

SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO STANDARD DRAWINGS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: In review of the bridge railing transition Standards inconsistencies were found in presentation and minor errors and omissions were present.

PROPOSED SOLUTION: The bridge railing Standards have been revised so that the Standards are consistent in detailing and overall presentation.

APPLICABLE STANDARD SPECIFICATIONS: none

APPLICABLE STANDARD DRAWINGS:

| <u>Current Standard Drawing</u> | <u>Transition</u> | <u>Proposed Drawing Designation</u> |
|---------------------------------|---------------------------|-------------------------------------|
| 706-CBRT-01 thru 04 | | same |
| 706-TPBT-01 thru 09 | TF-2 | 706-TTTF-01 thru 04 |
| 706-TTBC-01 thru 03 | FC | 706-TTFC-01 thru 03 |
| 706-TTBP-01 thru 09 | PF-1, PF-2, PS-1, PS-2 | 706-TTPP-01 thru 08 |
| 706-TTBT-01 thru 03 | FT | 706-TTFT-01 thru 03 |
| 706-TTXX-01 thru 04 | TX | same |
| 706-TWBC-01 thru 03 | W-Beam | 706-TWFC-01 thru 03 |
| 706-TWBC-04 | | to delete |

APPLICABLE DESIGN MANUAL SECTION: None

APPLICABLE SECTION OF GIFE: None

APPLICABLE RECURRING SPECIAL PROVISIONS: None

PAY ITEMS AFFECTED: None

SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS
REVISION TO STANDARD DRAWINGS

Submitted By: Randy Strain

Title: INDOT Bridge Standard and Policy Engineer

Organization: INDOT

Phone Number: 232-3339

Date: Feb 14, 2012

APPLICABLE SUB-COMMITTEE ENDORSEMENT: none

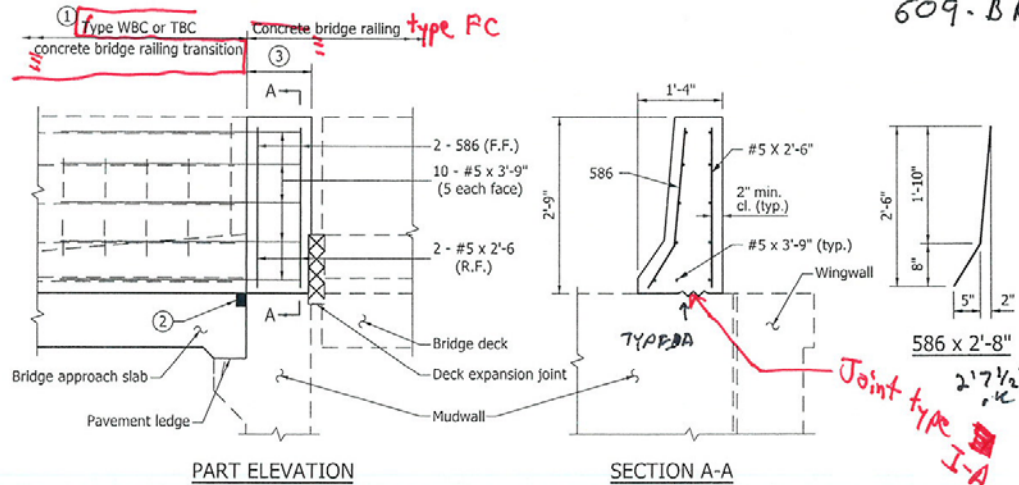
APPROVED MINUTES ITEM 02

REVISION TO STANDARD DRAWINGS

EXISTING 706-CBRT-01 BRIDGE RAILING TRANSITION WBC OR TBC DETAILS AT END BENT (WITH MARKUPS)

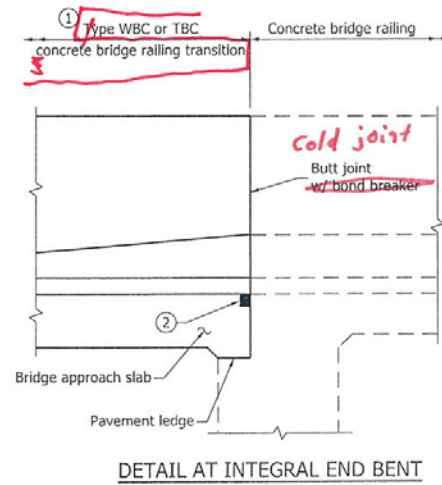
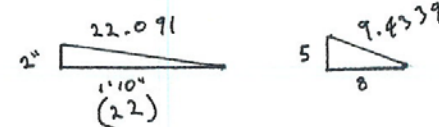
BTS-01 Does not exist

609-BRT-01



NOTES:

- See Standard Drawings E 706-TWBC-01 through -03 for concrete bridge railing transition type WBC details. See Standard Drawing E 706-TTBC-01 through -03 for concrete bridge railing transition type TBC details.
- See Standard Drawing E 724-BRT-01 for type W joint details.
- This shall be part of the concrete bridge railing, but shall be poured with the concrete bridge-railing transition. The minimum length shall be equal to the width of the mudwall. See Standard Drawing E 706-BCBR-01 for bridge railing type FC dimensions.



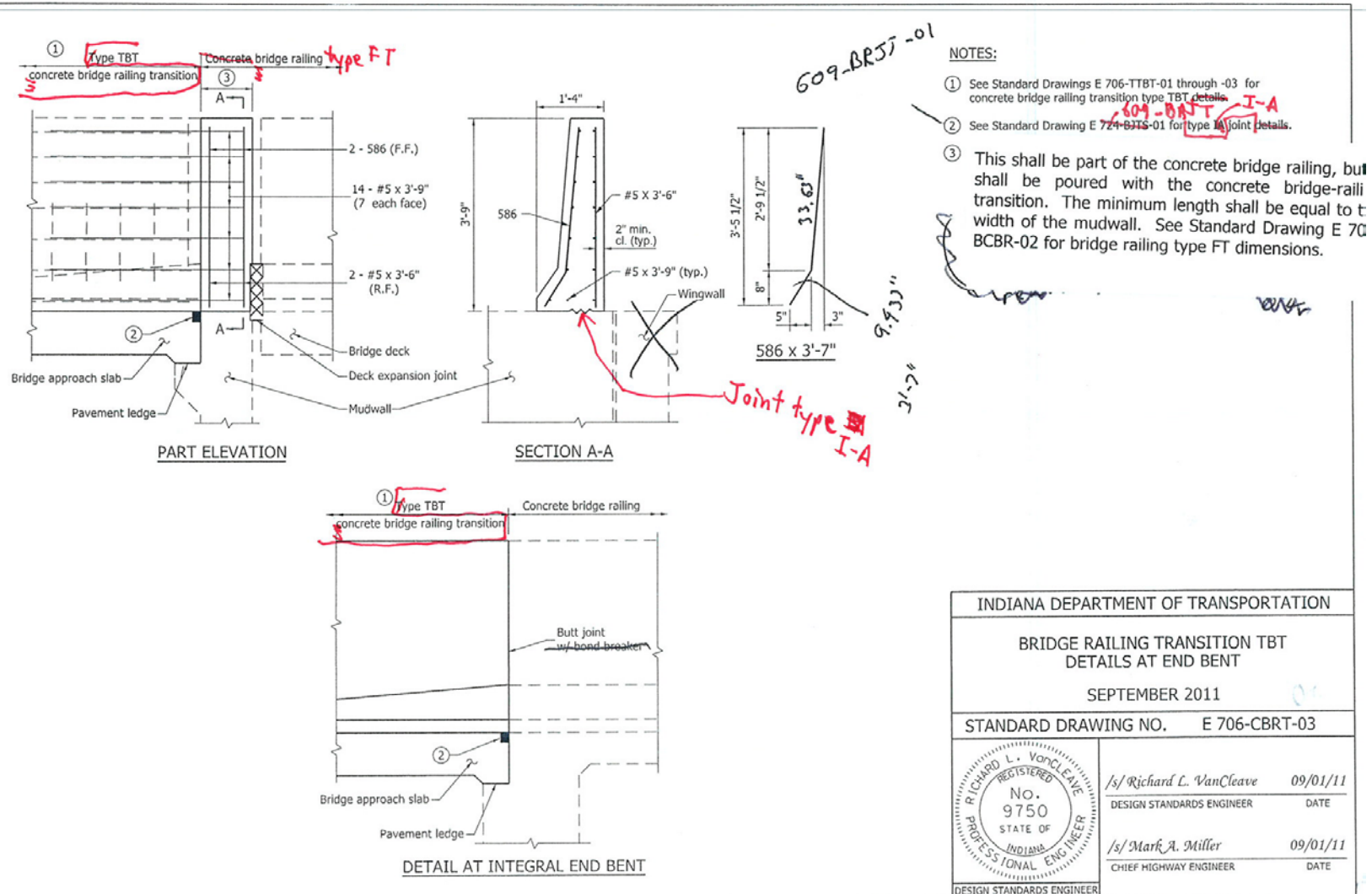
| | |
|---|---|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| BRIDGE RAILING TRANSITION WBC OR TBC DETAILS AT END BENT | |
| SEPTEMBER 2011 | |
| STANDARD DRAWING NO. E 706-CBRT-01 | |
| | /s/ Richard L. VanCleave 09/01/11 DESIGN STANDARDS ENGINEER DATE |
| | /s/ Mark A. Miller 09/01/11 CHIEF HIGHWAY ENGINEER DATE |



REVISION TO STANDARD DRAWINGS

EXISTING 706-CBRT-03 BRIDGE RAILING TRANSITION TBT DETAILS AT END BENT (WITH MARKUPS)

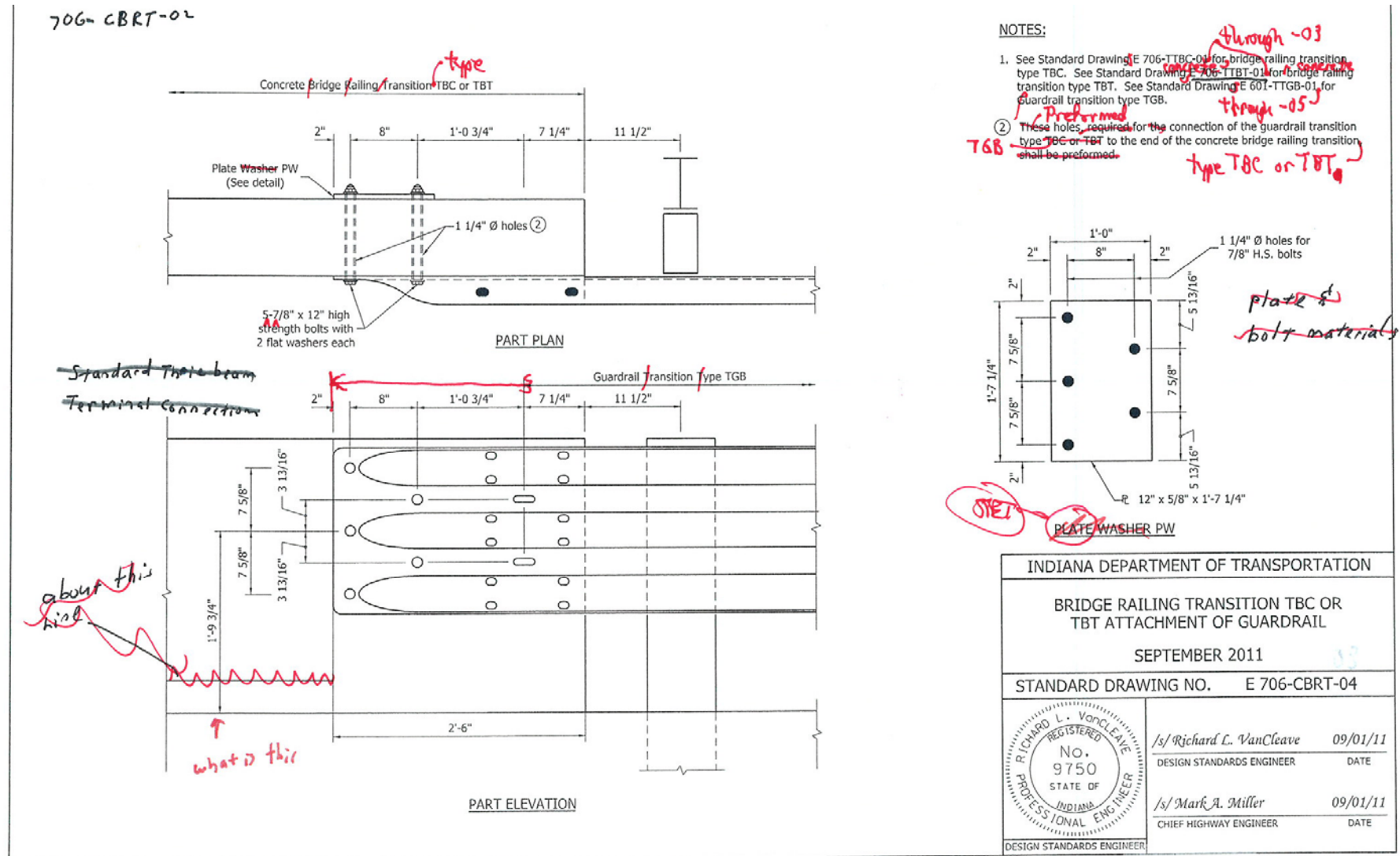
recommend order to change



Item No.02 03/15/12 (2012 SS)(contd.)
Mr. Strain
Date: 03/15/12

REVISION TO STANDARD DRAWINGS

EXISTING 706-CBRT-04 BRIDGE RAILING TRANSITION TBC OR TBT ATTACHMENT OF GUARDRAIL (WITH MARKUPS)

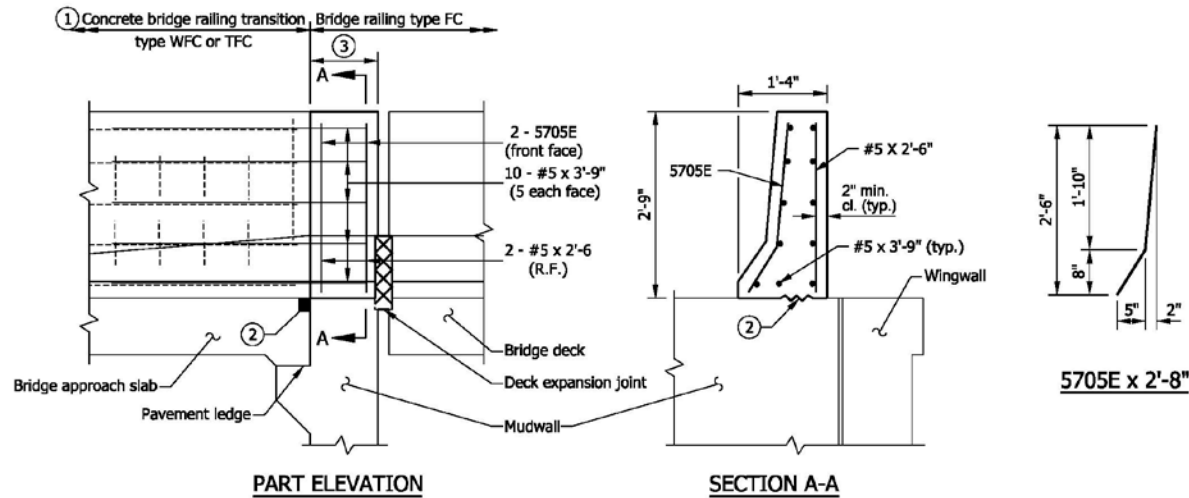


THRIE-BEAM GR Comp
Shows Thrie Beam Terminal Connector

T GRT To T BRT

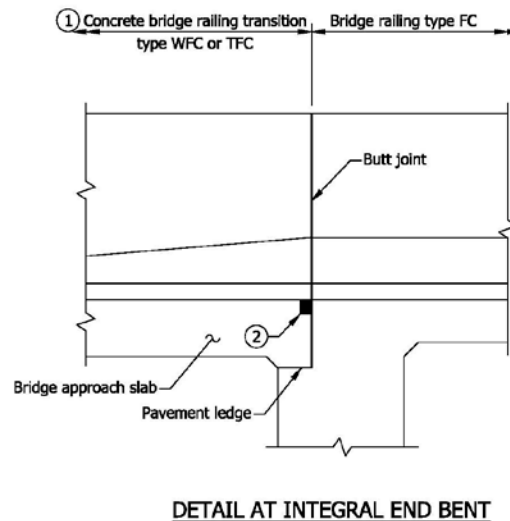
REVISION TO STANDARD DRAWINGS

706-CBRT-01 BRIDGE RAILING TRANSITION WFC OR TFC DETAILS AT END BENT (DRAFT)



NOTES

- ① See Standard Drawings E 706-TWFC-01 through -03 for concrete bridge railing transition type WFC. See Standard Drawings E 706-TTFC-01 through -03 for concrete bridge railing transition type TFC.
- ② See Standard Drawing E 609-BRTJ-01 for joint type I-A.
- ③ This shall be part of the concrete bridge railing, but it shall be poured with the concrete bridge-railling transition. The minimum length shall be equal to the width of the mudwall. See Standard Drawing E 706-GRSF-01 for bridge railing type FC dimensions.
4. See Standard Drawing E 703-BRST-01 for reinforcing-bar bending details and notes.



INDIANA DEPARTMENT OF TRANSPORTATION

BRIDGE RAILING TRANSITION WFC
 OR TFC DETAILS AT END BENT

SEPTEMBER 2012

STANDARD DRAWING NO. E 706-CBRT-01

DESIGN STANDARDS ENGINEER

DESIGN STANDARDS ENGINEER

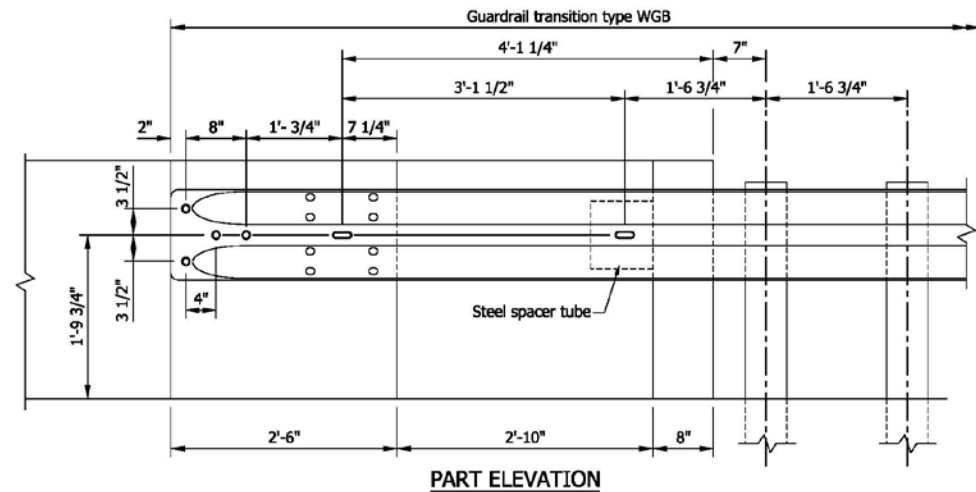
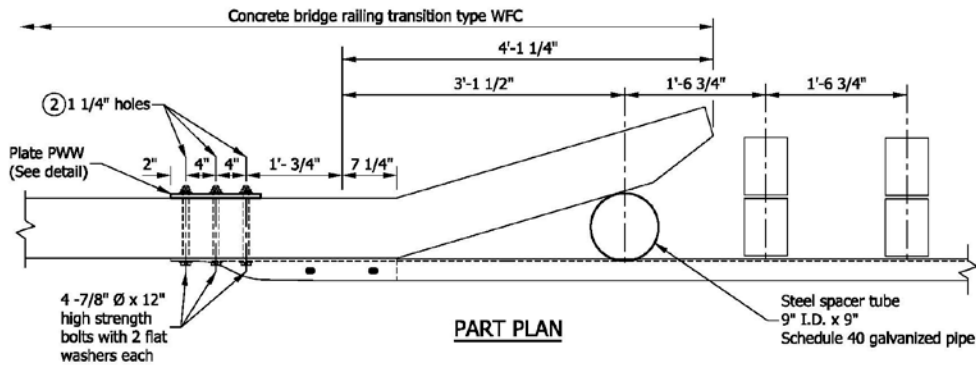
DATE

CHIEF HIGHWAY ENGINEER

DATE

REVISION TO STANDARD DRAWINGS

706-CBRT-02 BRIDGE RAILING TRANSITION WFC ATTACHMENT OF GUARDRAIL (DRAFT)



NOTES

- See Standard Drawing E 706-TWFC-01 through -03 for concrete bridge railing transition type WFC. See Standard Drawings E 601-TWGB-01 through -03 for guardrail transition type WGB.
- Preformed holes, for connection of the guardrail transition type WGB to the end of the concrete bridge railing transition type WFC.

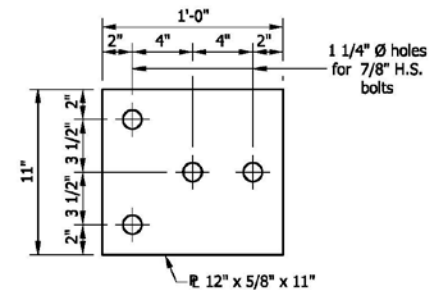


PLATE PWW

INDIANA DEPARTMENT OF TRANSPORTATION

BRIDGE RAILING TRANSITION WFC
 ATTACHMENT OF GUARDRAIL

SEPTEMBER 2012

STANDARD DRAWING NO. E 706-CBRT-02

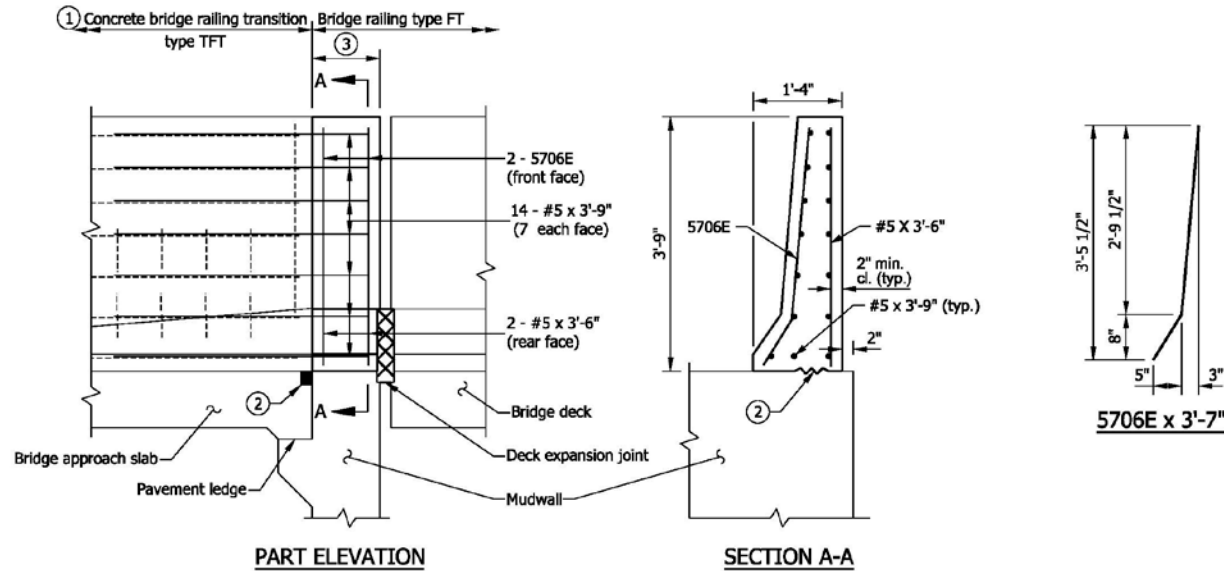
DESIGN STANDARDS ENGINEER DATE

CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER

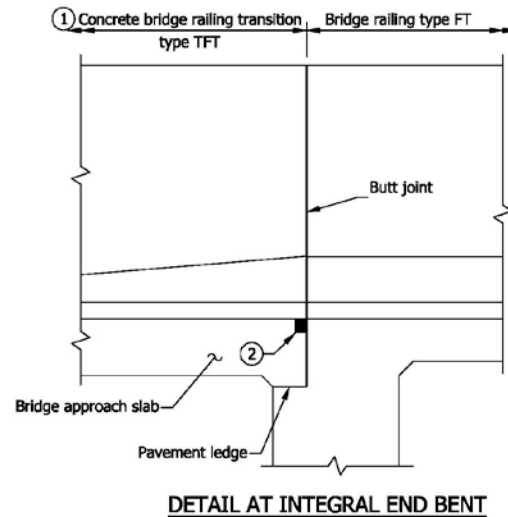
REVISION TO STANDARD DRAWINGS

706-CBRT-03 BRIDGE RAILING TRANSITION TFT DETAILS AT END BENT (DRAFT)



NOTES

- ① See Standard Drawings E 706-TTFT-01 through -03 for concrete bridge railing transition type TFT details.
- ② See Standard Drawing E 609-BRJT-01 for joint type I-A.
- ③ This shall be part of the concrete bridge railing, but it shall be poured with the concrete bridge-railing transition. The minimum length shall be equal to the width of the mudwall. See Standard Drawing E 706-BRSF-02 for bridge railing type FT dimensions.
4. See Standard Drawing E 703-BRST-01 for reinforcing-bar bending diagrams and notes.



INDIANA DEPARTMENT OF TRANSPORTATION

BRIDGE RAILING TRANSITION TFT
 DETAILS AT END BENT

SEPTEMBER 2012

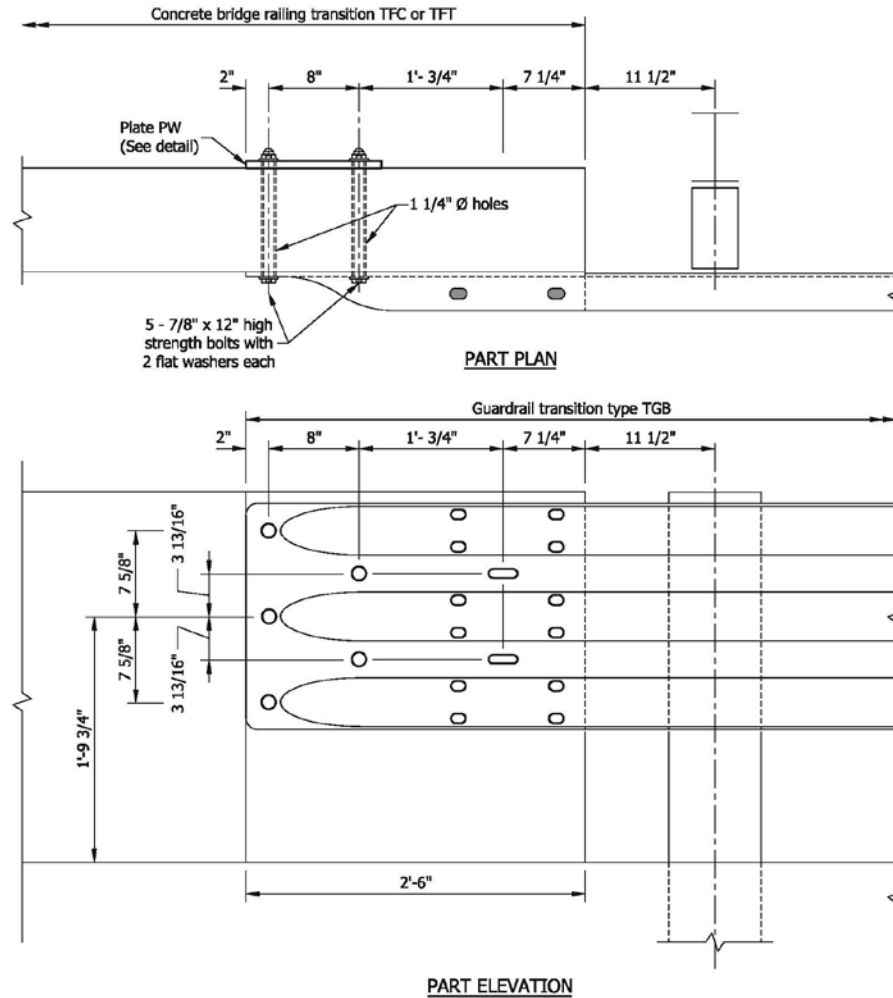
STANDARD DRAWING NO. E 706-CBRT-03

| | | |
|--|---------------------------|------|
| | | |
| | DESIGN STANDARDS ENGINEER | DATE |
| | CHIEF HIGHWAY ENGINEER | DATE |

DESIGN STANDARDS ENGINEER

REVISION TO STANDARD DRAWINGS

706-CBRT-04 BRIDGE RAILING TRANSITION TFC OR TFT ATTACHMENT OF GUARDRAIL (DRAFT)



NOTES

1. See Standard Drawings E 706-TTFC-01 through -03 for concrete bridge railing transition type TFC. See Standard Drawings E 706-TTFT-01 through -03 for concrete bridge railing transition type TFT. See Standard Drawings E 601-TTGB-01 through -05 for guardrail transition type TGB.
2. Preformed holes, for connection of the guardrail transition type TGB to the end of the concrete bridge railing transition type TFC or TFT.

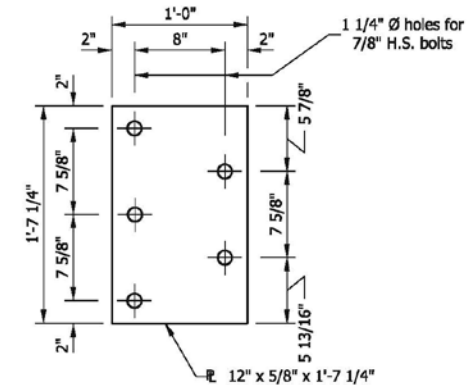


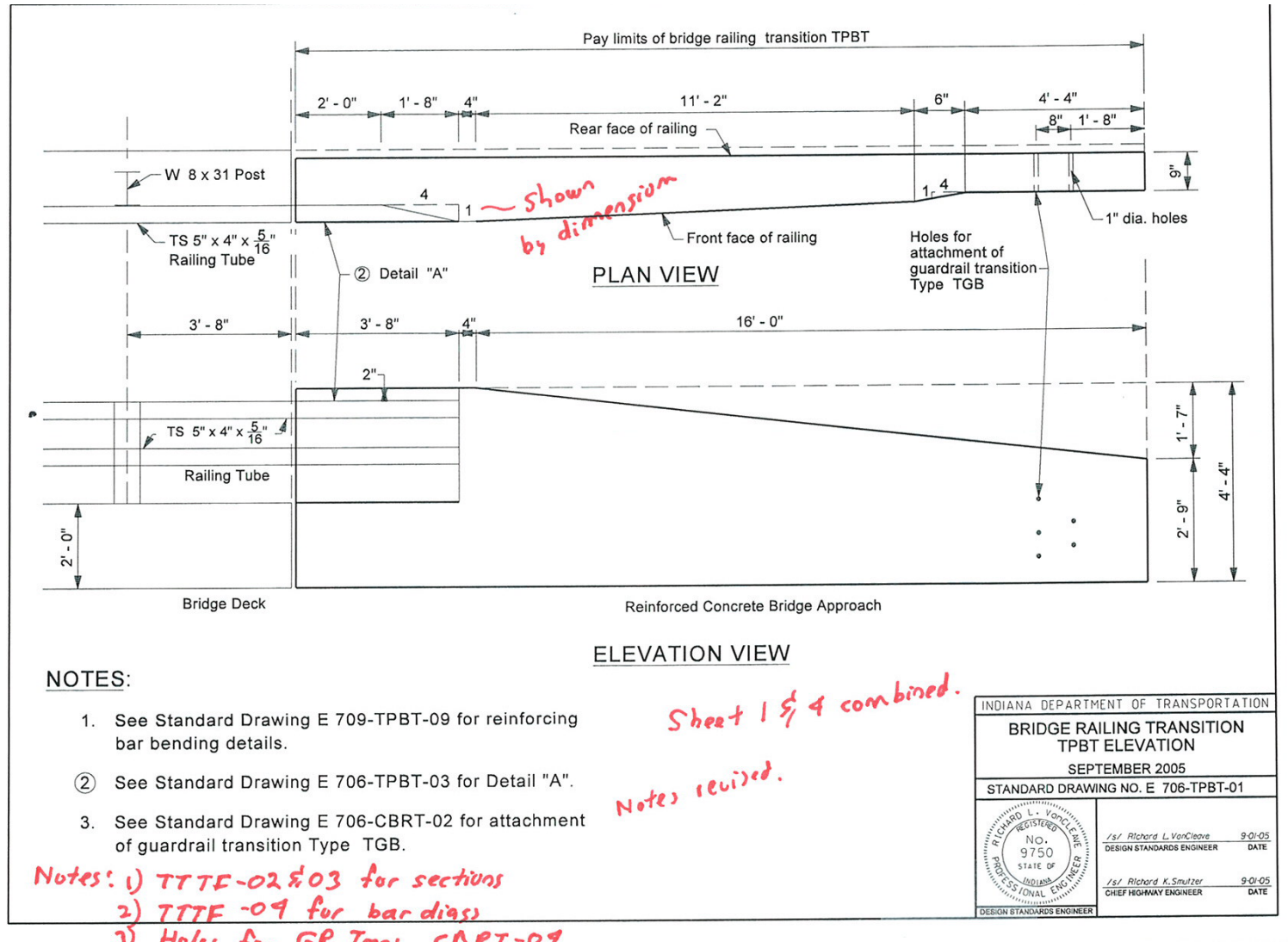
PLATE PW

| | |
|---|---------------|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| BRIDGE RAILING TRANSITION TFC OR TFT ATTACHMENT OF GUARDRAIL | |
| SEPTEMBER 2012 | |
| STANDARD DRAWING NO. | E 706-CBRT-04 |
| DESIGN STANDARDS ENGINEER | DATE |
| CHIEF HIGHWAY ENGINEER | DATE |
| DESIGN STANDARDS ENGINEER | |

Item No.02 03/15/12 (2012 SS)(contd.)
Mr. Strain
Date: 03/15/12

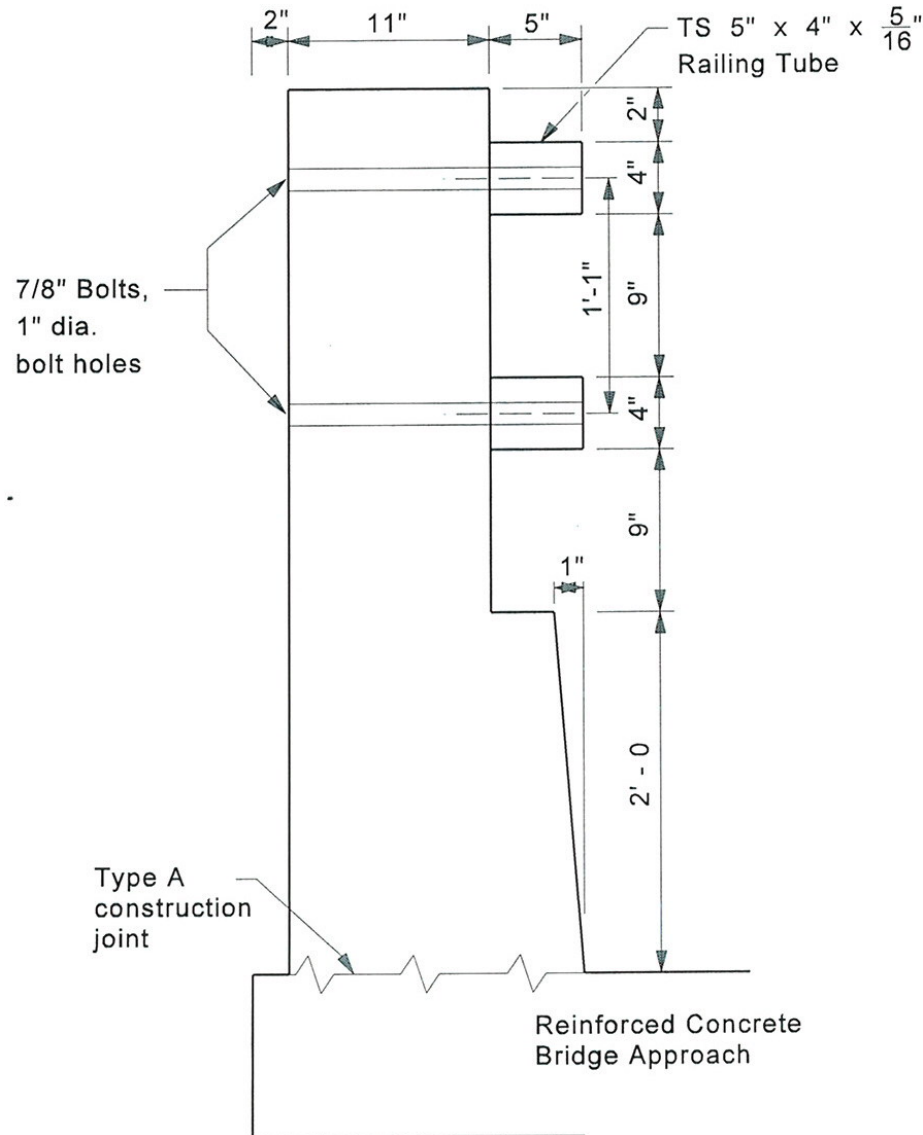
REVISION TO STANDARD DRAWINGS

EXISTING 706-TPBT-01 BRIDGE RAILING TRANSITION TPBT ELEVATION (WITH MARKUPS)



REVISION TO STANDARD DRAWINGS

EXISTING 706-TPBT-02 BRIDGE RAILING TRANSITION TPBT (PROPOSED TO DELETE)



NOTES:

1. Reinforcing steel not shown for clarity.
2. Bolts shall be $\frac{7}{8}$ " diameter 1'-6" long Round heads.

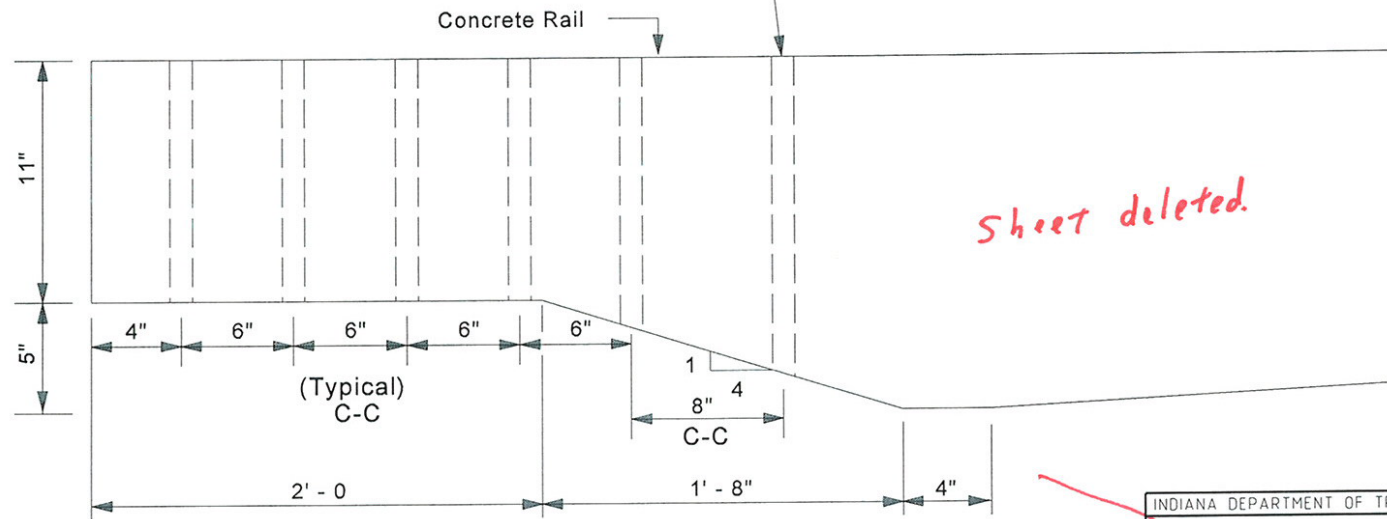
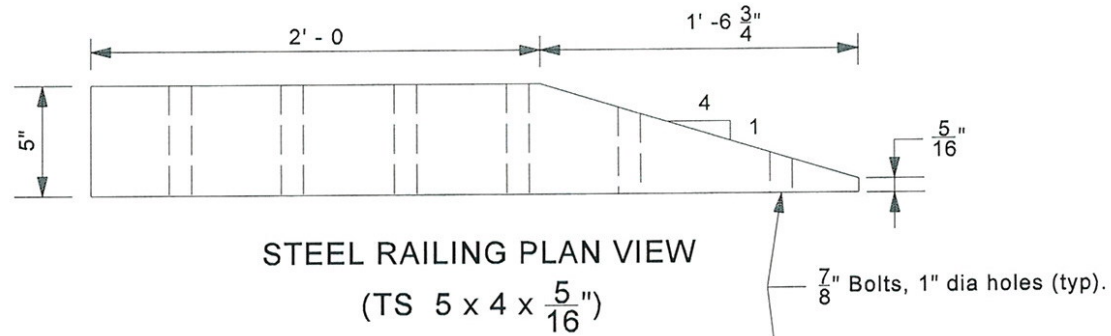
*holes shown on sheet /
 bolts shown in bridge std.*

Sheet deleted.

| | |
|--------------------------------------|--|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| BRIDGE RAILING TRANSITION TPBT | |
| SEPTEMBER 2005 | |
| STANDARD DRAWING NO. E 706-TPBT-02 | |
| | /s/ Richard L. VanCleave 9-01-05 DESIGN STANDARDS ENGINEER DATE |
| | /s/ Richard K. Smutzer 9-01-05 CHIEF HIGHWAY ENGINEER DATE |

REVISION TO STANDARD DRAWINGS

EXISTING 706-TPBT-03 BRIDGE RAILING TRANSITION TPBT DETAIL "A" (PROPOSED TO DELETE)



Sheet deleted.

CONCRETE RAILING TRANSITION
 PLAN VIEW

NOTES:

1. Reinforcing steel not shown for clarity.
2. Bolts shall be $\frac{7}{8}$ " diameter, 1'-6" long round heads.

| | |
|--|--|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| BRIDGE RAILING TRANSITION TPBT DETAIL "A" | |
| SEPTEMBER 2005 | |
| STANDARD DRAWING NO. E 706-TPBT-03 | |
| | /s/ Richard L. VanCleave 9-01-05 DESIGN STANDARDS ENGINEER DATE |
| | /s/ Richard K. Smutzer 9-01-05 CHIEF HIGHWAY ENGINEER DATE |
| DESIGN STANDARDS ENGINEER | |

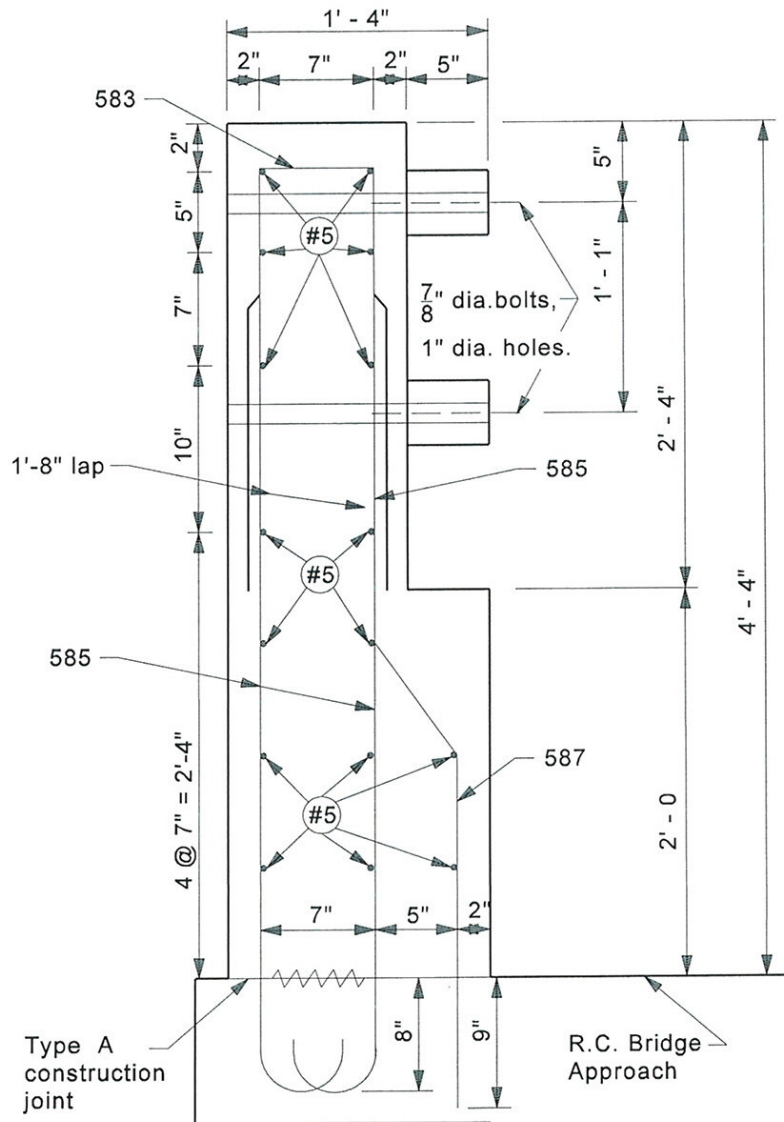
EXISTING 706-TPBT-04 BRIDGE RAILING TRANSITION TPBT (FOR TF-2) REINFORCEMENT ELEVATION (WITH MARKUPS)

14



Item No.02 03/15/12 (2012 SS)(contd.)
Mr. Strain
Date: 03/15/12

REVISION TO STANDARD DRAWINGS

EXISTING 706-TPBT-05 BRIDGE RAILING TRANSITION TPBT SECTION A-A WITH REINFORCEMENT (PROPOSED TO DELETE)

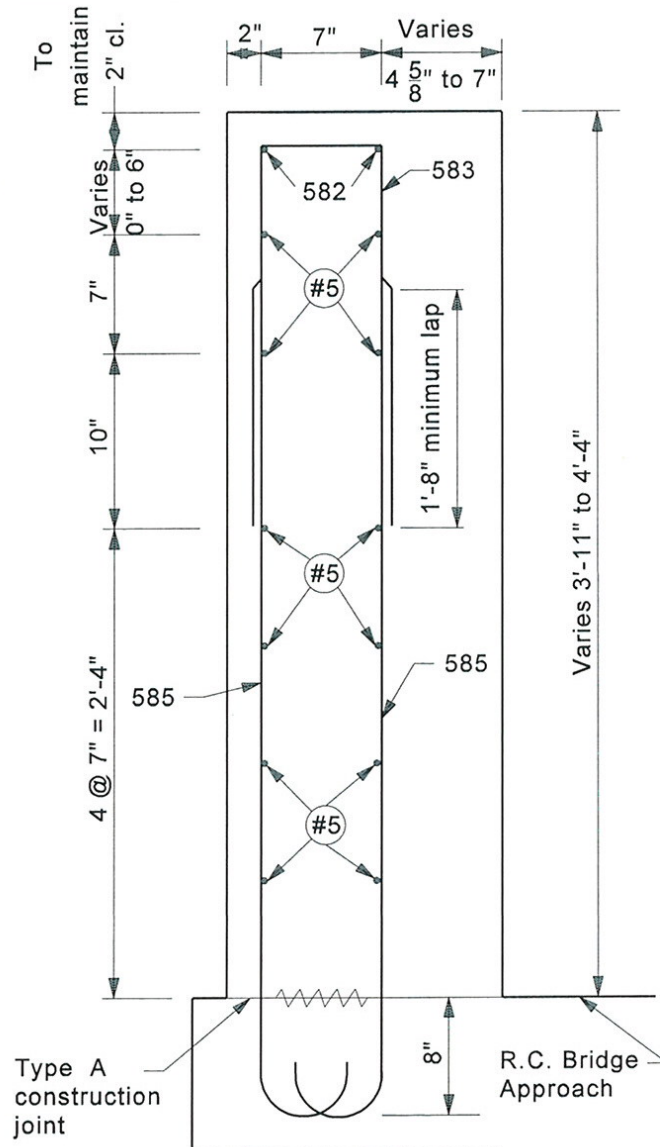


Sheet deleted.
Sections combined.

| INDIANA DEPARTMENT OF TRANSPORTATION | | |
|---|---------------------------|---------|
| BRIDGE RAILING TRANSITION TPBT SECTION A-A WITH REINFORCEMENT SEPTEMBER 2005 | | |
| STANDARD DRAWING NO. E 706-TPBT-05 | | |
|  | /s/ Richard L. VanCleave | 9-01-05 |
| | DESIGN STANDARDS ENGINEER | DATE |
|  | /s/ Richard K. Smutzer | 9-01-05 |
| | CHIEF HIGHWAY ENGINEER | DATE |
| DESIGN STANDARDS ENGINEER | | |

REVISION TO STANDARD DRAWINGS

EXISTING 706-TPBT-06 BRIDGE RAILING TRANSITION TPBT SECTION B-B (WITH MARKUPS)



NOTES:

1. See Standard Drawing E 706-TPBT-04 for Section B-B location.
2. See Standard Drawing E 706-TPBT-09 and E 703-BRST-01 for reinforcing steel details.

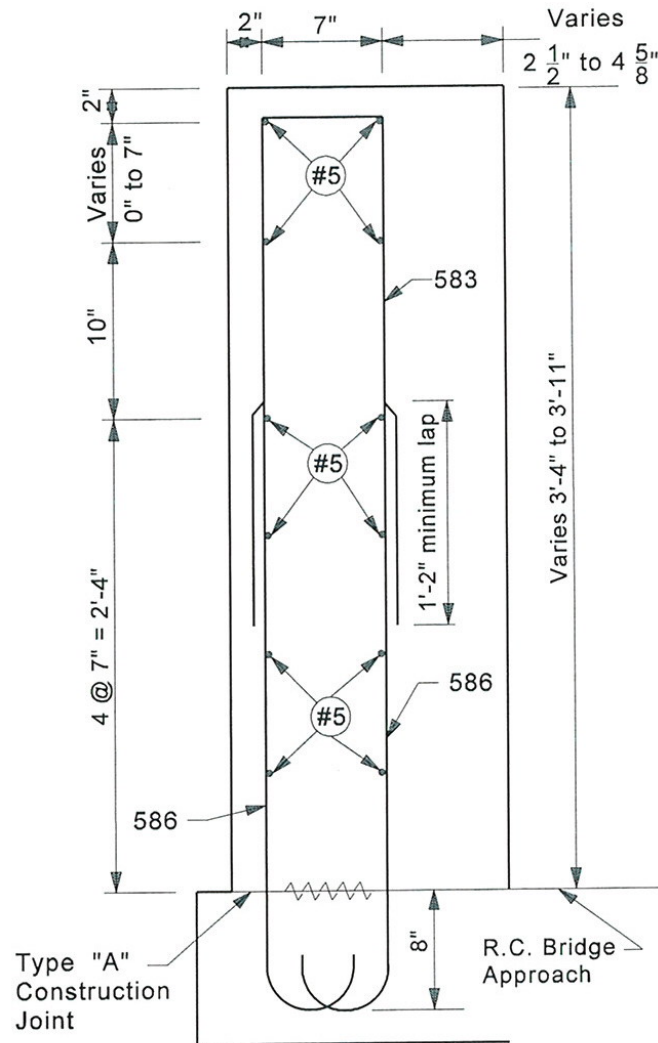
*Sections combined.
 706-TTTF-02 & 03*

| | |
|---|---|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| BRIDGE RAILING TRANSITION TPBT SECTION B-B | |
| SEPTEMBER 2005 | |
| STANDARD DRAWING NO. E 706-TPBT-06 | |
| | <i>/s/ Richard L. VanCleave</i> 9-01-05 DESIGN STANDARDS ENGINEER DATE |
| | <i>/s/ Richard K. Smutzer</i> 9-01-05 CHIEF HIGHWAY ENGINEER DATE |
| DESIGN STANDARDS ENGINEER | |

Item No.02 03/15/12 (2012 SS)(contd.)
Mr. Strain
Date: 03/15/12

REVISION TO STANDARD DRAWINGS


EXISTING 706-TPBT-07 BRIDGE RAILING TRANSITION TPBT SECTION C-C (WITH MARKUPS)



NOTES:

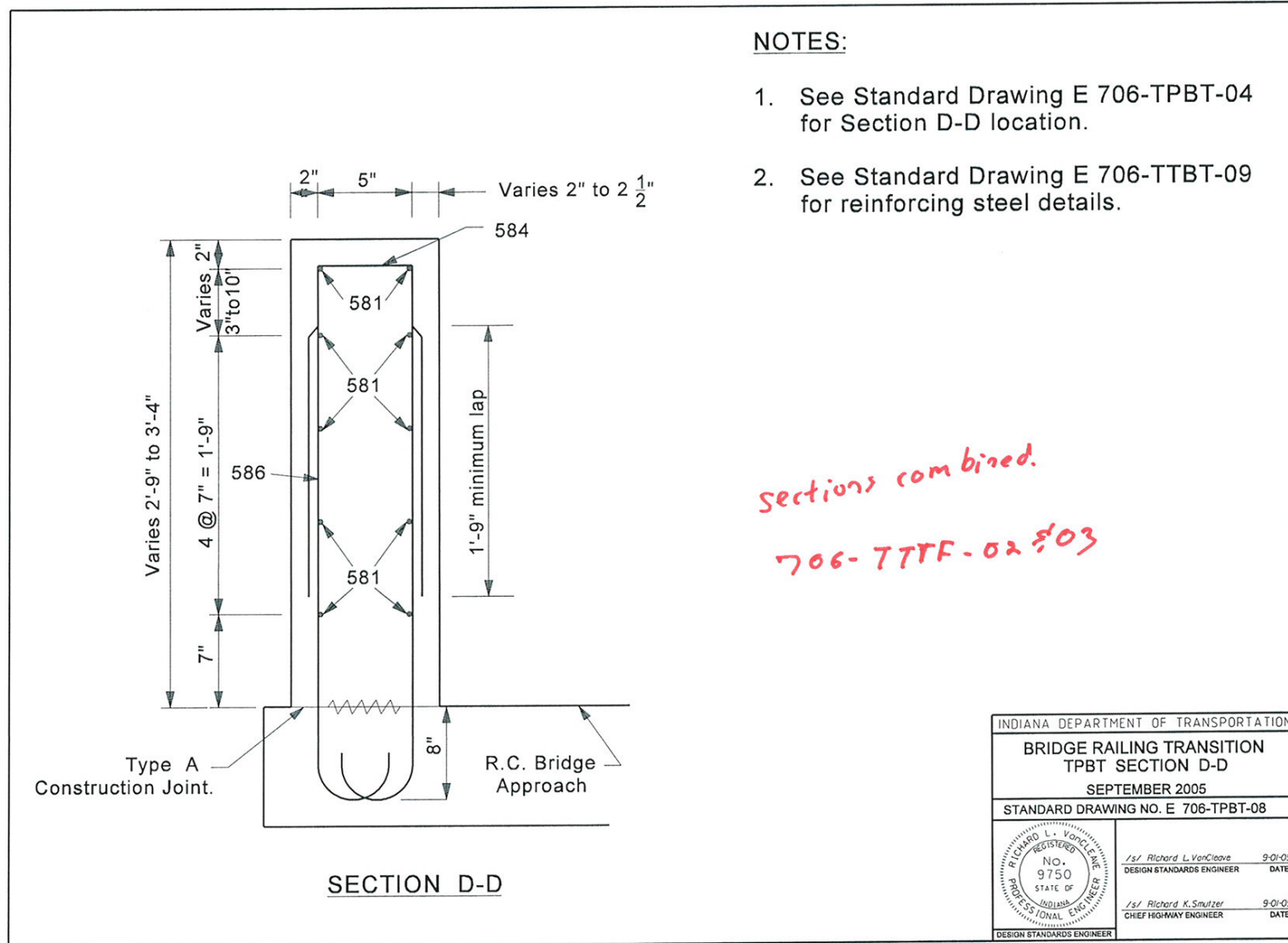
1. See Standard Drawing E 706-TPBT-04 for Section C-C location.
2. See Standard Drawing E 706-TPBT-09 and E 703-BRST-01 for reinforcing steel details.

*sections combined
706-TTTE-02 & 03*

| | | | | | | | | | |
|---|--|---------------------------------|---------|---------------------------|------|-------------------------------|---------|------------------------|------|
| INDIANA DEPARTMENT OF TRANSPORTATION | | | | | | | | | |
| BRIDGE RAILING TRANSITION TPBT SECTION C-C | | | | | | | | | |
| SEPTEMBER 2005 | | | | | | | | | |
| STANDARD DRAWING NO. E 706-TPBT-07 | | | | | | | | | |
|  | <table><tr><td><i>/s/ Richard L. VanCleave</i></td><td>9-01-05</td></tr><tr><td>DESIGN STANDARDS ENGINEER</td><td>DATE</td></tr><tr><td><i>/s/ Richard K. Smutzer</i></td><td>9-01-05</td></tr><tr><td>CHIEF HIGHWAY ENGINEER</td><td>DATE</td></tr></table> | <i>/s/ Richard L. VanCleave</i> | 9-01-05 | DESIGN STANDARDS ENGINEER | DATE | <i>/s/ Richard K. Smutzer</i> | 9-01-05 | CHIEF HIGHWAY ENGINEER | DATE |
| <i>/s/ Richard L. VanCleave</i> | 9-01-05 | | | | | | | | |
| DESIGN STANDARDS ENGINEER | DATE | | | | | | | | |
| <i>/s/ Richard K. Smutzer</i> | 9-01-05 | | | | | | | | |
| CHIEF HIGHWAY ENGINEER | DATE | | | | | | | | |
| DESIGN STANDARDS ENGINEER | | | | | | | | | |

REVISION TO STANDARD DRAWINGS

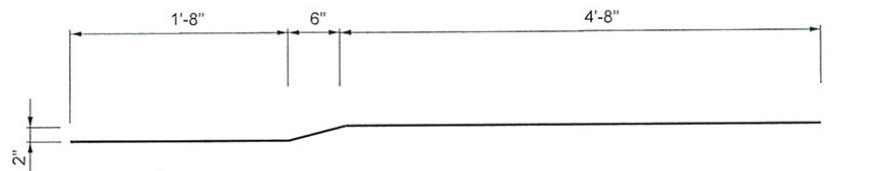
EXISTING 706-TPBT-08 BRIDGE RAILING TRANSITION TPBT SECTION D-D (WITH MARKUPS)



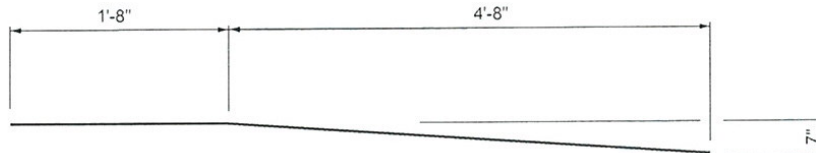
Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

REVISION TO STANDARD DRAWINGS

EXISTING 706-TPBT-09 CONCRETE BRIDGE RAILING TRANSITION TYPE TPBT (WITH MARKUPS)



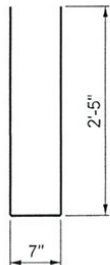
581 x 6'-10"



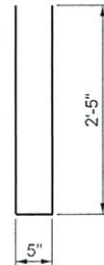
582 x 6'-4"

orientation revised.

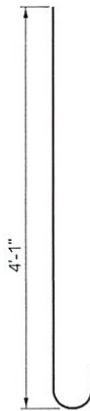
*bent bar
designations
revised*



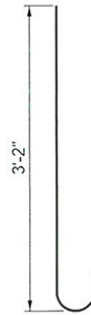
583 x 5'-5"



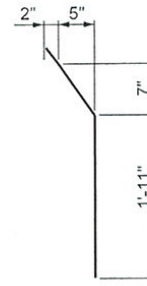
584 x 5'-3"



585 x 4'-8"



586 x 3'-9"



587 x 3'-1"

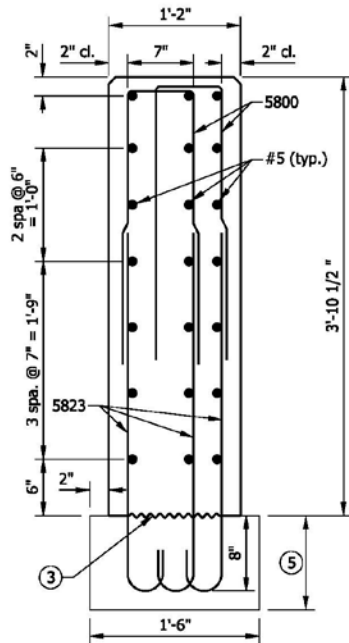
| BILL OF MATERIALS | | | |
|--|-------------|------------------|----------------------|
| These quantities are for one concrete bridge railing transition type TPBT. | | | |
| EPOXY COATED REINFORCING STEEL | | | |
| Size and Mark | No. of Bars | Length (ft.-in.) | Weight (lb.) |
| 581 | 5 | 6'-10" | |
| 582 | 2 | 6'-4" | |
| 583 | 24 | 5'-5" | |
| 584 | 13 | 5'-3" | |
| 585 | 14 | 4'-8" | |
| 586 | 46 | 3'-9" | |
| 587 | 7 | 3'-1" | |
| #5 | 8 | 15'-0" | |
| #5 | 2 | 12'-2" | |
| #5 | 2 | 8'-2" | |
| #5 | 4 | 4'-0" | |
| #5 | 5 | 6'-8" | |
| Total #5 Bars | | | 760 |
| Total Epoxy Coated Steel | | | 760 |
| Concrete Class C in Railing | | | 4.3 yd ³ |
| Surface Seal | | | 17.2 yd ² |

Bill revised

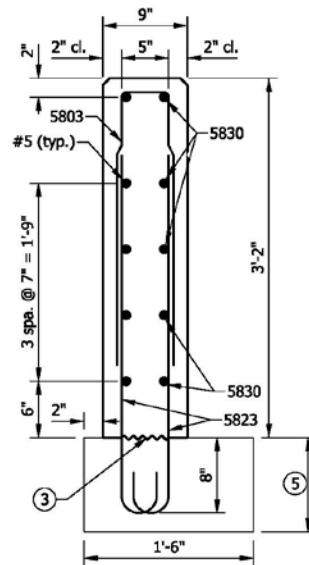
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|---|---|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| CONCRETE BRIDGE RAILING TRANSITION TYPE TPBT | |
| SEPTEMBER 2005 <i>TFE-2</i> | |
| STANDARD DRAWING NO. E 706-TPBT-09 | |
| | <i>/s/ Richard L. VanCleave</i> 9-01-05 DESIGN STANDARDS ENGINEER DATE |
| | <i>/s/ Richard K. Smutzer</i> 9-01-05 CHIEF HIGHWAY ENGINEER DATE |

REVISION TO STANDARD DRAWINGS

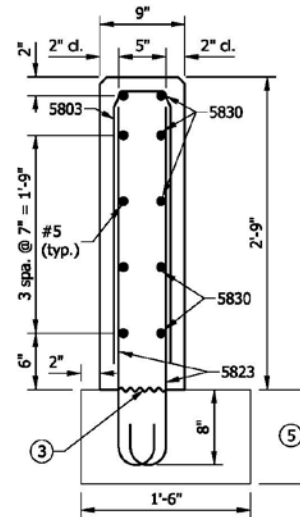
706-TTTF-03 CONCRETE BRIDGE RAILING TRANSITION, TTF-2 (DRAFT)



SECTION C-C



SECTION D-D



SECTION E-E

NOTES

1. See Standard Drawing E 706-TTTF-01 for elevation and plan.
2. All chamfered edges shall be 3/4".
- ③ Construction joint type A. See Standard Drawing E 702-CJTA-01 for details.
4. See Standard Drawing E 706-TTTF-04 for reinforcing-bar diagrams.
- ⑤ RCBA extension for bridge railing transition type TTF-2. See Standard Drawing E 609-TBAE-02 for details.

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION, TTF-2

SEPTEMBER 2012

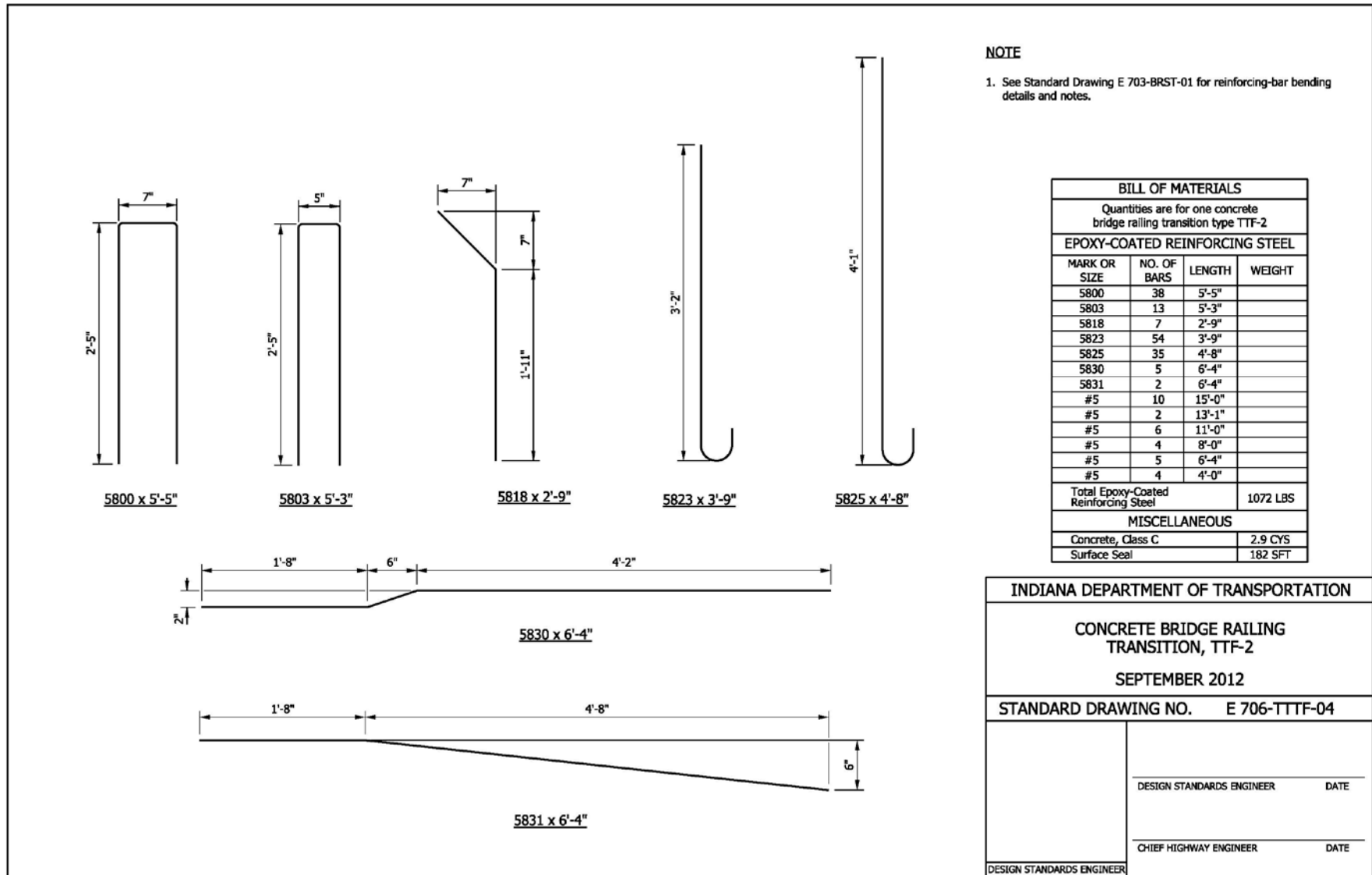
STANDARD DRAWING NO. E 706-TTTF-03

| | | |
|--|---------------------------|------|
| | DESIGN STANDARDS ENGINEER | DATE |
| | CHIEF HIGHWAY ENGINEER | DATE |

DESIGN STANDARDS ENGINEER

REVISION TO STANDARD DRAWINGS

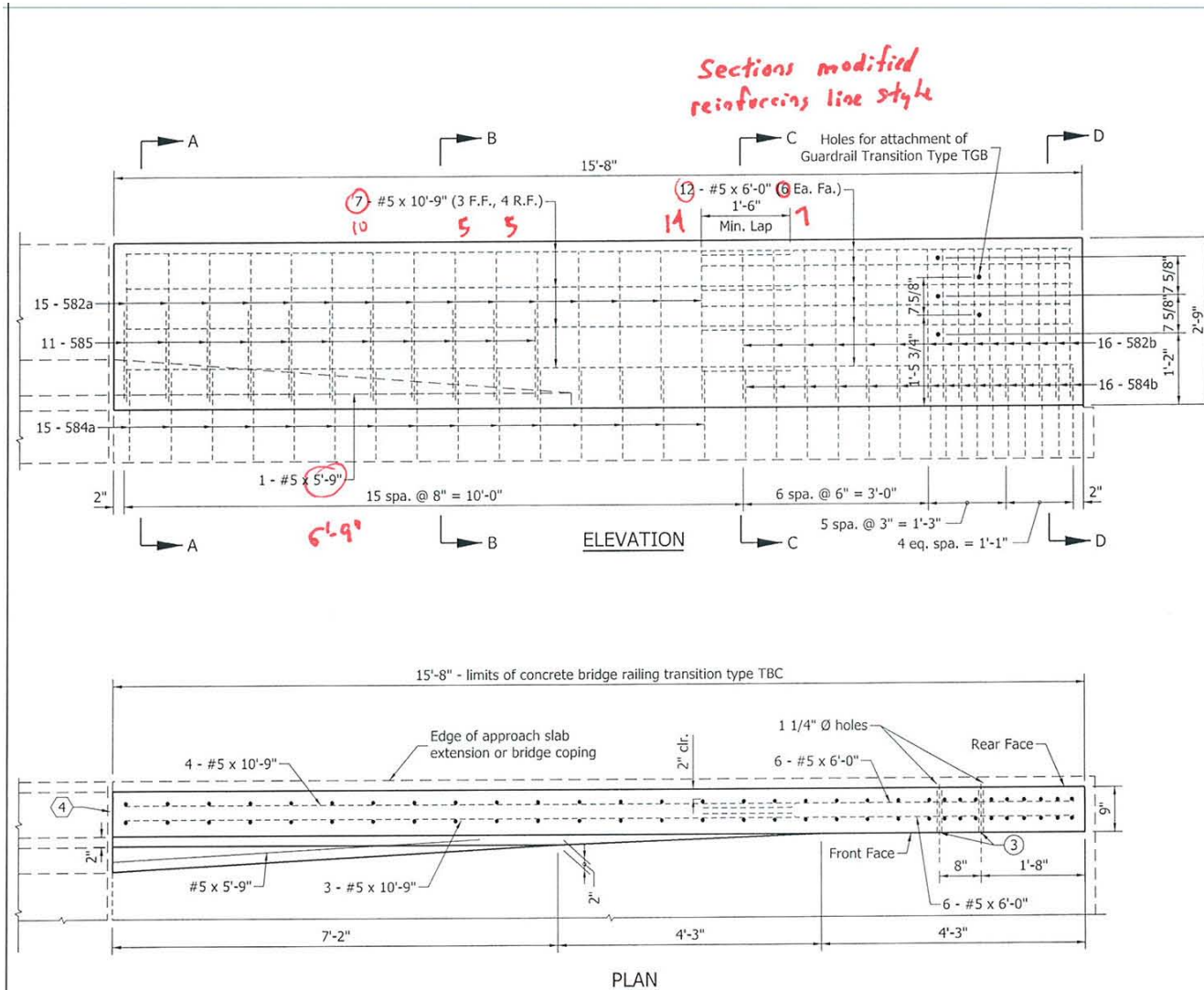
706-TTTF-04 CONCRETE BRIDGE RAILING TRANSITION, TTF-2 (DRAFT)



Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

REVISION TO STANDARD DRAWINGS

EXISTING 706-TTBC-01 CONCRETE BRIDGE RAILING TRANSITION TBC PLAN AND ELEVATION (WITH MARKUPS)



NOTES:

1. See Standard Drawing E 706-TTBC-02 for Sections A-A, B-B, C-C and D-D and Drawing E 706-TTBC-03 for reinforcement and bill of materials.
2. See Standard Drawing E 706-TASE-05 for General Notes.
3. See Standard Drawing E 706-CBRT-04 for details of guardrail transition type TGB attachment.

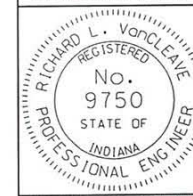
- 1) TTF-02 for sections
 2) TTF-03 for bit
 3) RCBA extension
 for TFC - TBAE-01

2'-9" COMMON HEIGHT THRIE BEAM/
 CONCRETE BRIDGE RAILING TRANSITION

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION TBC
 PLAN AND ELEVATION
 SEPTEMBER 2011

STANDARD DRAWING NO. E 706-TTBC-01

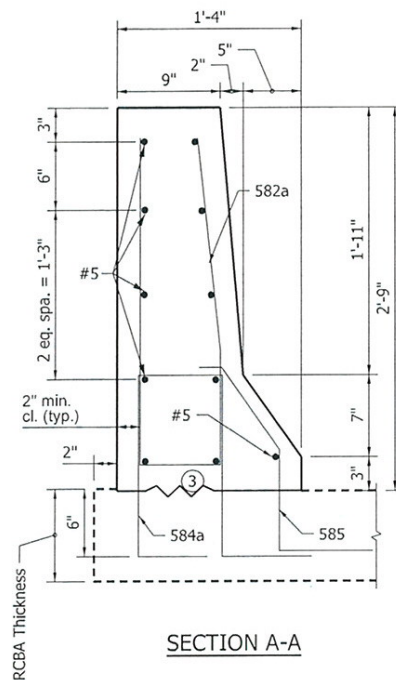


| | |
|---------------------------|----------|
| /s/ Richard L. VanCleave | 09/01/11 |
| DESIGN STANDARDS ENGINEER | DATE |
| /s/ Mark A. Miller | 09/01/11 |
| CHIEF HIGHWAY ENGINEER | DATE |

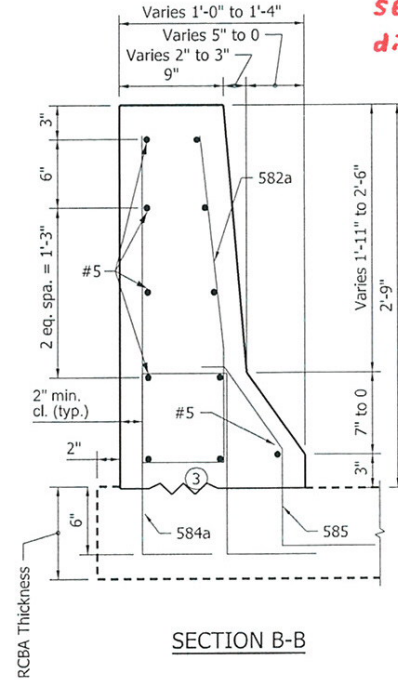
DESIGN STANDARDS ENGINEER

REVISION TO STANDARD DRAWINGS

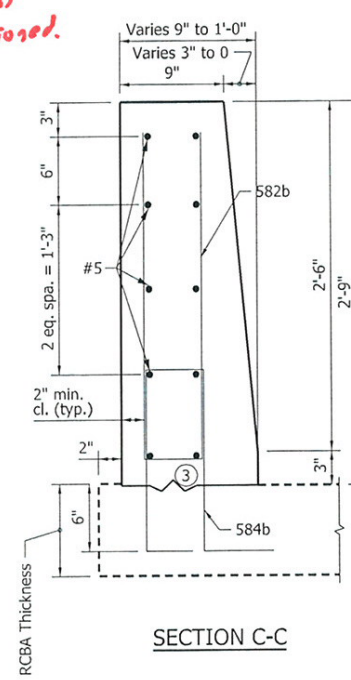
EXISTING 706-TTBC-02 CONCRETE BRIDGE RAILING TRANSITION TYPE TBC SECTIONS (WITH MARKUPS)



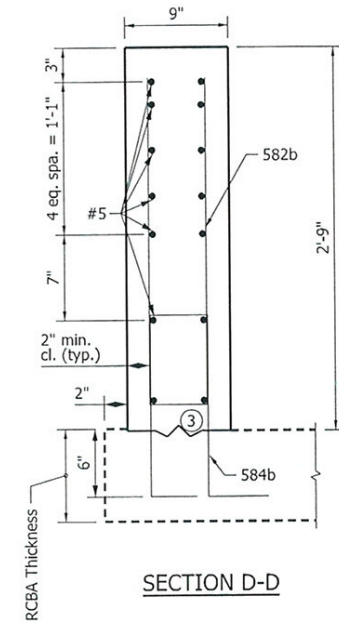
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

*Section
dimensioned.*

*584, 585
revised.*

NOTES:

1. See Standard Drawing E 706-TTBC-01 for Plan and Elevation.
2. See Standard Drawing E 703-BRST-01 for bar bending details and reinforcing bar notes.
- ③ Type A construction joint. See Standard Drawing E 702-CJTA-01 for details.
4. See Standard Drawing E 706-TTBC-03 for reinforcement details.

5 slab ext added.

2'-9" COMMON HEIGHT THRIE BEAM
CONCRETE BRIDGE RAILING TRANSITION

| | |
|--|---|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| CONCRETE BRIDGE RAILING TRANSITION TYPE TBC SECTIONS SEPTEMBER 2011 | |
| STANDARD DRAWING NO. E 706-TTBC-02 | |
| | /s/ Richard L. VanCleave 09/01/11 DESIGN STANDARDS ENGINEER DATE |
| | /s/ Mark A. Miller 09/01/11 CHIEF HIGHWAY ENGINEER DATE |
| DESIGN STANDARDS ENGINEER | |

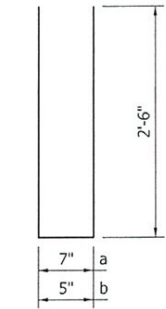
Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

REVISION TO STANDARD DRAWINGS

EXISTING 706-TTBC-03 CONCRETE BRIDGE RAILING TRANSITION TYPE TBC (WITH MARKUPS)

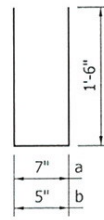
NOTE:

1. See Standard Drawing E 706-TASE-05 for General Notes.



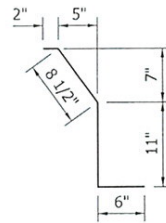
582a x 5'-7

582b x 5'-5



584a x 3'-7

584b x 3'-5



585 x 2'-4

B:1
revised.

| BILL OF MATERIALS | | | |
|---|-------------|------------------|---------------------|
| These quantities are for one concrete bridge railing transition type TBC. | | | |
| EPOXY COATED REINFORCING STEEL | | | |
| Size and Mark | No. of Bars | Length (Ft.-in.) | Weight (Lbs.) |
| 582a | 15 | 5'-7" | |
| 582b | 16 | 5'-5" | |
| 584a | 15 | 3'-7" | |
| 584b | 16 | 3'-5" | |
| 585 | 11 | 2'-4" | |
| #5 | 13 | 6'-0" | |
| #5 | 7 | 10'-9" | |
| Total #5 Bars | | | 477 |
| Total Epoxy Coated Steel | | | 477 |
| Concrete Class C in Railing | | | 1.2 yd ³ |
| Surface Seal | | | 100 ft ² |

584 revised to be equivalent to bridge rail step

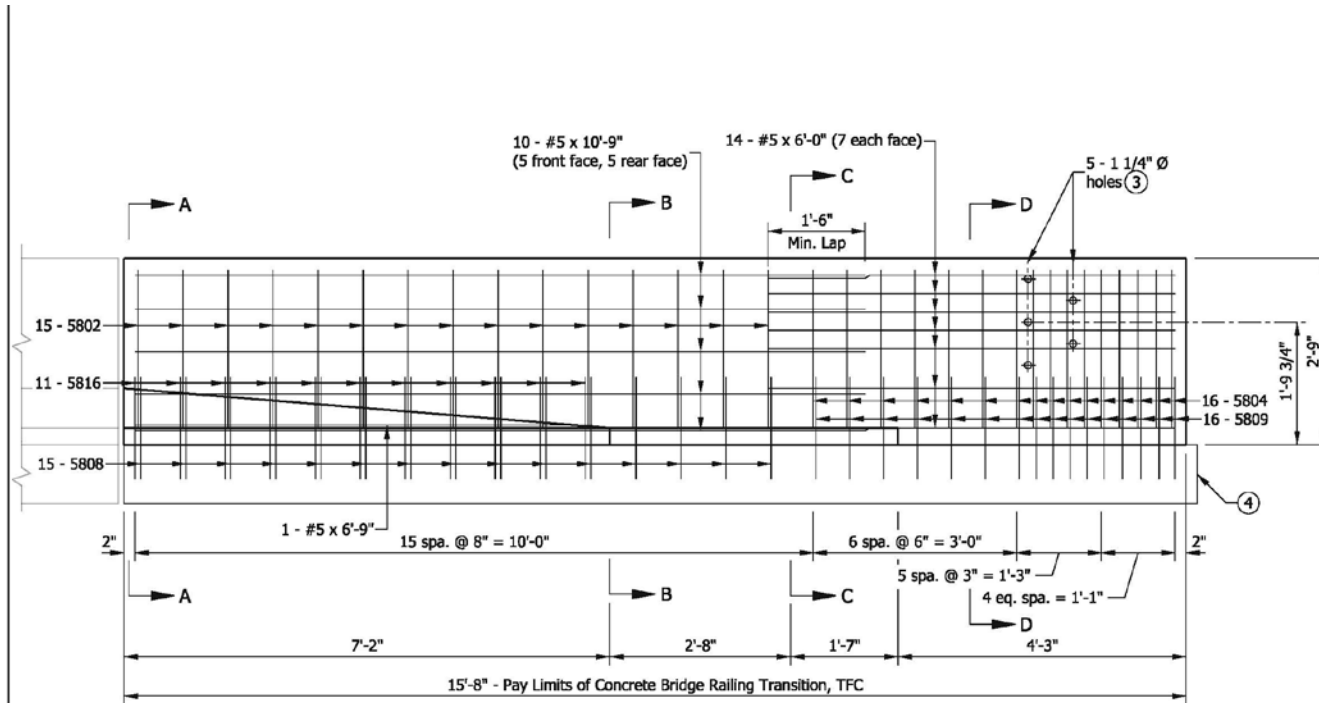
585 embedment increased

2'-9" COMMON HEIGHT THREE BEAM /
 CONCRETE BRIDGE RAILING TRANSITION

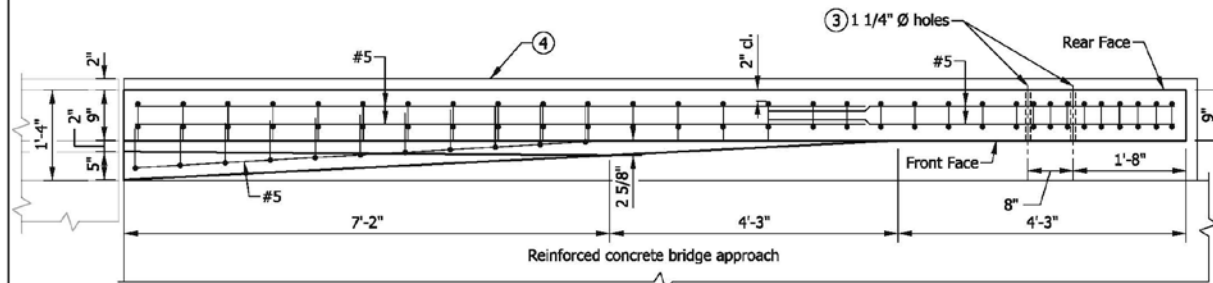
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|--|-----------------------------------|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| CONCRETE BRIDGE RAILING TRANSITION TYPE TBC | |
| SEPTEMBER 2011 | |
| STANDARD DRAWING NO. E 706-TTBC-03 | |
| | /s/ Richard L. VanCleave 09/01/11 |
| | DESIGN STANDARDS ENGINEER DATE |
| | /s/ Mark A. Miller 09/01/11 |
| | CHIEF HIGHWAY ENGINEER DATE |

REVISION TO STANDARD DRAWINGS

706-TTFC-01 CONCRETE BRIDGE RAILING TRANSITION TFC PLAN AND ELEVATION (DRAFT)



ELEVATION



PLAN

NOTES

1. See Standard Drawing E 706-TTFC-02 for sections.
2. See Standard Drawing E 706-TTFC-03 for reinforcing-bar diagrams and bill of materials.
- ③ Holes for attachment of guardrail transition type TGB. See Standard Drawing E 706-CBRT-04 for details.
- ④ RCBA extension for bridge railing transition type TFC. See Standard Drawing E 609-TBAE-01 for details.

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION TFC
 PLAN AND ELEVATION
 SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TTFC-01

DESIGN STANDARDS ENGINEER

DESIGN STANDARDS ENGINEER

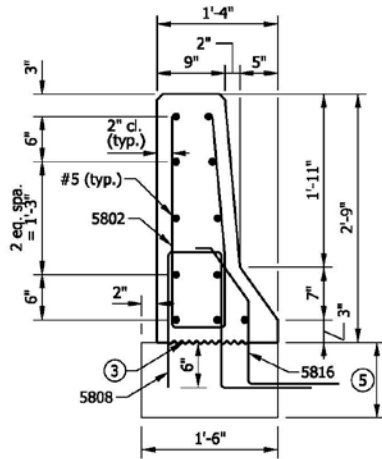
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CHIEF HIGHWAY ENGINEER

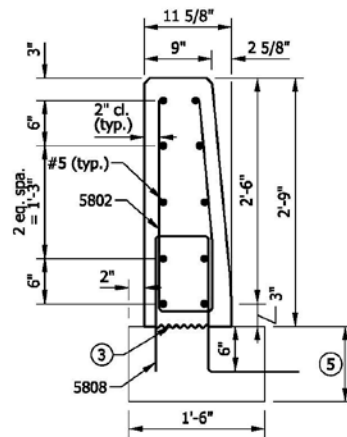
DATE

REVISION TO STANDARD DRAWINGS

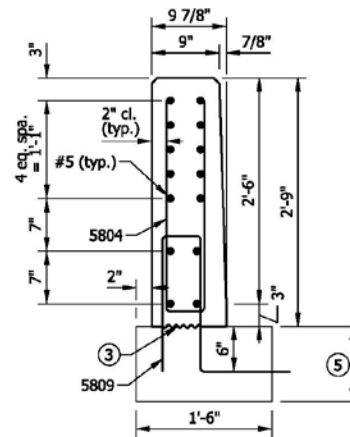
706-TTFC-02 CONCRETE BRIDGE RAILING TRANSITION, TFC SECTIONS (DRAFT)



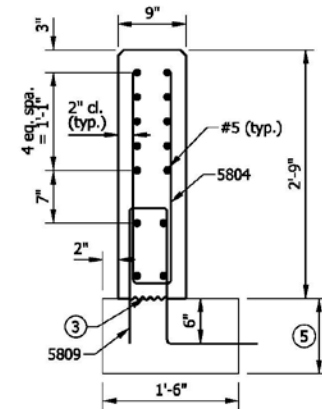
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

NOTES

1. See Standard Drawing E 706-TTFC-01 for elevation and plan.
2. All chamfered edges shall be 3/4".
- ③ Construction joint type A. See Standard Drawing E 702-CJTA-01 for details.
4. See Standard Drawing E 706-TTFC-03 for reinforcing-bar diagrams.
- ⑤ RCBA extension for bridge railing type TFC. See Standard Drawing E 609-TBAE-01 for details.

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION, TFC
 SECTIONS
 SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TTFC-02

DESIGN STANDARDS ENGINEER

DESIGN STANDARDS ENGINEER

DATE

CHIEF HIGHWAY ENGINEER

DATE

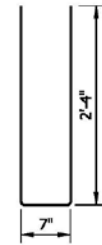
Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

REVISION TO STANDARD DRAWINGS

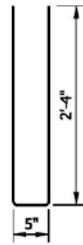
706-TTFC-03 CONCRETE BRIDGE RAILING TRANSITION, TFC (DRAFT)

NOTE

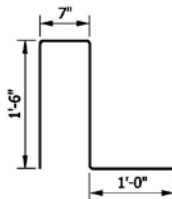
1. See Standard Drawing E 703-BRST-01 for reinforcing-bar bending details and notes.



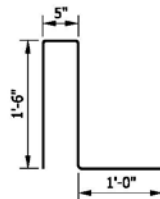
5802 x 5'-3"



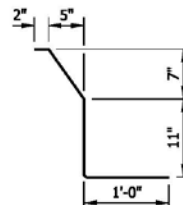
5804 x 5'-1"



5808 x 4'-7"



5809 x 4'-5"



5816 x 2'-10"

| BILL OF MATERIALS | | | |
|--|-------------|--------|---------|
| Quantities are for one concrete bridge railing transition type TFC | | | |
| EPOXY-COATED REINFORCING STEEL | | | |
| MARK OR SIZE | NO. OF BARS | LENGTH | WEIGHT |
| 5802 | 15 | 5'-3" | |
| 5804 | 16 | 5'-1" | |
| 5808 | 15 | 4'-7" | |
| 5809 | 16 | 4'-5" | |
| 5816 | 11 | 2'-10" | |
| #5 | 10 | 10'-9" | |
| #5 | 1 | 6'-9" | |
| #5 | 14 | 6'-0" | |
| Total Epoxy-Coated Reinforcing Steel | | | 552 LBS |
| MISCELLANEOUS | | | |
| Concrete, Class C | | | 1.2 CYS |
| Surface Seal | | | 100 SFT |

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
TRANSITION, TFC

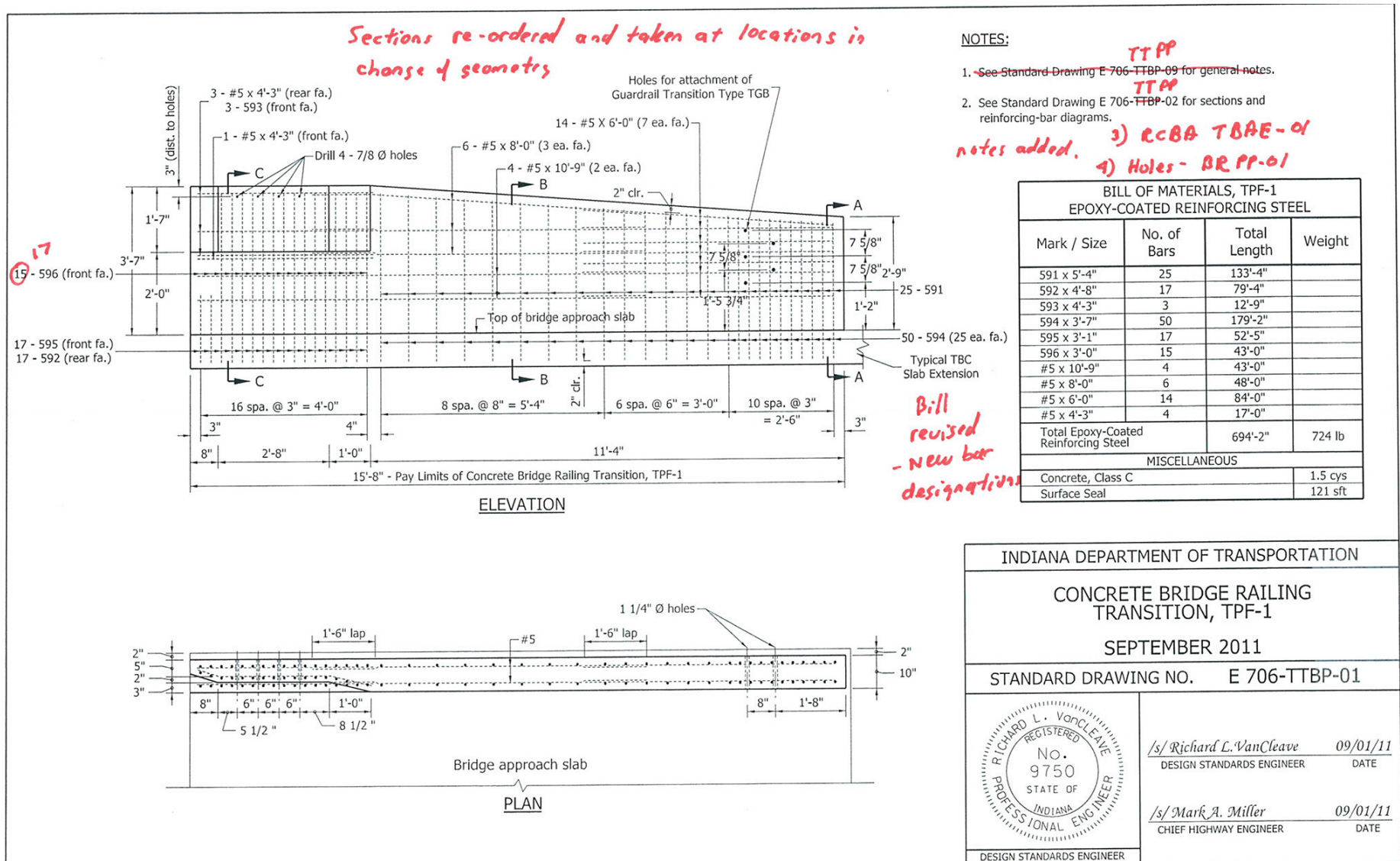
SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TTFC-03

| | | |
|---------------------------|---------------------------|------|
| DESIGN STANDARDS ENGINEER | DESIGN STANDARDS ENGINEER | DATE |
| | CHIEF HIGHWAY ENGINEER | DATE |
| | DESIGN STANDARDS ENGINEER | |

REVISION TO STANDARD DRAWINGS

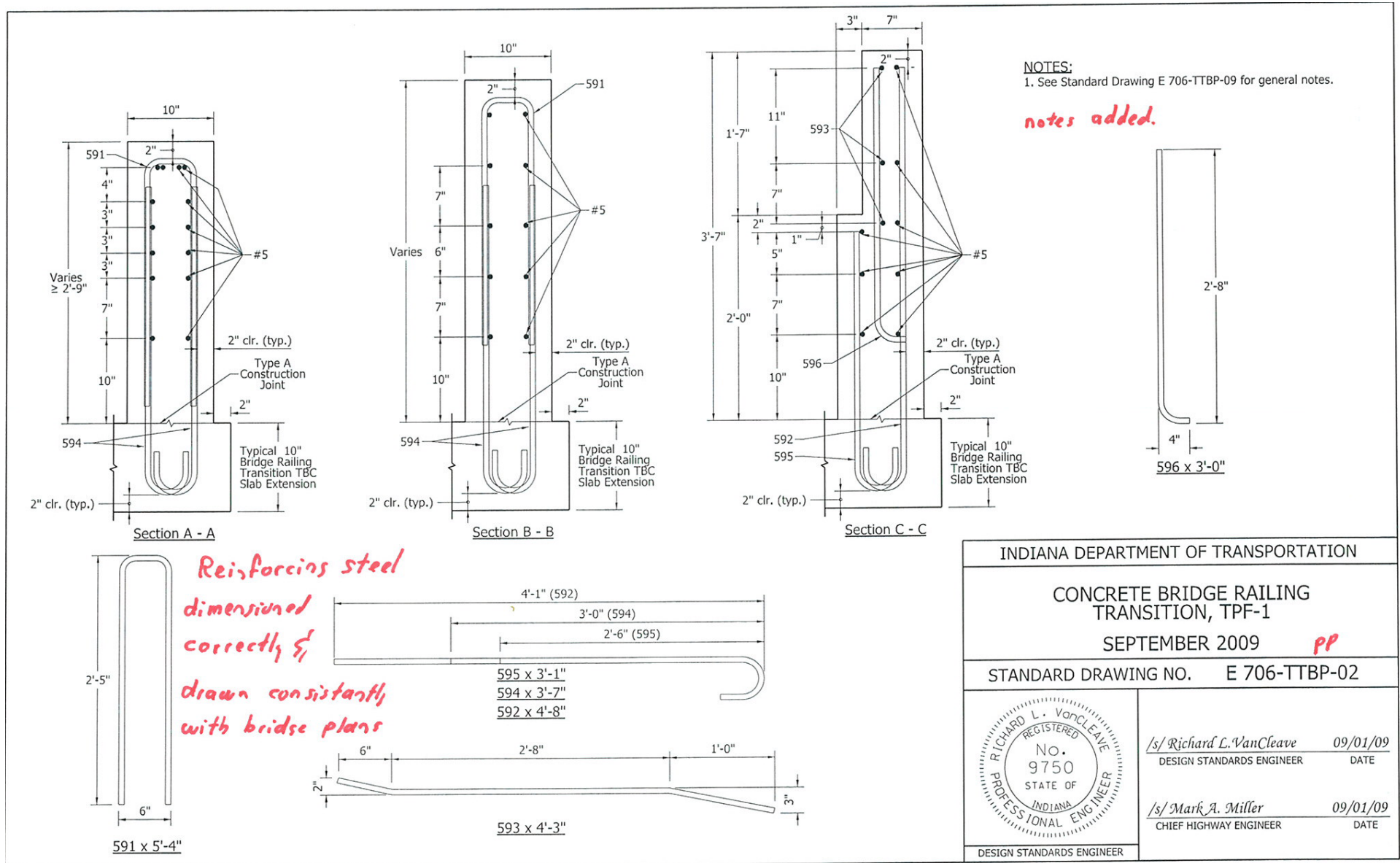
EXISTING 706-TTBP-01 CONCRETE BRIDGE RAILING TRANSITION, TPF-1 (WITH MARKUPS)



Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

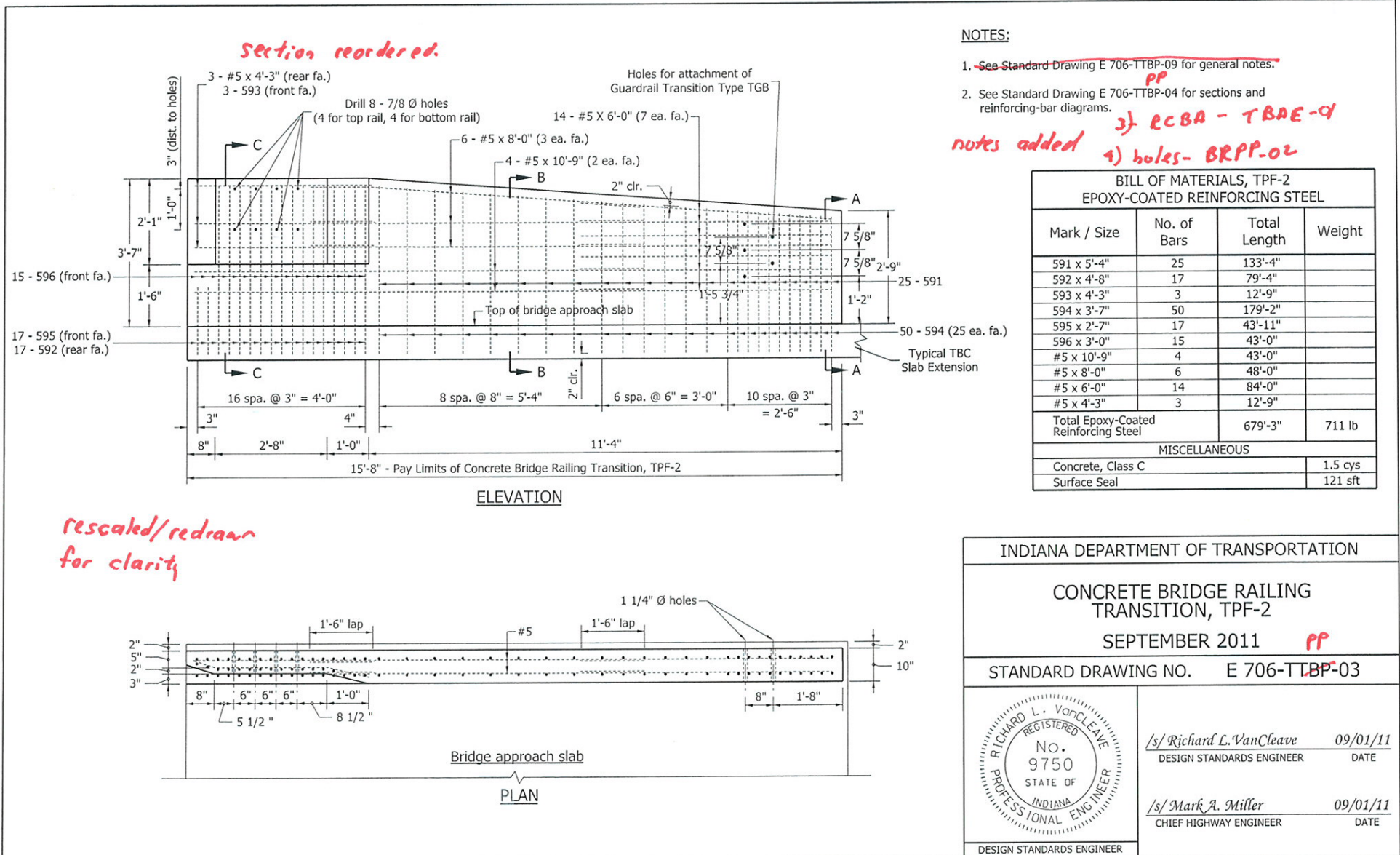
REVISION TO STANDARD DRAWINGS

EXISTING 706-TTBP-02 CONCRETE BRIDGE RAILING TRANSITION, TPF-1 (WITH MARKUPS)



REVISION TO STANDARD DRAWINGS

EXISTING 706-TTBP-03 CONCRETE BRIDGE RAILING TRANSITION, TPF-2 (WITH MARKUPS)



Date: 03/15/12

EXISTING 706-TTBP-04 CONCRETE BRIDGE RAILING TRANSITION, TPF-2 (WITH MARKUPS)



REVISION TO STANDARD DRAWINGS

EXISTING 706-TTBP-05 CONCRETE BRIDGE RAILING TRANSITION, TPS-1 (WITH MARKUPS)

Notes:

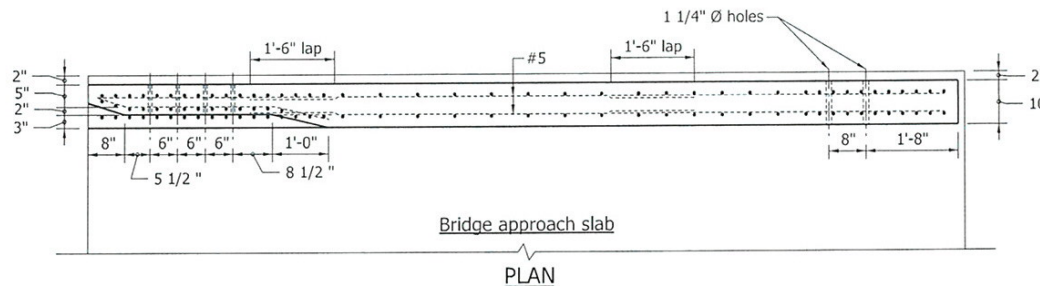
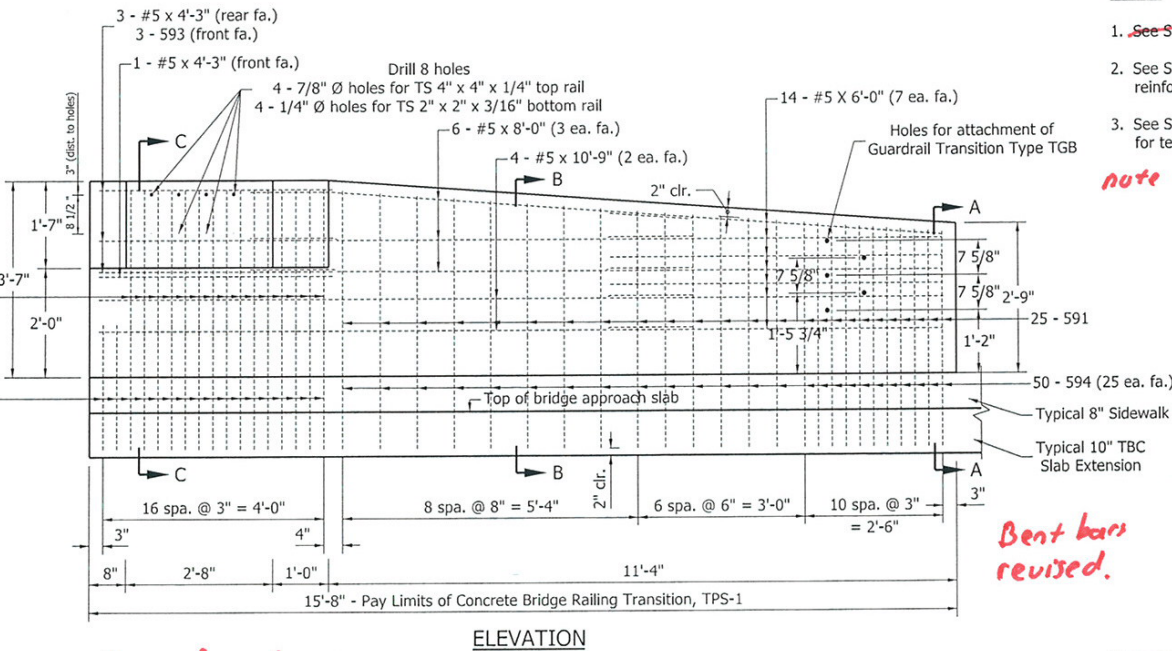
1. See Standard Drawing E 706-TTBP-09 for general notes.
2. See Standard Drawing E 706-TTBP-06 for sections and reinforcing-bar diagrams.
3. See Standard Drawing E 706-TTBP-01 for holes placement for terminal connection for attachment.

note added RCBA-TBAE-01

| BILL OF MATERIALS, TPS-1 EPOXY-COATED REINFORCING STEEL | | | |
|--|-------------|--------------|---------|
| Mark / Size | No. of Bars | Total Length | Weight |
| 591 x 5'-4" | 25 | 133'-4" | |
| 592 x 5'-4" | 17 | 90'-8" | |
| 593 x 4'-3" | 3 | 12'-9" | |
| 594 x 4'-3" | 50 | 212'-6" | |
| 595 x 3'-9" | 17 | 63'-9" | |
| 596 x 3'-0" | 15 | 45'-0" | |
| #5 x 10'-9" | 4 | 43'-0" | |
| #5 x 8'-0" | 6 | 48'-0" | |
| #5 x 6'-0" | 14 | 84'-0" | |
| #5 x 4'-3" | 4 | 17'-0" | |
| Total Epoxy-Coated Reinforcing Steel | | 750'-0" | 783 lb |
| MISCELLANEOUS | | | |
| Concrete, Class C | | | 1.5 cys |
| Surface Seal | | | 121 sft |

Bent bars revised.

redrawn for clarity

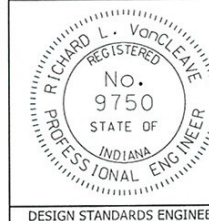


INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
TRANSITION, TPS-1

SEPTEMBER 2011

STANDARD DRAWING NO. E 706-TTBP-05



/s/ Richard L. VanCleave 09/01/11
DESIGN STANDARDS ENGINEER DATE

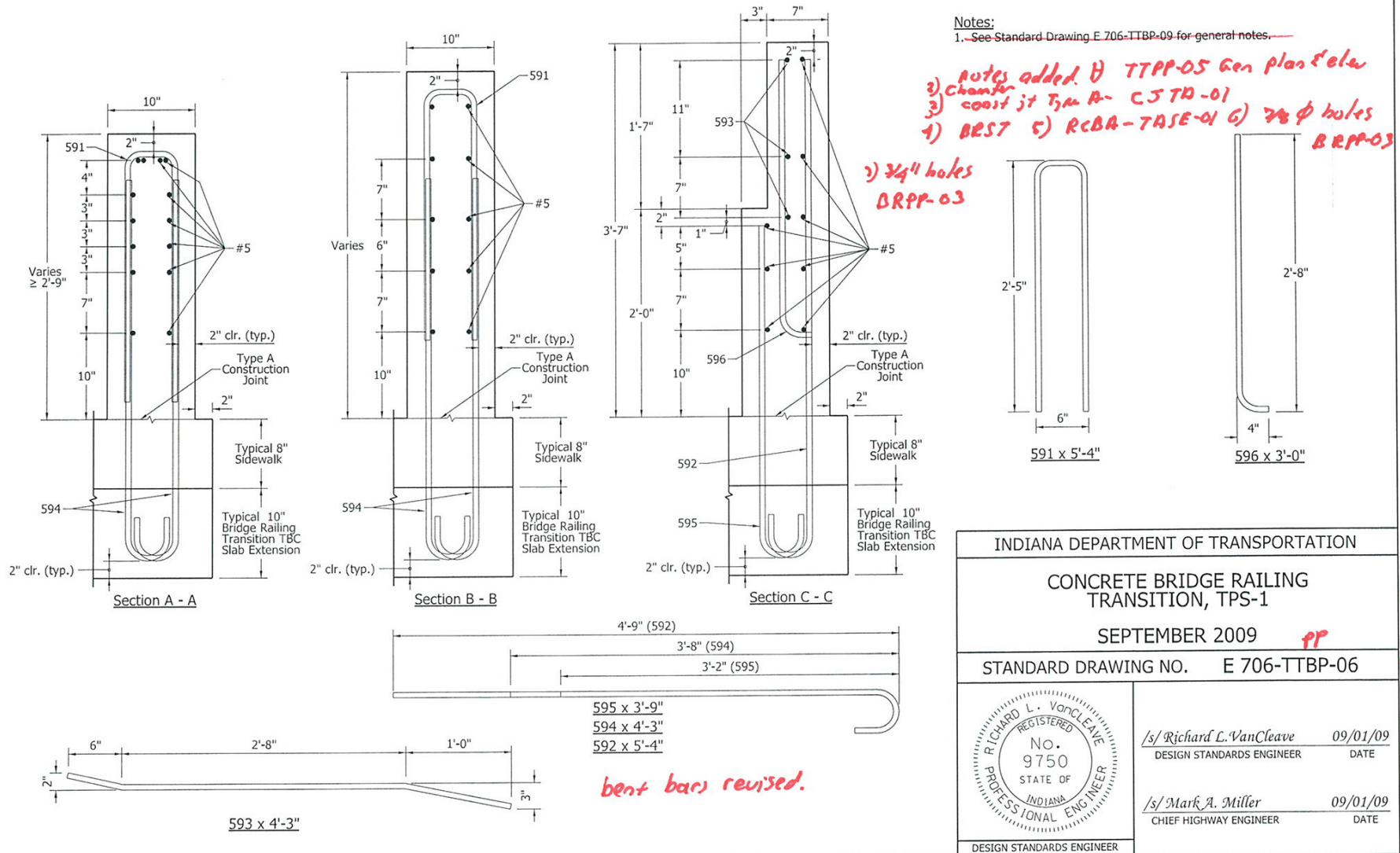
/s/ Mark A. Miller 09/01/11
CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER

Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

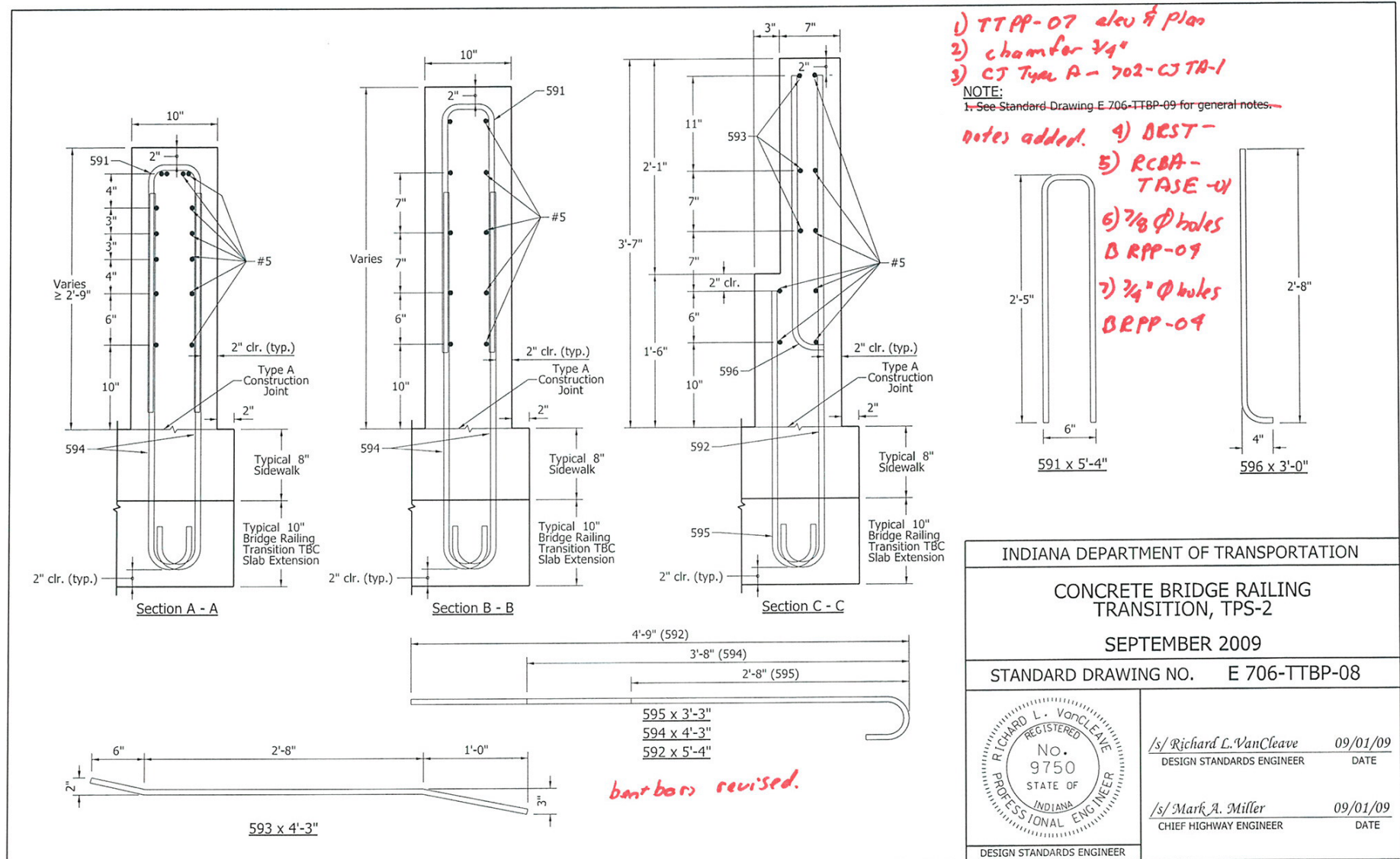
REVISION TO STANDARD DRAWINGS

EXISTING 706-TTBP-06 CONCRETE BRIDGE RAILING TRANSITION, TPS-1 (WITH MARKUPS)



REVISION TO STANDARD DRAWINGS

EXISTING 706-TTBP-08 CONCRETE BRIDGE RAILING TRANSITION, TPS-2 (WITH MARKUPS)



| | |
|--|---|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| CONCRETE BRIDGE RAILING TRANSITION, TPS-2 | |
| SEPTEMBER 2009 | |
| STANDARD DRAWING NO. E 706-TTBP-08 | |
| | /s/ Richard L. VanCleave 09/01/09 DESIGN STANDARDS ENGINEER DATE |
| | /s/ Mark A. Miller 09/01/09 CHIEF HIGHWAY ENGINEER DATE |
| DESIGN STANDARDS ENGINEER | |

Item No.02 03/15/12 (2012 SS)(contd.)
Mr. Strain
Date: 03/15/12

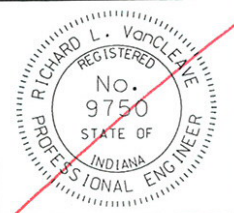
REVISION TO STANDARD DRAWINGS

EXISTING 706-TTBP-09 CONCRETE BRIDGE RAILING TRANSITION TYPE TPF, TPS, OR TTX (PROPOSED TO DELETE)

GENERAL NOTES:

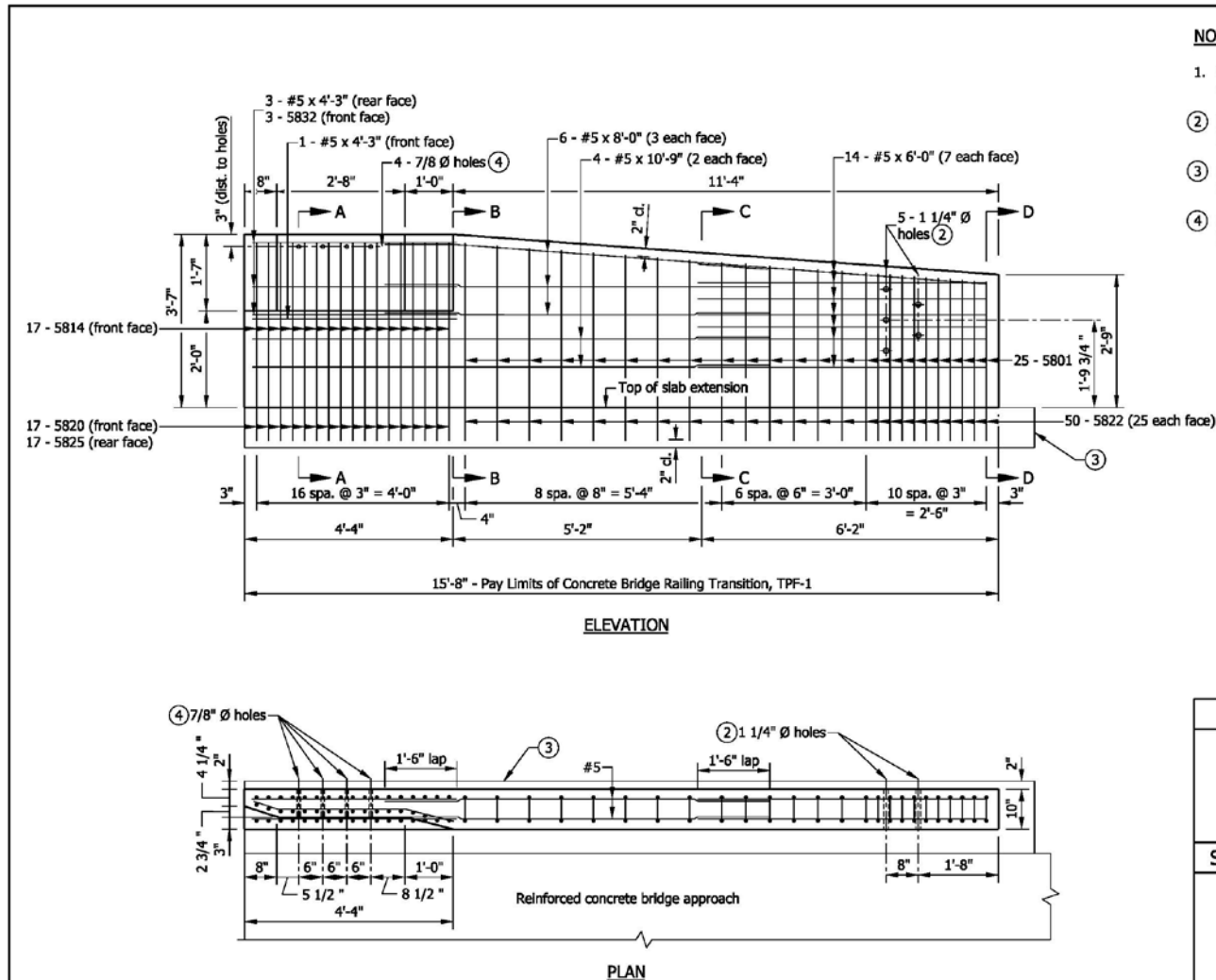
1. All reinforcing-bars shall be epoxy coated.
2. Concrete shall be class C.
3. See Standard Drawing E 703-BRST-01 for reinforcing-bar bending details.
4. See Standard Drawing E 706-CBRT-02 for attachment of guardrail transition type TGB.
5. See Standard Drawing E 706-TASE-01, -02 and -05 for bridge-railing transition type TBC slab extension.

Sheet deleted!

| | | | | | | | | | |
|---|--|--------------------------|----------|---------------------------|------|--------------------|----------|------------------------|------|
| INDIANA DEPARTMENT OF TRANSPORTATION | | | | | | | | | |
| CONCRETE BRIDGE RAILING TRANSITION TYPE TPF, TPS, OR TTX SEPTEMBER 2009 | | | | | | | | | |
| STANDARD DRAWING NO. E 706-TTBP-09 | | | | | | | | | |
|  | <table><tr><td>/s/ Richard L. VanCleave</td><td>09/01/09</td></tr><tr><td>DESIGN STANDARDS ENGINEER</td><td>DATE</td></tr><tr><td>/s/ Mark A. Miller</td><td>09/01/09</td></tr><tr><td>CHIEF HIGHWAY ENGINEER</td><td>DATE</td></tr></table> | /s/ Richard L. VanCleave | 09/01/09 | DESIGN STANDARDS ENGINEER | DATE | /s/ Mark A. Miller | 09/01/09 | CHIEF HIGHWAY ENGINEER | DATE |
| /s/ Richard L. VanCleave | 09/01/09 | | | | | | | | |
| DESIGN STANDARDS ENGINEER | DATE | | | | | | | | |
| /s/ Mark A. Miller | 09/01/09 | | | | | | | | |
| CHIEF HIGHWAY ENGINEER | DATE | | | | | | | | |
| DESIGN STANDARDS ENGINEER | | | | | | | | | |

REVISION TO STANDARD DRAWINGS

706-TTPP-01 CONCRETE BRIDGE RAILING TRANSITION, TPF-1 (DRAFT)



NOTES

- See Standard Drawing E 706-TTPP-02 for sections and reinforcing bar diagrams.
- Holes for attachment of guardrail transition type TGB. See Standard Drawing E 706-CBRT-04 for details.
- RCBA extension for bridge railing transition type TPF-1. See Standard Drawing E 609-TBAE-01 for details.
- Holes for attachment of steel bridge railing type PF-1. See Standard Drawing E 706-BRPP-01 for details.

| BILL OF MATERIALS | | | |
|---|-------------|--------|---------|
| Quantities are for one concrete bridge railing transition type TPF-1. | | | |
| EPOXY-COATED REINFORCING STEEL | | | |
| MARK OR SIZE | NO. OF BARS | LENGTH | WEIGHT |
| 5801 | 25 | 5'-4" | |
| 5814 | 17 | 3'-0" | |
| 5820 | 17 | 3'-1" | |
| 5822 | 50 | 3'-7" | |
| 5825 | 17 | 4'-8" | |
| 5832 | 3 | 4'-3" | |
| #5 | 4 | 10'-9" | |
| #5 | 6 | 8'-0" | |
| #5 | 14 | 6'-0" | |
| #5 | 4 | 4'-3" | |
| Total Epoxy-Coated Reinforcing Steel | | | 730 LBS |
| MISCELLANEOUS | | | |
| Concrete, Class C | | | 1.5 CYS |
| Surface Seal | | | 119 SFT |

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING TRANSITION, TPF-1

SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TTPP-01

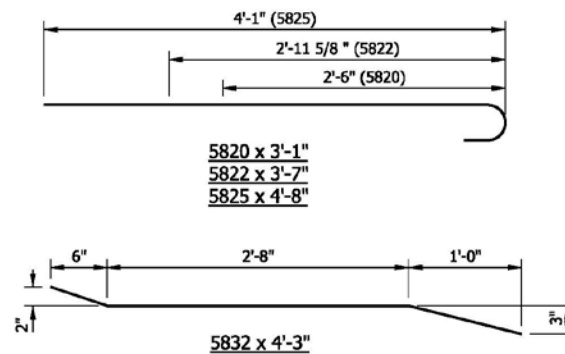
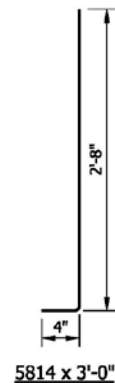
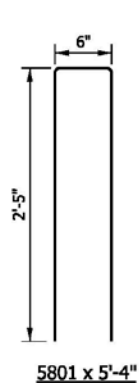
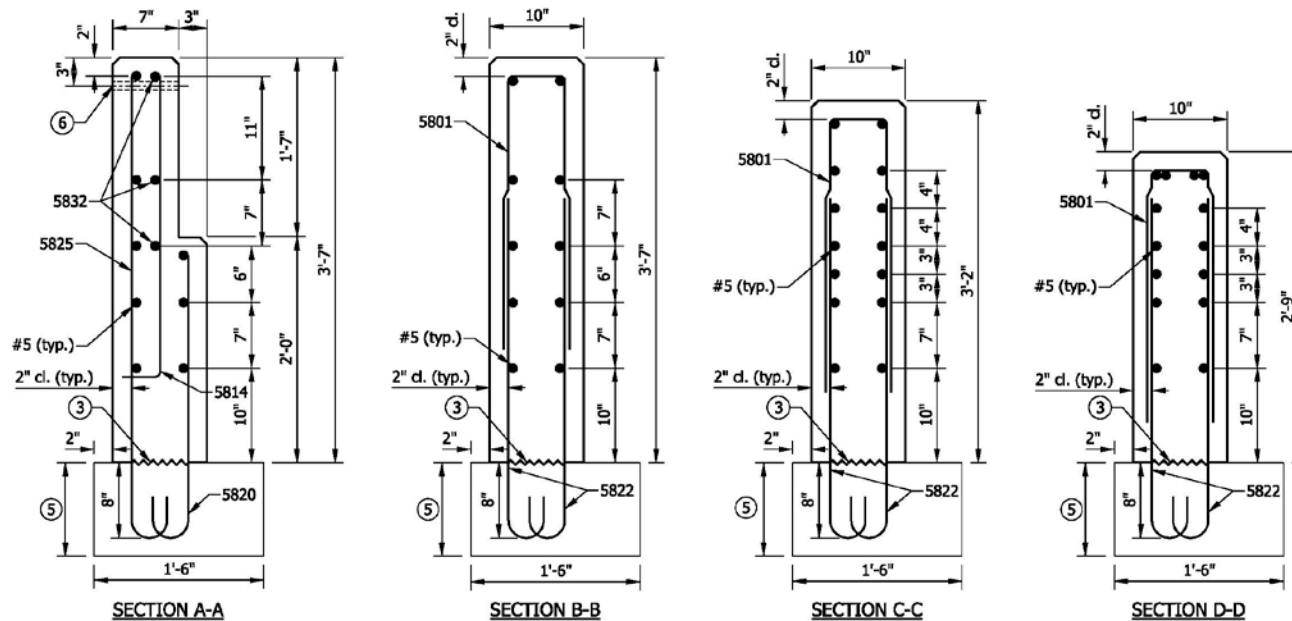
| | |
|---------------------------|------------------------|
| DESIGN STANDARDS ENGINEER | DATE |
| | CHIEF HIGHWAY ENGINEER |
| DATE | |

REVISION TO STANDARD DRAWINGS

706-TTPP-02 CONCRETE BRIDGE RAILING TRANSITION, TPF-1 (DRAFT)

NOTES

1. See Standard Drawing E 706-TTPP-01 for elevation and plan.
2. All chamfered edges shall be 3/4".
3. Construction Joint type A. See Standard Drawing E 702-CJTA-01 for details.
4. See Standard Drawing E 703-BRST-01 for reinforcing-bar bending details and notes.
5. RCBA extension for bridge railing transition type TPF-1. See Standard Drawing E 609-TBAE-01 details.
6. 7/8" Ø hole for attachment of steel bridge railing type PF-1. See Standard Drawing E 706-BRPP-01 for details.



INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION, TPF-1

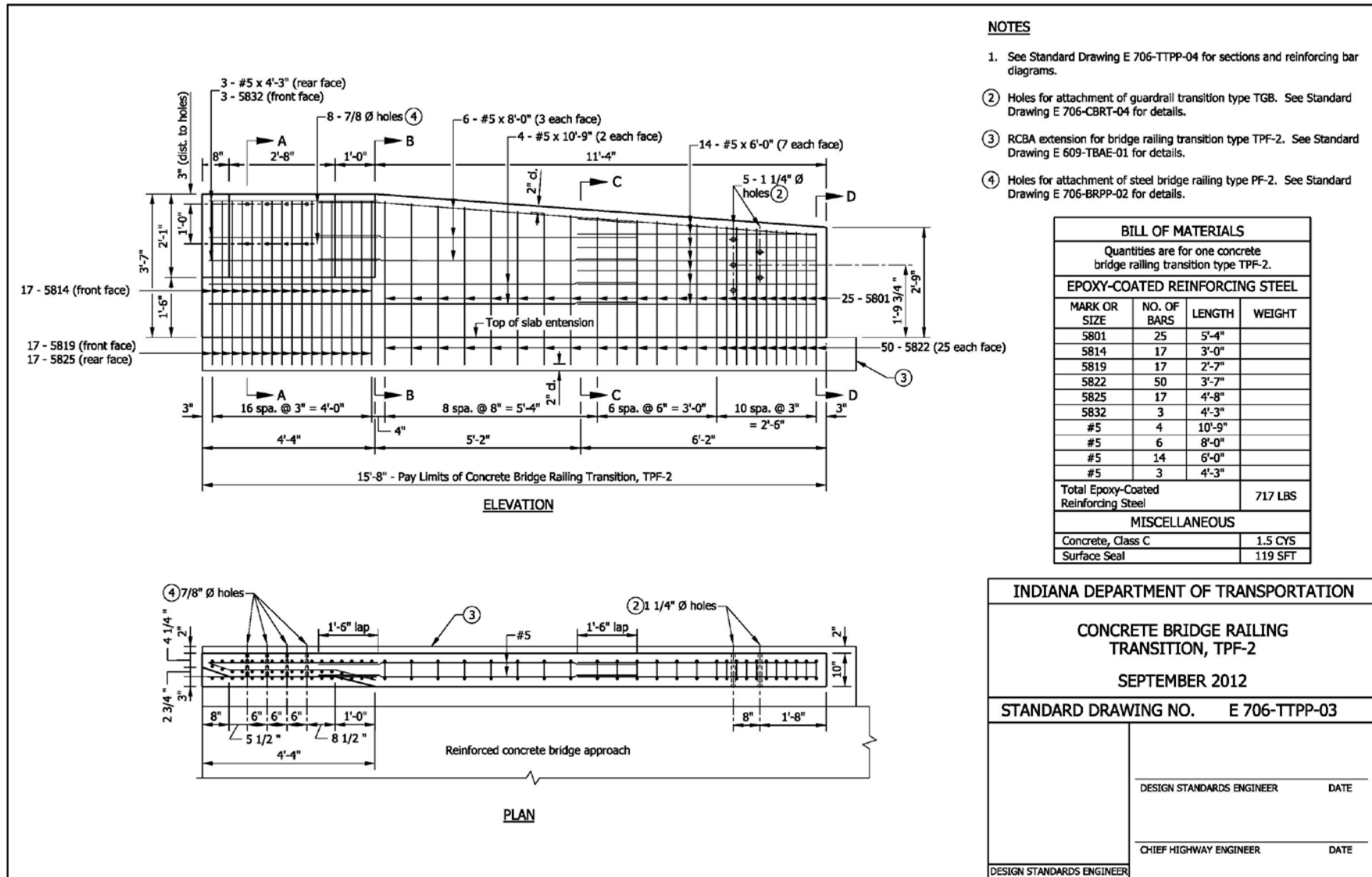
SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TTPP-02

| | | |
|---------------------------|---------------------------|------|
| DESIGN STANDARDS ENGINEER | DESIGN STANDARDS ENGINEER | DATE |
| | CHIEF HIGHWAY ENGINEER | DATE |
| | DESIGN STANDARDS ENGINEER | |

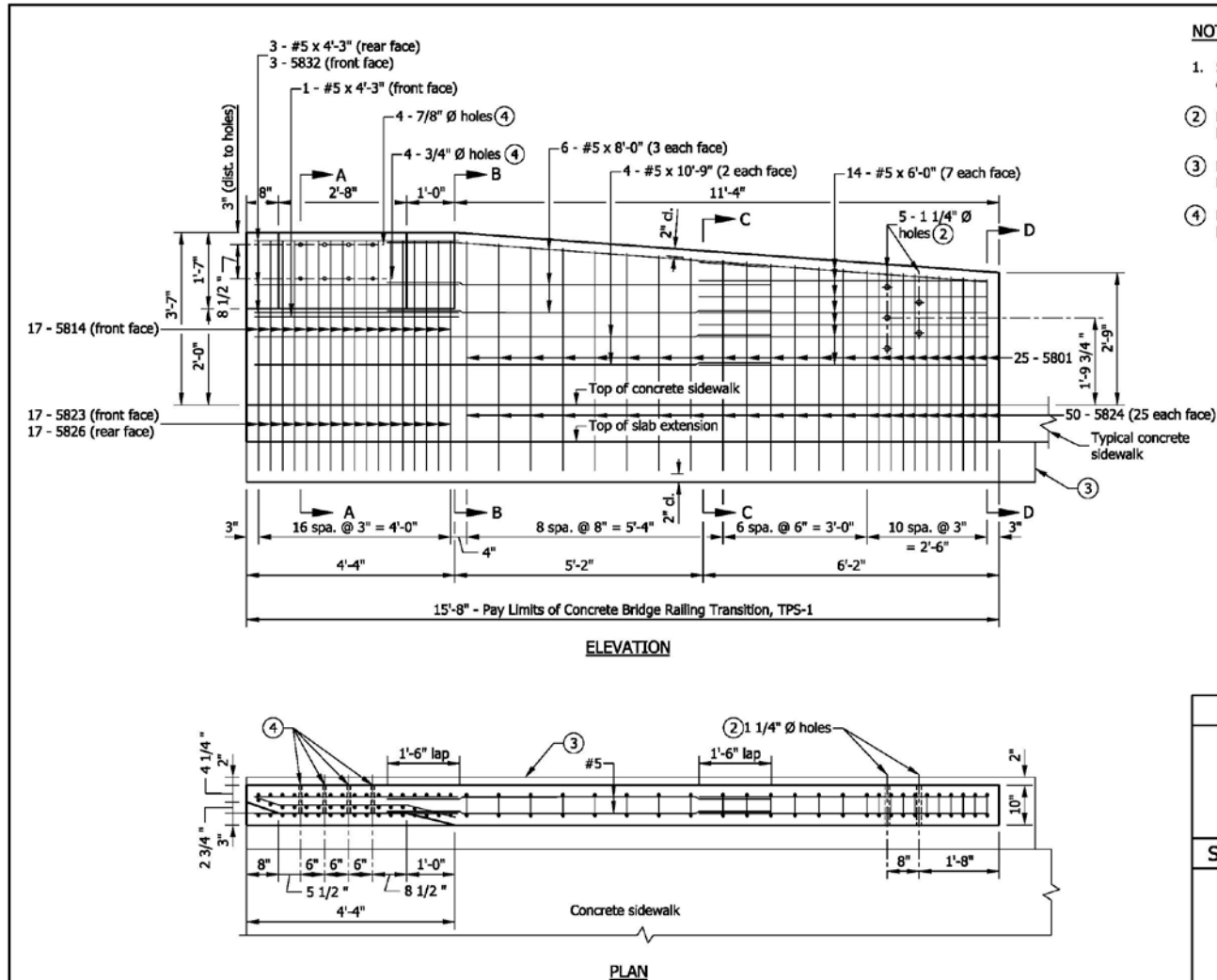
REVISION TO STANDARD DRAWINGS

706-TTPP-03 CONCRETE BRIDGE RAILING TRANSITION, TPF-2 (DRAFT)



REVISION TO STANDARD DRAWINGS

706-TTPP-05 CONCRETE BRIDGE RAILING TRANSITION, TPS-1 (DRAFT)



NOTES

1. See Standard Drawing E 706-TTPP-06 for sections and reinforcing bar diagrams.
2. Holes for attachment of guardrail transition type TGB. See Standard Drawing E 706-CBRT-04 for details.
3. RCBA extension for bridge railing transition type TPS-1. See Standard Drawing E 609-TBAE-01 for details.
4. Holes for attachment of steel bridge railing type PS-1. See Standard Drawing E 706-BRPP-03 for details.

| BILL OF MATERIALS | | | |
|---|-------------|--------|---------|
| Quantities are for one concrete bridge railing transition type TPS-1. | | | |
| EPOXY-COATED REINFORCING STEEL | | | |
| MARK OR SIZE | NO. OF BARS | LENGTH | WEIGHT |
| 5801 | 25 | 5'-4" | |
| 5814 | 17 | 3'-0" | |
| 5823 | 17 | 3'-9" | |
| 5824 | 50 | 4'-3" | |
| 5826 | 17 | 5'-4" | |
| 5832 | 3 | 4'-3" | |
| #5 | 4 | 10'-9" | |
| #5 | 6 | 8'-0" | |
| #5 | 14 | 6'-0" | |
| #5 | 4 | 4'-3" | |
| Total Epoxy-Coated Reinforcing Steel | | | 789 LBS |
| MISCELLANEOUS | | | |
| Concrete, Class C | | | 1.9 CYS |
| Surface Seal | | | 131 SFT |

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING TRANSITION, TPS-1

SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TTPP-05

DESIGN STANDARDS ENGINEER

DESIGN STANDARDS ENGINEER

DATE

CHIEF HIGHWAY ENGINEER

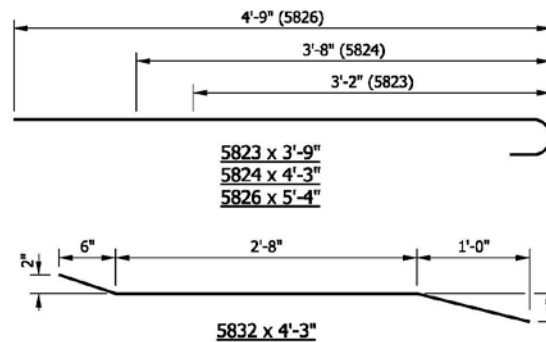
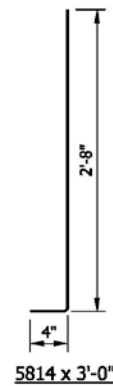
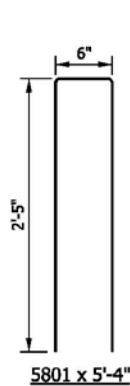
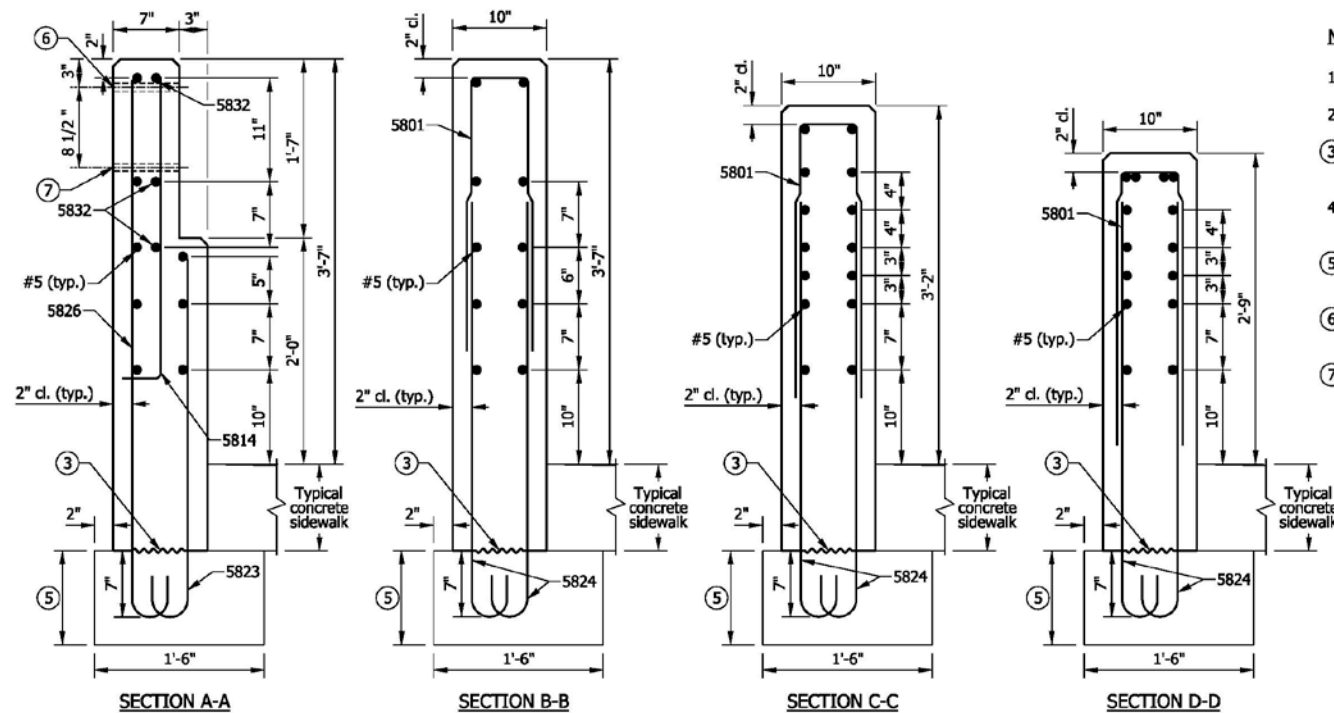
DATE

REVISION TO STANDARD DRAWINGS

706-TTPP-06 CONCRETE BRIDGE RAILING TRANSITION, TPS-1 (DRAFT)

NOTES

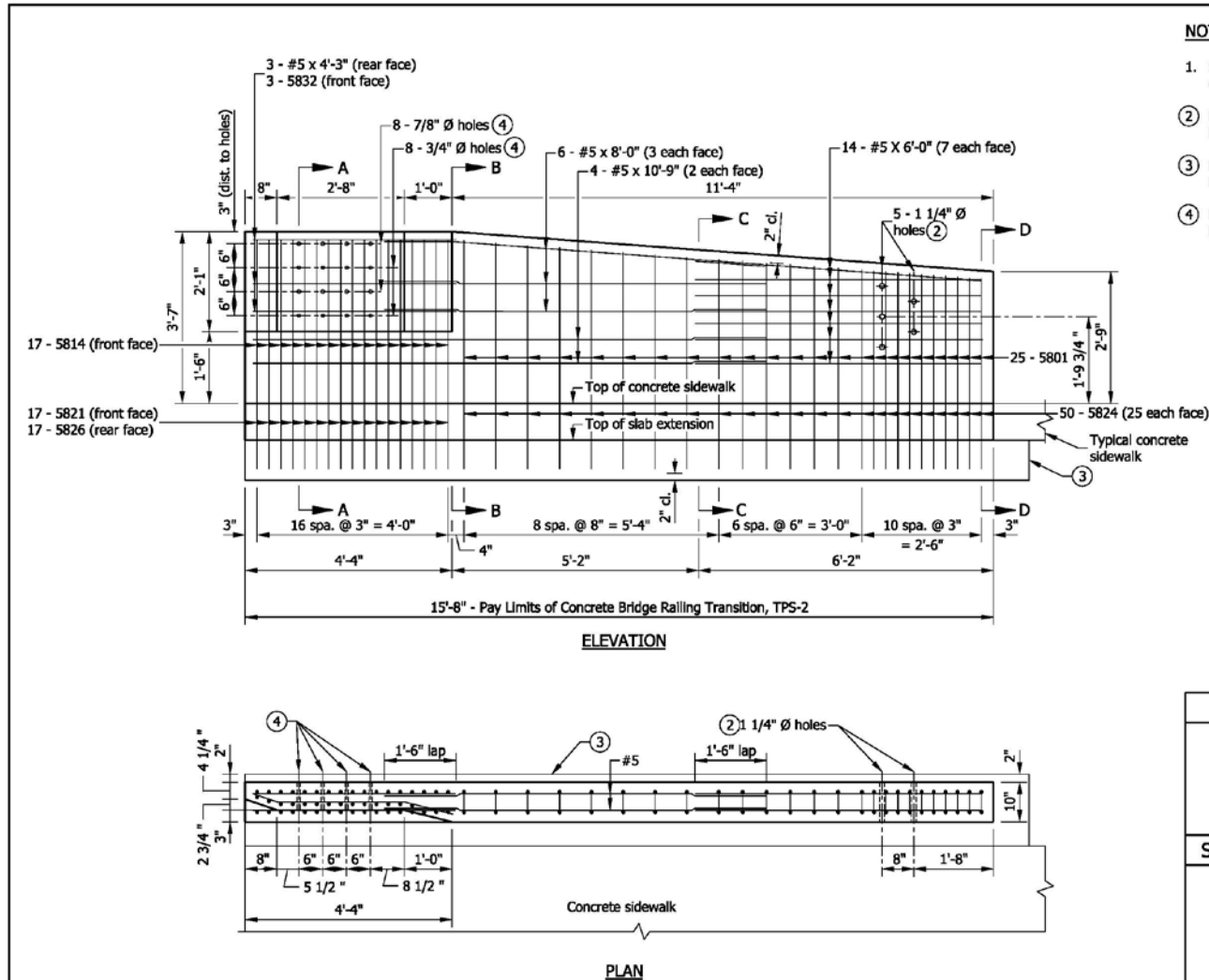
1. See Standard Drawing E 706-TTPP-05 for elevation and plan.
2. All chamfered edges shall be 3/4".
3. Construction jointing type A. See Standard Drawing E 702-CJTA-01 for details.
4. See Standard Drawing E 703-BRST-01 for reinforcing-bar bending details and notes.
5. RCBA extension for bridge railing transition type TPS-1. See Standard Drawing E 609-TBAE-01 for details.
6. 7/8" Ø hole for attachment of steel bridge railing type PS-1, large rail. See Standard Drawing E 706-BRPP-03 for details.
7. 3/4" Ø hole for attachment of steel bridge railing type PS-1, small rail. See Standard Drawing E 706-BRPP-03 for details.



| INDIANA DEPARTMENT OF TRANSPORTATION | |
|--|------|
| CONCRETE BRIDGE RAILING TRANSITION, TPS-1 | |
| SEPTEMBER 2012 | |
| STANDARD DRAWING NO. E 706-TTPP-06 | |
| DESIGN STANDARDS ENGINEER | DATE |
| CHIEF HIGHWAY ENGINEER | DATE |
| DESIGN STANDARDS ENGINEER | |

REVISION TO STANDARD DRAWINGS

706-TTPP-07 CONCRETE BRIDGE RAILING TRANSITION, TPS-2 (DRAFT)



NOTES

1. See Standard Drawing E 706-TTPP-08 for sections and reinforcing bar diagrams.
2. Holes for attachment of guardrail transition type TGB. See Standard Drawing E 706-CBRT-04 for details.
3. RCBA extension for bridge railing transition type TPS-2. See Standard Drawing E 609-TBAE-01 for details.
4. Holes for attachment of steel bridge railing type PS-2. See Standard Drawing E 706-BRPP-04 for details.

| BILL OF MATERIALS | | | |
|---|-------------|--------|---------|
| Quantities are for one concrete bridge railing transition type TPS-2. | | | |
| EPOXY-COATED REINFORCING STEEL | | | |
| MARK OR SIZE | NO. OF BARS | LENGTH | WEIGHT |
| 5801 | 25 | 5'-4" | |
| 5814 | 17 | 3'-0" | |
| 5821 | 17 | 3'-3" | |
| 5824 | 50 | 4'-3" | |
| 5826 | 17 | 5'-4" | |
| 5832 | 3 | 4'-3" | |
| #5 | 4 | 10'-9" | |
| #5 | 6 | 8'-0" | |
| #5 | 14 | 6'-0" | |
| #5 | 3 | 4'-3" | |
| Total Epoxy-Coated Reinforcing Steel | | | 775 LBS |
| MISCELLANEOUS | | | |
| Concrete, Class C | | | 1.9 CYS |
| Surface Seal | | | 131 SFT |

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING TRANSITION, TPS-2

SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TTPP-07

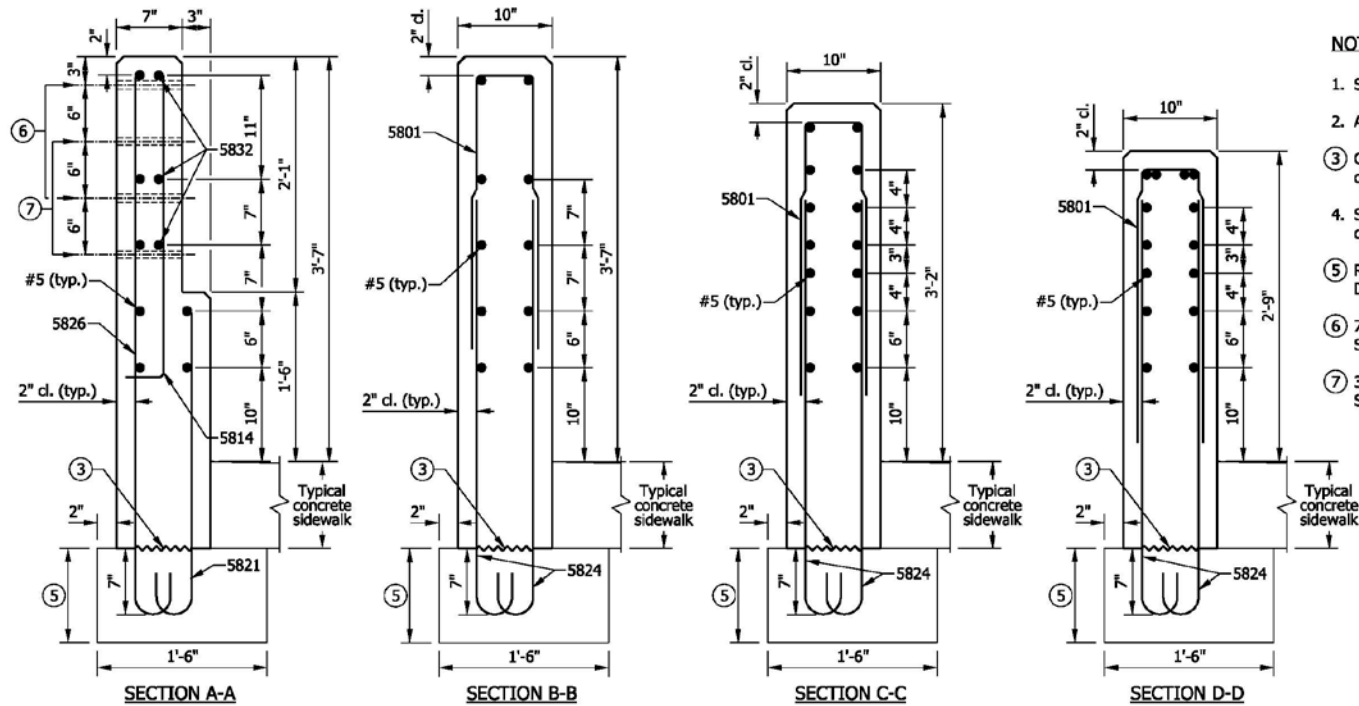
DESIGN STANDARDS ENGINEER DATE

CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER

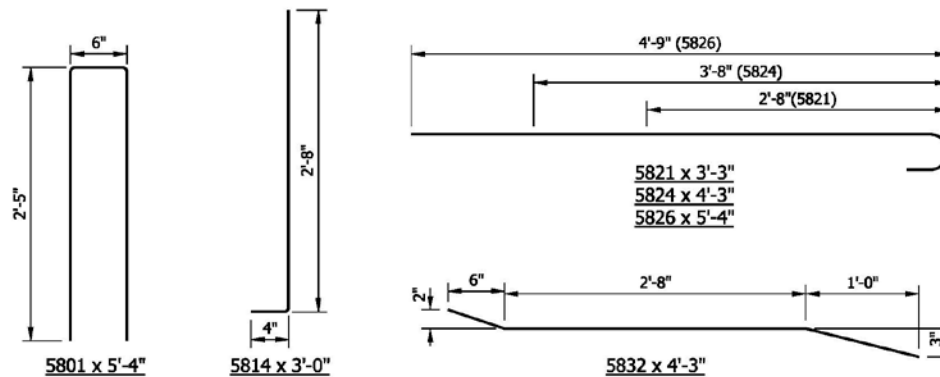
REVISION TO STANDARD DRAWINGS

706-TTPP-08 CONCRETE BRIDGE RAILING TRANSITION, TPS-2 (DRAFT)



NOTES

1. See Standard Drawing E 706-TTPP-07 for elevation and plan.
2. All chamfered edges shall be 3/4".
3. Construction joint type A. See Standard Drawing E 702-CJTA-01 for details.
4. See Standard Drawing E 703-BRST-01 for reinforcing-bar bending details and notes.
5. RCBA extension for bridge railing transition type TPS-2. See Standard Drawing E 609-TBAE-01 for details.
6. 7/8" Ø hole for attachment of steel bridge railing type PS-2, large rail. See Standard Drawing E 706-BRPP-04 for details.
7. 3/4" Ø hole for attachment of steel bridge railing type PS-2, small rail. See Standard Drawing E 706-BRPP-04 for details.



INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION, TPS-2

SEPTEMBER 2012

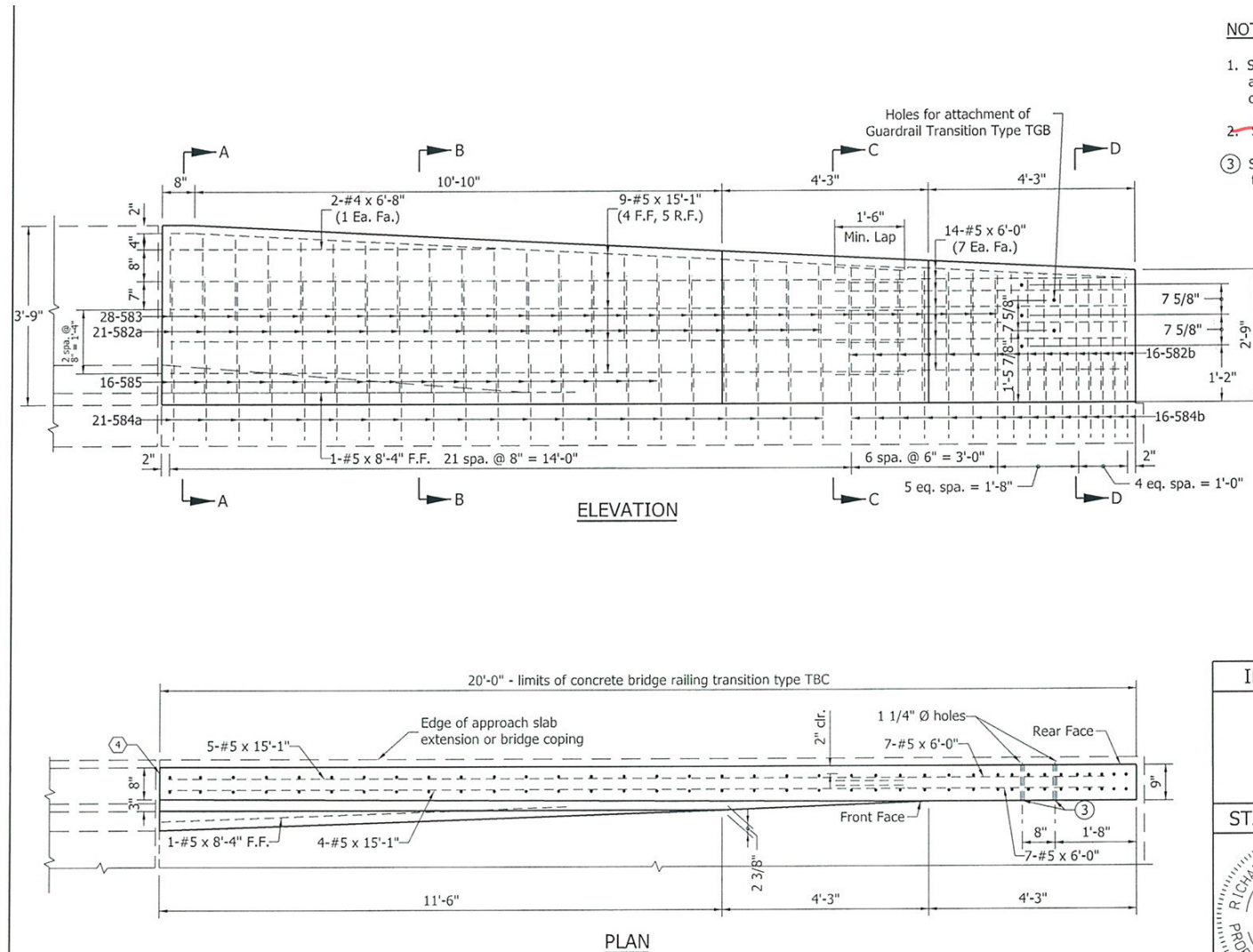
STANDARD DRAWING NO. E 706-TTPP-08

| | |
|---------------------------|------|
| DESIGN STANDARDS ENGINEER | DATE |
| | DATE |
| CHIEF HIGHWAY ENGINEER | DATE |

Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

REVISION TO STANDARD DRAWINGS

EXISTING 706-TTBT-01 CONCRETE BRIDGE RAILING TRANSITION TBT PLAN AND ELEVATION (WITH MARKUPS)



NOTES:

1. See Standard Drawing E 706-TTBT-02 for Sections A-A, B-B, C-C and D-D and Drawing E 706-TTBT-03 for reinforcement and bill of materials.
2. See Standard Drawing E 706-TASE-05 for General Notes.
3. See Standard Drawing E 706-CBRT-02 for details of guardrail transition type TGB attachment.

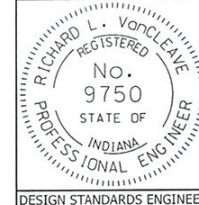
TTFT
TTGB-4
RCBA TBAC-02

3'-9" TRUCK HEIGHT THRIE BEAM/
 CONCRETE BRIDGE RAILING TRANSITION

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION TBT **TTFT**
 PLAN AND ELEVATION
 SEPTEMBER 2011 **TTFT**

STANDARD DRAWING NO. E 706-TTBT-01



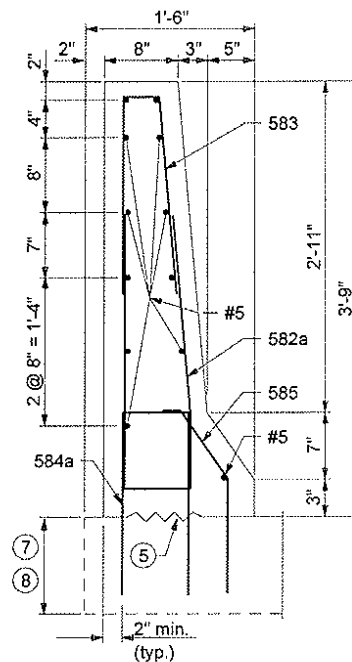
| | |
|---------------------------|----------|
| /s/ Richard L. VanCleave | 09/01/11 |
| DESIGN STANDARDS ENGINEER | DATE |
| /s/ Mark A. Miller | 09/01/11 |
| CHIEF HIGHWAY ENGINEER | DATE |

REVISION TO STANDARD DRAWINGS

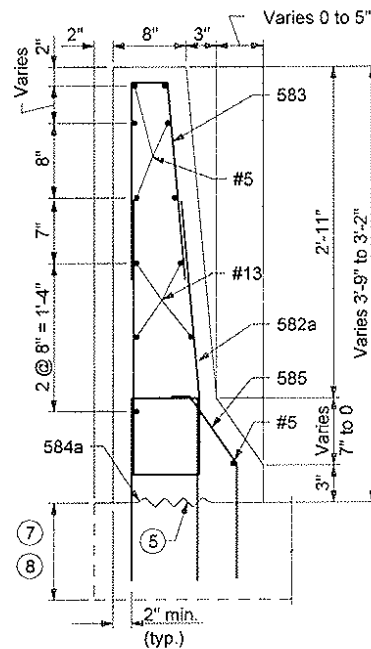
EXISTING 706-TTBT-02 CONCRETE BRIDGE RAILING TRANSITION TYPE TBT

NOTES:

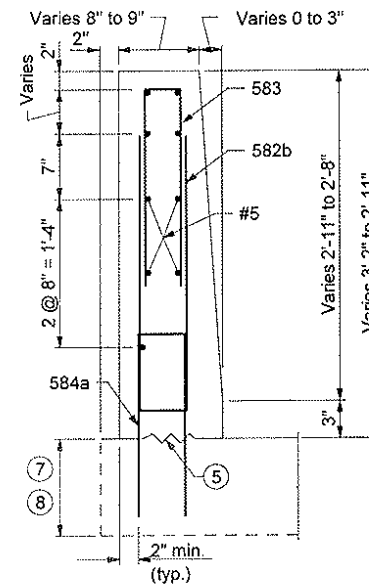
1. See Standard Drawing E 706-TASE-05 for General Notes.



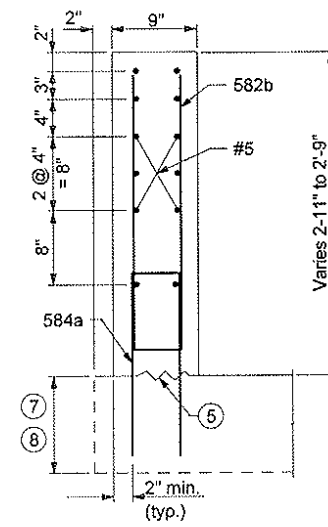
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

45" TRUCK HEIGHT THRIE BEAM/
 CONCRETE BRIDGE RAILING TRANSITION

| | |
|--|--|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| CONCRETE BRIDGE RAILING TRANSITION TYPE TBT | |
| SEPTEMBER 2006 | |
| STANDARD DRAWING NO. E 706-TTBT-02 | |
| | /s/ Richard L. VanCleave 9-01-06 DESIGN STANDARDS ENGINEER DATE |
| | /s/ Richard K. Spitzer 9-01-06 CHIEF HIGHWAY ENGINEER DATE |
| DESIGN STANDARDS ENGINEER | |

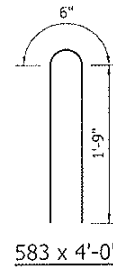
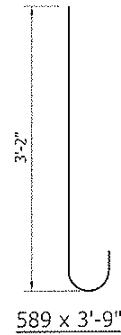
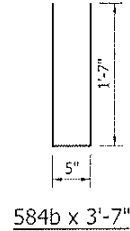
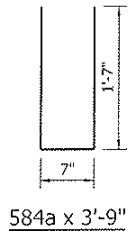
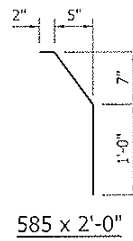
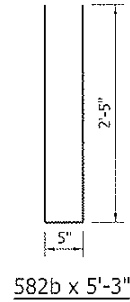
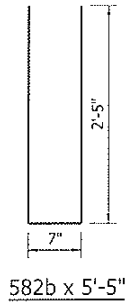
Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

REVISION TO STANDARD DRAWINGS

EXISTING 706-TTBT-03 CONCRETE BRIDGE RAILING TRANSITION TYPE TBT

NOTE:

1. See Standard Drawing E 706-TASE-05 for General Notes.



3'-9" TRUCK HEIGHT THRIE BEAM/
 CONCRETE BRIDGE RAILING TRANSITION

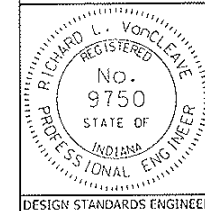
| BILL OF MATERIALS | | | |
|---|-------------|------------------|----------------------|
| These quantities are for one concrete bridge railing transition type TBT. | | | |
| EPOXY COATED REINFORCING STEEL | | | |
| Size and Mark | No. of Bars | Length (Ft.-in.) | Weight (Lbs.) |
| 582a | 21 | 5'-5" | |
| 582b | 16 | 5'-3" | |
| 583 | 28 | 4'-0" | |
| 584a | 21 | 3'-9" | |
| 584b | 16 | 3'-7" | |
| 585 | 16 | 2'-0" | |
| #5 | 9 | 15'-1" | |
| #5 | 1 | 8'-4" | |
| #5 | 2 | 6'-8" | |
| #5 | 14 | 6'-0" | |
| Total #5 Bars | | | 1133 |
| Total Epoxy Coated Steel | | | 1133 |
| Concrete Class C in Railing | | | 2.0 yd ³ |
| Surface Seal | | | 13.4 yd ² |

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION TYPE TBT

SEPTEMBER 2011

STANDARD DRAWING NO. E 706-TTBT-03



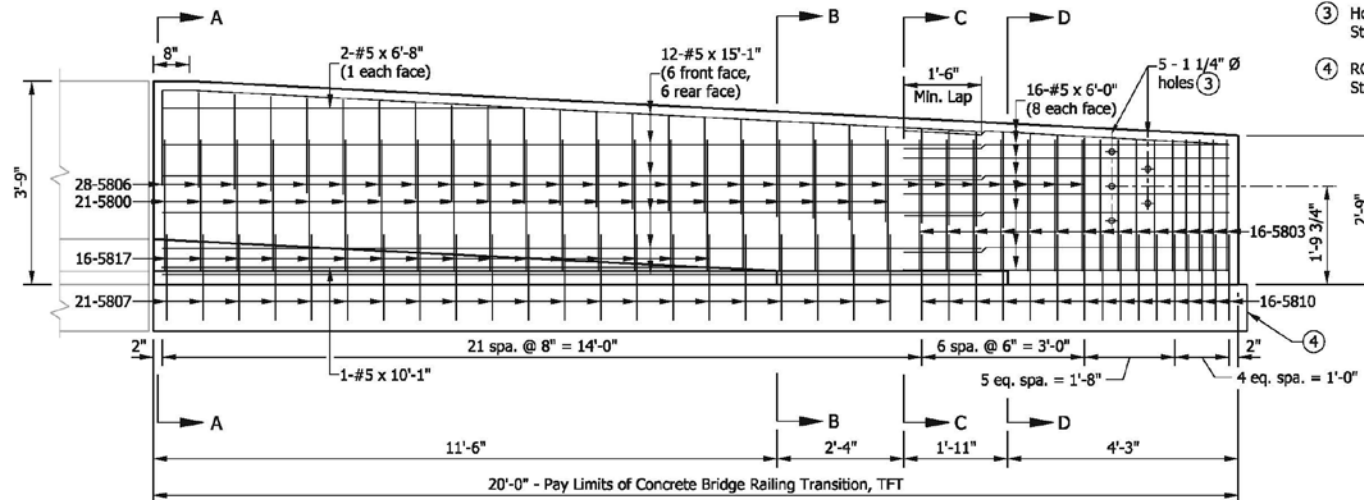
/s/ Richard L. VanCleave 09/01/11
 DESIGN STANDARDS ENGINEER DATE
 /s/ Mark A. Miller 09/01/11
 CHIEF HIGHWAY ENGINEER DATE

REVISION TO STANDARD DRAWINGS

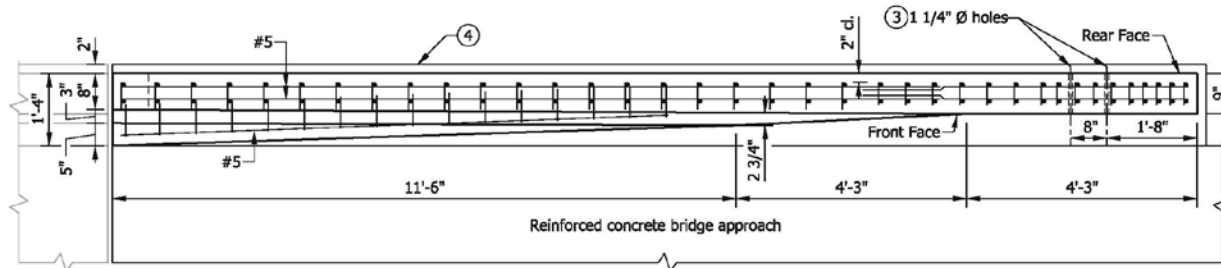
706-TTFT-01 CONCRETE BRIDGE RAILING TRANSITION TFT PLAN AND ELEVATION (DRAFT)

NOTES

1. See Standard Drawing E 706-TTFT-02 for sections.
2. See Standard Drawing E 706-TTFT-03 for reinforcing-bar diagrams and bill of materials.
- ③ Holes for attachment of guardrail transition type TGB. See Standard Drawing E 601-TTGB-01 for details.
- ④ RCBA extension for bridge railing transition type TFT. See Standard Drawing E 609-TBAE-02 for details.



ELEVATION



PLAN

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION TFT
 PLAN AND ELEVATION
 SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TTFT-01

DESIGN STANDARDS ENGINEER

DESIGN STANDARDS ENGINEER

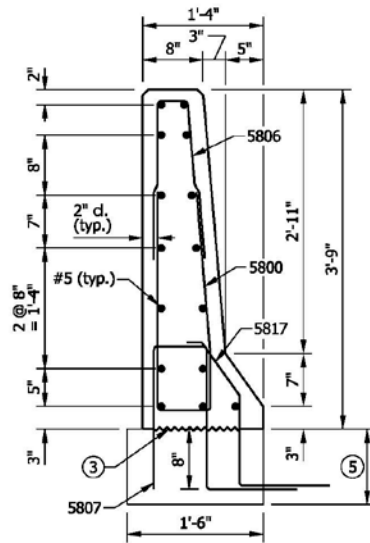
DATE

CHIEF HIGHWAY ENGINEER

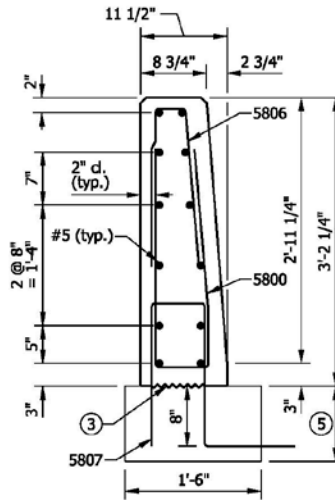
DATE

REVISION TO STANDARD DRAWINGS

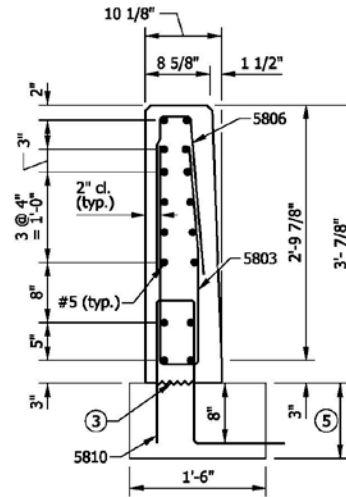
706-TTFT-02 CONCRETE BRIDGE RAILING TRANSITION, TFT (DRAFT)



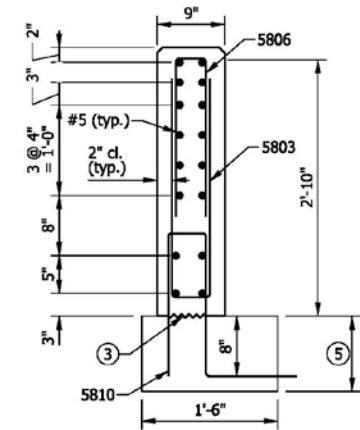
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

NOTES

1. See Standard Drawing E 706-TTFT-01 for elevation and plan.
2. All chamfered edges shall be 3/4".
- ③ Construction joint type A. See Standard Drawing E 702-CJTA-01 for details.
4. See Standard Drawing E 706-TTFT-03 for reinforcing-bar diagrams.
- ⑤ RCBA extension for bridge railing transition type TFT. See Standard Drawing E 609-TBAE-02 for details.

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION, TFT

SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TTFT-02

DESIGN STANDARDS ENGINEER

DESIGN STANDARDS ENGINEER

DATE

CHIEF HIGHWAY ENGINEER

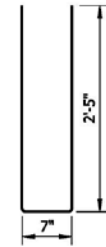
DATE

REVISION TO STANDARD DRAWINGS

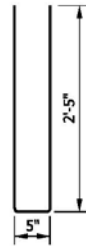
706-TTFT-03 CONCRETE BRIDGE RAILING TRANSITION TYPE TFT (DRAFT)

NOTE

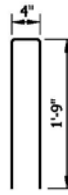
1. See Standard Drawing E 703-BRST-01 for reinforcing-bar bending details and notes.



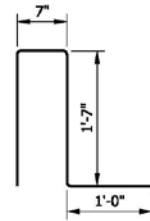
5800 x 5'-5"



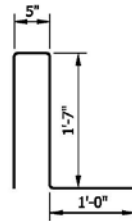
5803 x 5'-3"



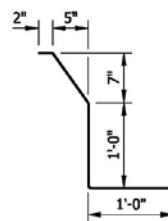
5806 x 3'-10"



5807 x 4'-9"



5810 x 4'-7"



5817 x 3'-0"

| BILL OF MATERIALS | | | |
|--|-------------|--------|----------|
| Quantities are for one concrete bridge railing transition type TFT | | | |
| EPOXY-COATED REINFORCING STEEL | | | |
| MARK OR SIZE | NO. OF BARS | LENGTH | WEIGHT |
| 5800 | 21 | 5'-5" | |
| 5803 | 16 | 5'-3" | |
| 5806 | 28 | 3'-10" | |
| 5807 | 21 | 4'-9" | |
| 5810 | 16 | 4'-7" | |
| 5817 | 16 | 3'-0" | |
| #5 | 12 | 15'-1" | |
| #5 | 1 | 10'-1" | |
| #5 | 2 | 6'-8" | |
| #5 | 16 | 6'-0" | |
| Total Epoxy-Coated Reinforcing Steel | | | 862 LBS |
| MISCELLANEOUS | | | |
| Concrete, Class C | | | 2.0 CYS |
| Surface Seal | | | 13.4 SYS |

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
TRANSITION TYPE TFT

SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TTFT-03

| | | |
|---------------------------|---------------------------|------|
| DESIGN STANDARDS ENGINEER | DESIGN STANDARDS ENGINEER | DATE |
| | CHIEF HIGHWAY ENGINEER | DATE |
| | DESIGN STANDARDS ENGINEER | |

REVISION TO STANDARD DRAWINGS

EXISTING 706-TTXX-01 CONCRETE BRIDGE RAILING TRANSITION, TTX (WITH MARKUPS)

NOTES:

1. See Standard Drawing E 706-TTBP-09 for general notes.
2. See Standard Drawing E 706-TTXX-02 for sections reinforcing-bar diagrams, and cutting diagrams.
3. The quantities listed in the Bill of Materials are for one transition.

2) holes for GE Trans CBET-01
 3) RCBA - TBAE
 4) w/ 1/2" dia - BETX-01 5) cutting diag

OPEN JOINTS removed.

bent bar designation revised.

reinforcing shown

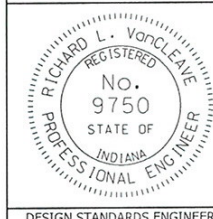
all reinforcing shown

| BILL OF MATERIALS, TX EPOXY-COATED REINFORCING STEEL | | | |
|---|-------------|--------------|---------|
| Mark / Size | No. of Bars | Total Length | Weight |
| 781 x 12'-4" | 2 | 24'-8" | |
| 782 x 11'-9" | 2 | 23'-6" | |
| Total #7 | | 48'-4" | 99 lb |
| 581 x 8'-6" | 15 | 127'-6" | |
| 582 x 7'-0" | 8 | 56'-0" | |
| 583 x 3'-8" | 12 | 44'-0" | |
| 584 x 3'-0" | 41 | 123'-0" | |
| #5 x 20'-0" | 2 | 40'-0" | |
| #5 x 5'-0" | 6 | 30'-0" | |
| Total #5 | | 420'-6" | 439 lb |
| Total Epoxy-Coated Reinforcing Steel | | | 538 lb |
| MISCELLANEOUS | | | |
| Concrete, Class C | | | 2.0 cys |
| Surface Seal | | | 149 sft |

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION, TTX
 SEPTEMBER 2011

STANDARD DRAWING NO. E 706-TTXX-01

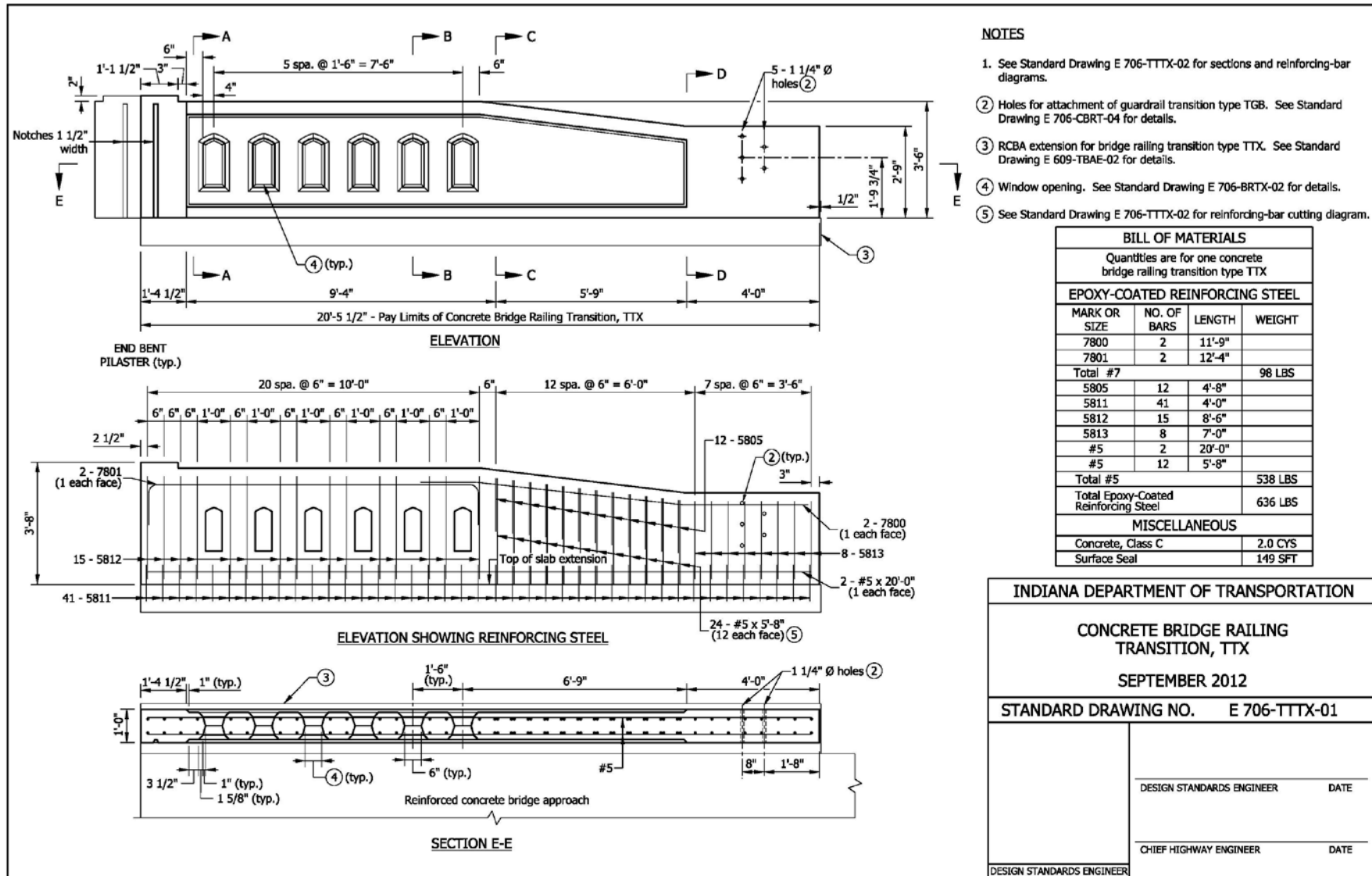


/s/ Richard L. VanCleave 09/01/11
 DESIGN STANDARDS ENGINEER DATE
 /s/ Mark A. Miller 09/01/11
 CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER

REVISION TO STANDARD DRAWINGS

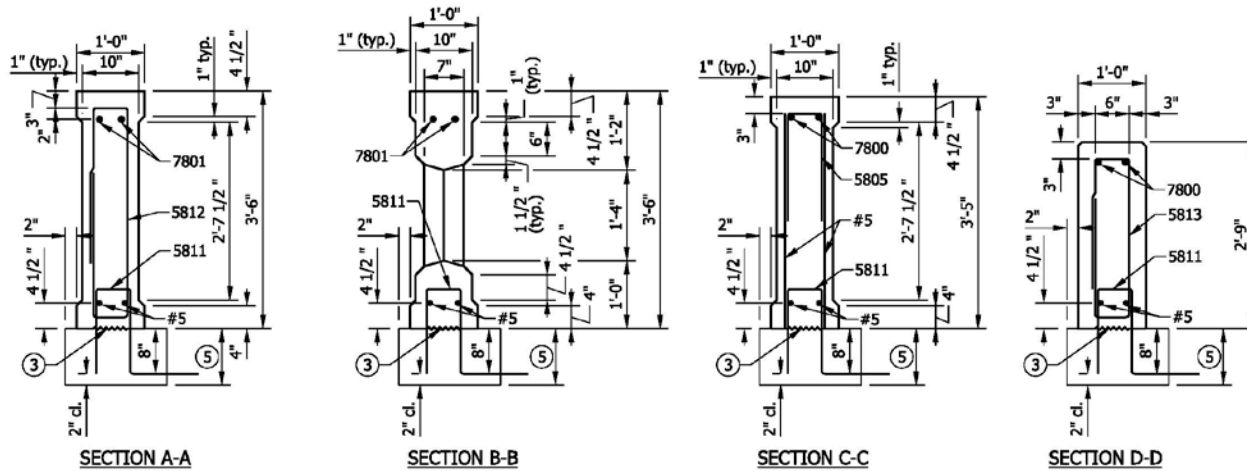
706-TTXX-01 CONCRETE BRIDGE RAILING TRANSITION, TTX (DRAFT)



Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

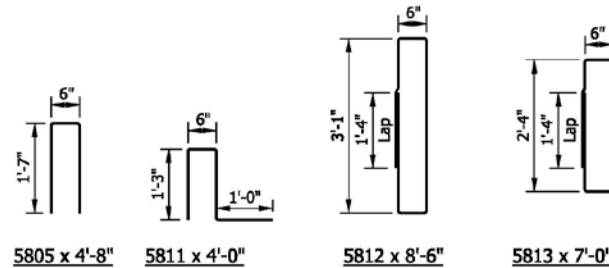
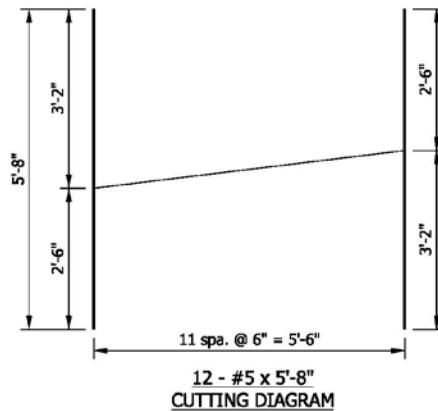
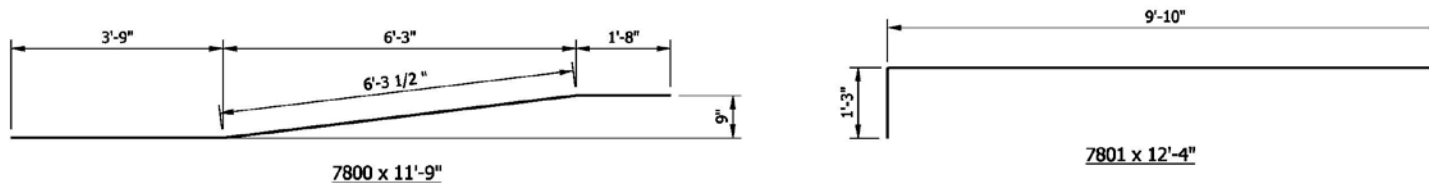
REVISION TO STANDARD DRAWINGS

706-TTXX-02 CONCRETE BRIDGE RAILING TRANSITION, TTX (DRAFT)



NOTES

1. See Standard Drawing E 706-TTXX-01 for elevations and plan.
2. All chamfered edges shall be 3/4".
- ③ Construction joint type A. See Standard Drawing E 702-CJTA-01 for details.
4. See Standard Drawing E 703-BRST-01 for reinforcing-bar bending details and notes.
- ⑤ RCBA extension for bridge railing transition type TTX. See Standard Drawing E 609-TBAE-02 for details.



| INDIANA DEPARTMENT OF TRANSPORTATION | |
|--|------|
| CONCRETE BRIDGE RAILING TRANSITION, TTX | |
| SEPTEMBER 2012 | |
| STANDARD DRAWING NO. E 706-TTXX-02 | |
| DESIGN STANDARDS ENGINEER | DATE |
| | DATE |
| CHIEF HIGHWAY ENGINEER | DATE |
| | DATE |

Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

REVISION TO STANDARD DRAWINGS

EXISTING 706-TWBC-01 CONCRETE BRIDGE RAILING TRANSITION TYPE WBC (WITH MARKUPS)

NOTES:

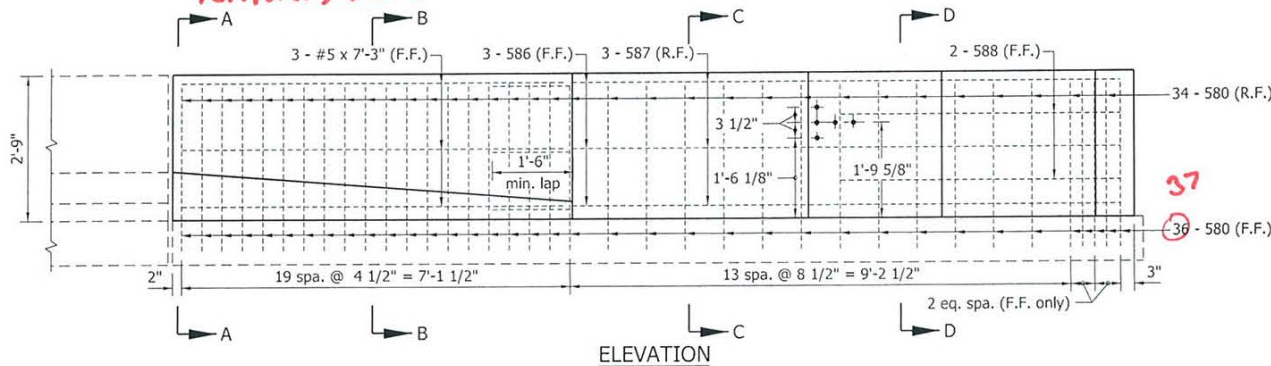
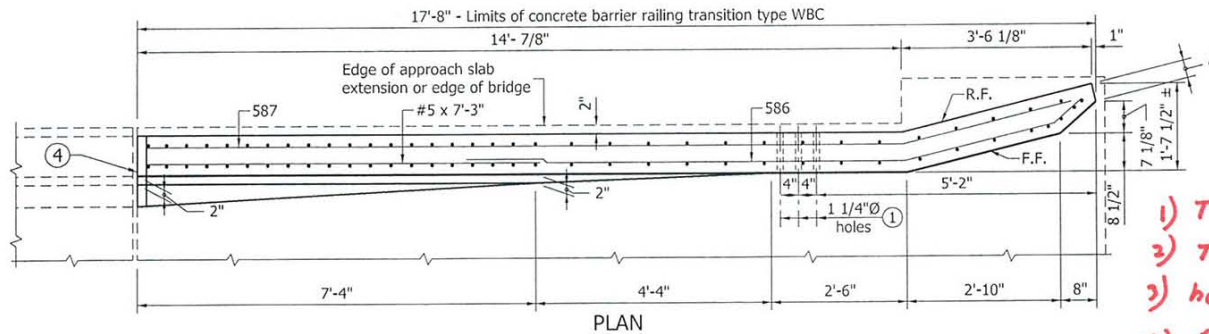
- See Standard Drawing E 706-CBRT-02 for details of guardrail transition type WGB attachment.
- See Standard Drawing E 706-TWBC-02 for Section A-A, B-B, C-C and D-D and Drawing E 706-TWBC-03 for reinforcement and bill of materials.
- See Standard Drawing E 706-TASE-05 for General Notes.

LEGEND:

F.F. = Front Face
 R.F. = Rear Face

*2 & 3 combined
 Ext info added.*

- 1) TWFC-02 for sections*
- 2) TWFC-03 reinforcing diag*
- 3) holes GR Trans CBRT-02*
- 4) RCBA-TBAE-03*

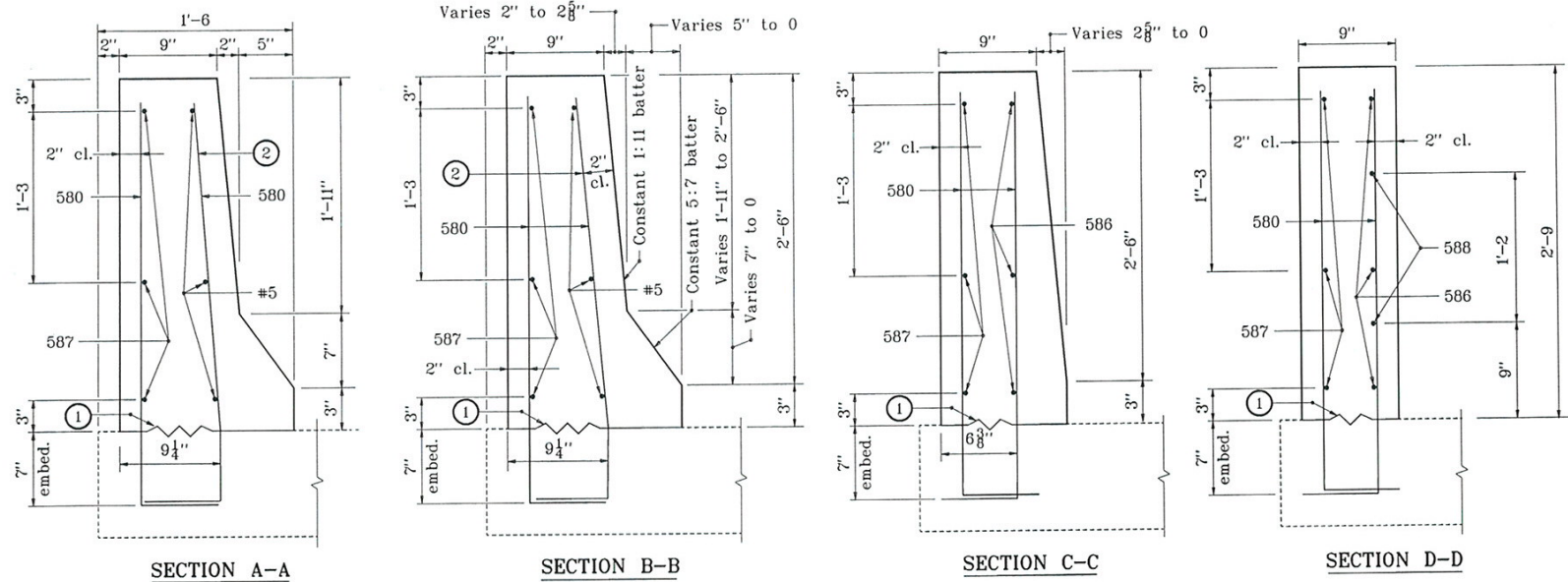


2'-9" COMMON HEIGHT W-BEAM/
 CONCRETE BRIDGE RAILING TRANSITION

| | |
|--|---|
| INDIANA DEPARTMENT OF TRANSPORTATION | |
| CONCRETE BRIDGE RAILING TRANSITION TYPE WBC | |
| SEPTEMBER 2011 | |
| STANDARD DRAWING NO. E 706-TWBC-01 | |
| | /s/ Richard L. VanCleave 09/01/11 DESIGN STANDARDS ENGINEER DATE /s/ Mark A. Miller 09/01/11 CHIEF HIGHWAY ENGINEER DATE |
| DESIGN STANDARDS ENGINEER | |

REVISION TO STANDARD DRAWINGS

EXISTING 706-TWBC-02 CONCRETE BRIDGE RAILING TRANSITION TYPE WBC (WITH MARKUPS)



NOTES :

- ① Type A construction joint.
- ② These bars shall be field bent to provide 2" clearance along the batter (constant 1:11), front face bridge rail.

③ See Standard Drawing E 706-TWBC-01 for Plan and Elevation.

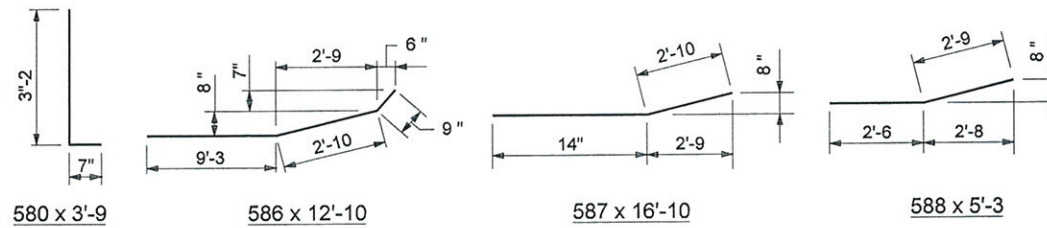
2) Chamfer 3/4 3) Cont JNT - CJTA 4) TWFC-03 for bar diag
5) RCBA-TBAE-03 6) Bar bending for clearance 7), 8) batter call out

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| INDIANA DEPARTMENT OF TRANSPORTATION | |
| CONCRETE BRIDGE RAILING | |
| TRANSITION TYPE WBC WFC | |
| SEPTEMBER 2001 | |
| STANDARD DRAWING NO. E 706-TWBC-02 | |
| | TWFC /s/ Anthony L. Uremovich 9-04-01 DESIGN STANDARDS ENGINEER DATE |
| | /s/ Firooz Zandi 9-04-01 CHIEF HIGHWAY ENGINEER DATE |

Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

REVISION TO STANDARD DRAWINGS

EXISTING 706-TWBC-03 CONCRETE BRIDGE RAILING TRANSITION TYPE WBC (WITH MARKUPS)



*reinforcing drawn to scale
 bent bars redesignated.*

*B:11
 revised*

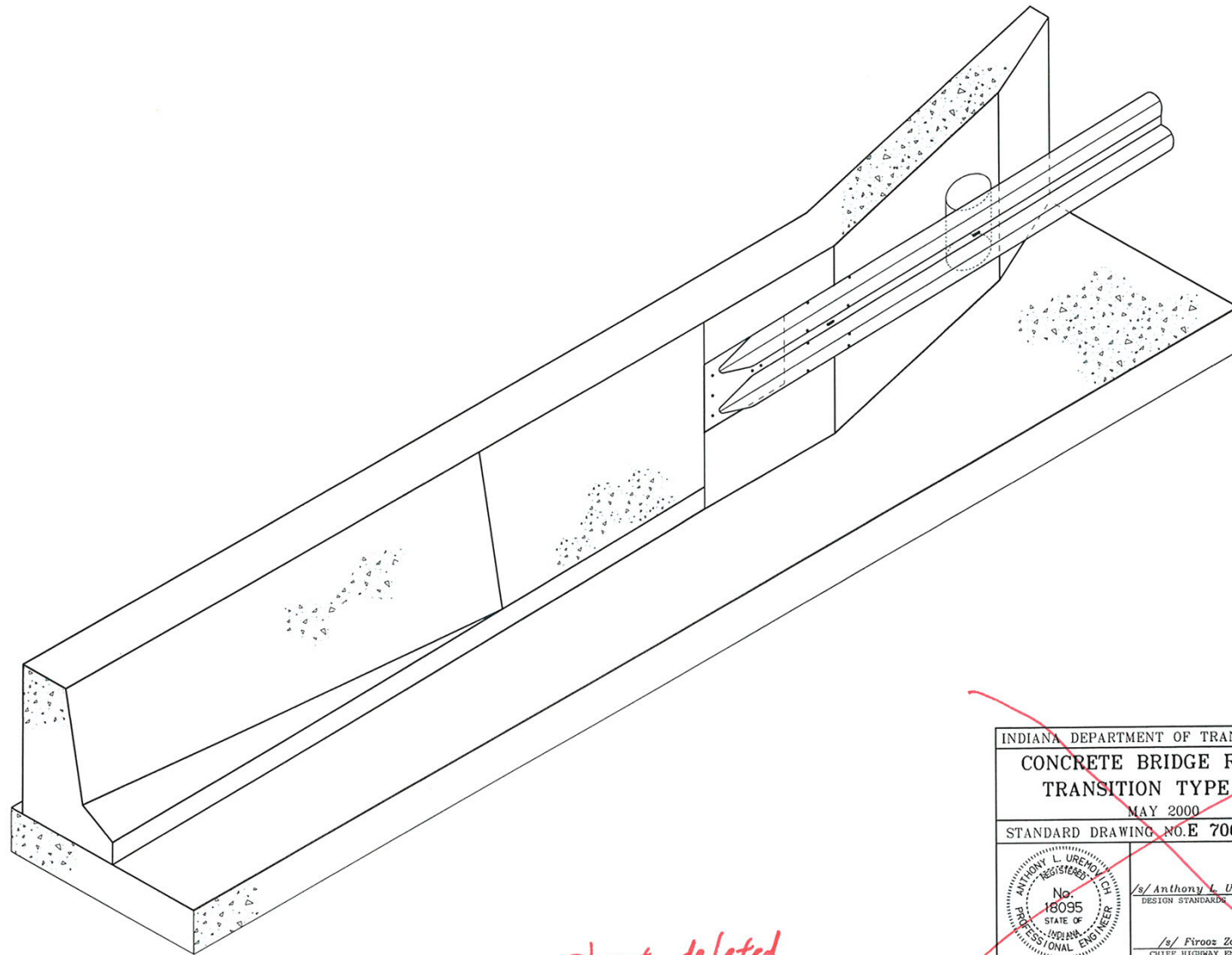
| BILL OF MATERIALS | | | |
|---|-------------|--------------|-----------|
| These quantities are for one concrete bridge railing transition type WBC. The concrete quantity is provided for information only and is not the pay item. | | | |
| EPOXY COATED REINFORCING STEEL | | | |
| Size & type | No. of Bars | Length ft-in | Weight lb |
| 580 | 68 | 3'-9 | |
| 586 | 3 | 12'-10 | |
| 587 | 3 | 16'-10 | |
| 588 | 2 | 5'-3 | |
| #5 | 3 | 7'-3 | |
| Total Epoxy Coated Steel | | | 393 |
| MISCELLANEOUS | | | |
| Concrete, Class C (yd ³) | | | 1.6 |
| Surface Seal (ft ²) | | | 113 |

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| INDIANA DEPARTMENT OF TRANSPORTATION | |
| CONCRETE BRIDGE RAILING TRANSITION TYPE WBC | |
| MARCH 2006 TWBC | |
| STANDARD DRAWING NO. E 706-TWBC-03 | |
| | /s/ Richard L. VanCleave 3-01-06 DESIGN STANDARDS ENGINEER DATE |
| | /s/ Richard K. Smutzer 3-01-06 CHIEF HIGHWAY ENGINEER DATE |


Item No.02 03/15/12 (2012 SS)(contd.)
Mr. Strain
Date: 03/15/12

REVISION TO STANDARD DRAWINGS

EXISTING 706-TWBC-04 CONCRETE BRIDGE RAILING TRANSITION TYPE WGB (PROPOSED TO DELETE)



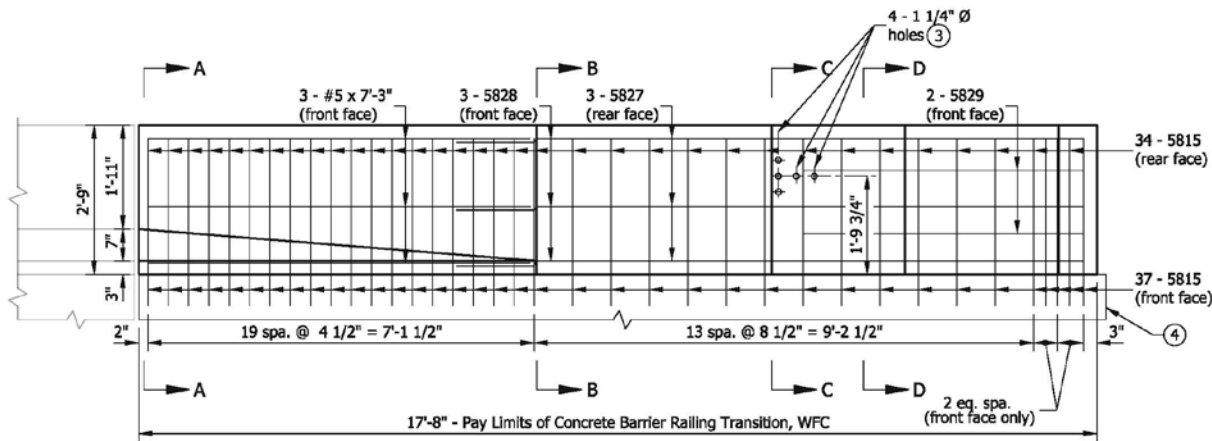
Sheet deleted.

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|---|---|--------------------------|---------|---------------------------|------|------------------|---------|------------------------|------|
| INDIANA DEPARTMENT OF TRANSPORTATION | | | | | | | | | |
| CONCRETE BRIDGE RAILING TRANSITION TYPE WGB | | | | | | | | | |
| MAY 2000 | | | | | | | | | |
| STANDARD DRAWING NO.E 706-TWBC-04 | | | | | | | | | |
|  | <table border="1"><tr><td>/s/ Anthony L. Uremovich</td><td>5-01-00</td></tr><tr><td>DESIGN STANDARDS ENGINEER</td><td>DATE</td></tr><tr><td>/s/ Firooz Zandi</td><td>5-01-00</td></tr><tr><td>CHIEF HIGHWAY ENGINEER</td><td>DATE</td></tr></table> | /s/ Anthony L. Uremovich | 5-01-00 | DESIGN STANDARDS ENGINEER | DATE | /s/ Firooz Zandi | 5-01-00 | CHIEF HIGHWAY ENGINEER | DATE |
| /s/ Anthony L. Uremovich | 5-01-00 | | | | | | | | |
| DESIGN STANDARDS ENGINEER | DATE | | | | | | | | |
| /s/ Firooz Zandi | 5-01-00 | | | | | | | | |
| CHIEF HIGHWAY ENGINEER | DATE | | | | | | | | |
| DESIGN STANDARDS ENGINEER | | | | | | | | | |

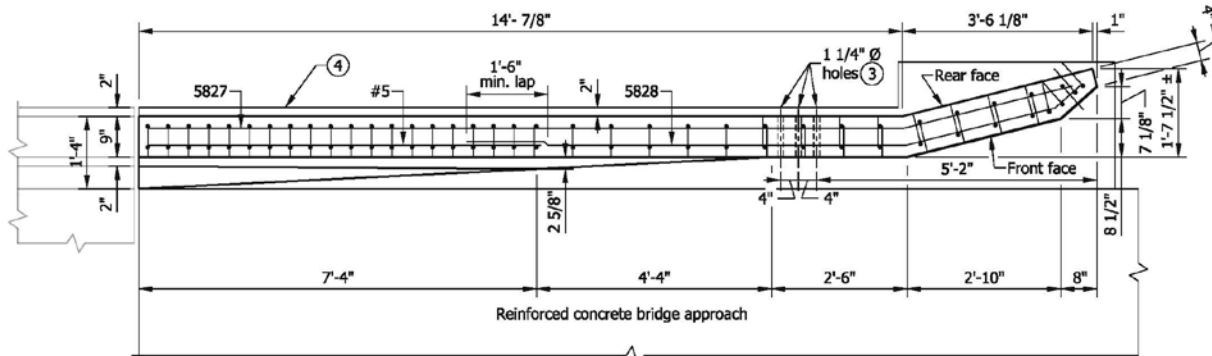
Item No.02 03/15/12 (2012 SS)(contd.)
 Mr. Strain
 Date: 03/15/12

REVISION TO STANDARD DRAWINGS

706-TWFC-01 CONCRETE BRIDGE RAILING TRANSITION TYPE WFC (DRAFT)



ELEVATION



PLAN

NOTES

1. See Standard Drawing E 706-TWFC-02 for sections.
2. See Standard Drawing E 706-TWFC-03 for reinforcing-bar diagrams and bill of materials.
- ③ Holes for attachment of guardrail transition type WGB. See Standard Drawing E 706-CBRT-02 for details.
- ④ RCBA extension for bridge railing transition type WFC. See Standard Drawing E 609-TBAE-03 for details.

INDIANA DEPARTMENT OF TRANSPORTATION

CONCRETE BRIDGE RAILING
 TRANSITION TYPE WFC

SEPTEMBER 2012

STANDARD DRAWING NO. E 706-TWFC-01

DESIGN STANDARDS ENGINEER

DESIGN STANDARDS ENGINEER

DATE

CHIEF HIGHWAY ENGINEER

DATE

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D

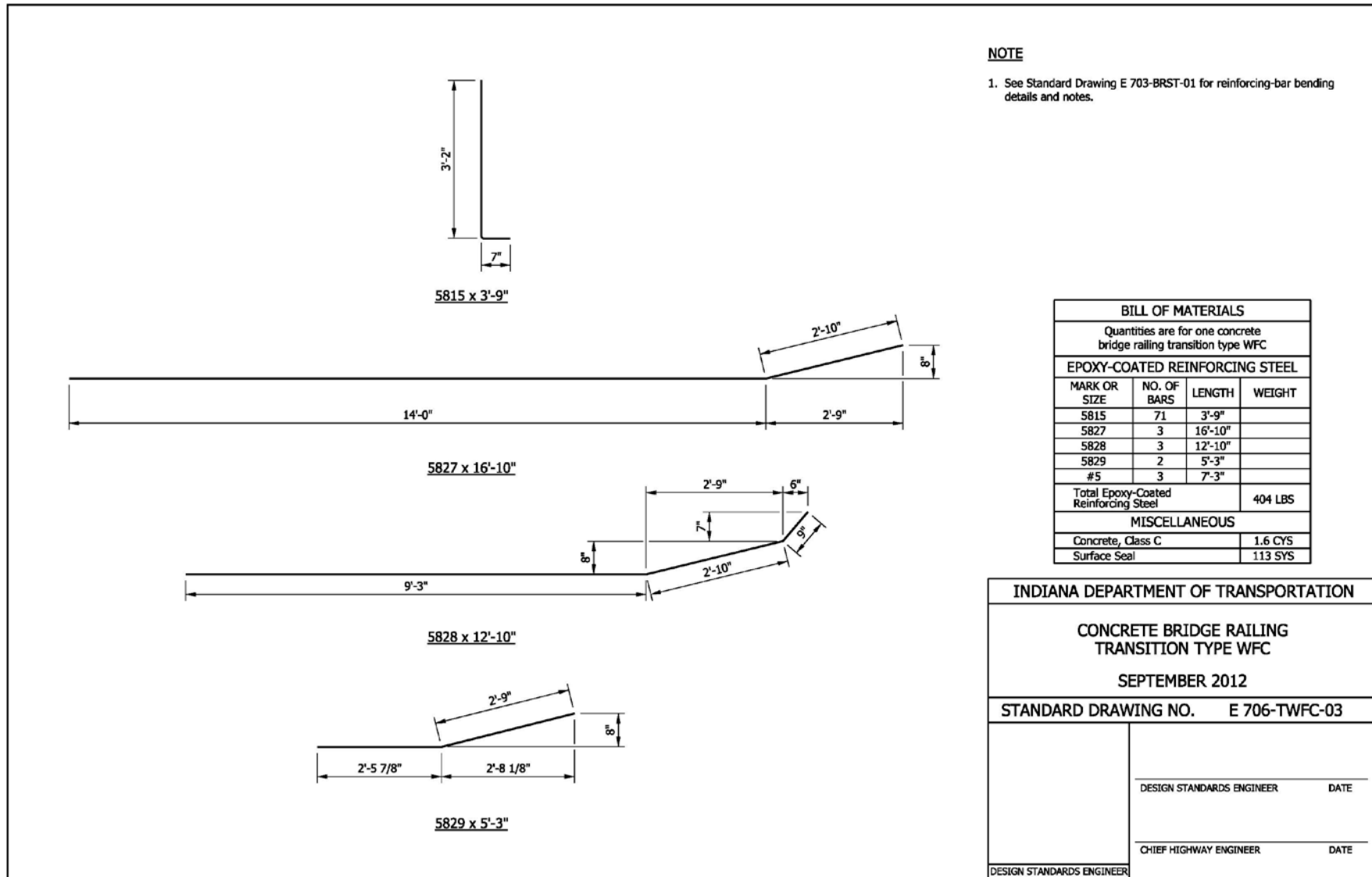
NOTES

1. See Standard Drawing E 706-TWFC-01 for elevation and plan.
2. All chamfered edges shall be 3/4".
- ③ Construction joint type A. See Standard Drawing E 702-CJTA-01 for details.
4. See Standard Drawing E 706-TWFC-03 for reinforcing-bar diagrams.
- ⑤ RCBA extension for bridge railing transition type WFC. See Standard Drawing E 609-TBAE-03 for details.
- ⑥ These bars shall be field bent to provide 2" clearance along the front face batter.
- ⑦ Constant 1:11 batter.
- ⑧ Constant 5:7 batter.

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| INDIANA DEPARTMENT OF TRANSPORTATION | |
| CONCRETE BRIDGE RAILING TRANSITION TYPE WFC | |
| SEPTEMBER 2012 | |
| STANDARD DRAWING NO. E 706-TWFC-02 | |
| | |
| | DESIGN STANDARDS ENGINEER DATE |
| | CHIEF HIGHWAY ENGINEER DATE |
| DESIGN STANDARDS ENGINEER | |

REVISION TO STANDARD DRAWINGS

706-TWFC-03 CONCRETE BRIDGE RAILING TRANSITION TYPE WFC (DRAFT)



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APPROVED MINUTES ITEM 02

REVISION TO STANDARD DRAWINGS

706-CBRT-01 - 04; 706-TPBT-01 - 09; 706-TTBC-01 - 03;
706-TTBP-01 - 09; 706-TTBT-01 - 02; 706-TTTX-01 - 02; 706-TWBC-01 - 04

DISCUSSION: This item was introduced and presented by Mr. Strain who stated that these are primarily clean up items. Standard drawing 706-TWBC-04 was deleted since it no longer serves a useful purpose. The other drawings shown are revised to be consistent with the Standards and for clarification. Mr. Strain further explained some of the revisions that were made and the reasoning behind those revisions.

The final drafts of the drawings are shown in these minutes.

| | |
|--|---|
| <p>Motion: Second: Ayes: Nays:</p> | <p>Action: <input checked="" type="checkbox"/> Passed as Submitted <input type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn</p> |
| <p>Standard Specifications Sections affected:</p> <p>NONE</p> | <p><input type="checkbox"/> 20 Standard Specifications Book <input type="checkbox"/> Revise Pay Items List <input type="checkbox"/> Create RSP (No.____) Effective ____ Letting RSP Sunset Date: ____</p> |
| <p>Recurring Special Provision affected:</p> <p>NONE</p> | <p><input type="checkbox"/> Revise RSP (No.____) Effective ____ Letting RSP Sunset Date: ____</p> |
| <p>Standard Sheets affected:</p> <p>706-CBRT-01 - 04 706-TPBT-01 - 09 706-TTBC-01 - 03 706-TTBP-01 - 09 706-TTBT-01 - 02 706-TTTX-01 - 02 706-TWBC-01 - 04</p> | <p>Standard Drawing Effective <u>Sept. 01, 2012</u> <input type="checkbox"/> Create RPD (No. ____) Effective ____ Letting <input type="checkbox"/> Technical Advisory</p> |
| <p>Design Manual Sections affected:</p> <p>NONE</p> | <p>GIFE Update Req'd.? Y ____ N ____ By ____ Addition or ____ Revision</p> |
| <p>GIFE Sections cross-references:</p> <p>NONE</p> | <p>Frequency Manual Update Req'd? Y ____ N ____ By ____ Addition or ____ Revision Received FHWA Approval? <u>YES</u></p> |