"	⌋
Concrete Superstructure (Approach Slab)				Cu. Yd. 130.9
Concrete Structures				Cu. Yd. 33.4
Reinforcement Bars, Epoxy Coated				Pound 49,800

* Cost included with Concrete Superstructure (Approach Slab).
 ** Per manufacturer recommendations

(Sheet 2 of 2)

MODEL: 0870024-74321-013
 FILE NAME: pw:\planroom\dot\illinois\gov\p\dot\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321

DESIGNED - JOE G. YOUNG
 CHECKED - HAREEM I. DAR
 DRAWN - IAN J. ANDREWS
 CHECKED - J.G.Y. / H.J.D. / G.R.A.

EXAMINED
 PASSED
 ENGINEER OF BRIDGES AND STRUCTURES

DATE - SEPTEMBER 30, 2019
 REVISED -
 REVISED -

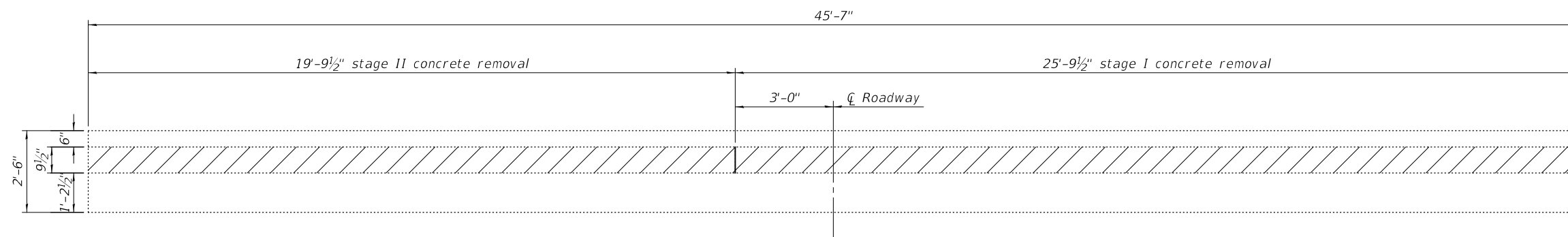
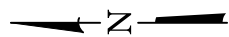
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
 STRUCTURE NO. 087 - 0024

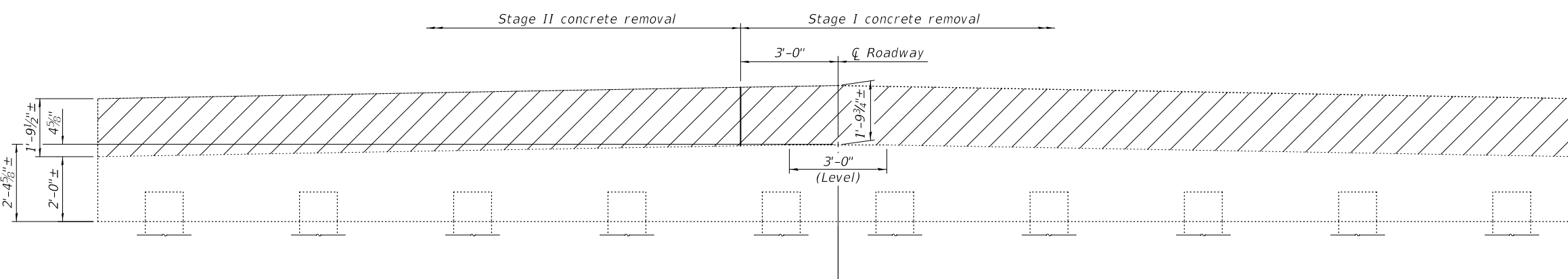
SHEET 13 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	28
CONTRACT NO. 74321				
ILLINOIS FED. AID PROJECT				

10/1/2019 8:37:57 AM



PLAN
(East abutment shown; West abutment similar)



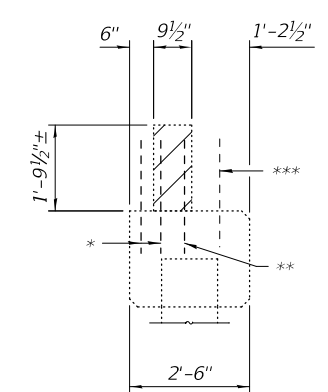
ELEVATION
(East abutment looking East shown; West abutment similar)

- * Existing vertical reinforcement bars extending into the removal area shall be cleaned, straightened, and incorporated into the new construction. Cost included with Concrete Removal.
- ** Existing vertical reinforcement not extending into the new construction shall be cut off flush with concrete surface. Cost included with Concrete Removal.

LEGEND



Concrete Removal



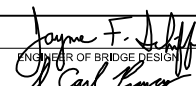
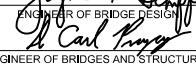
SECTION THRU ABUTMENT

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Removal	Cu. Yd.	4.8

*** Burn existing dowel rods flush with existing abutment surface and coat with epoxy. Cost included with Removal of Existing Superstructures.

MODEL: 0870024-74321-015
FILE NAME: p:\planroom\dot\illinois\gov\p\dot\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321

DESIGNED - JOE G. YOUNG	EXAMINED - 	DATE - SEPTEMBER 30, 2019
CHECKED - HAREEM I. DAR	PASSED - 	REVISER -
DRAWN - IAN J. ANDREWS	ENGINEER OF BRIDGES AND STRUCTURES	REVISER -
CHECKED - J.G.Y. / H.J.D. / G.R.A.		

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

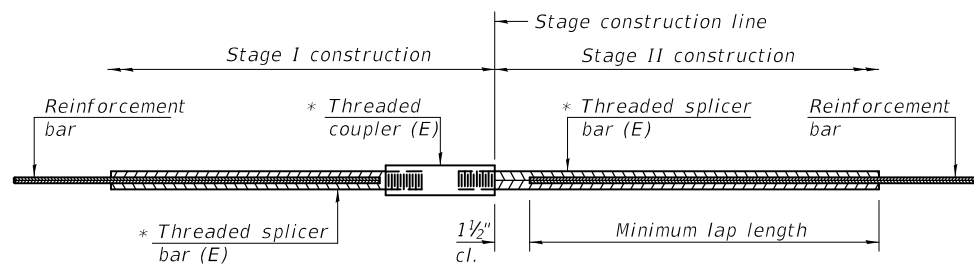
**CONCRETE REMOVAL AT ABUTMENT
STRUCTURE NO. 087 - 0024**

SHEET 15 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	30
CONTRACT NO. 74321				

ILLINOIS FED. AID PROJECT

10/1/2019 8:37:58 AM

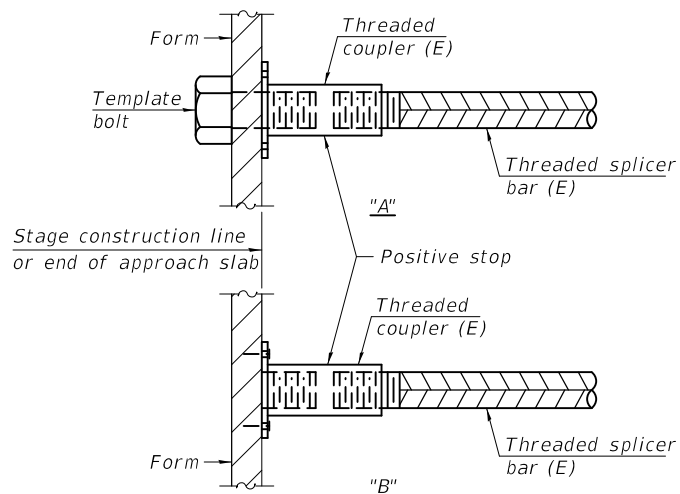


STANDARD BAR SPLICER ASSEMBLY

Threaded splicer bar length = min. lap length + 1 1/2" + thread length

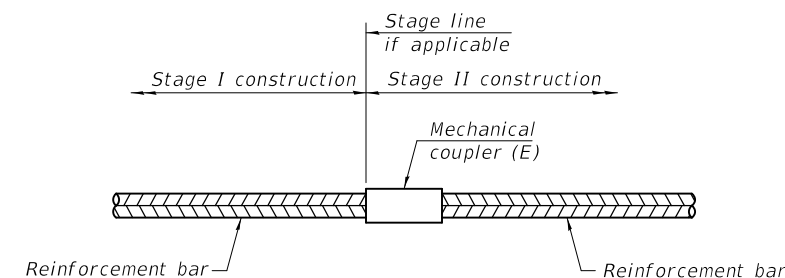
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
Concrete Wearing Surface	#4	45	2'-2"
Approach Slab, Top	#5	92	3'-0"
Approach Slab, Bottom	#8	120	4'-9"
Approach Slab, Footing	#5	80	3'-0"
Approach Slab, Edge Beam	#5	4	3'-0"



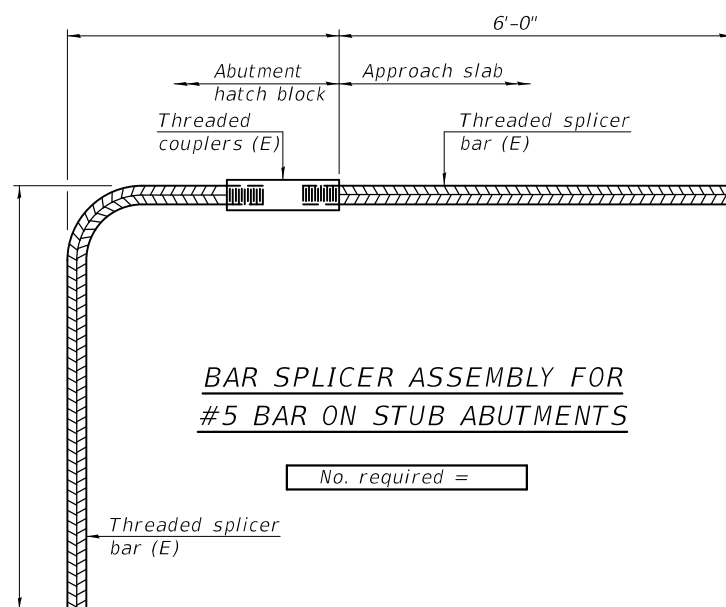
INSTALLATION AND SETTING METHODS

"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.



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
 All reinforcement shall be lapped and tied to the splicer bars.
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

MODEL: 0870024-74321-016
 FILE NAME: p:\v\planroom-dot.illinois.gov\PWIDOT\Documents\DOT Offices\Bureau of Bridges and Structures\Projects\0870024\CADD Plans\0870024-74321

BSD-1

2-17-2017

DESIGNED -	JOE G. YOUNG
CHECKED -	HAREEM I. DAR
DRAWN -	IAN J. ANDREWS
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EXAMINED
 PASSED

Joanne F. J. [Signature]
 ENGINEER OF BRIDGE DESIGN
Carl [Signature]
 ENGINEER OF BRIDGES AND STRUCTURES

DATE - SEPTEMBER 30, 2019

REVISED -
 REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
 STRUCTURE NO. 087 - 0024**

SHEET 16 OF 16 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
325	(11BR-1)BR	SHELBY	31	31
CONTRACT NO. 74321				

ILLINOIS FED. AID PROJECT