

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| F.A.U. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|-------------|----------------|----------|--------------------|-----------|
| 6176 | (79-R-VB,F)BRR | KANKAKEE | 19 | 1 |
| | | ILLINOIS | CONTRACT NO. 66H19 | |

INDEX OF SHEETS

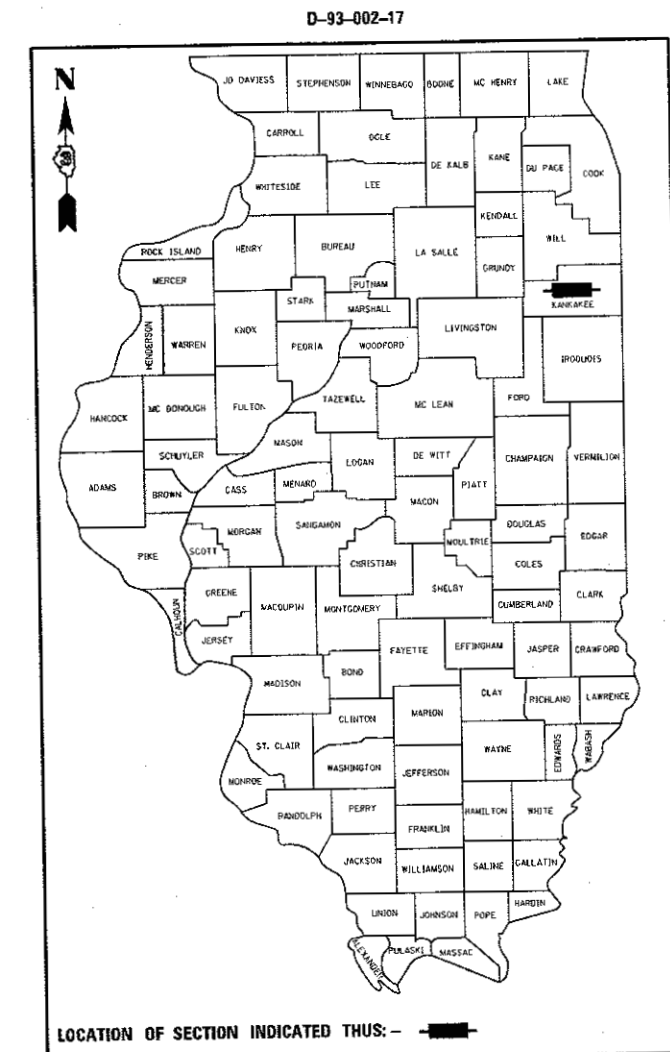
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- 5-6. TYPICAL SECTIONS
7. SCHEDULES
- 8-9. TRAFFIC CONTROL AND PROTECTION, STANDARD 701611
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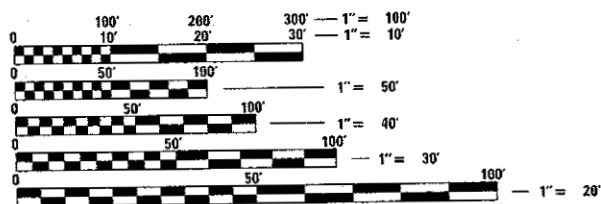
**PROPOSED
HIGHWAY PLANS**

F.A.U. ROUTE 6176 (ARMOUR RD.)
SECTION (79-R-VB,F)BRR
BRIDGE REPAIRS
KANKAKEE COUNTY
C-93-042-17



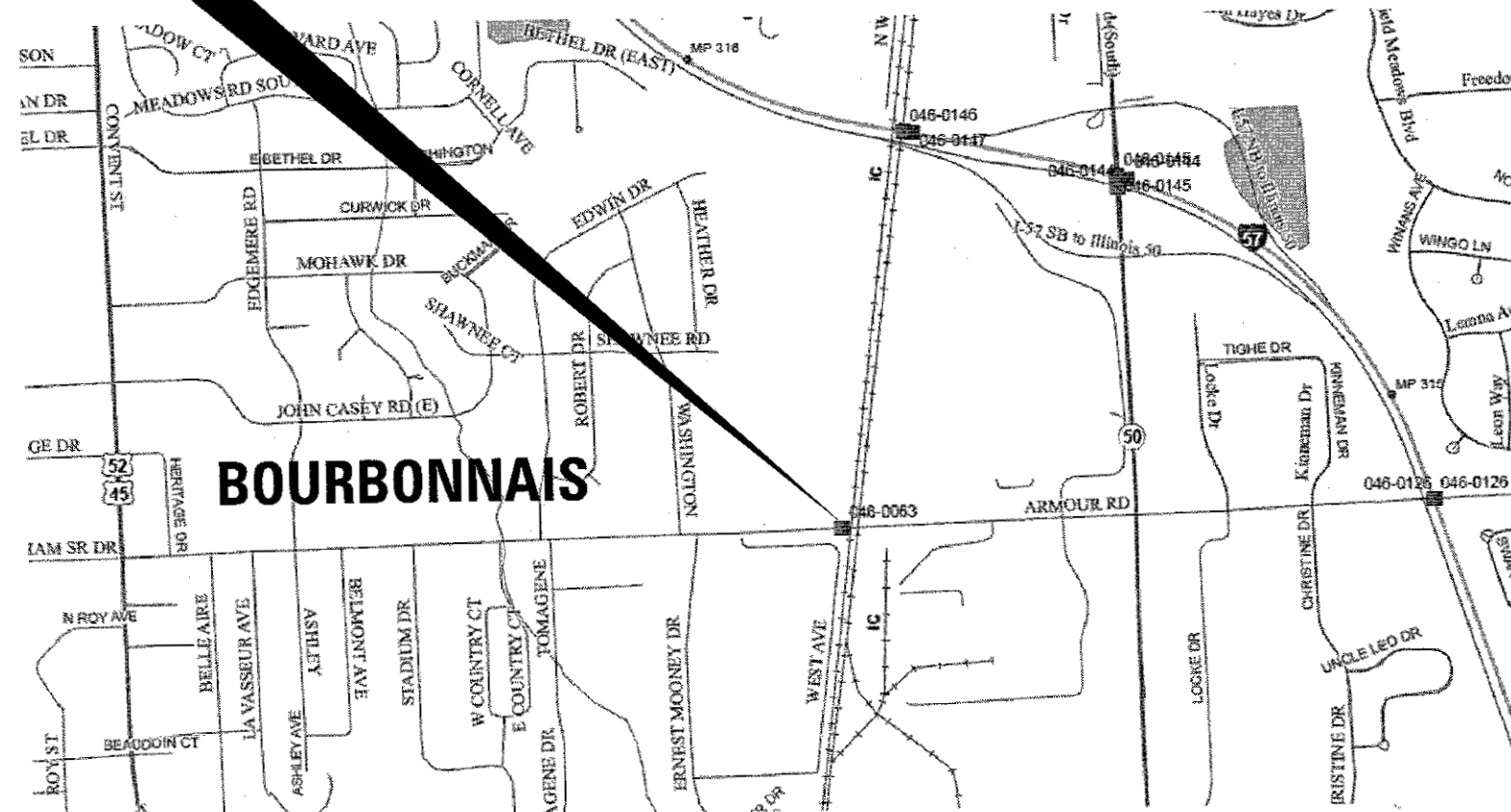
PROJECT LOCATION

STRUCTURE NO. 046-0063
CARRYING FAS 1305 (ARMOUR RD.)
OVER THE ILLINOIS CENTRAL RAILROAD (ICRR)
APPROXIMATELY 0.3 MILES WEST OF IL 50 IN BOURBONNAIS



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
OR 811



POINT LOCATION

FUNCTIONAL CLASSIFICATION
URBAN - MINOR ARTERIAL
F.A.S. ROUTE 1305 (ARMOUR RD.)
2015 ADT 18600
P.V. 90.9% S.U. 6.7% M.U. 2.4%

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

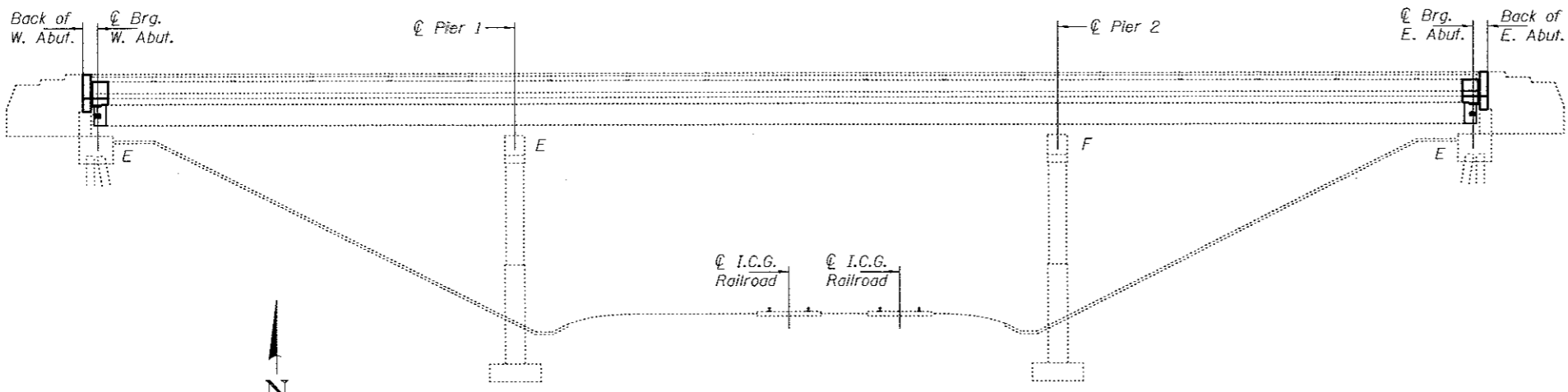
SUBMITTED July 11 2017
[Signature]
REGIONAL ENGINEER

Aug 18 2017
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

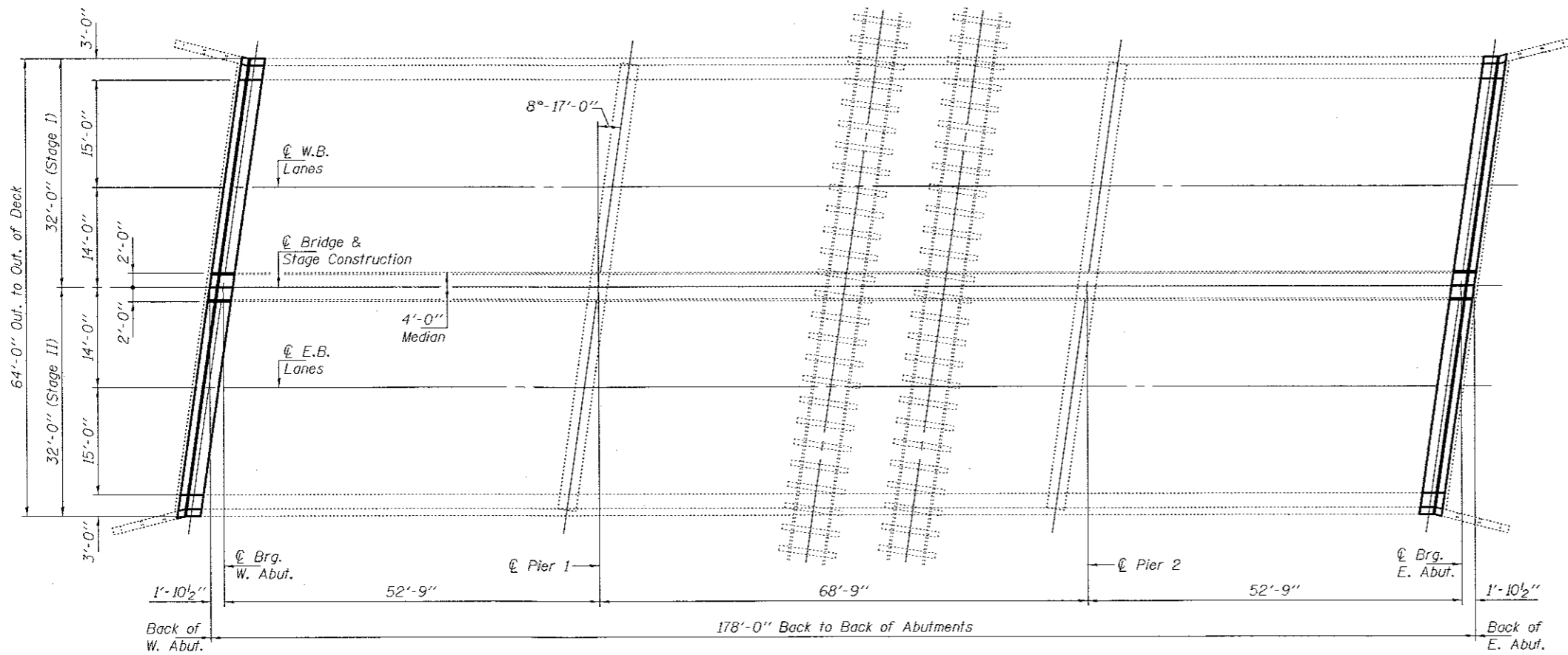
Aug 18 2017
[Signature]
DIRECTOR OF PROGRAM DEVELOPMENT

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

PROJECT ENGINEER: JOE KANNEL P.E.
UNIT CHIEF: RON WOODSHANK
DISTRICT 3 NO. (815) 434-6131
CONTRACT NO. 66H19



ELEVATION



PLAN

GENERAL NOTES

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

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.

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.

Cost of removal and re-installation of all members necessary to complete the work as detailed on the plans and as specified in the Special Provisions shall be included with Furnishing and Erecting Structural Steel.

Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the GBSP "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".

The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

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.

Fasteners shall be high strength bolts. Bolts $\frac{3}{4}$ " ϕ , open holes $\frac{13}{16}$ " ϕ , unless otherwise noted.

Diaphragm connection holes shall be $\frac{15}{16}$ " ϕ for $\frac{3}{4}$ " ϕ bolts. Two hardened washers shall be required at diaphragm connections.

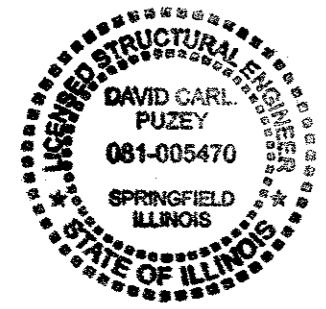
Joint openings shall be adjusted according to Article 520.04 of the Std. Specs. when the deck is poured at an ambient temperature other than 50° F.

All structural steel shall be shop painted with the inorganic zinc rich primer per AASHTO M300, Type 1. Cost included with Structural Steel Repair or Furnishing & Erecting Structural Steel.

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.

TOTAL BILL OF MATERIAL

| ITEM | UNIT | QUANTITY |
|--|---------|----------|
| Concrete Removal | Cu. Yd. | 17.8 |
| Concrete Superstructure | Cu. Yd. | 17.8 |
| Structural Steel Removal | Pound | 870 |
| Structural Steel Repair | Pound | 730 |
| Furnishing & Erecting Structural Steel | Pound | 910 |
| Reinforcement Bars, Epoxy Coated | Pound | 2800 |
| Bar Splicers | Each | 12 |
| Preformed Joint Strip Seal | Foot | 132 |
| Silicone Joint Sealer | Foot | 4 |



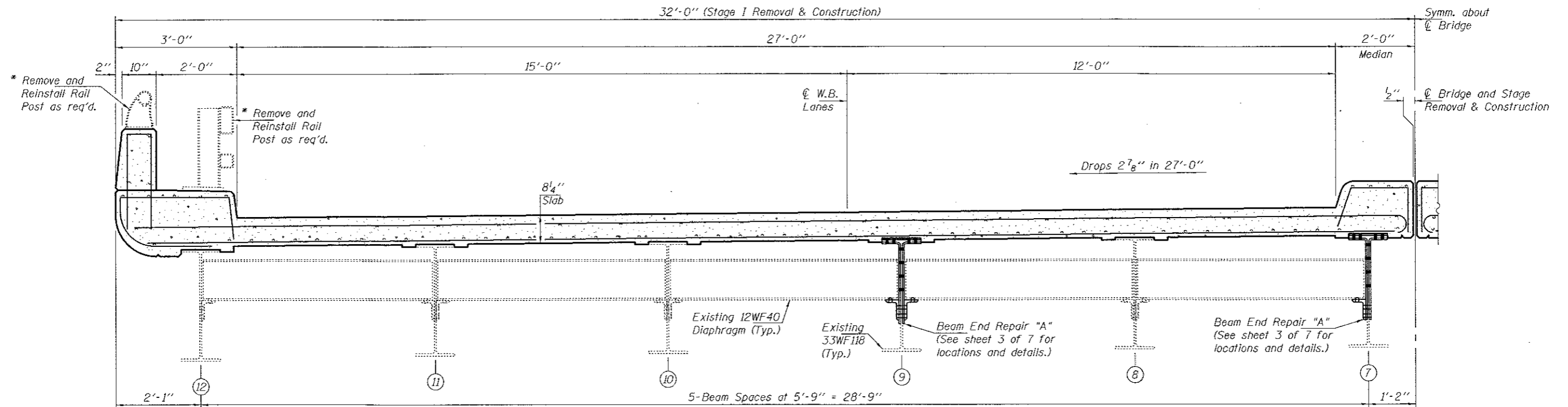
Expires: November 30, 2018

| | |
|------------------------------|---------------------|
| DESIGNED <i>Stephen Ryan</i> | DATE AUGUST 2, 2017 |
| CHECKED <i>[Signature]</i> | REVISOR |
| DRAWN <i>Stephen</i> | REVISOR |
| CHECKED <i>SMR</i> | REVISOR |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

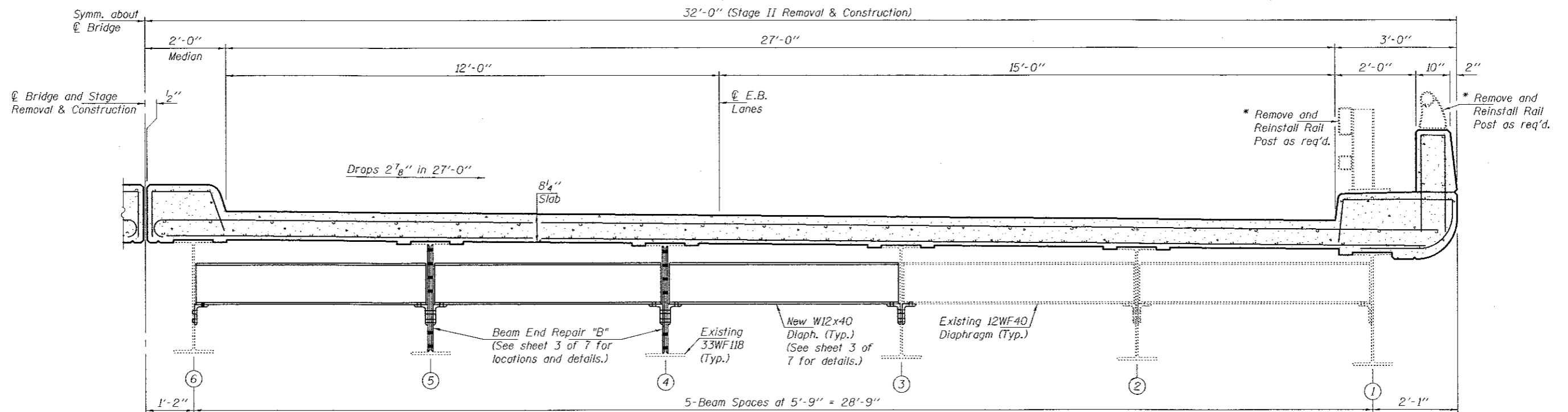
PLAN AND ELEVATION
FAU 6176 (ARMOUR ROAD) OVER ICG RR
SN 046-0063
SHEET NO. 1 OF 7 SHEETS

| | | | | |
|--------------------|-----------------------|-----------------|---------------------------|--------------|
| F.A.U. RTE. 6176 | SECTION 179-R-VB/FBRR | COUNTY KANKAKEE | TOTAL SHEETS 19 | SHEET NO. 11 |
| CONTRACT NO. 66H19 | | | ILLINOIS FED. AID PROJECT | |



CROSS SECTION - STAGE I
(Looking East)

* For Rail Post attachment details see sheet 4 of 7. Cost included with Concrete Removal.



CROSS SECTION - STAGE II
(Looking East)

DESIGNED SMR
CHECKED JGY
DRAWN Steffen
CHECKED SMR JGY

PASSED
Carl Perry
ENGINEER OF BRIDGES AND STRUCTURES

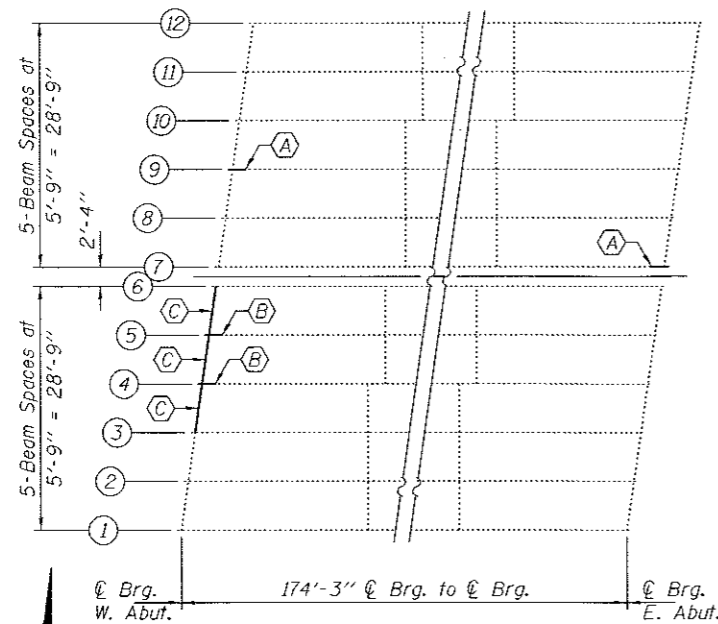
DATE AUGUST 2, 2017
REVISED
REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTION AND STAGING DETAILS
SN 046-0063

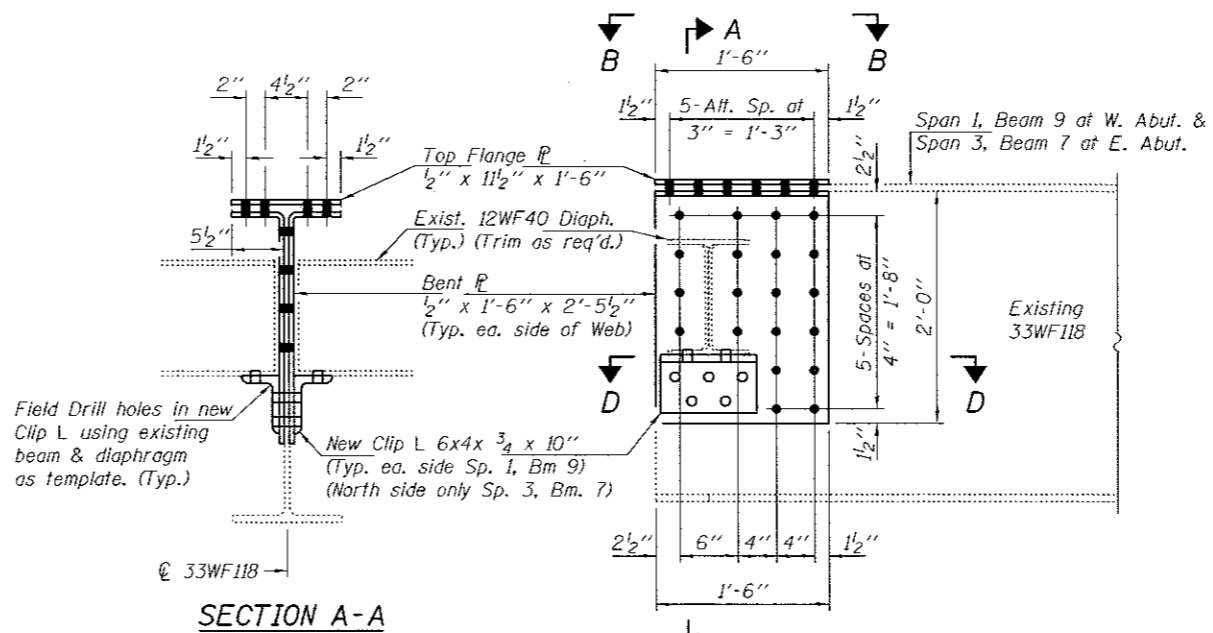
SHEET NO. 2 OF 7 SHEETS

| F.A.U. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---------------------------|----------------|----------|--------------|--------------------|
| 6176 | (79-R-VB)FIBRR | KANKAKEE | 19 | 12 |
| | | | | CONTRACT NO. 66H19 |
| ILLINOIS FED. AID PROJECT | | | | |



PARTIAL FRAMING PLAN

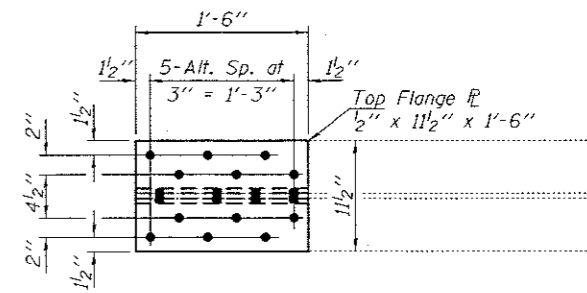
- (A) - Strengthen Beam End (See Repair Detail A)
- (B) - Strengthen Beam End (See Repair Detail B)
- (C) - Remove & Replace Diaphragm & Clip L's.



SECTION A-A

REPAIR DETAIL "A"

Span 1, Beam 9 shown; Span 3, Beam 7 similar except diaphragm and Clip L on North side only of Beam 7. Cost included with Structural Steel Repair.

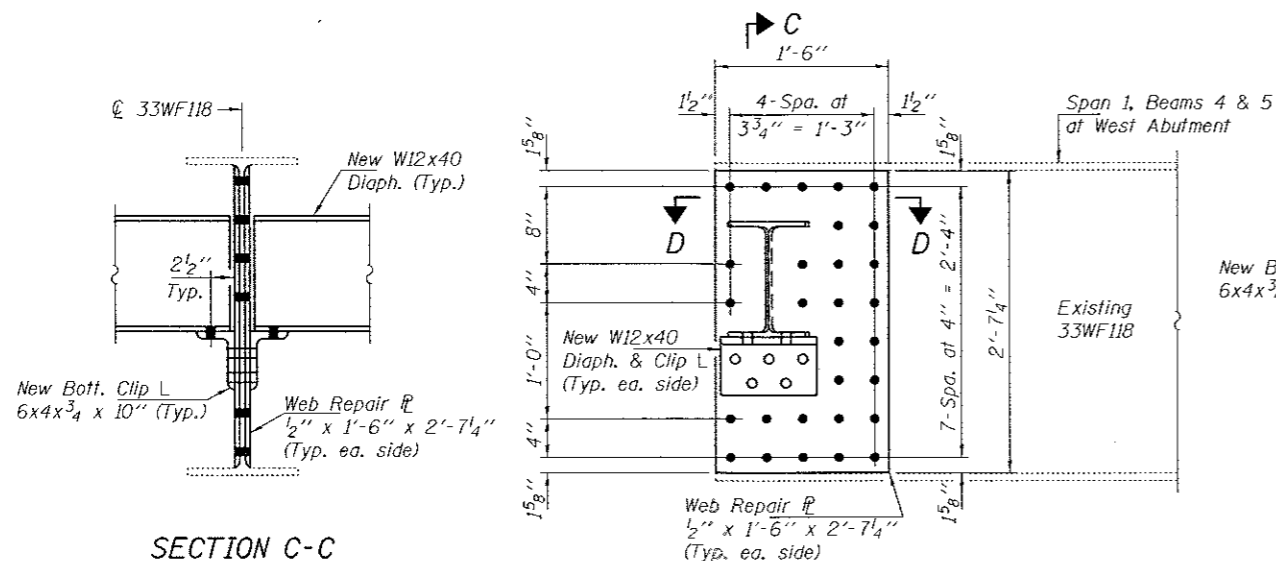


VIEW B-B

Diaphragms & Clip L's not shown for clarity. (See Section D-D for Diaphragm & Clip L Details)

BOLT HOLE LEGEND

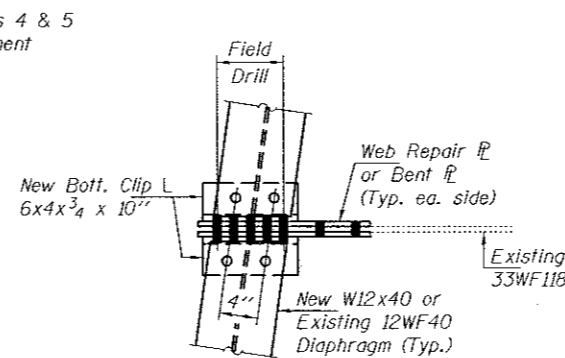
- - Field drill using existing holes as template.
- - Shop drill holes in new steel.



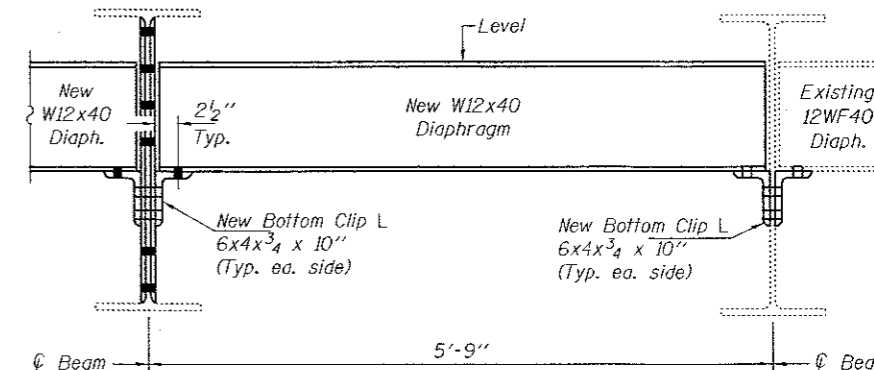
SECTION C-C

REPAIR DETAIL "B"

Cost included with Structural Steel Repair.



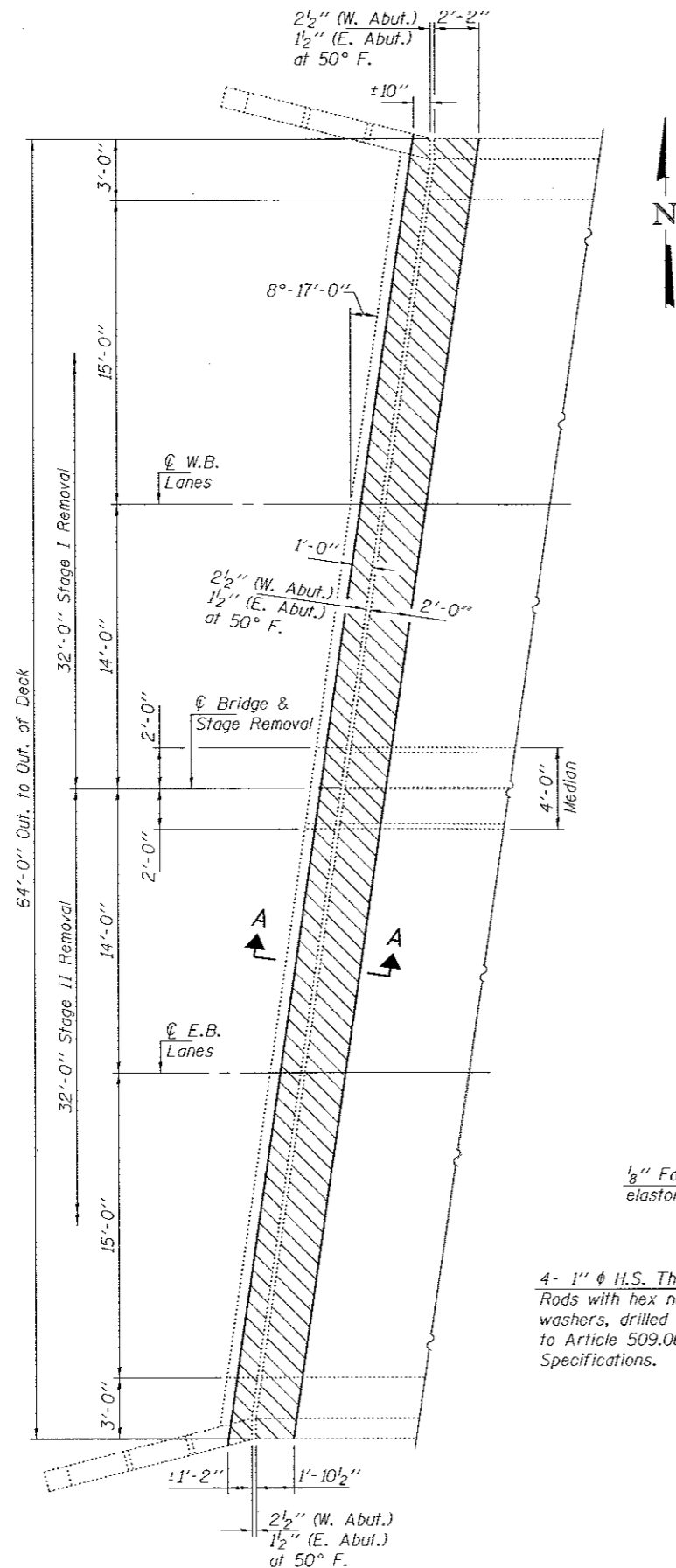
SECTION D-D



DIAPHRAGM REPLACEMENT DETAILS

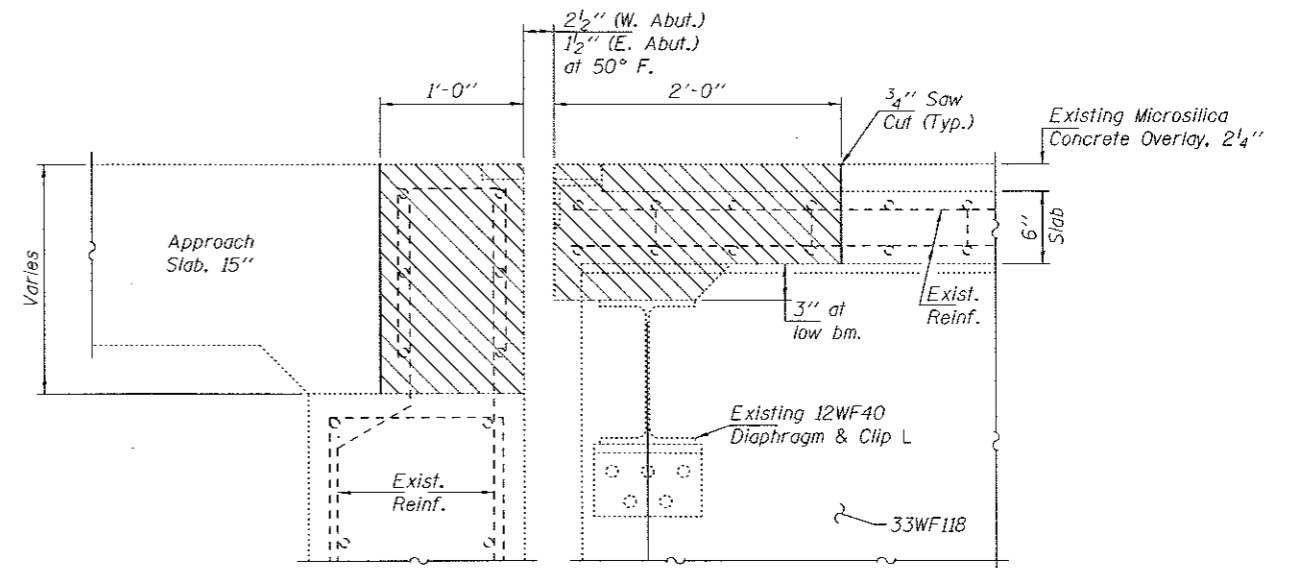
Notes:
 Natural camber of new beam shall be placed upward for fabrication.
 Field drill holes in Clip L's using existing holes in beam as template.
 Cost of Diaphragm, Clip L's, and Diaphragm Connection Bolts included with Furnishing & Erecting Structural Steel.

| | | | | | | | | |
|-----------------|------------------------------------|---|--|---------------------------|------------------------|--------------------|-----------------|--------------|
| DESIGNED SMR | DATE AUGUST 2, 2017 | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | BEAM END REPAIR AND DIAPHRAGM REPLACEMENT DETAILS SN 046-0063 | F.A.U. RTE. 6176 | SECTION 179-R-VB,F,BRR | COUNTY KANKAKEE | TOTAL SHEETS 19 | SHEET NO. 13 |
| CHECKED JGY | REVISIONS | | | SHEET NO. 3 OF 7 SHEETS | | CONTRACT NO. 66H19 | | |
| DRAWN Steffen | ENGINEER OF BRIDGES AND STRUCTURES | | | ILLINOIS FED. AID PROJECT | | | | |
| CHECKED SMR JGY | PASSED | | | | | | | |

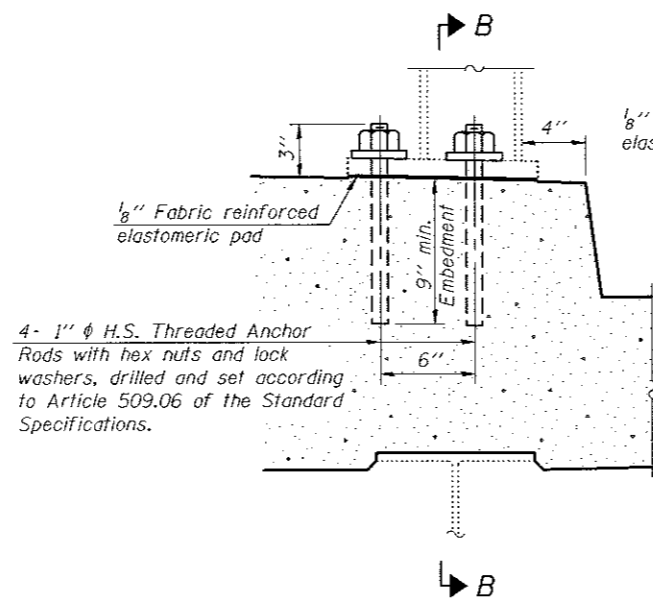


CONCRETE REMOVAL PLAN
(West Abut. shown, East Abut. similar except as noted.)

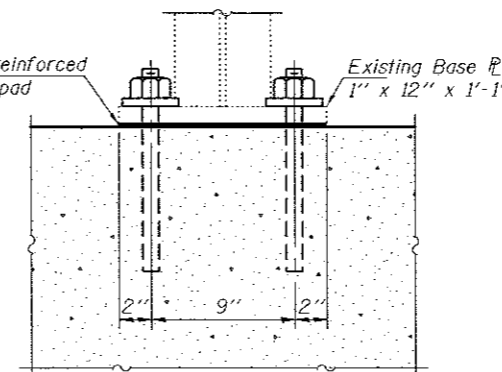
Notes:
Hatched areas indicate concrete removal.
For Approach Curb & Parapet details and Bill of Material see sheet 5 of 7.



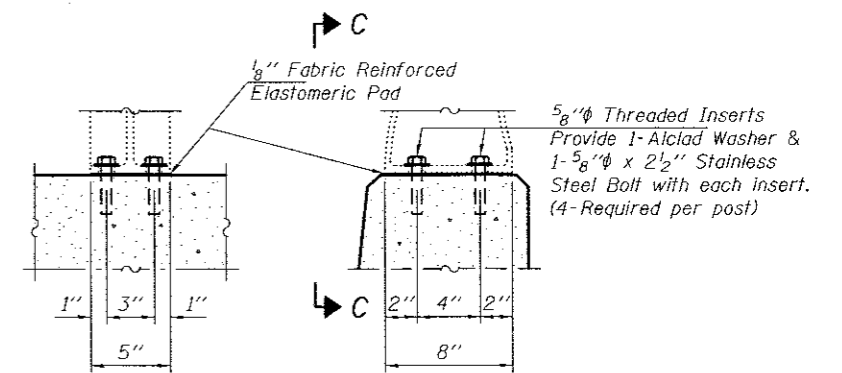
SECTION A-A
Dims. at Rt. L's



CURB RAIL POST ATTACHMENT DETAILS



SECTION B-B



VIEW C-C

PARAPET RAIL POST ATTACHMENT DETAILS

| | | | |
|--------------|-------------|---------------|-----------------|
| DESIGNED SMR | CHECKED JGY | DRAWN Steffen | CHECKED SMR JGY |
|--------------|-------------|---------------|-----------------|

| | |
|--------|---|
| PASSED | <i>A. Carl Pappas</i> ENGINEER OF BRIDGES AND STRUCTURES |
|--------|---|

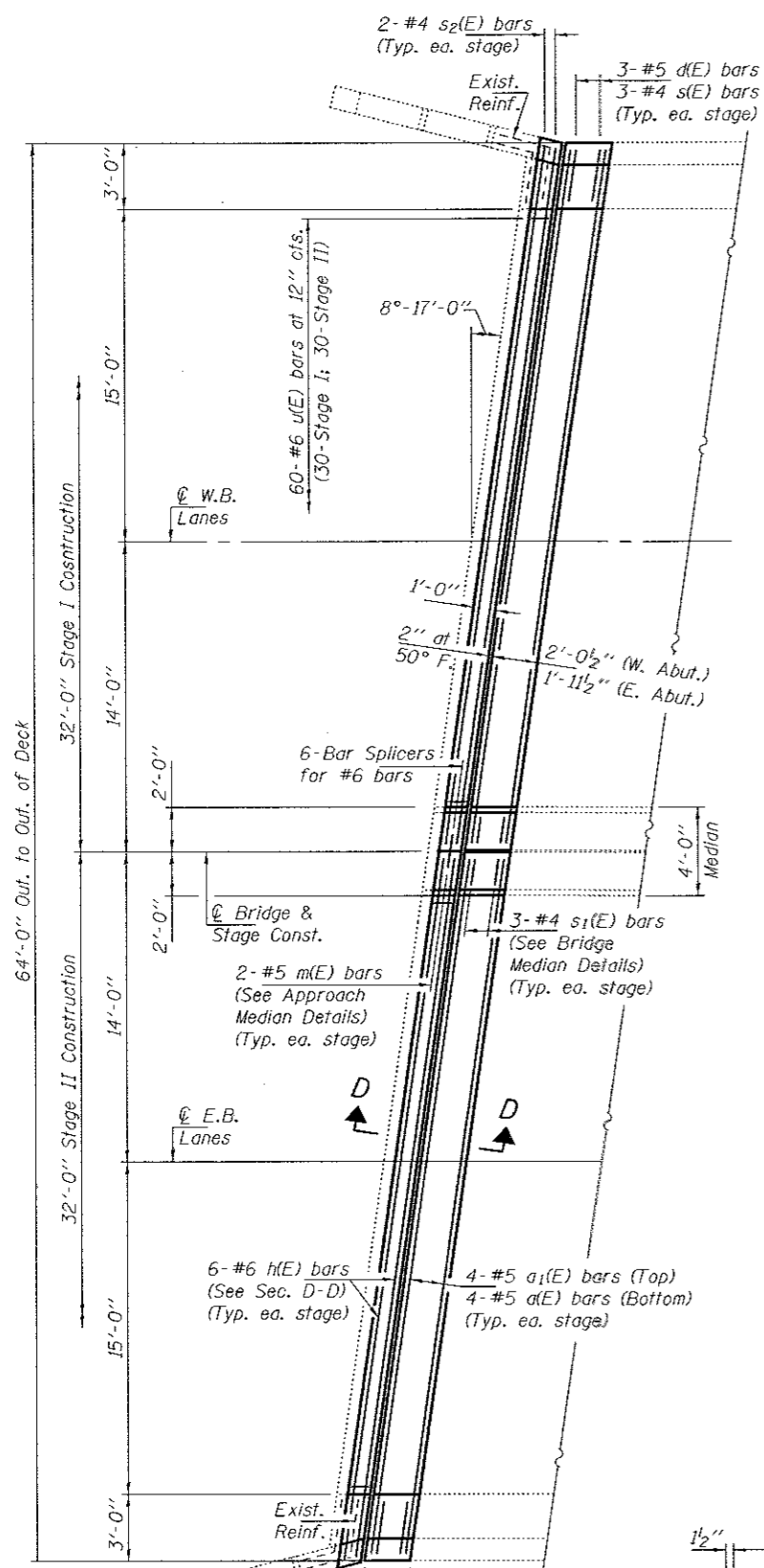
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|---------|----------------|
| DATE | AUGUST 2, 2017 |
| REVISED | |
| REVISED | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

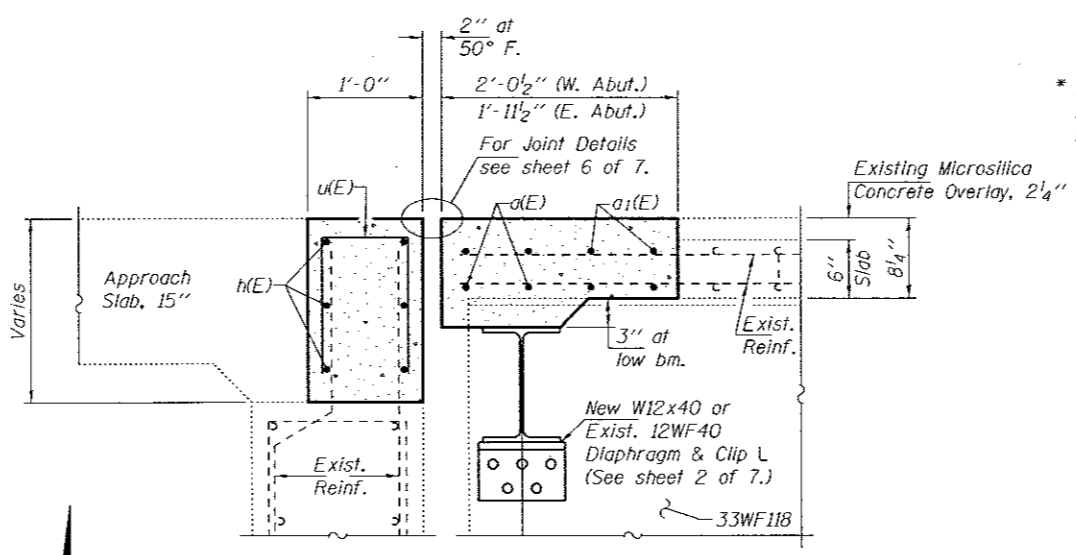
JOINT REMOVAL & RAIL POST ATTACHMENT DETAILS
SN 046-0063

SHEET NO. 4 OF 7 SHEETS

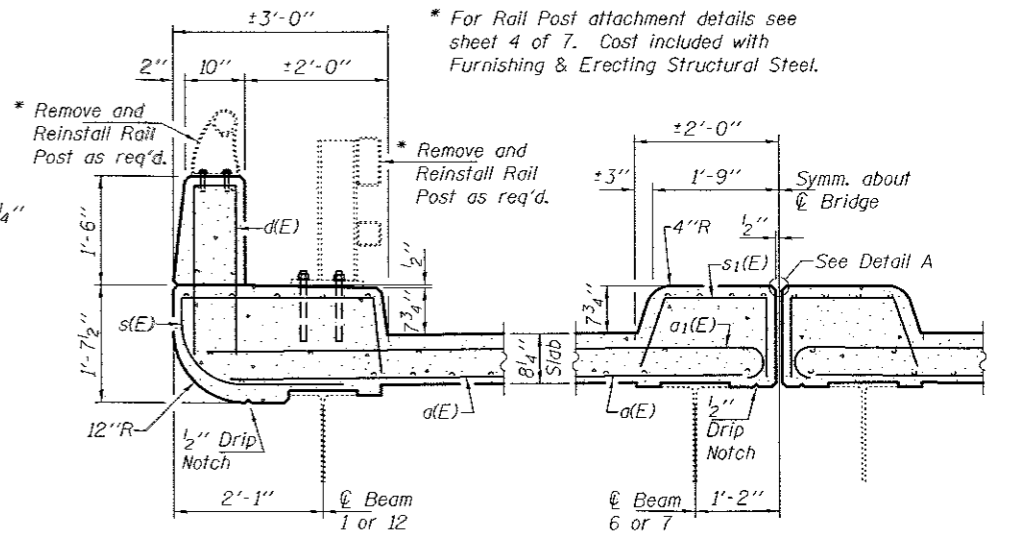
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|--------------------|---------------|----------|---------------------------|-----------|
| F.A.U. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 6176 | (79-R-VB,F)BR | KANKAKEE | 19 | 14 |
| CONTRACT NO. 66H19 | | | ILLINOIS FED. AID PROJECT | |



CONCRETE REPLACEMENT PLAN
(West Abut. shown, East Abut. similar except as noted.)

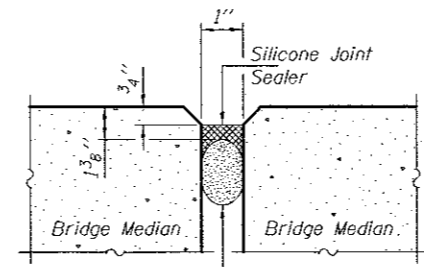


SECTION D-D
Dims. at Rt. L's



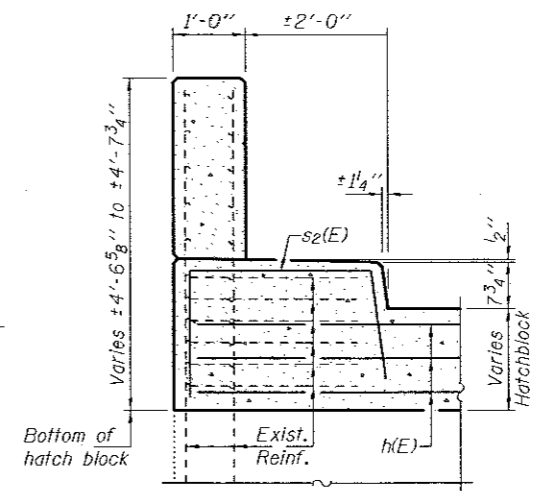
BRIDGE PARAPET DETAILS

BRIDGE MEDIAN DETAILS

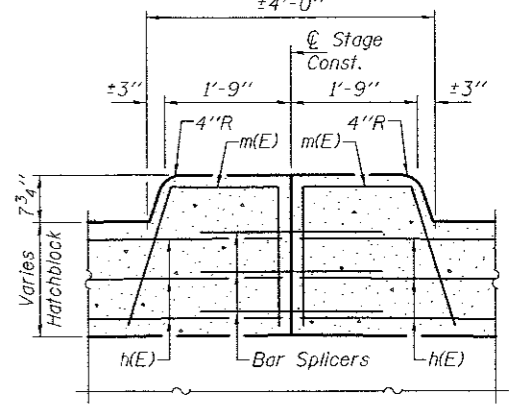


Backer Rod having a diameter 25% greater than the joint opening at the time of installation.

DETAIL A



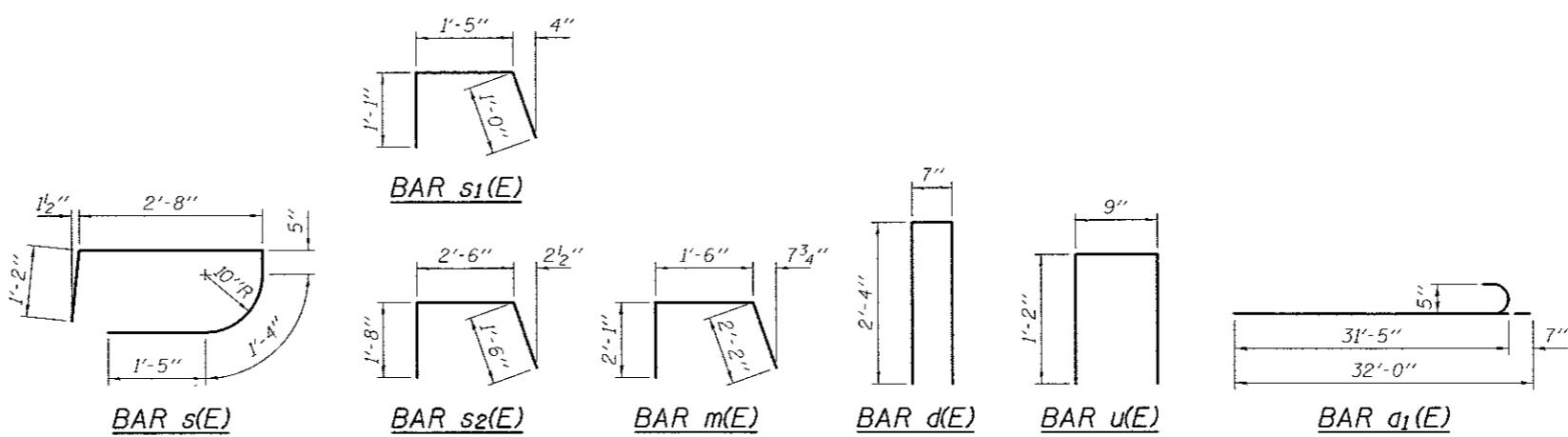
APPROACH CURB & PARAPET DETAILS



APPROACH MEDIAN DETAILS

BILL OF MATERIAL

| Bar | No. | Size | Length | Shape |
|----------------------------------|-----|------|---------|-------|
| d(E) | 16 | #5 | 31'-0" | — |
| a1(E) | 16 | #5 | 32'-0" | — |
| d(E) | 12 | #5 | 5'-3" | ⊏ |
| h(E) | 24 | #6 | 31'-5" | — |
| m(E) | 8 | #5 | 5'-9" | ⊏ |
| s(E) | 12 | #4 | 7'-0" | ⊏ |
| s1(E) | 12 | #4 | 3'-6" | ⊏ |
| s2(E) | 8 | #4 | 5'-8" | ⊏ |
| u(E) | 120 | #5 | 3'-1" | ⊏ |
| Concrete Removal | | | Cu. Yd. | 17.8 |
| Concrete Superstructure | | | Cu. Yd. | 17.8 |
| Bar Splicers | | | Each | 12 |
| Reinforcement Bars, Epoxy Coated | | | Pound | 2800 |



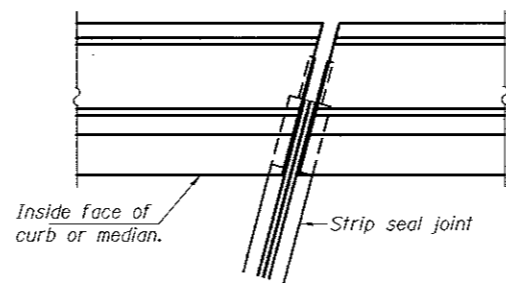
DESIGNED SMR
CHECKED JGY
DRAWN Steffen
CHECKED SMR JGY

DATE AUGUST 2, 2017
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

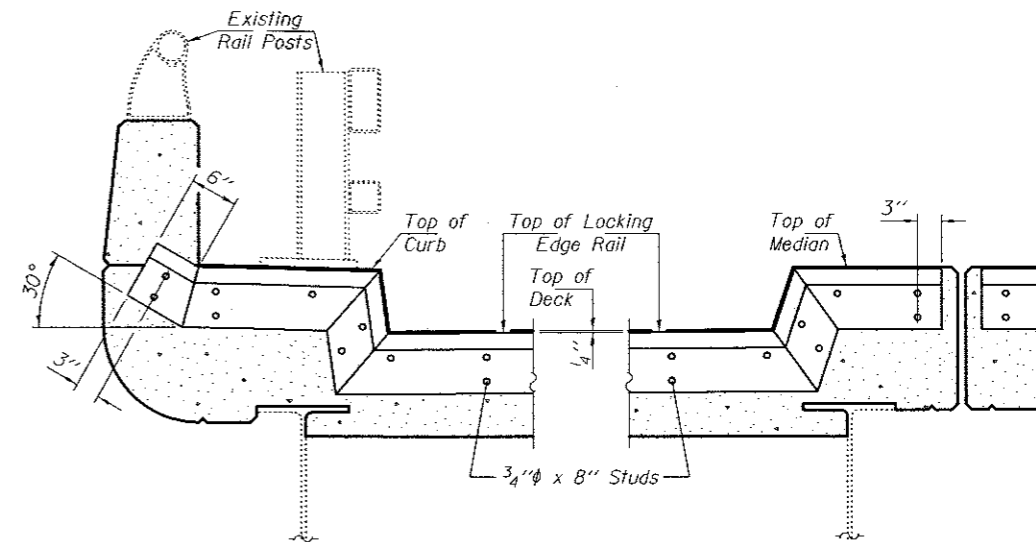
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

JOINT REPLACEMENT DETAILS
SN 046-0063
SHEET NO. 5 OF 7 SHEETS

F.A.U. RT. 6176 SECTION (79-R-VB,FIBRR) COUNTY KANKAKEE TOTAL SHEETS 19 SHEET NO. 15 CONTRACT NO. 66H19 [ILLINOIS] FED. AID PROJECT



PLAN
(See Typical End Treatment at Curb & Median Detail.)



TYPICAL END TREATMENT AT CURB & MEDIAN

Shorter plates with a single row of studs at 12" cts. may be necessary on medians which are shallower than 9". See manufacturer's recommendation.

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of 1/4". 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.

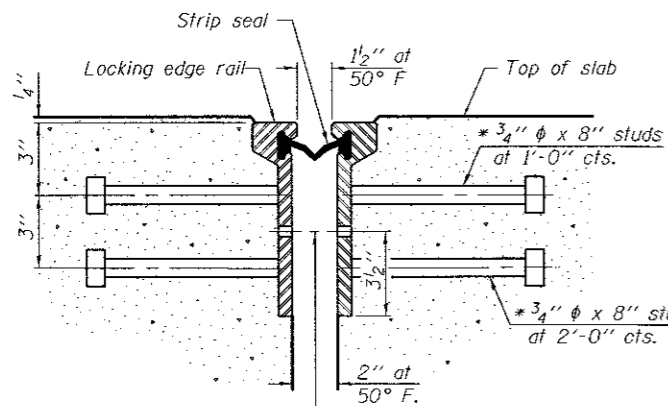
The manufacturer's recommended installation methods shall be followed.

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.

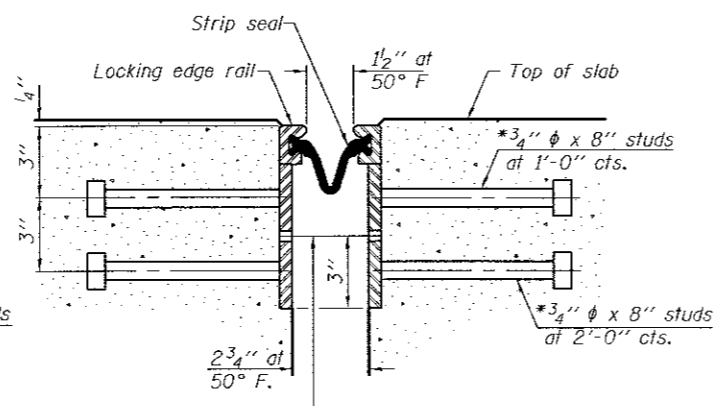
Maximum space between rail segments shall be 3/16", sealed with a suitable sealant. Joints in rails within 10 ft. of curbs shall be welded.

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



SECTION THRU ROLLED RAIL JOINT

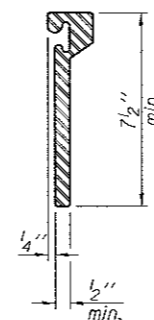
7/16" diameter holes at 4'-0" cts. for 3/8" diameter bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.



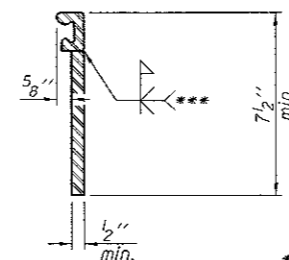
SECTION THRU WELDED RAIL JOINT

7/16" diameter holes at 4'-0" cts. for 3/8" diameter bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

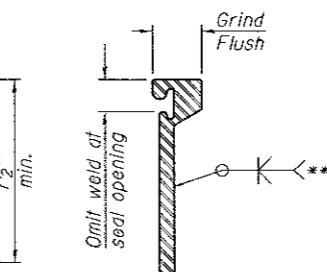
* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



ROLLED EXTRUDED RAIL



WELDED RAIL



LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residus.

Rolled rail shown, welded rail similar.

*** Back gouge not required if complete joint penetration is verified by mock-up.

LOCKING EDGE RAILS

BILL OF MATERIAL

| Item | Unit | Total |
|----------------------------|------|-------|
| Preformed Joint Strip Seal | Foot | 132 |

DESIGNED SMR
CHECKED JGY
DRAWN Steffen
CHECKED SMR JGY

PASSED

Carl Perry
ENGINEER OF BRIDGES AND STRUCTURES

DATE AUGUST 2, 2017

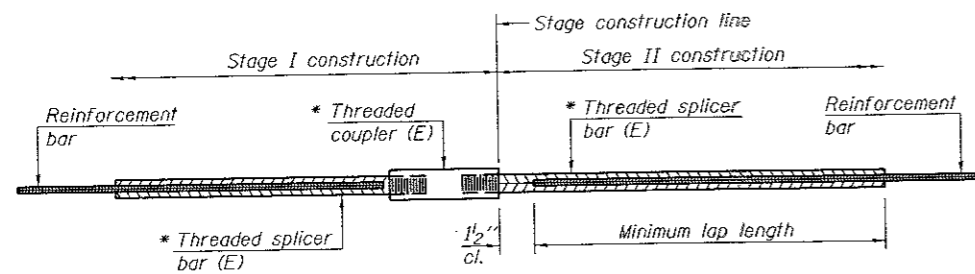
REVISED
REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL DETAILS
SN 046-0063

SHEET NO. 6 OF 7 SHEETS

| F.A.U. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---------------------------|---------------|----------|--------------|--------------------|
| 6176 | (79-R-VB,F)BR | KANKAKEE | 19 | 16 |
| | | | | CONTRACT NO. 66H19 |
| ILLINOIS FED. AID PROJECT | | | | |

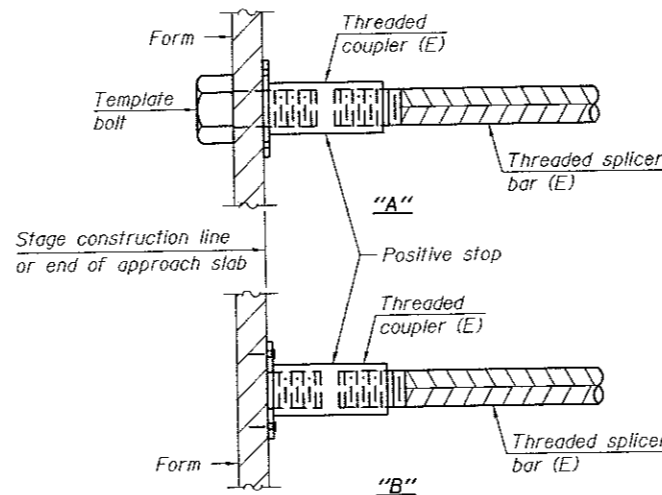


STANDARD BAR SPLICER ASSEMBLY

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

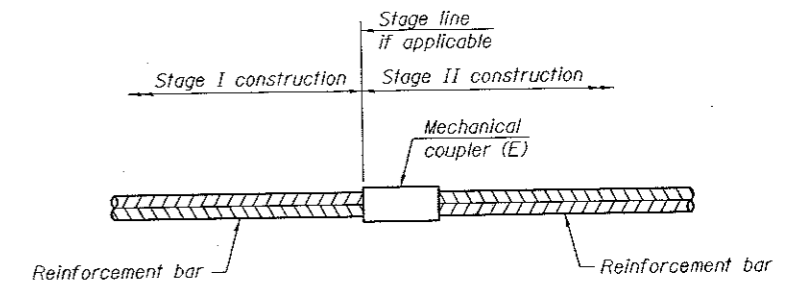
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

| Location | Bar size | No. assemblies required | Minimum lap length |
|-----------------|----------|-------------------------|--------------------|
| West Hatchblock | #6 | 6 | 4'-0" |
| East Hatchblock | #6 | 6 | 4'-0" |
| | | | |
| | | | |



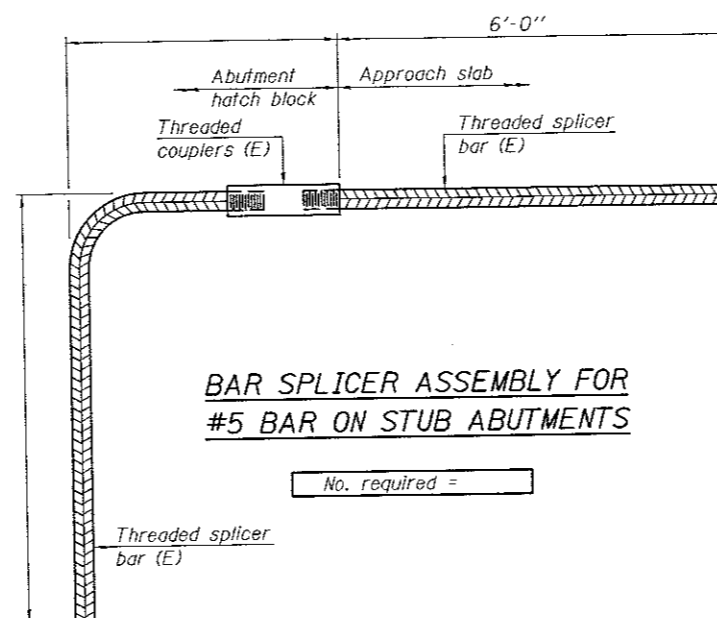
INSTALLATION AND SETTING METHODS

"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 |
|----------|----------|-------------------------|
| | | |
| | | |
| | | |



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.

| | |
|------------------------|----------------------------|
| DESIGNED <u>SMR</u> | DATE <u>AUGUST 2, 2017</u> |
| CHECKED <u>JGY</u> | REVISOR |
| DRAWN <u>Steffen</u> | REVISOR |
| CHECKED <u>SMR JGY</u> | REVISOR |

PASSED Carl Prosser
 ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
 SN 046-0063

SHEET NO. 7 OF 7 SHEETS

| F.A.U. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---------------------------|----------------|----------|--------------|-----------|
| 6176 | (79-R-VB,FIBRR | KANKAKEE | 19 | 17 |
| CONTRACT NO. 66H19 | | | | |
| ILLINOIS FED. AID PROJECT | | | | |