

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	* 16	1
		ILLINOIS	CONTRACT NO. 76P44	

\* 16 + 1 = 17 TOTAL SHEETS

FOR INDEX OF SHEETS, SEE SHEET NO. 2

# PROPOSED HIGHWAY PLANS

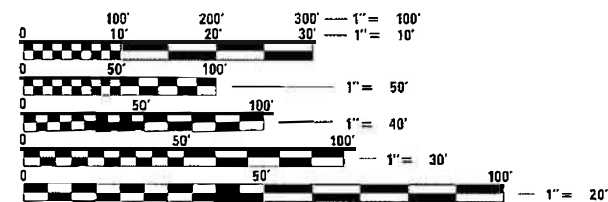
FAI ROUTE 70 (I-70)  
SECTION 82-2-1HVB-BJR-2  
PROJECT NHPP-9445(427)  
BRIDGE JOINT REPAIR  
ST. CLAIR COUNTY

C-98-079-21

D-98-048-21



PROJECT LOCATION  
I-70 WB SN 082-0319  
LAT: 38.64871  
LONG: -90.16127

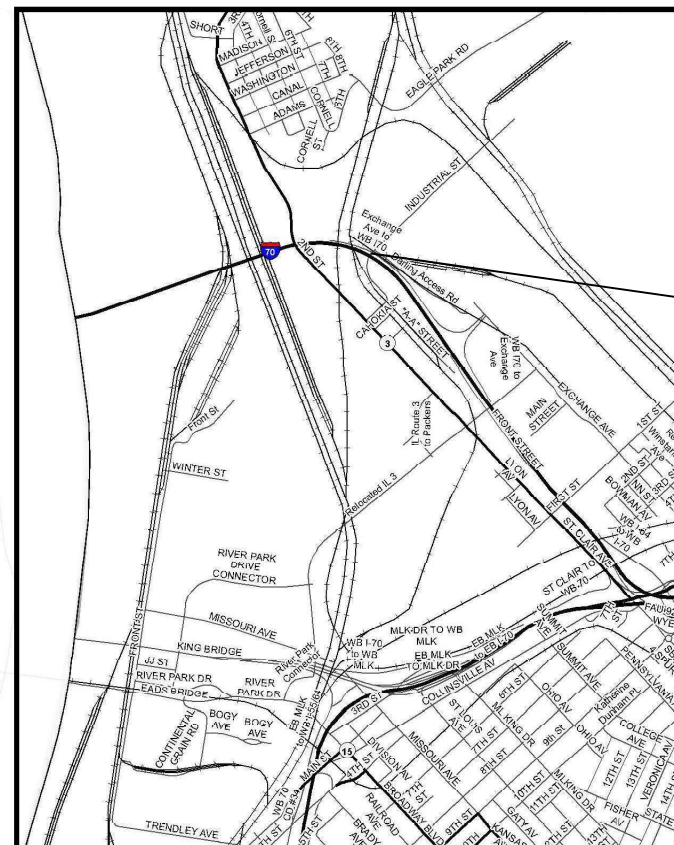


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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



T2N



NET /GROSS LENGTH = 1299 FT. = 0.246 MILE

ADT

2019 ADT = 21,700 (ACTUAL)  
2021 ADT = 21,900 (ESTIMATED)  
2041 ADT = 24,200 (ESTIMATED)  
SU = 3.7% MU = 8.8%

PROJECT ENGINEER: CHERYL KEPLAR (618) 346-3123  
PROJECT MANAGER: KAREN CHALLANDES (618) 346-3329

CONTRACT NO. 76P44

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUBMITTED 01-26-2021  
*[Signature]*  
REGIONAL ENGINEER

March 19, 2021  
*[Signature]*  
ENGINEER OF DESIGN AND ENVIRONMENT

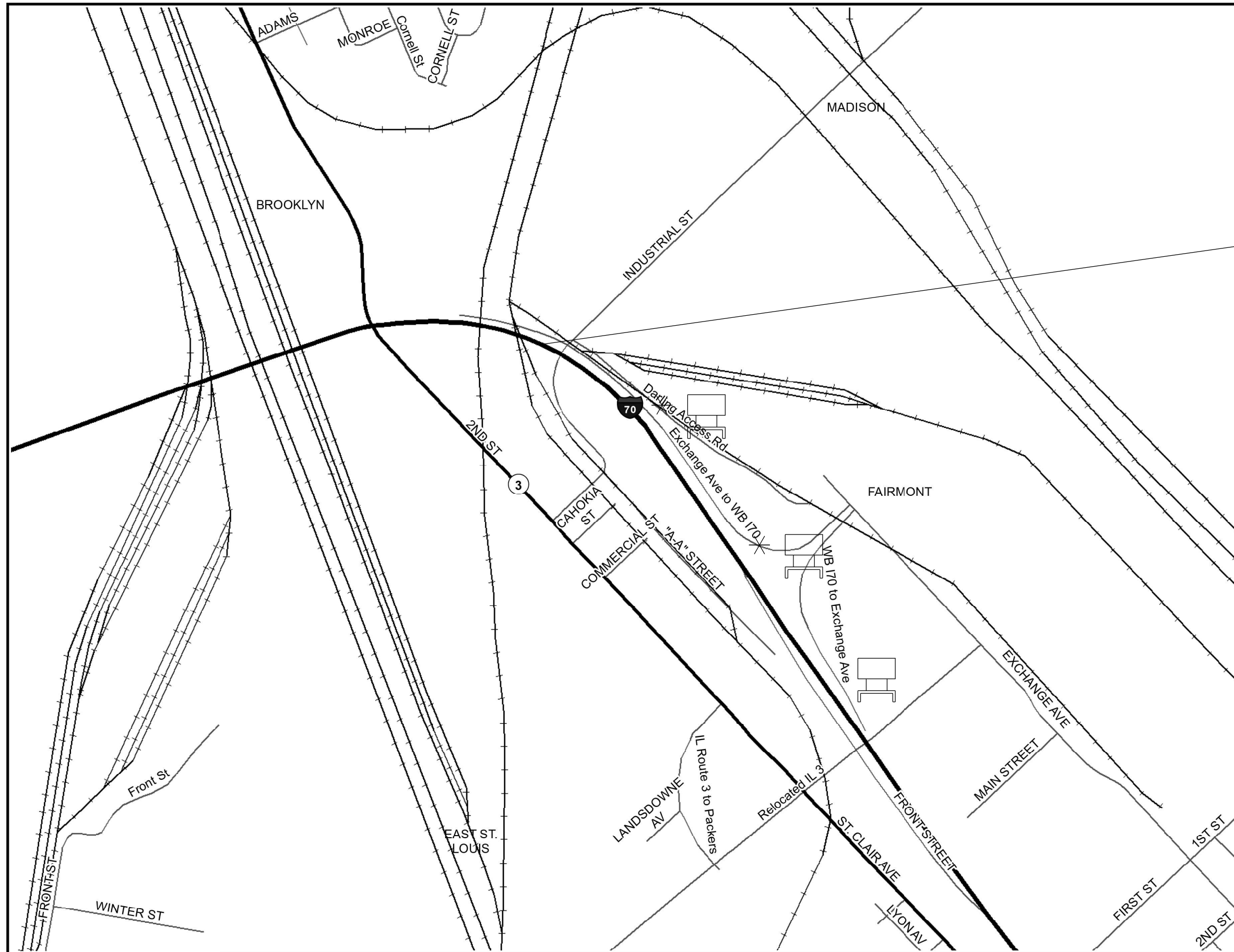
March 19, 2021  
*[Signature]*  
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION 13

PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS



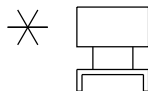






PROJECT LOCATION

 CHANGEABLE MESSAGE BOARD

 CHANGEABLE MESSAGE BOARD WITH DOPPLER SPEED SENSOR AT ONE MILE SPACING

MODEL: Default  
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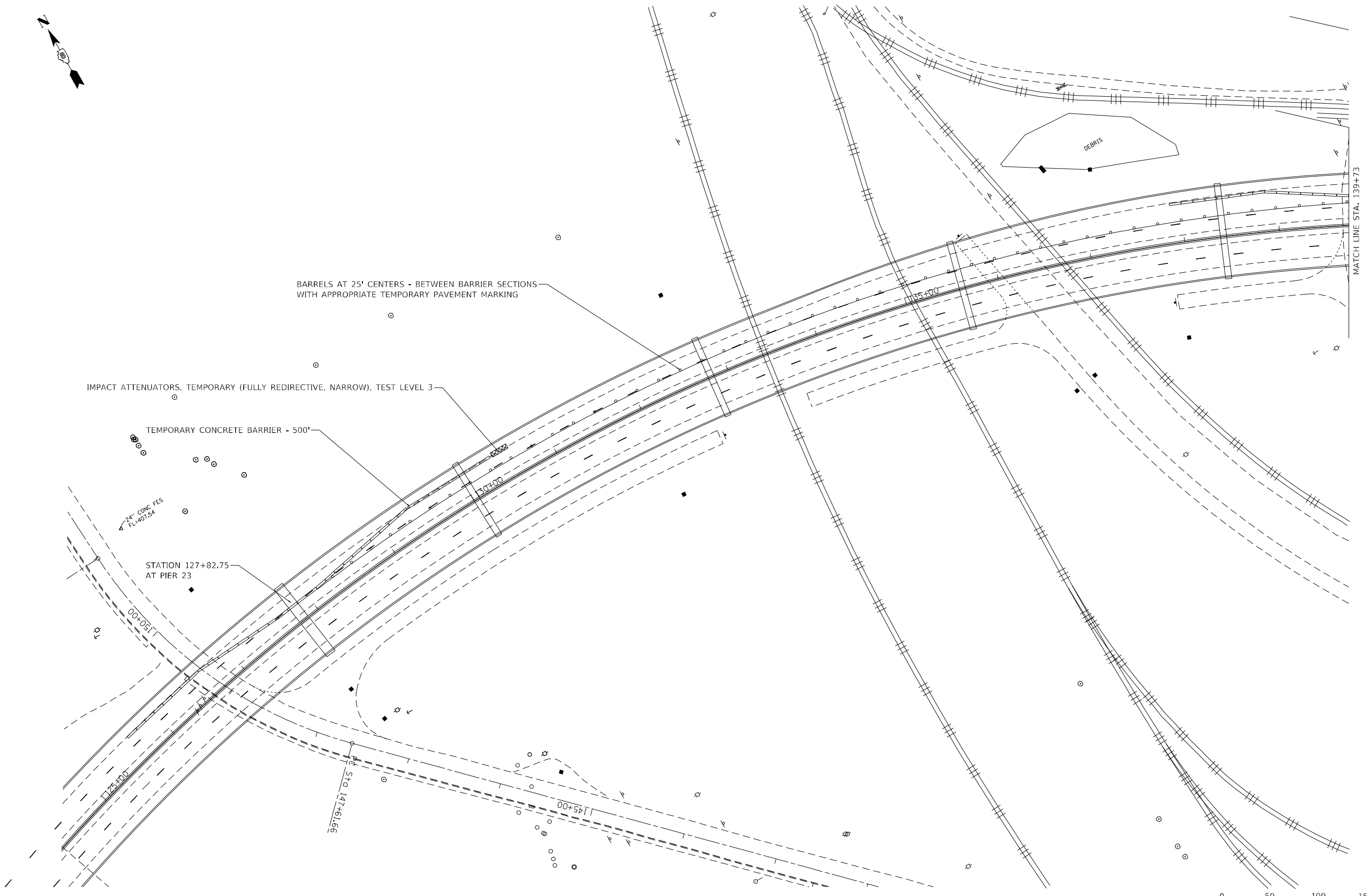
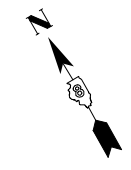
USER NAME = challandeske	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100,0000' / in.	CHECKED -	REVISED -
PLOT DATE = 3/23/2021	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SMART TRAFFIC MONITORING SYSTEM**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	16	4A
CONTRACT NO. 76P44				
ILLINOIS FED. AID PROJECT				



BARRELS AT 25' CENTERS - BETWEEN BARRIER SECTIONS  
WITH APPROPRIATE TEMPORARY PAVEMENT MARKING

IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW), TEST LEVEL 3

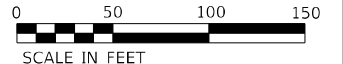
TEMPORARY CONCRETE BARRIER - 500'

2" CONC FES  
FL=401.54

STATION 127+82.75  
AT PIER 23

MATCH LINE STA. 139+73

SEE STANDARD 701402 FOR DETAILS NOT SHOWN.



MODEL: Default  
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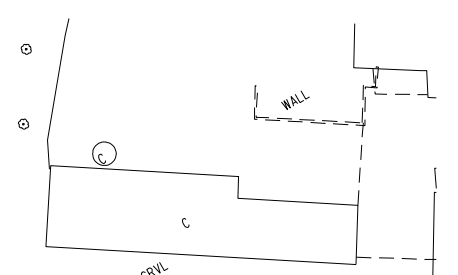
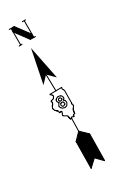
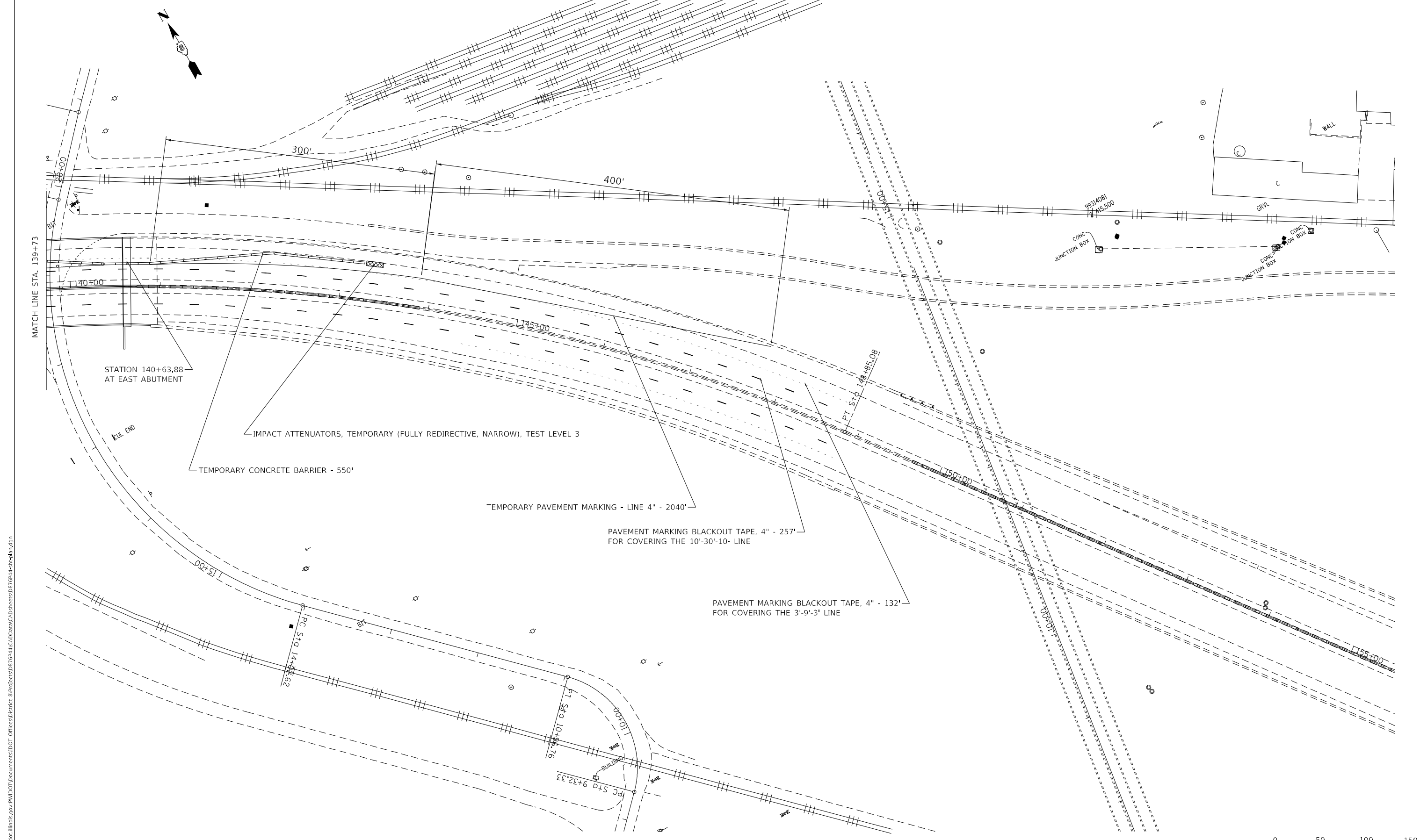
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	DRAWN -	REVISED -
PLOT SCALE = 200,0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 2/9/2021	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BARRIER LAYOUT  
STAGE 1**

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

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	16	5
CONTRACT NO. 76P44				
ILLINOIS FED. AID PROJECT				



SEE STANDARD 701402 FOR DETAILS NOT SHOWN.

MODEL: Default  
 FILE NAME: p:\work\barroom.dwg  
 PROJECT: 82-2-1HVB-BJR-2  
 OFFICE: DISTRICT 8  
 PROJECT: 82-2-1HVB-BJR-2  
 DRAWING: 76P44-1-1

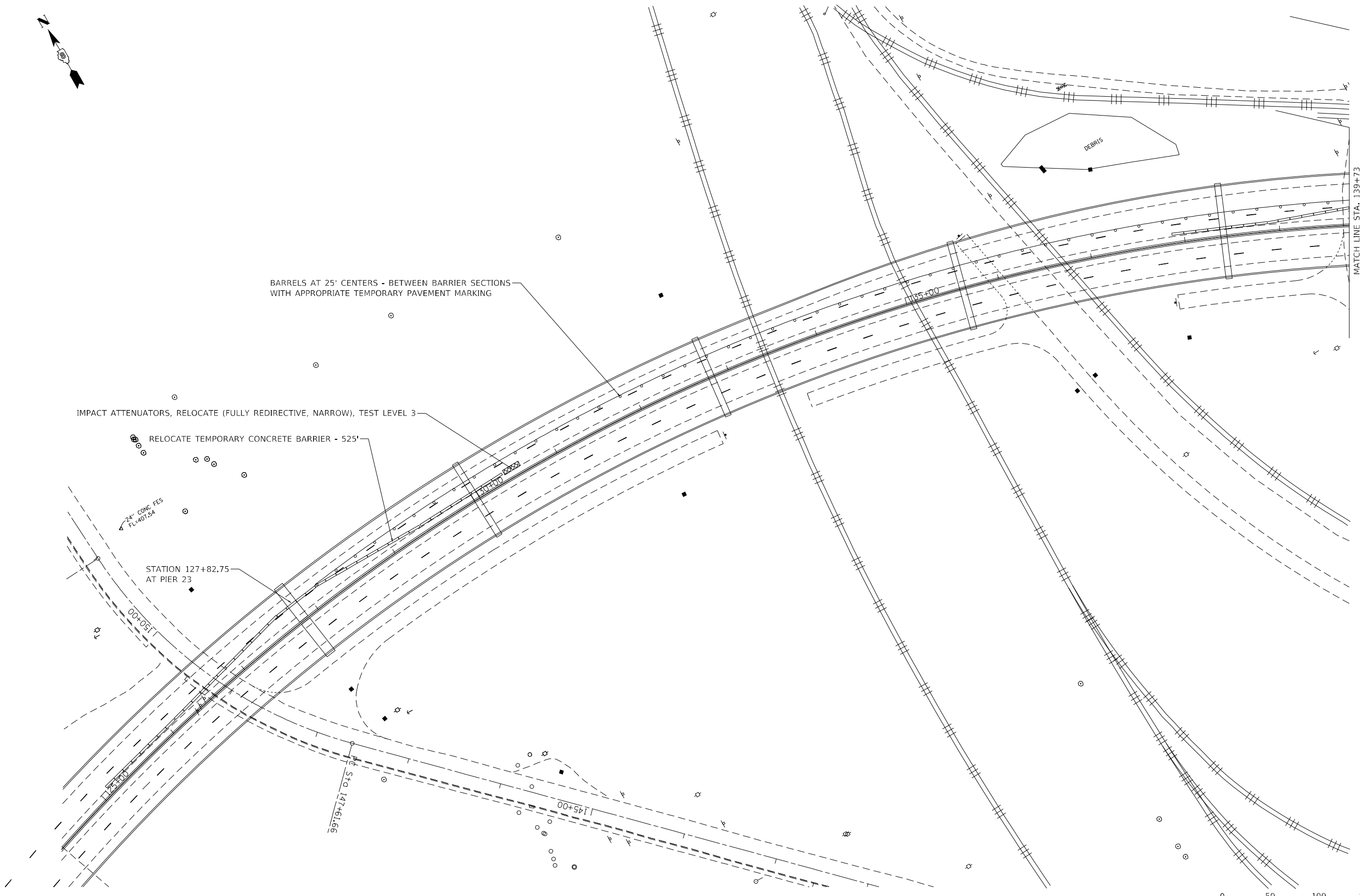
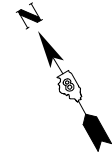
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	DRAWN -	REVISED -
PLOT SCALE = 200,0000' / in.	CHECKED -	REVISED -
PLOT DATE = 2/9/2021	DATE -	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**BARRIER LAYOUT**  
**STAGE 1**

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

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	16	6
CONTRACT NO. 76P44			ILLINOIS FED. AID PROJECT	



MATCH LINE STA. 139+73



SEE STANDARD 701402 FOR DETAILS NOT SHOWN.

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	DRAWN -	REVISED -
PLOT SCALE = 200,0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 2/9/2021	DATE -	REVISED -

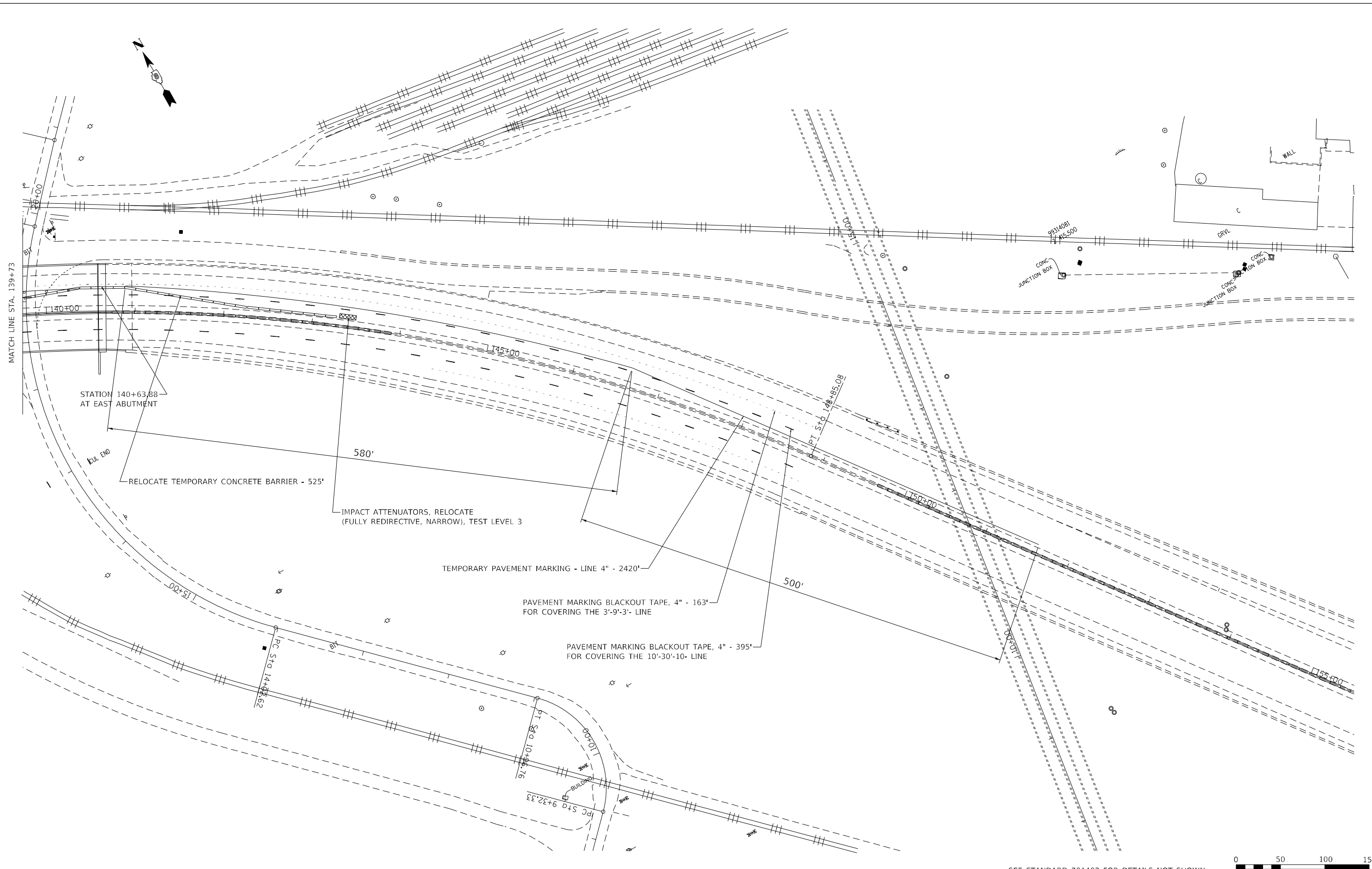
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>BARRIER LAYOUT STAGE 2</b>			
SCALE:	SHEET 1	OF 2 SHEETS	STA. TO STA.

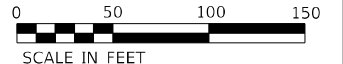
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	16	7
CONTRACT NO. 76P44				
ILLINOIS FED. AID PROJECT				



MODEL: Default  
 FILE NAME: p:\work\barroom.dwg  
 PROJECT: 82-2-1HVB-BJR-2  
 OFFICE: DISTRICT 8  
 PROJECT: 82-2-1HVB-BJR-2  
 OFFICE: DISTRICT 8  
 PROJECT: 82-2-1HVB-BJR-2



SEE STANDARD 701402 FOR DETAILS NOT SHOWN.



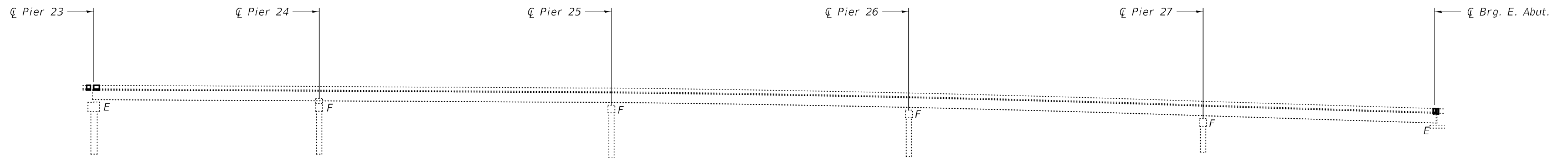
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	DRAWN -	REVISED -
PLOT SCALE = 200,0000' / in.	CHECKED -	REVISED -
PLOT DATE = 2/9/2021	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

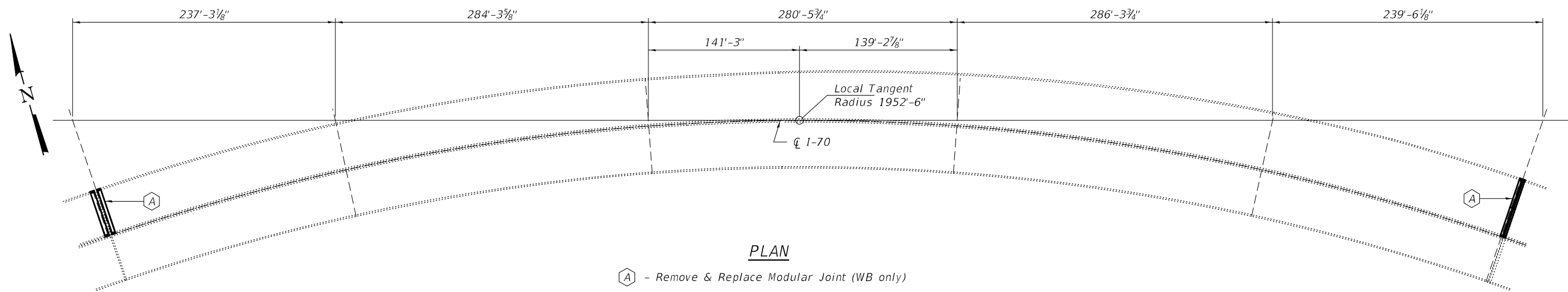
**BARRIER LAYOUT  
 STAGE 2**

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

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	16	8
CONTRACT NO. 76P44			ILLINOIS FED. AID PROJECT	



**ELEVATION**  
(Looking North)



**PLAN**

(A) - Remove & Replace Modular Joint (WB only)

**GENERAL NOTES**

All structural steel shall conform to AASHTO Classification M-270 Gr. 36, unless otherwise noted.

Reinforcement bars designated (E) shall be epoxy coated.

Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.

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.

Existing reinforcement bars extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.

The deck surface shall have its final finish tined according to Article 420.09(e)(1) of the Standard Specifications. Cost included with Concrete Superstructure.

Joint openings shall be adjusted according to Article 520.04 of the Std. Specs. when the deck is poured at an ambient temperature other than 50° F.

The steel components for the Modular Expansion Joints shall be hot-dip galvanized according to Special Provision "Hot Dip Galvanizing for Structural Steel".

Existing structure plans will be made available upon request.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Concrete Removal	Cu. Yd.	32.4
Concrete Superstructure	Cu. Yd.	32.4
Reinforcement Bars, Epoxy Coated	Pound	2120
Protective Coat	Sq. Yd.	64
Bar Splicers	Each	35
Modular Expansion Joint - Swivel 9"	Foot	55
Modular Expansion Joint - Swivel 24"	Foot	43



EXPIRES 11-30-2022

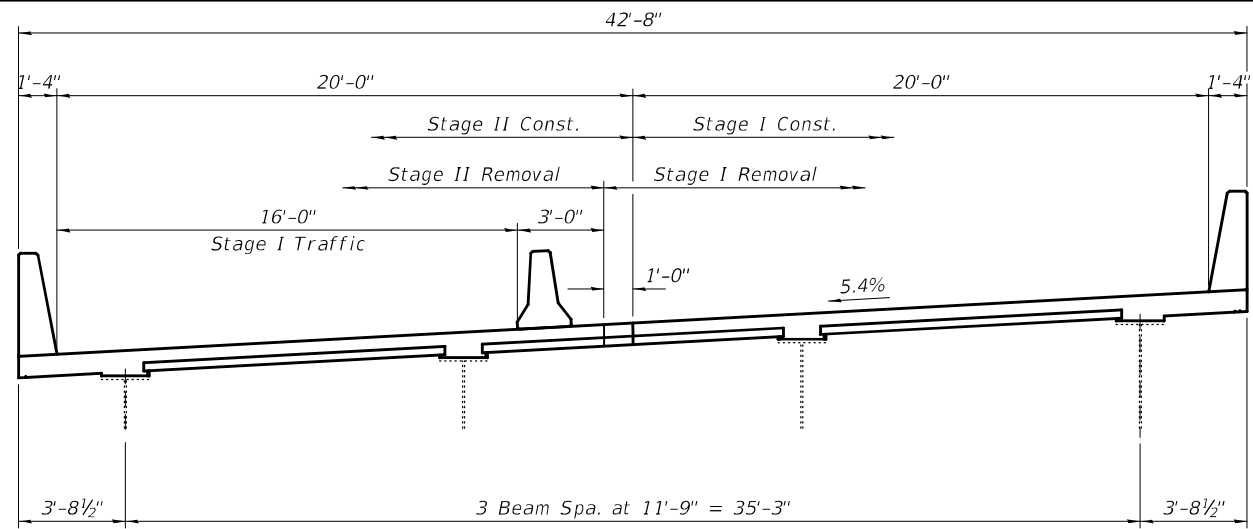
DESIGNED - Chi-Cheung Chau	EXAMINED - <i>Ting A. Rest</i>	DATE - MARCH 16, 2021
CHECKED - Jeffrey S. Burke	ENGINEER OF STRUCTURAL SERVICES	
DRAWN - <i>daburdell</i>	PASSED - <i>David Puze</i>	REVISED -
CHECKED - CCC JSB	ENGINEER OF BRIDGES AND STRUCTURES	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

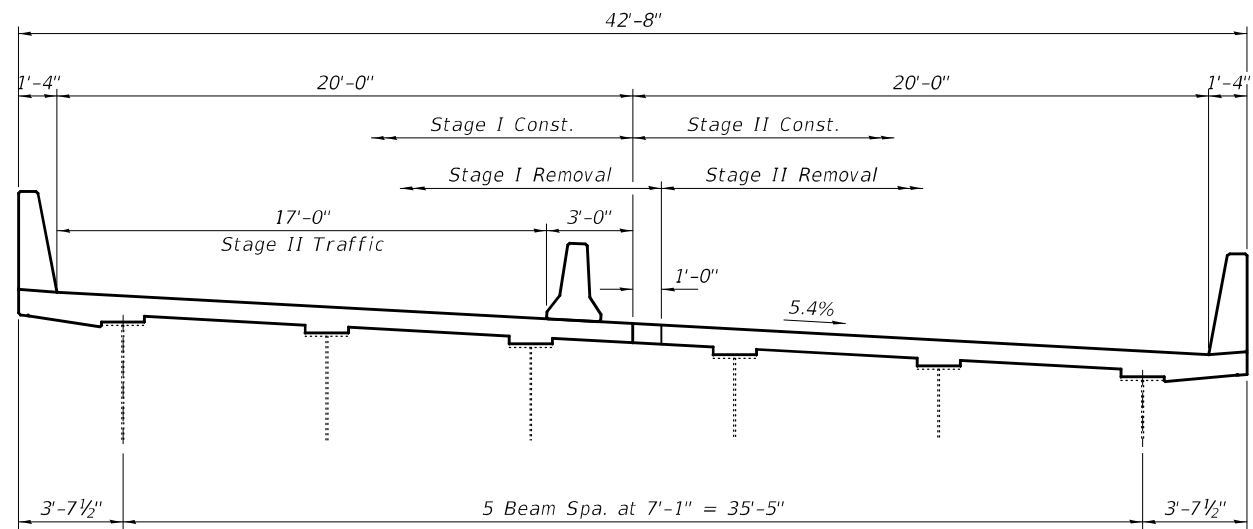
**GENERAL PLAN AND ELEVATION**  
**FAI 70 OVER MISSISSIPPI RIVER**  
**SN 082-0319 (WB)**

SHEET NO. 1 OF 8 SHEETS

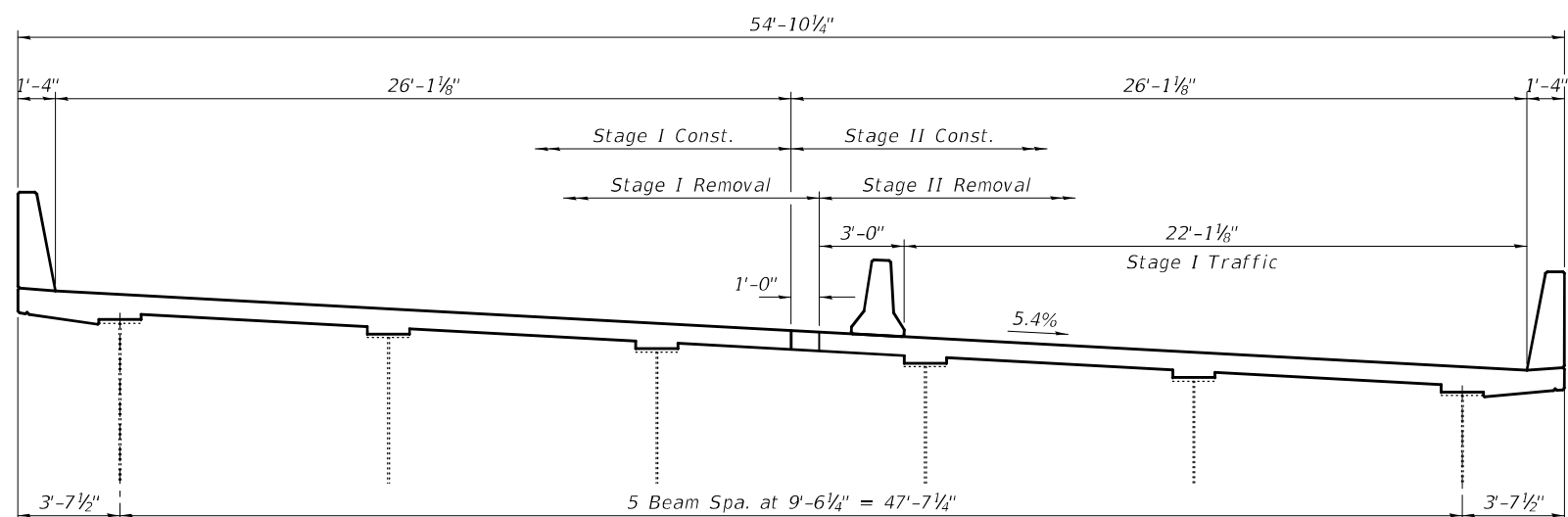
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	16	9
CONTRACT NO. 76P44				
ILLINOIS		FED. AID PROJECT		



**CROSS SECTION**  
Pier 23 - Looking West

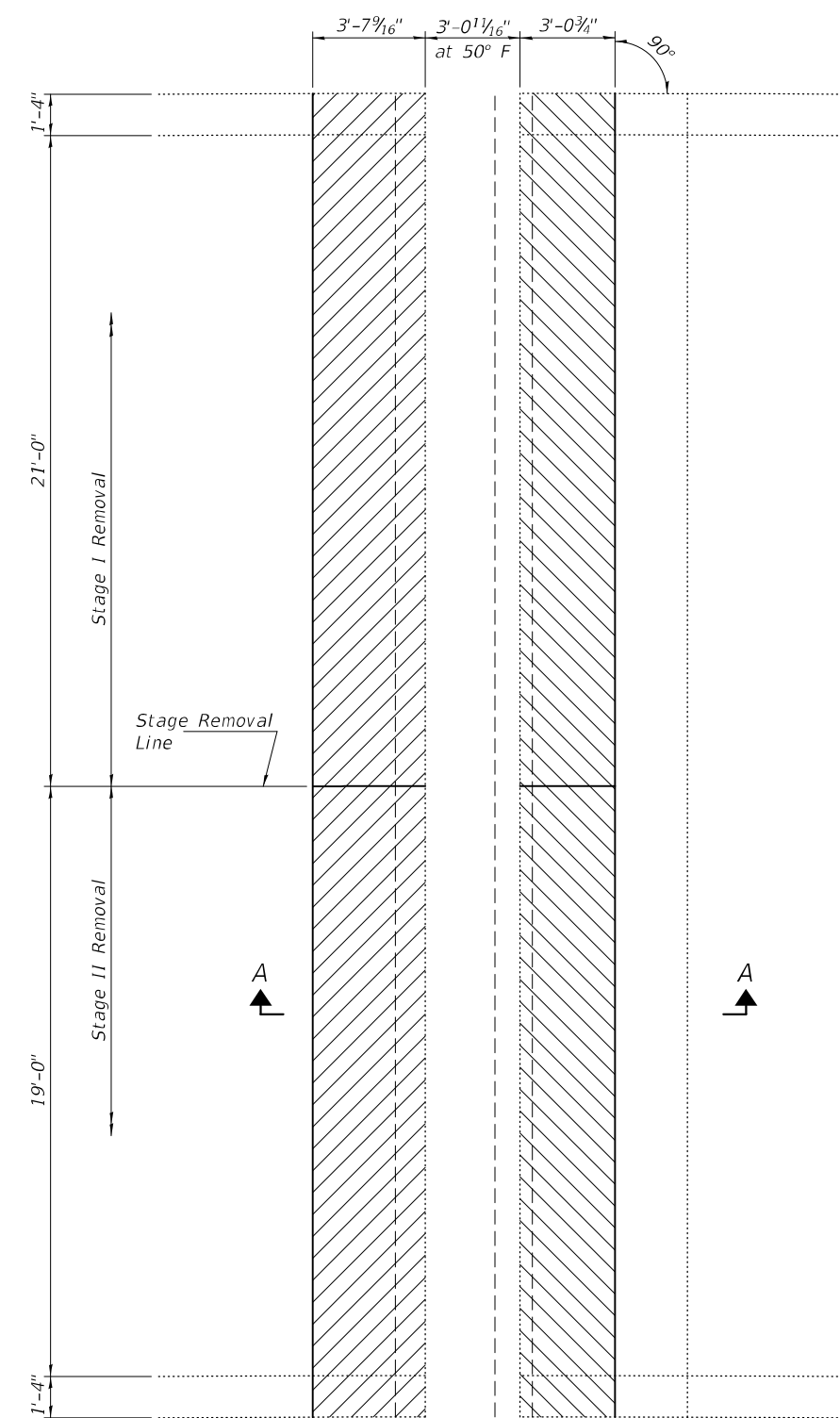


**CROSS SECTION**  
Pier 23 - Looking East

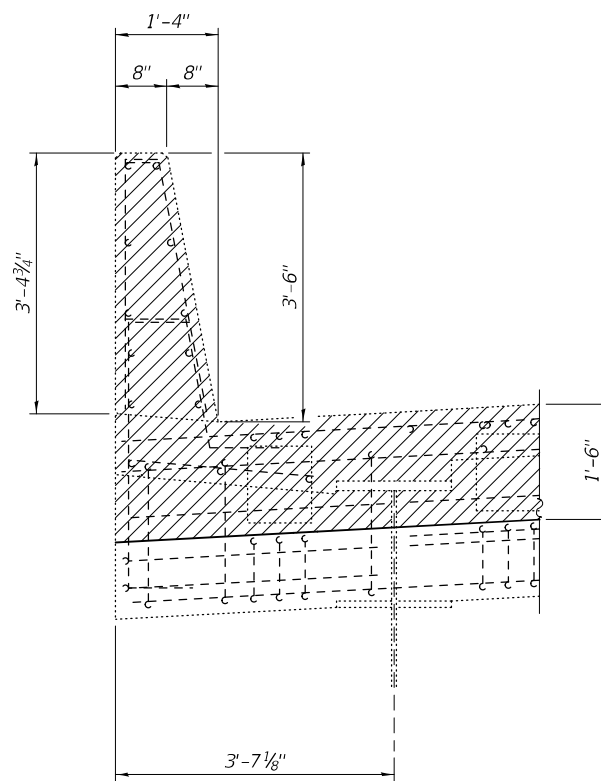


**CROSS SECTION**  
East Abut. - Looking East

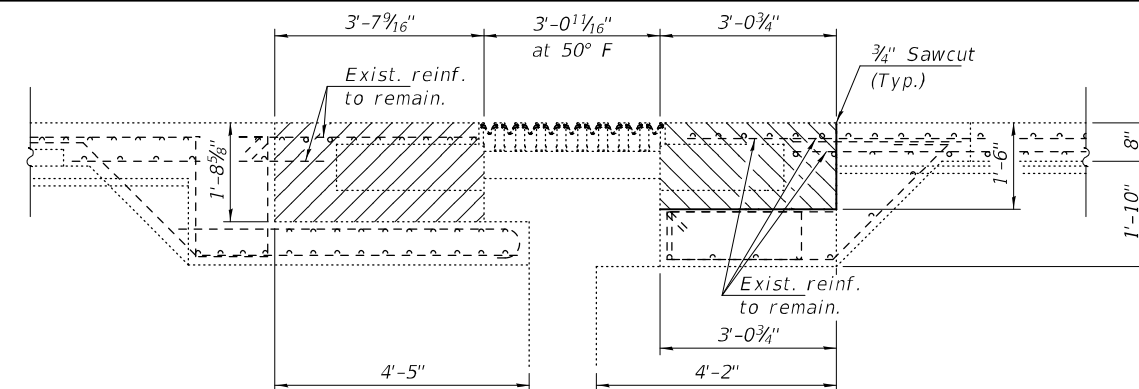
DESIGNED - CCC	EXAMINED - <i>Timothy A. Daburdell</i> ENGINEER OF STRUCTURAL SERVICES	DATE - MARCH 16, 2021	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>STAGE CONSTRUCTION DETAILS SN 082-0319 (WB)</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
CHECKED - JSB	PASSED - <i>Carl R. Roper</i> ENGINEER OF BRIDGES AND STRUCTURES	REVISED -			70	82-2-1HVB-BJR-2	ST. CLAIR	16	10	
DRAWN - <i>daburdell</i>		REVISED -			CONTRACT NO. 76P44					
CHECKED - CCC JSB					SHEET NO. 2 OF 8 SHEETS					
				ILLINOIS   FED. AID PROJECT						



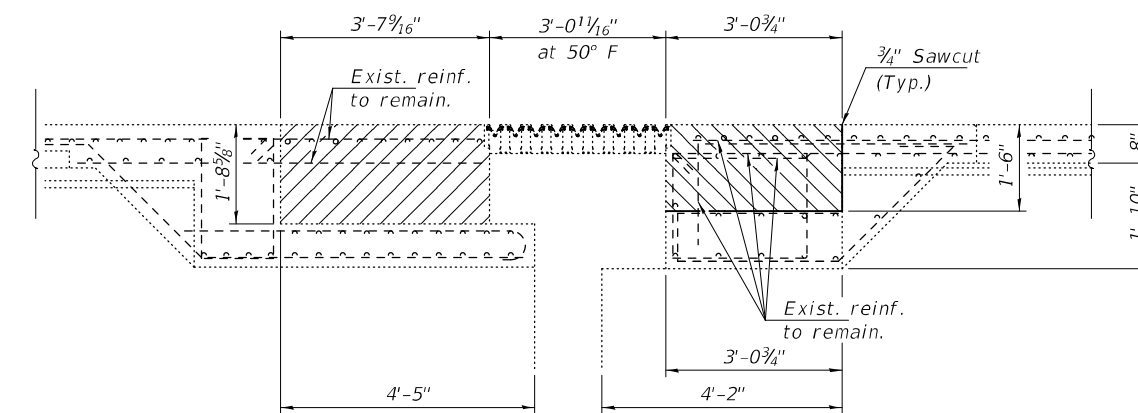
**CONCRETE REMOVAL DETAILS**  
Pier 23



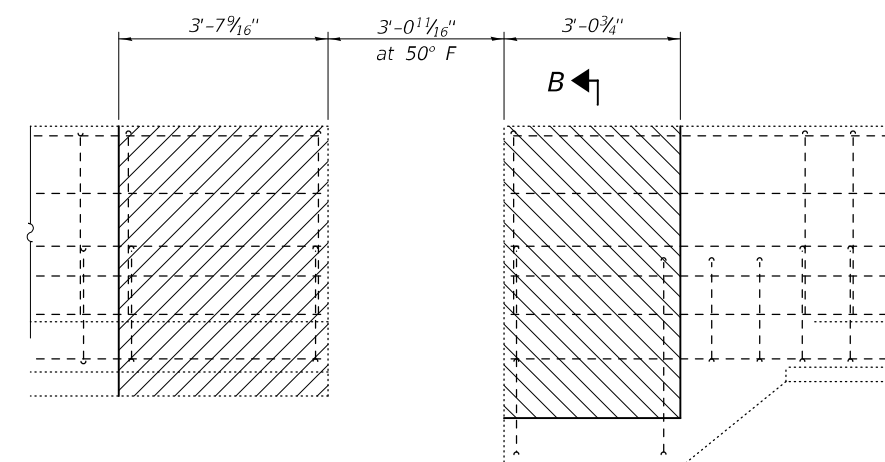
**SECTION B-B**



**SECTION A-A**  
(At Support Box)



**SECTION A-A**  
(Between Support Boxes)



**OUTSIDE VIEW AT SOUTH PARAPET**

Notes:  
Hatched areas indicate Concrete Removal.  
Cost of existing modular joint removal is included with Concrete Removal.

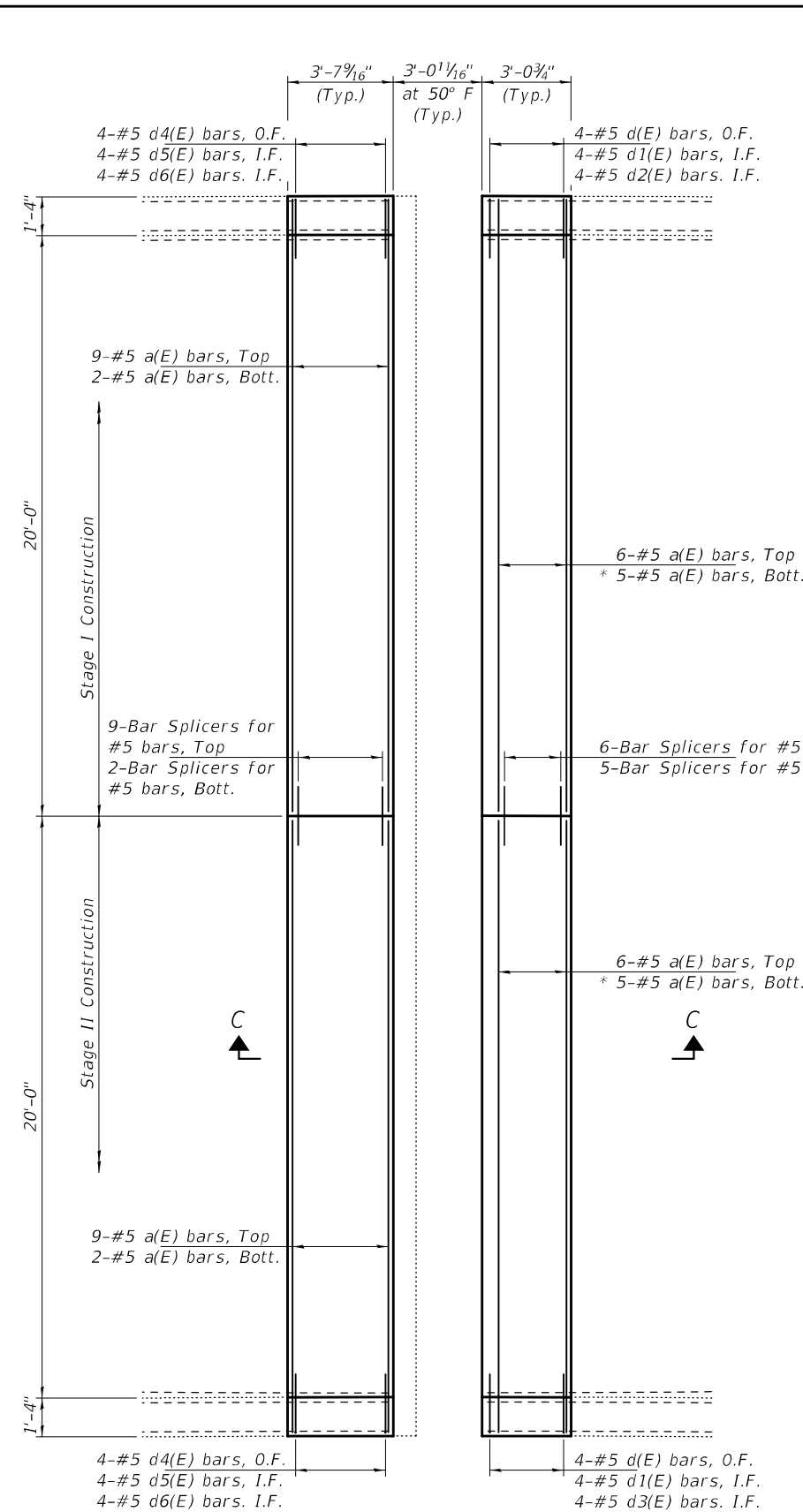
DESIGNED - CCC	EXAMINED - <i>Timothy A. Daburdell</i>	DATE - MARCH 16, 2021
CHECKED - JSB	PASSED - <i>Carl R. Meyer</i>	REVISED -
DRAWN - <i>daburdell</i>	ENGINEER OF BRIDGES AND STRUCTURES	REVISED -
CHECKED - CCC JSB		

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

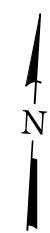
**JOINT REMOVAL DETAILS - PIER 23**  
**SN 082-0319 (WB)**

SHEET NO. 3 OF 8 SHEETS

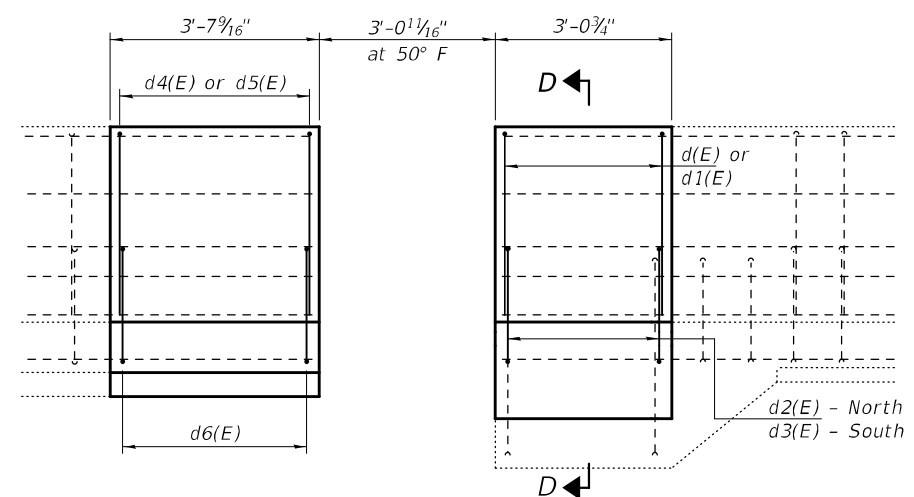
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	16	11
CONTRACT NO. 76P44				
ILLINOIS FED. AID PROJECT				



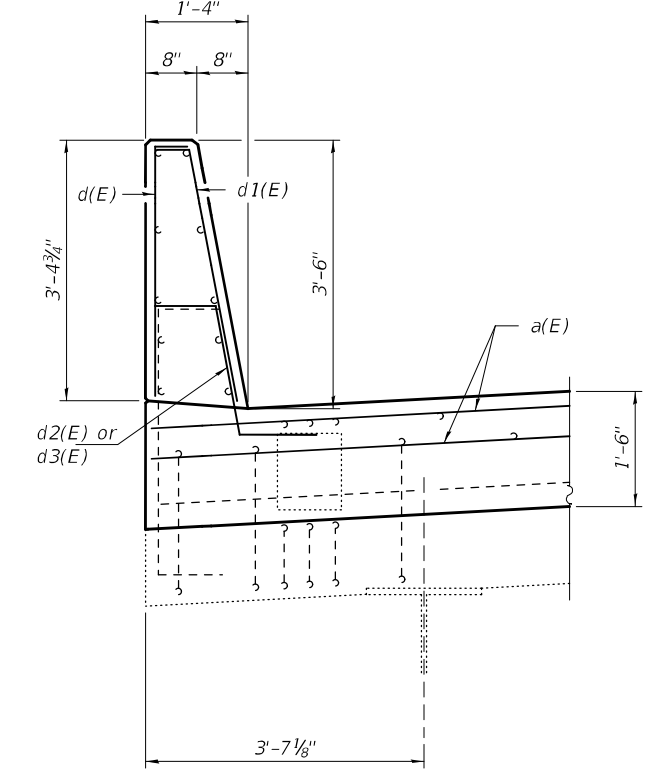
**CONCRETE REPLACEMENT DETAILS**  
Pier 23



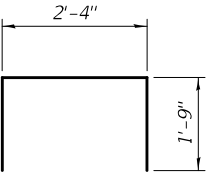
\* a(E) bars cut to fit between boxes.



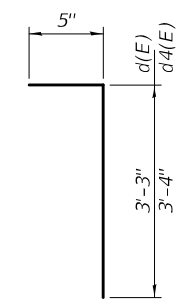
**OUTSIDE VIEW AT SOUTH PARAPET**  
(North Parapet similar, except as noted.)



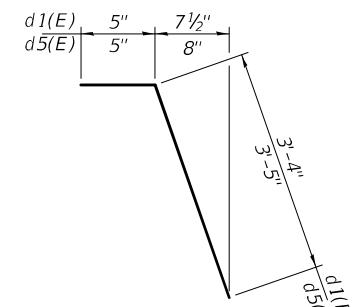
**SECTION D-D**



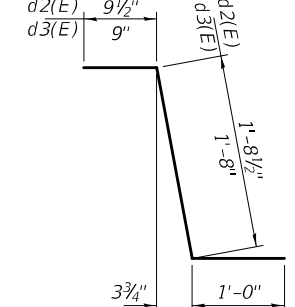
**BAR u(E)**



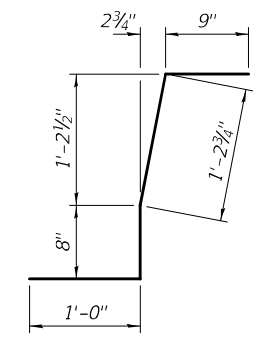
**BARS d(E) & d4(E)**



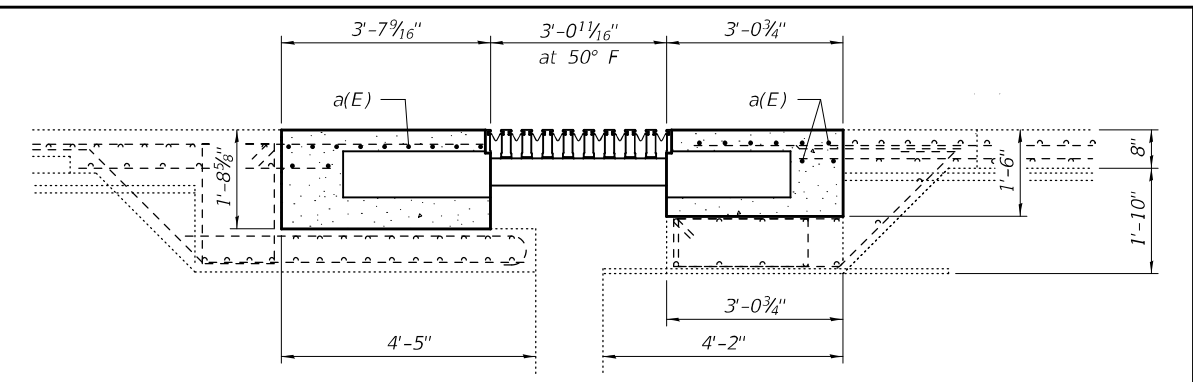
**BARS d1(E) & d5(E)**



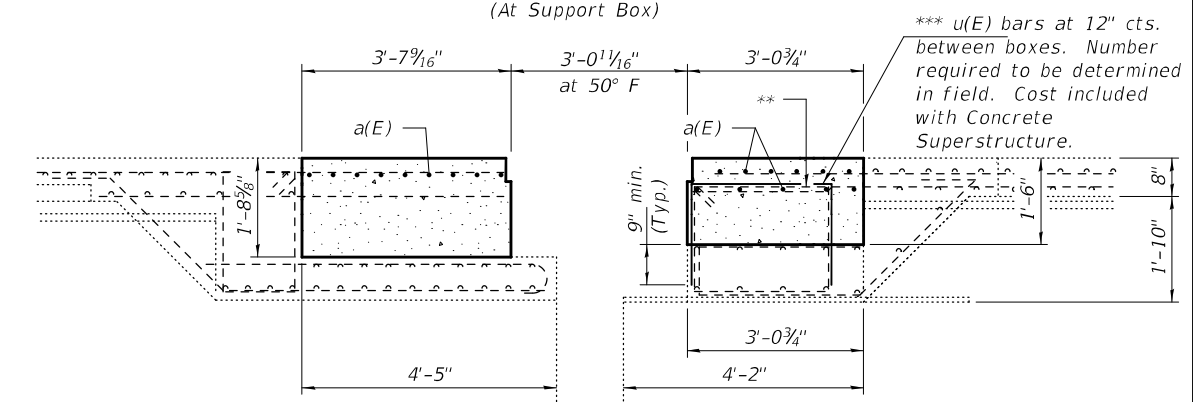
**BARS d2(E) & d3(E)**



**BARS d6(E)**



**SECTION C-C**  
(At Support Box)



**SECTION C-C**  
(Between Support Boxes)

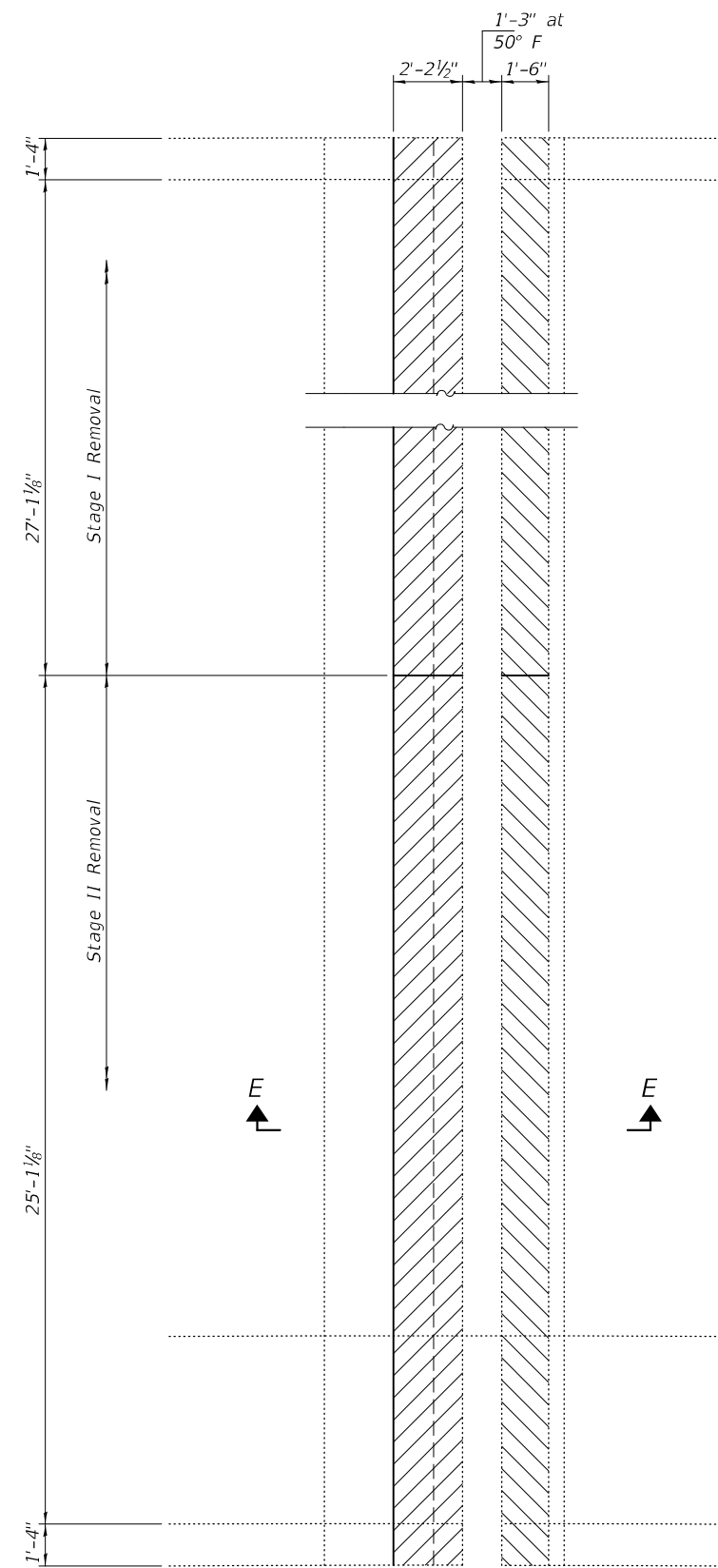
\*\* As required, cut existing stirrup flush only if it interferes with proposed support boxes. Number required to be determined in field. Cost included with Concrete Superstructure.

\*\*\* Epoxy grout u(E) bars in 9" min. holes according to Article 584 of the Standard Specifications.

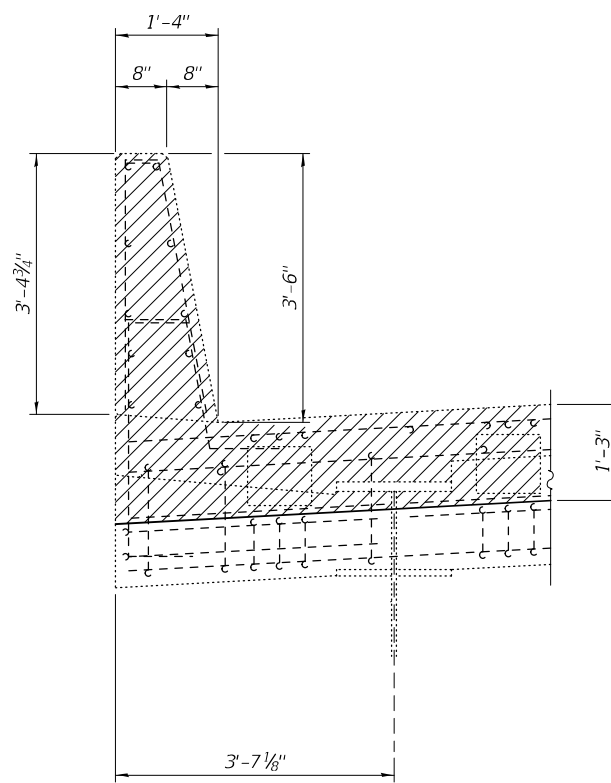
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a(E)	44	#5	21'-0"	—
d(E)	8	#5	3'-8"	┌
d1(E)	8	#5	3'-9"	└
d2(E)	4	#5	3'-6"	┘
d3(E)	4	#5	3'-5"	└
d4(E)	8	#5	3'-9"	┌
d5(E)	8	#5	3'-10"	└
d6(E)	8	#5	3'-8"	┘
Concrete Removal		Cu. Yd.	19.2	
Concrete Superstructure		Cu. Yd.	19.2	
Bar Splicers		Each	22	
Protective Coat		Sq. Yd.	38	
Reinforcement Bars, Epoxy Coated		Pound	1150	
Modular Expansion Joint - Swivel 24"		Foot	43	

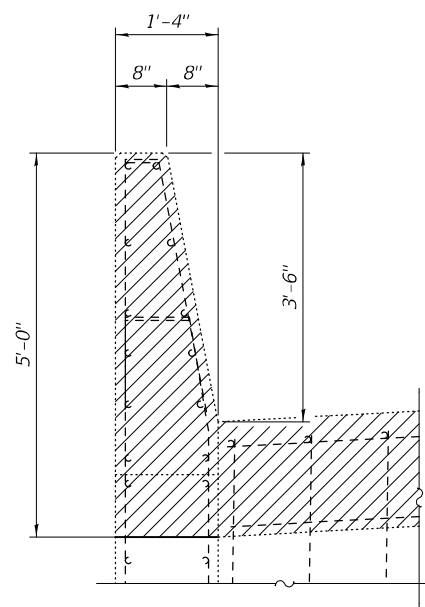
Placement of reinforcement within the joint block out needs to be coordinated with the joint manufacturer.



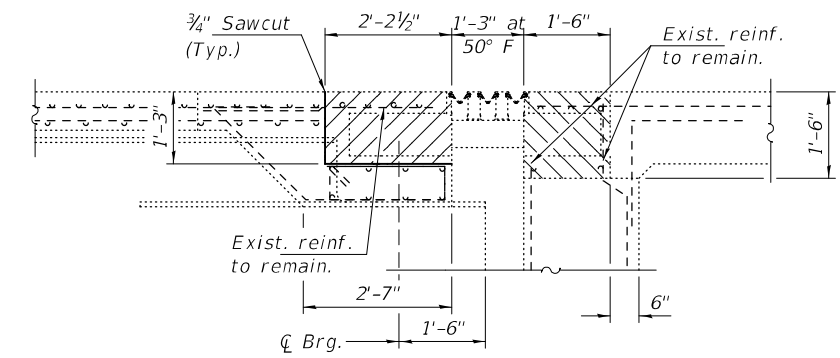
**CONCRETE REMOVAL DETAILS**  
(East Abutment)



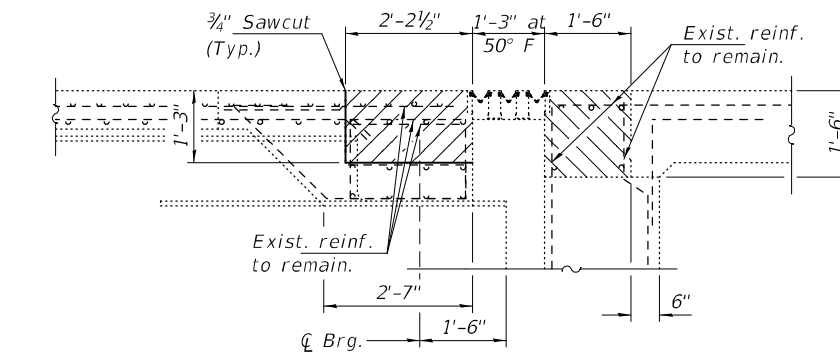
**SECTION F-F**



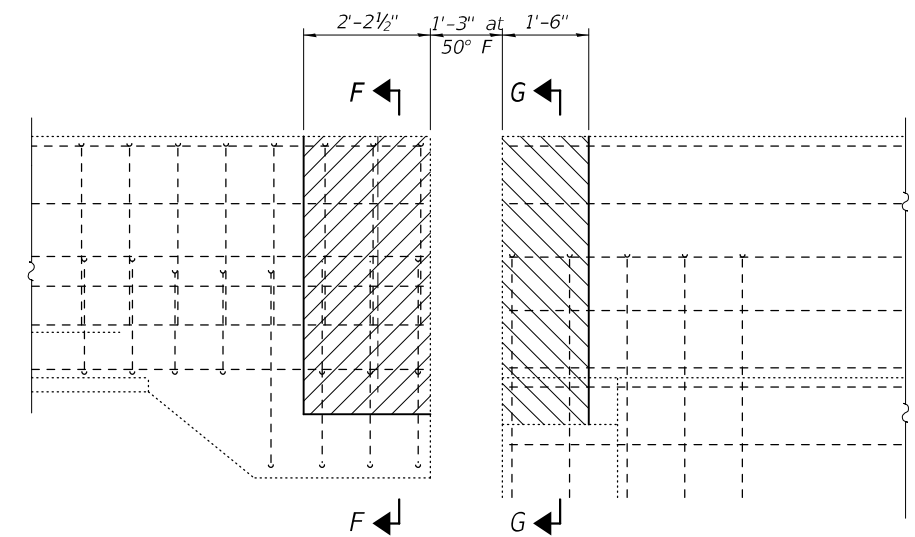
**SECTION G-G**



**SECTION E-E**  
(At Support Box)



**SECTION E-E**  
(Between Support Boxes)



**OUTSIDE VIEW AT EAST PARAPET**

Notes:  
Hatched areas indicate Concrete Removal.  
Cost of existing modular joint removal is included with Concrete Removal.

DESIGNED - CCC  
CHECKED - JSB  
DRAWN - daburdell  
CHECKED - CCC JSB

EXAMINED  
PASSED

Timothy A. Daburdell  
ENGINEER OF STRUCTURAL SERVICES

Carl R. Meyer  
ENGINEER OF BRIDGES AND STRUCTURES

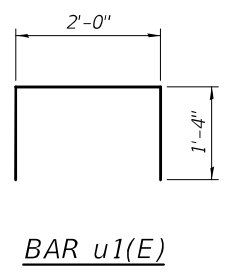
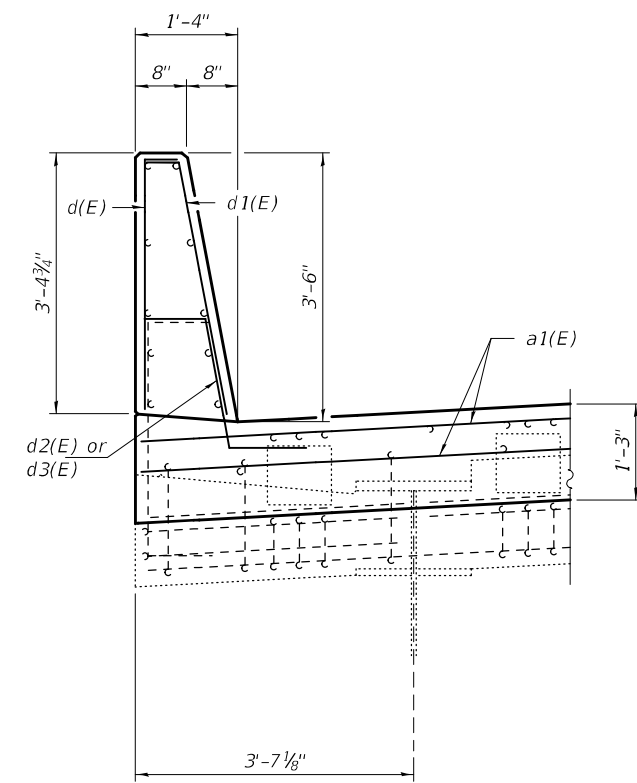
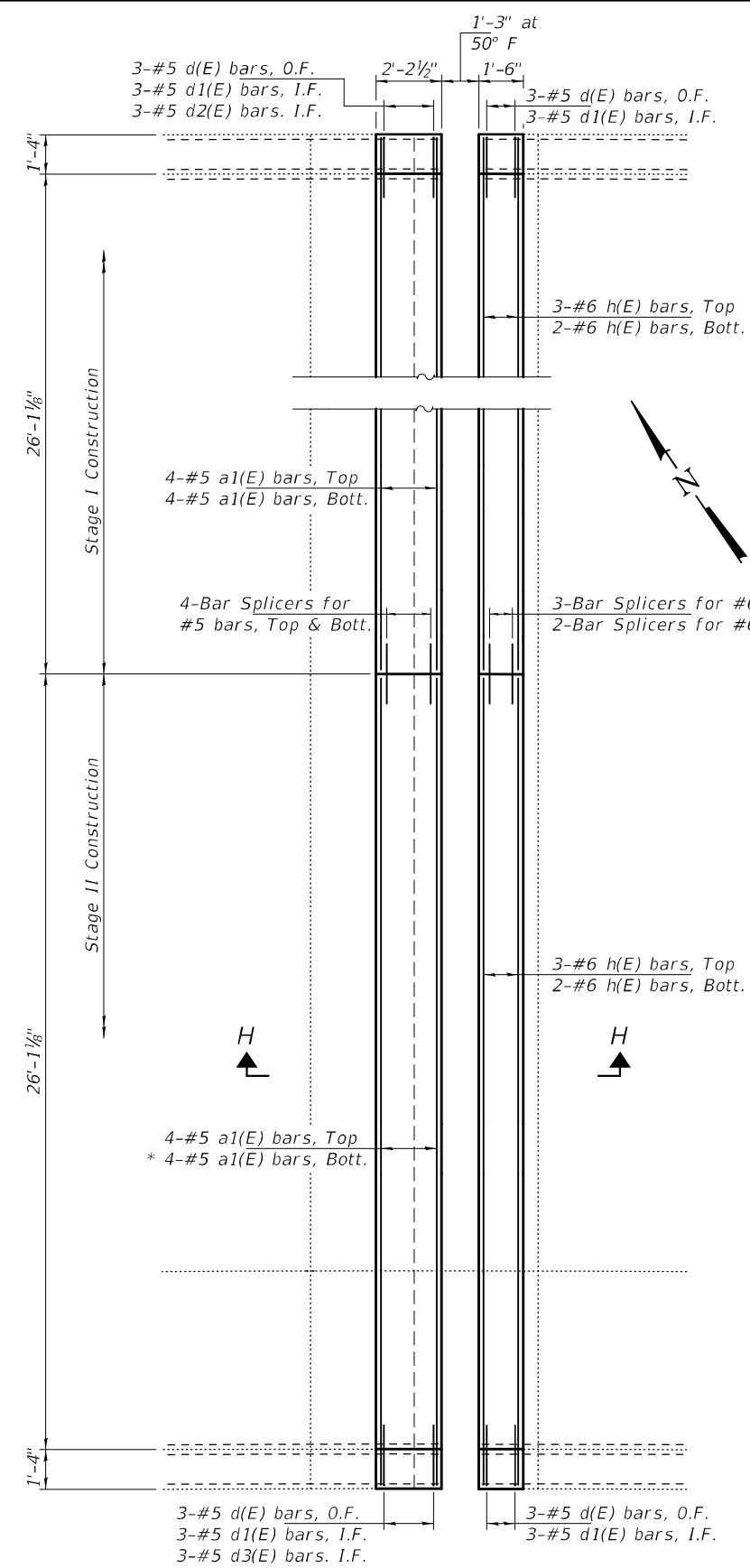
DATE - MARCH 16, 2021  
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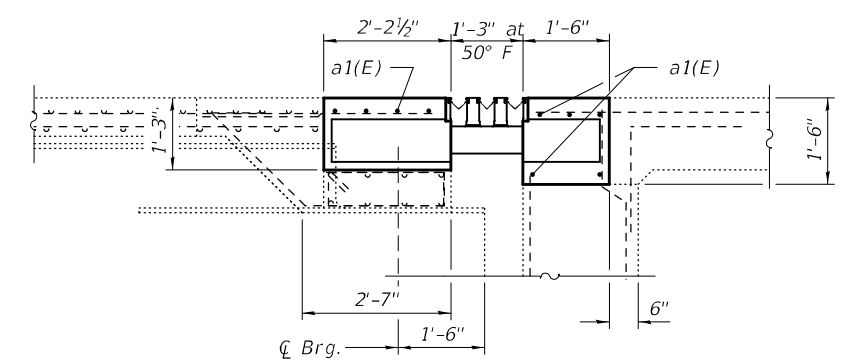
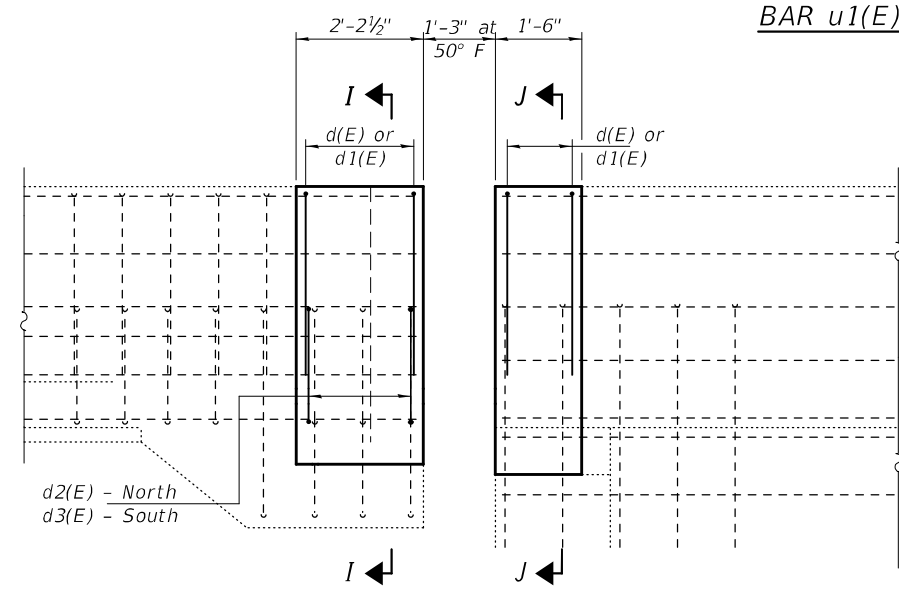
JOINT REMOVAL DETAILS - EAST ABUTMENT  
SN 082-0319 (WB)

SHEET NO. 5 OF 8 SHEETS

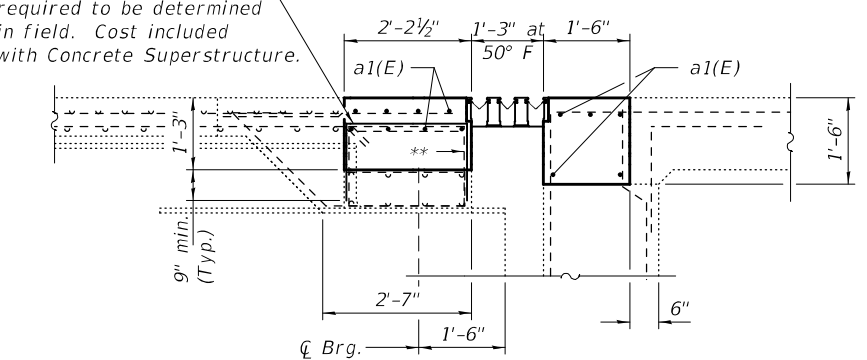
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	16	13
CONTRACT NO. 76P44				
ILLINOIS FED. AID PROJECT				



\* a1(E) and h(E) bars cut to fit between boxes.

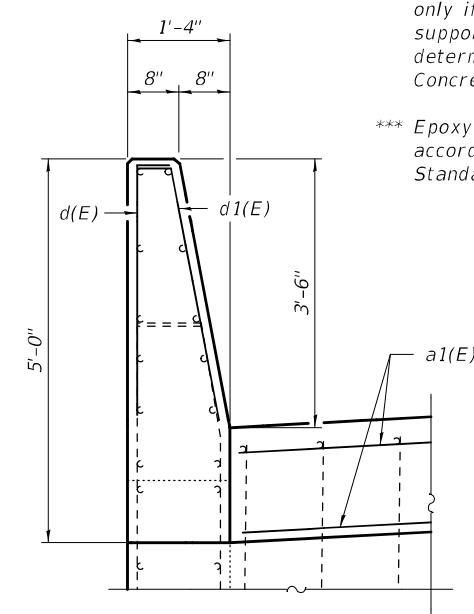


\*\*\* u1(E) bars at 12" cts. between boxes. Number required to be determined in field. Cost included with Concrete Superstructure.



\*\* As required, cut existing stirrup flush only if it interferes with proposed support boxes. Number required to be determined in field. Cost included with Concrete Superstructure.

\*\*\* Epoxy grout u1(E) bars in 9" min. holes according to Article 584 of the Standard Specifications.

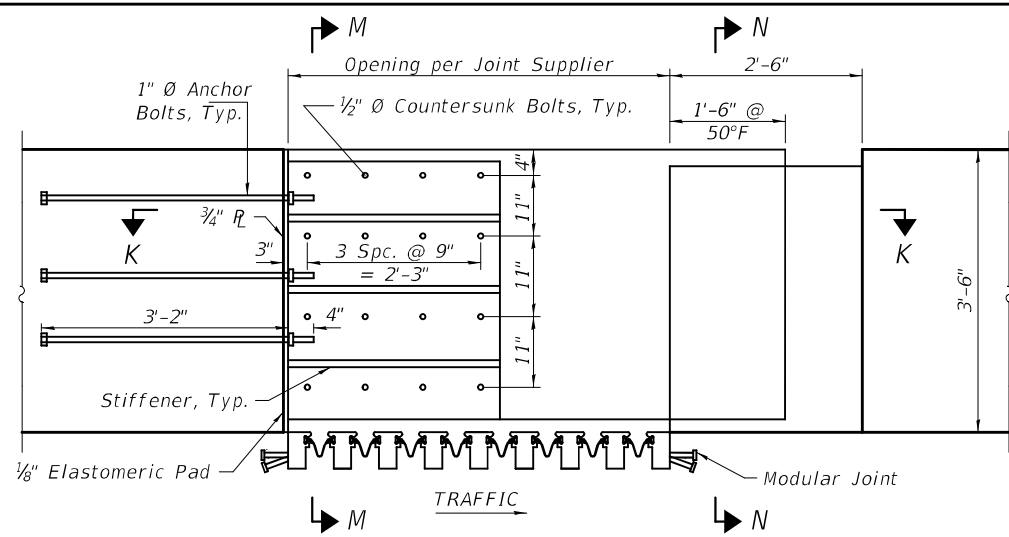


Note:  
See sheet 4 of 8 for bar bending diagrams.

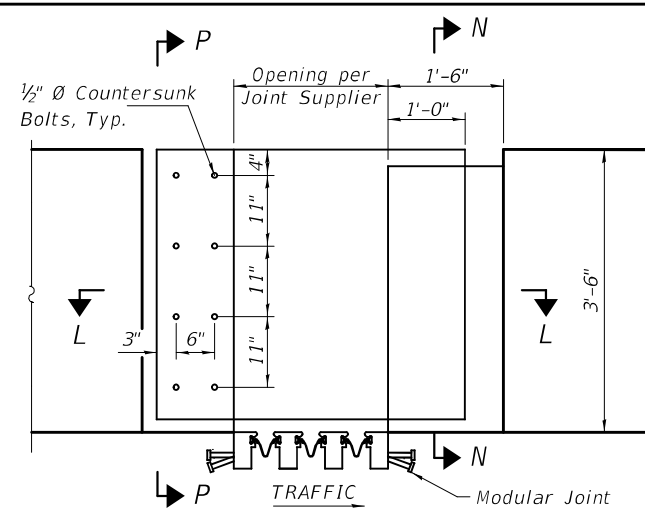
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a1(E)	16	#5	27'-1"	—
d(E)	12	#5	3'-8"	└
d1(E)	12	#5	3'-9"	└
d2(E)	3	#5	3'-6"	└
d3(E)	3	#5	3'-5"	└
h(E)	10	#6	27'-1"	—
Concrete Removal		Cu. Yd.	13.2	
Concrete Superstructure		Cu. Yd.	13.2	
Bar Splicers		Each	13	
Protective Coat		Sq. Yd.	26	
Reinforcement Bars, Epoxy Coated		Pound	970	
Modular Expansion Joint - Swivel 9"		Foot	55	

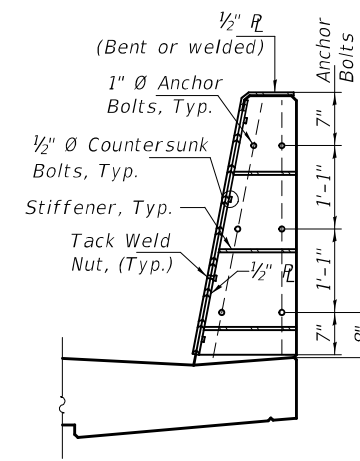
Placement of reinforcement within the joint block out needs to be coordinated with the joint manufacturer.



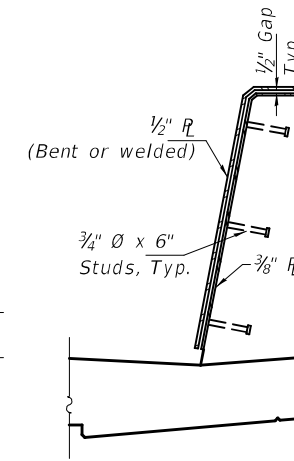
**BARRIER PLATE ASSEMBLY DETAIL AT PIER 23**



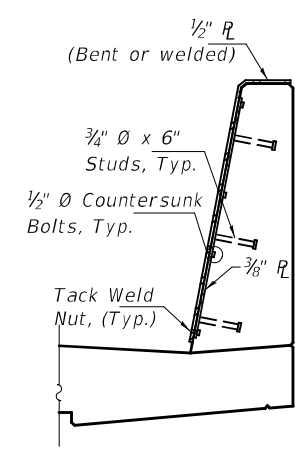
**BARRIER PLATE ASSEMBLY DETAIL AT EAST ABUTMENT**



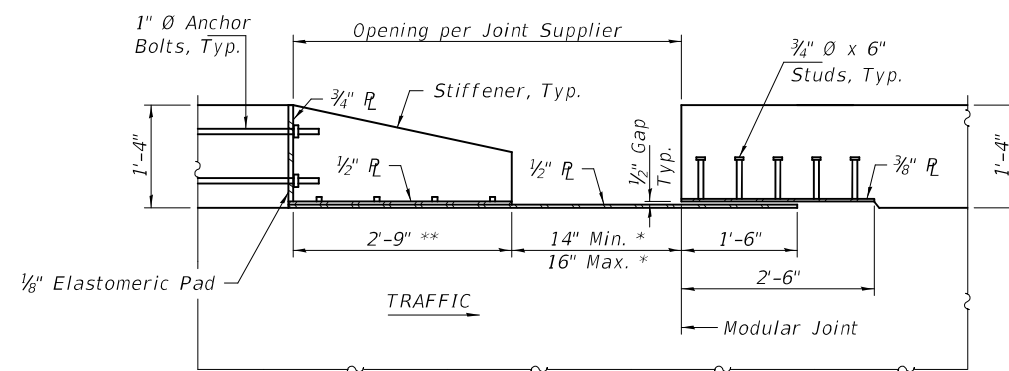
**SECTION M-M**  
(Inside Parapets)



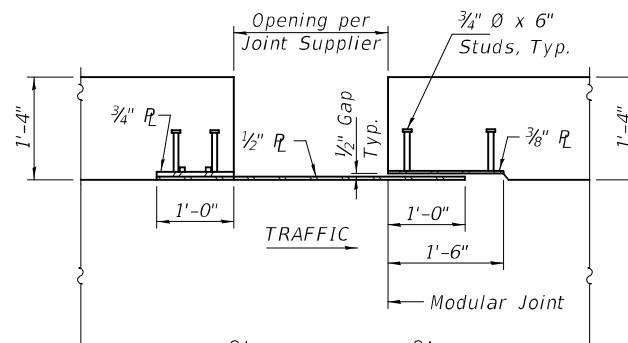
**SECTION N-N**  
(Inside Parapets)



**SECTION P-P**  
(Inside Parapets)

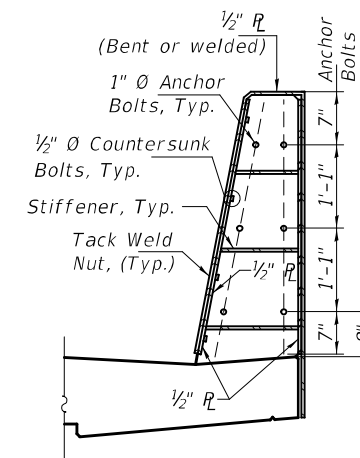


**SECTION K-K**  
(Inside Parapets)

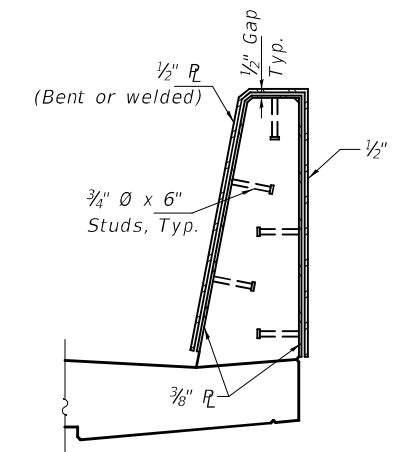


**SECTION L-L**  
(Inside Parapets)

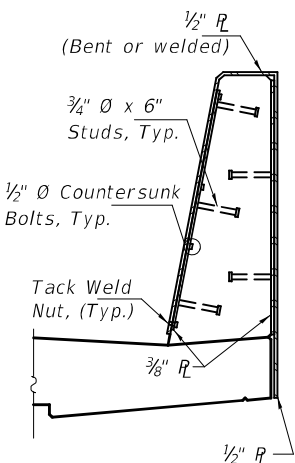
\* Dimensions for T = 50° F  
\*\* Contractor to verify with Joint Supplier



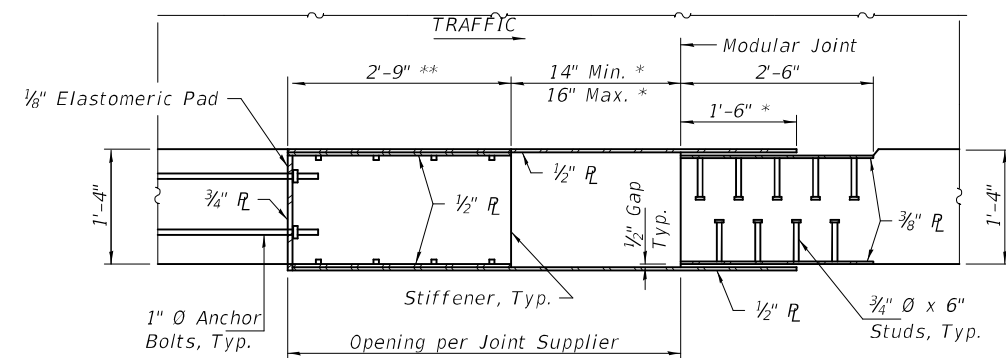
**SECTION M'-M'**  
(Outside Parapets)



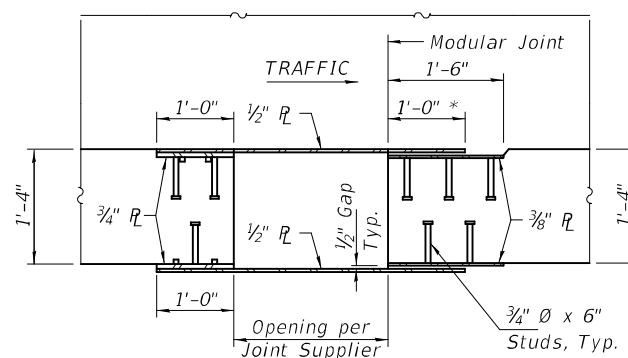
**SECTION N'-N'**  
(Outside Parapets)



**SECTION P'-P'**  
(Outside Parapets)



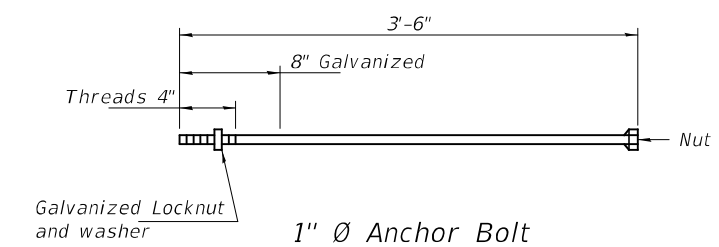
**SECTION K'-K'**  
(Outside Parapets)



**SECTION L'-L'**  
(Outside Parapets)

**Notes:**

1. Work this sheet with sheets 4 and 6 of 8.
2. Opening of 50°F is dependent upon modular expansion joint selection. Contractor is responsible for coordinating any revisions required due to deviations from dimensions shown.
3. All structural steel of the barrier plate assemblies shall be AASHTO M270 Grade 50 and galvanized according to AASHTO M111.
4. Payment for furnishing and installing the barrier plate assemblies shall be included of Modular Expansion Joints.
5. Plug end of nut to maintain void for bolt placement.
6. Countersunk bolts shall be in accordance with ASTM A307, Grade A.
7. Barrier plate assemblies shall be placed as shown for traffic direction, such that sliding plate is anchored on oncoming traffic side of joint.



**1" Ø Anchor Bolt**

DESIGNED - CCC  
CHECKED - JSB  
DRAWN - daburdell  
CHECKED - CCC JSB

EXAMINED  
PASSED  
ENGINEER OF STRUCTURAL SERVICES  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - MARCH 16, 2021  
REVISED -  
REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

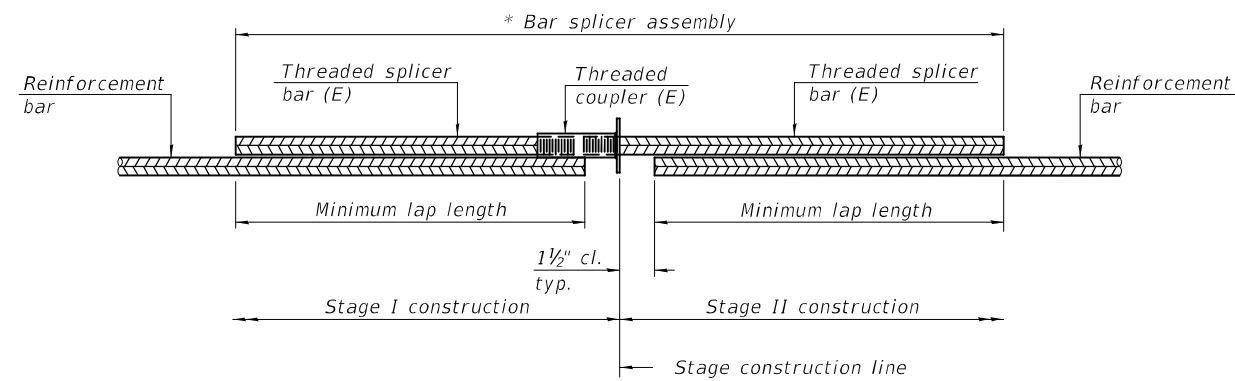
**SLIDING PLATE DETAILS**  
**SN 082-0319 (WB)**

SHEET NO. 7 OF 8 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	16	15
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ILLINOIS FED. AID PROJECT





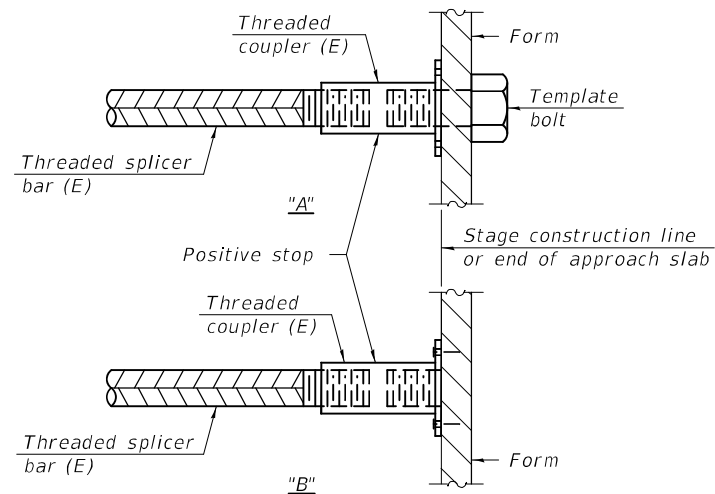
**STANDARD BAR SPLICER ASSEMBLY PLAN**

(All components shall be provided from one supplier)

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
Deck	#5	22	3'-6"
N. Abut.	#6	13	4'-0"

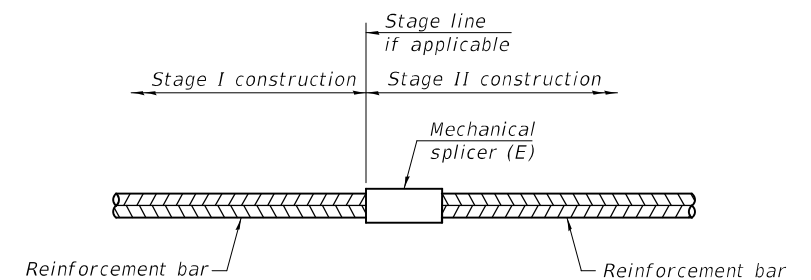


**INSTALLATION AND SETTING METHODS**

"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

**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.

BSD-1

1-1-2020

DESIGNED - CCC  
 CHECKED - JSB  
 DRAWN - daburdell  
 CHECKED - CCC JSB

EXAMINED  
 PASSED  
*Timothy A. Anderson*  
 ENGINEER OF STRUCTURAL SERVICES  
*Carl R. Rieger*  
 ENGINEER OF BRIDGES AND STRUCTURES

DATE - MARCH 16, 2021  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS  
 SN 082-0319 (WB)

SHEET NO. 8 OF 8 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-2-1HVB-BJR-2	ST. CLAIR	16	16
CONTRACT NO. 76P44				

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