## 07-31-2015 LETTING ITEM 045

FOR INDEX OF SHEETS, SEE SHEET NO. 2

#### TRAFFIC DATA

<u>IL 15 TRAFFIC DATA</u> 2013 ADT = 7,100

5 % TRUCKS

#### **TOWNSHIP:**

**MOUNT VERNON** 

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

# PROPOSED HIGHWAY PLANS

FAP 821 (IL 15) OVER CASEY FORK D9 CM BRIDGE REPAIR 2015-2 JEFFERSON COUNTY

C-99-061-14



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

PROJECT ENGINEER: T. WAYNE HALSTEAD PROJECT MANAGER: DAVID PICHE (618) 351-5227 GROSS LENGTH = 336 FT. NET LENGTH = 336 FT.

**CONTRACT NO. 78432** 

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## PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

#### **GENERAL NOTES**

- 1) THE THICKNESS OF HOT-MIX ASPHALT MIXTURE SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE HOT-MIX ASPHALT MIXTURE IS PLACED.
- 2) FACTORS USED FOR ESTIMATING PLAN QUANTITIES ARE AS FOLLOWS AND SHALL NOT BE USED FOR THE BASIS OF FINAL QUANTITIES:

ALL HOT MIX ASPHALT	2.016 TONS/CU YD
BITUMINOUS MATERIALS:	
ON PAVEMENT	0.05 POUND/SO FT

- 3) THE ADVANCE DETECTOR LOOPS ARE TYPICALLY LOCATED 275 FEET IN ADVANCE OF THE STOP BAR. THE BUREAU OF OPERATIONS SHOULD APPROVE THE LOOP LOCATIONS PRIOR TO INSTALLATION.
- 4) IN ADDITION TO THE REQUIREMENTS OF ARTICLE 107.16 THE CONTRACTOR SHALL PROTECT THE SURFACE OF ALL BRIDGE DECKS AND BRIDGE APPROACH PAVEMENTS IN A MANNER SATISFACTORY TO THE ENGINEER BEFORE ANY EQUIPMENT IS ALLOWED TO CROSS THE STRUCTURE. PROTECTION SHALL BE PROVIDED FOR ALL EQUIPMENT AS DEFINED IN ARTICLE 101.16 REGARDLESS IF TRACK MOUNTED OR WHEELED.
- 5) TRIM EDGES OF EXISTING HOT MIX ASPHALT SURFACE FLUSH WITH EXISTING PAVEMENT PRIOR TO CONSTRUCTING NEW BASE COURSE WIDENING.
- 6) IF THE CONTRACTOR ELECTS TO USE P.C.C. BASE COURSE WIDENING, SUCH WIDENING SHALL BE PRIMED ACCORDING TO ARTICLE 406.02, EXCEPT THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WIDENING.
- 7) THE CENTERLINE PAVEMENT MARKING SHOULD BE REMOVED FROM THE STOP BAR TO THE SAND ATTENUATORS OR DRUMS. EDGE LINE PAVEMENT MARKING SHOULD BE REMOVED IF A 10 FOOT LANE WIDTH CANNOT BE MAINTAINED. TEMPORARY EDGE LINES SHOULD BE INSTALLED WHEN THE EDGE LINES ARE REMOVED.
- 8) ANY TIME THE CONCRETE BARRIER IS NOT IN THE PROPER POSITION, FLAGGERS SHALL BE IN PLACE TO CONTROL TRAFFIC. THE TEMPORARY TRAFFIC SIGNALS SHALL BE SET TO FLASH ALL RED.

9) COMMITMENTS: NONE AS OF MAY 8. 2015.

#### MIXTURE REQUIREMENTS

Location(s):	Base Course Widening
Mixture Use(s):	Hot-Mix Asphalt Binder Course, N90, IL-19.0mm Fine Grade
AC/PG:	PG64-22
ABR % (Max):	See Special Provision
Design Air Volds:	4.0%, 90 Gyration Design
Mixture Composition: (Gradation Mixture)	IL-19.0mm Fine Grade
Friction Aggregate:	None
Quality Management Program:	OCOA

Location(s):	Hot-Mix Asphalt Surface Course
Mixture Use(s):	Hot-Mix Asphalt Surface Course, Mix E, N70 Fine Graded
AC/PG:	PG64-22
ABR % (Max):	See Special Provision
Design Air Voids:	4.0 %, 70 Gyration Design
Mixture Composition: (Gradation Mixture)	IL-9.5 mm Fine Graded
Friction Aggregate:	E Surface
Quality Management Program:	OCOA

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701321-14

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#### **INDEX OF SHEETS**

1	COVER SHEET
2	INDEX OF SHEETS: GEN
3-5	SUMMARY OF QUANTITIES
6	GENERAL PLAN AND ELE
7	STAGING TYPICAL SECT
8	STAGING DETAILS
9	JOINT REPAIR DETAILS
10	EAST ABUTMENT BEARING
11	WEST ABUTMENT BEARING
12	PREFORMED JOINT STRIN
13	SUBSTRUCTURE REPAIR
14	Temp. Concrete
15	Butt Joint Det

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TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS
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                                     821
                                                                CONTRACT NO. 78432
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	SUMMARY OF OUANTITIES		100% STATE
	JUNIMARY OF QUARTITLS		RURAL
			FAP 821 IL 15
CODE	ITEM DESCRIPTION	IINTT	ROADWAY
NUMBER			0014
35650500	BASE COURSE WIDENING 10"	SO YO	164
40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	210
•			
40600982	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SO YD	200
40600990	TEMPORARY RAMP	SO YD	53
50102400	CONCRETE REMOVAL	CU YD	12. 2
50300255	CONCRETE SUPERSTRUCTURE	CU YD	13. 1
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	2510
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	1240
		-	
50800515	BAR SPLICERS	EACH	24
52000110	PREFORMED JOINT STRIP SEAL	FOOT	93
52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	8
		· · · · · · · · · · · · · · · · · · ·	
52100020	ELASTOMERIC BEARING ASSEMBLY. TYPE II	EACH	8

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CODE NUMBER	ITEM DESCRIPTION	UNIT	ROADWAY OO14
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52100520	ANCHOR BOLTS, 1"	EACH	32
58100200	WATERPROOFING MEMBRANE SYSTEM	SO YD	633
67100100	MOBILIZATION	L SUM	1
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	 I
	· · ·		······
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	LSUM	l
70100500	TRAFFIC CONTROL AND PROTECTION, STANDARD 701326	LSUM	1
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	4
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	2
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	1
70300100	SHORT TERM RAVEMENT MARKING	FOOT	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
		FUUT	
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	1440
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SO FT	502
			······
70400100	TEMPORARY CONCRETE BARRIER	FOOT	375
<u>,</u>	l		······

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			FAP 821 IL 15
CODE	ITEN DESCRIPTION	EINET	ROADWAY
NUMBER	TIEW DESCRIPTION	UNI	0014
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	350
70600250	IMPACT ATTENUATORS. TEMPORARY (NON- REDIRECTIVE), TEST LEVEL 3	EACH	2
70600350	IMPACT ATTENUATORS, RELOCATE (NON- REDIRECTIVE), TEST LEVEL 3	EACH	2
	· ·		
78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1440
78100100	RAISED REFLECTIVE PAVEMENT MARKER	EACH	2
78100105	RAISED REFLECTIVE PAVEMENT MARKER (BRIDGE)	EACH	2
	· · · ·		
78300100	PAVEMENT MARKING REMOVAL	SO FT	280
78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	2
86200300	UNINTERRUPTABLE POWER SUPPLY, EXTENDED	EACH	1
Z0001899	JACK AND REMOVE EXISTING BEARINGS	EACH	16
20012754	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SO FT	39
	· · · · · ·		
KHO103392	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5FG, N70	TON	74

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			* SPECIALTY ITEM				
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#### GENERAL NOTES

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,

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.

Prior to pouring the new concrete deck section, 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.

All structural steel shall be shop painted with inorganic zinc rich primer per AASHTO M300, Type 1. Cost Included with Furnishing and Erecting Structural Steel. If the analysis submitted to the Contractor for the jacking/temporary support system to be used show temporary stiffeners are required to prevent web crippling or buckling, the stiffeners shall be steel and balled to the web. If stiffeners are not required, hardwood timbers shall be installed tightly between the top and bottom flange to prevent flange rotation.

The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project. Existing structural steel shall only be cleaned and painted as required by the Special Provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".

Structures: 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. Reinforcement bars designated (E) shall be epoxy coated.

No field welding is permitted except as specified in the contract documents. All structural steel shall be AASHTO M 270 Grade 36 unless otherwise noted.

#### TOTAL BILL OF MATERIAL

ITEM	UNIT	OUANITY
Hot-Mix Asphalt Surface Course, IL-9.5FG, N70	Ton	74
Waterproofing Membrane System	Sq. Yd.	633
Bituminous Materiais (Prime Coat)	Pound	210
Hot-Mix Asphalt Surface Removal-Butt Joint	Sq. Yd.	200
Reinforcement Bars, Epoxy Coated	Pound	1240
Bar Splicers	Each	24
Preformed Joint Strip Seal	Foot	93
Elastomeric Bearing Assembly, Type I	Each	8
Elastomeric Bearing Assembly, Type II	Each	8
Jock and Remove Existing Bearings	Each	16
Furnishing and Erecting Structural Steel	Pound	2510
Anchor Bolts 1" Ø	Each	32
Concrete Removal	Cu. Yd.	12.2
Concrete Superstructure	Cu. Yd.	13.1
Structural Repair of Concrete (Depth < 5 Inches)	Sq. Ft.	39

BRIDGE REPAIR IL 15 (FAP 821) OVER CASEY FORK JEFFERSON COUNTY D9 CM BRIDGE REPAIR 2015-2 STA. 19+95.00 SN 041-0026

\* D9 CM BRIDGE REPAIR 2015-2

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		821		*	JEFFERSON	15	6~	
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		821	•		JEFFERSON	15	7	
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DETAILS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	821	*	JEFFERSON	15	8
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PLOT SCALE = 8.0000 ′ / m. CHECKED · REVISED **DEPARTMENT OF TRANSPORTATION** SCALE: SHEET 4 OF 8 SHEET PLOT DATE = 5/8/2015 DATE REVISED

Bar	No.	Size	Length	Shape
a(E)	32	#5	21'-6''	
a <sub>2</sub> (E)	12	#6	4'-0''	
d(E)	12	#5	5′-4′′	J
$d_1(E)$	12	#5	3'-10''	J
h(E)	16	#5	20'-0''	
Bar Sp	licers		Each	24
Concre. Supers	Concrete Superstructure			13.1
Concrete Removal			Cu Yd	12.2
Reinforcement Bars, Epoxy Coated			Pound	2510

NT DETAILS		F.A.P. RTE.	SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
		821	821 •		JEFFERSON	15	9
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#### STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION



#### TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY Note: Shim plates shall not be placed

under Bearing Assembly.



will be allowed in lieu of welded plates.

<u>GIRDER</u>	RE	<u>ACTIONS</u>
R₽	(K)	14.6
R4	(K)	30.7
Imp.	(K)	9.1
R (Total)	(K)	54.4

### FILL P "t" DIMENSIONS

LOCATION	"† "
Beam 1, 3, 4, & 6	1'4''
Beam 2 & 5	1'2''
Beam 1A & 6A	NA



#### Notes:

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.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Side retainers and other steel members required for the bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

The minimum jack capacity required is 35 Tons. Existing diaphragm removal and reinstallation

may be required to facilitate drilling holes, cost to be included with "Jack and Remove Existing Bearings". Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.

Two  $l_{\mathcal{B}}$  in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

New steel extensions, connection bolts, Fill P's and Shim P's are included in "Furnishing and Erecting Structural Steel".



#### EXISTING BEARING REMOVAL DETAIL

Cost is included with Jack and Remove Existing Bearings

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SECTION B-B

BILL OF MATERIAL	_ OF MATERIAL
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Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	8
Anchor Bolts, 1"	Each	16
Jack and Remove Existing Bearings	Each	8
Furnishing and Erecting Structural Steel	Pound	1210

EAST ABUTMENT BEARING DETAILS STRUCTURE NO. 041-0026

*D9	СМ	BRIDGE	REPAIR	2015-2
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8 SHEETS	ILLINOIS FED. AID PROJECT					



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The strip seal shall be made continuous and shall have a minimum thickness of  $l_{4}$ ". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.

The manufacturer's recommended installation methods shall be followed.

The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.

All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications. Maximum space between rail segments shall be  ${}^{3}_{16}$ ",

sealed with a suitable sealant. Joints in rails within 10 ft. of curbs shall be welded.

TULINOIS FED ATD PROJECT

Parapet plates and anchorage studs for skews > 30° included in the cost of Preformed Joint Strip Seal.

	BILL OF MATERIAL							
		Item	Unit	Total				
Pr	eform	ed Joint Strip Seal	Foot	93				
<u>H</u>	PRE	FORMED JOINT	STRIP	SEA	<u>/</u>			
		<u>JEFFERSON</u> (	COUNTY					
	<u>S</u>	TRUCTURE NO.	041-00	<u>26</u>				
		∗D9 CM	BRIDGE REP	AIR 201	15-2			
	F.A.P. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.			
STRIP SEAL	821	•	JEFFERSON	15	12			
			CONTRAC	T NO. 7	8432			











### <u>BILL OF MATERIAL</u>

Item	Unit	Total
Structural Repair of Concrete (Depth <u>&lt;</u> 5 Inches)	Sq. Ft.	39

<u>SUBSTRUCTURE REPAIRS</u> <u>ABUTMENTS</u> <u>JEFFERSON COUNTY</u> <u>SN 041-0026</u>

Structural Repair of Concrete < 5''

				*D9 CM .	BRIDGE REP	PAIR 2	015-2
E	REPAIRS		F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
те		821	•	JEFFERSON	15	13	
	5				CONTRACT	NO. 7	78432
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Default	PLOT DATE = 5/7/2015	DATE -	REVISED -				TO STA.	ILLINOIS FED. AID PROJE			JECT			

#### NOTES

Detail I - With Bar Splicer or Couplers: Connect one (1) 1'' x 7' 'x 'W'' steel f to the top layer of couplers with  $2 - \frac{5}{8}$   $\phi$  bolts screwed to coupler at approximate *Q* of each barrier panel. Detail II - With Extended Reinforcement Bars: Connect one (1)  $1'' \times 7'' \times 'W''$  steel P to the concrete slab or concrete wearing surface with 2- ${}^{5}_{8}$ "  $\phi$ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ∉ of each barrier panel. Cost of retainer assembly is included with Temporary Concrete Barrier. The I'' x 7'' x 'W'' plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

\*\*\* Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

\*\*\*\* If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not



## **BUTT JOINT**

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## <u>SECTION A-A</u>

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