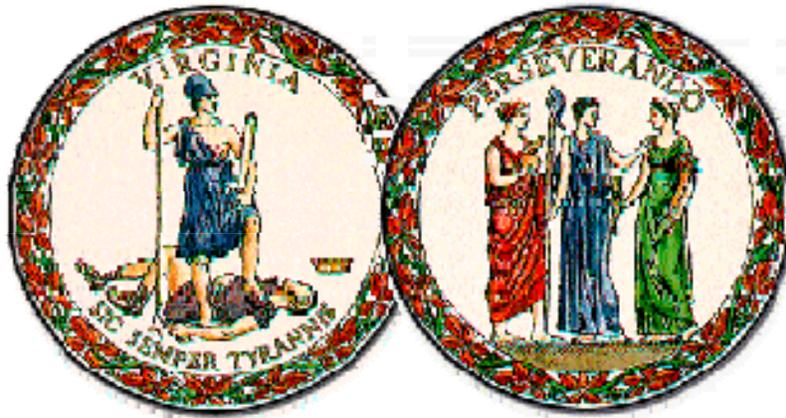


MANUAL OF THE STRUCTURE AND BRIDGE DIVISION

PART 3

CURRENT DETAILS



**VIRGINIA DEPARTMENT OF
TRANSPORTATION**



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Charles A. Kilpatrick, P.E.
COMMISSIONER

August 17, 2016

SUBJECT: Manual of the Structure and Bridge Division – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Manual

VOIDED:

<u>Standard</u>	<u>Title</u>
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None

NEW ISSUES:

<u>Standard</u>	<u>Title</u>
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None

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
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TOC-1, 6, 14 and 16	Revised dates.
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BCR-1-1 thru BCR-4-1	In TYPICAL ELEVATION, removed subtitle "PIERS". Revised notes under SECTION C-C and SECTION D-D.
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BCR-5-1	Revised note in SECTION E-E. In Notes, added maximum spacing of grooving.
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BCR-7-1	In Notes, added maximum spacing of grooving.
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REVISIONS: (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BPF-3-1	In ELEVATION, removed line showing Face of backwall, added line showing End of parapet on superstructure and revised detail of deflection joint. Added ELECTRICAL CONTINUITY FOR VINYL COATED STEEL PEDESTRIAN FENCE, ELECTRICAL CONTINUITY (On Open Joint) and MECHANICAL LUG DETAIL for vinyl coated steel pedestrian fence. In Notes, added reference to Section 507 for grounding fence framing.
BPF-4-1 and BPF-5-1	In ELEVATION, removed line showing Face of backwall and added line showing End of railing on superstructure. Added ELECTRICAL CONTINUITY FOR VINYL COATED STEEL PEDESTRIAN FENCE, ELECTRICAL CONTINUITY (On Open Joint) and MECHANICAL LUG DETAIL for vinyl coated steel pedestrian fence. In Notes, added reference to Section 507 for grounding fence framing.
BPF-3-2, BPF-4-2 & -4-3 and BPF-5-2 & -5-3	Added ELECTRICAL CONTINUITY FOR VINYL COATED STEEL PEDESTRIAN FENCE, ELECTRICAL CONTINUITY (ON Open Joint) and MECHANICAL LUG DETAIL notes.
BR27C-16-1	In Notes, corrected No thru-bolt connections.

RETAIN THIS MEMO IN FRONT OF INDEX TO PART 3

/original signed/
Prasad Nallapaneni, P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

Charles A. Kilpatrick, P.E.
COMMISSIONER

May 18, 2016

SUBJECT: Manual of the Structure and Bridge Division – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Manual

VOIDED:

STANDARD (-1)	Title
BR27D-11-AT	Railing Splice/Expansion Details, Architectural Treatment

NEW ISSUES:

STANDARD (-1)	Title
BPP-2	Prestressed Square Concrete Piles with Stainless Steel Strands: 10” to 24”

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
Files in Standards with revisions	Removed “VOL. V” from all footer File No. blocks. Changed last revised dates only on sheets where actual content was changed.
TOC	Removed “VOLUME V” from header and footer.
TOC-1, -6 thru -10, -12, -14 thru -16, -18, and -20 thru -26	Revised dates.
TOC-14	Added BPP-2. Revised title for BPP-1 to “54” High...” and title for BPP-3-1 to “42” High...”
INSTR-1 thru -3	Removed “VOLUME V” from header.
BCR-1-1 thru BCR-9-1	In Notes, revised “Class A4” to “Low Shrinkage Class A4 Modified”

REVISIONS: (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BCR-1-1 thru BCR-4-1	In TYPICAL ELEVATION, removed detail for PIERS with joint in slab and replaced with detail in slab continuous over pier.
BCR-8-1 and BCR-9-1	In SEMI-INTEGRAL of FULL INTEGRAL ABUTMENT, clarified payment of the terminal wall end support with shaded area and notes.
BCS-30A-1, -32A-1, and -33A-1	In SECTION B-B, removed barrier delineator from concrete wall.
BCS-33A-1	Added notes to drain junction box in SECTION A-A.
BEJ-6-1	In PART SECTION AT ABUTMENT, revised 1'-6" anchor bolts to 1'-9" fully threaded anchor bolts. Revised embedment length to 1'-1".
BEJ-7-2	In PART SECTION AT ABUTMENT, revised 1'-6" anchor bolts to 1'-9" fully threaded anchor bolts and in PART SECTION AT CONCRETE DIAPHRAGM, revised 1'-4" anchor bolts to 1'-7" fully threaded anchor bolts. Revised embedment length to 1'-1".
BEJ-1-2, BEJ-2-2, BEJ-3-2, and BEJ-6/7/10/11/12-6	Updated Manual reference.
BIR-1-1 and -2-1	In SECTION D-D, moved barrier delineator from steel rail to top of W 6 x 25. In SECTION B-B, revised lap length of RW0403. Revised dimensions and lengths of RG0501 and RW0403 in REINFORCING STEEL SCHEDULE.
BIR-3-1	In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified" and instruction for barrier delineator.
BIR-4-1 and -5-1	In ELEVATION, removed rebar RL0403, added rebar RS0401 and note for rebar RL0602. Clarified payment of the terminal wall end support with shaded area and notes
BIR-5-2	In SECTION A-A, added note to provide depth dimension for terminal wall support.
BIR-5-3	In REINFORCING STEEL SCHEDULE, added note for providing dimension and length for rebar RS0401.
BMB-3A and BMB-5A BPB-3A thru 3D and BPB-3A-AT thru 3D-AT	In ELEVATION, revised open joint to groove and deflection joint in parapet over piers. In both SECTION A-As, relocated barrier delineator from side to top of parapet. In Notes, revised verbiage for joint over pier and instruction for barrier delineator. Revised "Class A4" to "Low Shrinkage Class A4 Modified".

REVISIONS: (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BPB-4A thru BPB-4D and BPB-4A-AT thru BPB4D-AT	In ELEVATION, revised open joint to groove and deflection joint in parapet over piers. In SECTION A-A, relocated barrier delineator from side to top of parapet. In Notes, edited verbiage for joint over pier and instruction for barrier delineator. Revised "Class A4" to "Low Shrinkage Class A4 Modified"
BPF-3-1	Removed details for top mounted TYPE A ALTERNATE.
BPF-3-2	In NOTES TO DESIGNER, updated Manual reference and removed Type A Alternate.
BPF-4-2 and -5-2	Updated Manual reference.
BPP-1-1	IN PILE PICK-UP DATA table, revised approx.Wt. per LF of 10" pile from 140 to 104 Lbs.
BPPS-1-1	In PLAN and ELEVATION, revised transition section to 6'-0" and added dimension from ground line to top of footing to 3" in ELEVATION. In Notes, revised bevels to chamfers.
BPPS-1-2	Revised NOTES TO DESIGNER and removed the sketch. In ELEVATION, clarified where to provide dimension for the 54" barrier section and revised multiples of barrier length(s) from 6" to 1'-0". In LAYOUT OF BARRIER FOR PIER PROTECTION, added "Show stations of two ends at the face of barrier curb."
BPPS-2-1	In SECTION A-A, added Note A, distance from Back of barrier to break line of embankment and added dimension and length of RL0802 in REINFORCING STEEL SCHEDULE.
BPPS-2-2	Removed note for REINFORCING STEEL SCHEDULE. In LAYOUT OF BARRIER FOR PIER PROTECTION, added "Show stations of two ends at the face of barrier curb."
BPPS-3-1	In SECTION A-A, added Note A, distance from Back of barrier to break line of embankment. In Notes, revised bevels to chamfers.
BPPS-3-2	Revised NOTES TO DESIGNER and removed the sketch. In ELEVATION, added 42" on barrier and revised multiples of barrier length(s) from 6" to 1'-0". In LAYOUT OF BARRIER FOR PIER PROTECTION, added "Show stations of two ends at the face of barrier curb."
BR27C-12-1 thru -15-1 and BR27C-12-AT-1 thru -15-AT-1 BR27D-8-1 thru -10-1 and BR27D-8-AT-1 thru -10-AT-1	In ELEVATION, removed detail for PIERS with joint in slab and replaced with detail for PIERS without joint in slab. In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified". In ELEVATION, removed detail for PIERS with joint in slab and replaced with detail for PIERS without joint in slab. In SECTION B-B, relocated the barrier delineator. In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified".

REVISIONS: (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27D-8-2 thru BR27D-10-2	Relocated barrier delineator in sketch.
BR27D-8-AT-2 thru BR27D-10-AT-2	Relocated barrier delineator in sketch. Revised reference to standard BR27D-11-AT for rail connections and notes.
BR27D-11-1	Revised instruction for barrier delineator in Notes.
BR27D-11-2	Revised instruction for use of standard to include BR27D-8-AT thru BR27C-10-AT.
BR27T-1-1 and BR27T-5-1	In ELEVATION, revised placement of rebar RL04 series.
BR27T-1-AT-1 and BR27T-5-AT-1	In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified".
BR27T-3-1 and BR27T-4-1 BR27T-3-AT-1 and BR27T-4-AT-1 BR27T-7-1 and BR27T-8-1 BR27T-7-AT-1 and BR27T-8-AT-1	In SEMI-INTEGRAL of FULL INTEGRAL ABUTMENT, added rebar RS0401 and clarified payment for the terminal wall end support with shaded area and note. In SECTION A-A and REINFORCING STEEL SCHEDULE, added rebar RS0401. In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified".
BR27T-9-1 and BR27T-10-1 BR27T-9-AT-1 and BR27T-10-AT-1	In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified".
BR27T-5-2 thru BR27-10-2 BR27T-5-AT-2 thru BR27T-10-AT-2	Updated Manual reference.
BR27T-4-3 and BR27-8-3 BR27T-4-AT-3 and BR27T-8-AT-3	In REINFORCING STEEL SCHEDULE, added note for providing dimension and length to rebar RS0401.
BR411-1-1 and BR411-2-1	In SECTION A-A and SECTION B-B, added Barrier delineator.
BR411-3-1	In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified" and instruction for barrier delineator.
BR411-4-1 and BR411-5-1	In SECTION B-B, revised lap splice length. In REINFORCING STEEL SCHEDULE, revised bar length.
BR411-6-1 and BR411-7-1	In ELEVATION, removed rebar RL04, added rebar RS0401 and instruction note for rebar RL0602. Clarified payment of the terminal wall end support with shaded area and notes. In SECTION A-A, added rebar RS0401 and revised width to 2'-0". In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified". Added rebar RS0401 in REINFORCING STEEL SCHEDULE.

REVISIONS: (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR411-4-2, BR411-5-2 and BR411-6-3	In REINFORCING STEEL SCHEDULE, revised note for modifying rebar lengths for projects with bituminous overlay.
BR411-6-2 and BR411-7-2	In NOTES TO DESIGNER, revised 2'-6" to 2'-0".
BR411-7-2	In ELEVATION and SECTION A-A, added note for providing depth dimension of terminal wall support.
BR411-7-3	In REINFORCING STEEL SCHEDULE, added note for providing dimension and length to rebar RS0401 and revised note to modifying rebar lengths for projects with bituminous overlay.
BRCAS-1-1	In SECTION A-A, added Barrier delineator.
BRCAS-2-1	In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified" and instruction for barrier delineator.
BRCAS-3-1 and BRCAS-4-1	In SECTION B-B, revised lap splice length. In REINFORCING STEEL SCHEDULE, revised bar length.
BRCAS-5-1 and BRCAS-6-1	In ELEVATION, removed rebar RL04, added rebar RS0401 and instruction note for rebar RL0602. Clarified payment of the terminal wall end support with shaded area and notes. In SECTION A-A, added rebar RS0401 and revised width to 2'-6". In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified". Added rebar RS0401 in REINFORCING STEEL SCHEDULE.
BRCAS-3-3, BRCAS-4-3 and BRCAS-5-3	In REINFORCING STEEL SCHEDULE, revised the note for modifying rebar lengths for projects with bituminous overlay.
BRCAS-5-2	In NOTES TO DESIGNER, revised 3'-0" to 2'-6".
BRCAS-6-2	In ELEVATION and SECTION A-A, added note for providing depth dimension of terminal wall support.
BRCAS-6-3	In REINFORCING STEEL SCHEDULE, added note for providing dimension and length to rebar RS0401.
BRGC8-1-1	In SECTION A-A and VIEW C-C, added Barrier delineator.
BRGC8-2-1	In Notes, revised instruction for barrier delineator.
BRMA-1-1	In ELEVATION, added curb transition in abutment end. In SECTION A-A, added Barrier delineator.
BRMA-2-1	In SECTION A-A, added Barrier delineator.
BRMA-3-1	In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified" and instruction for barrier delineator.

REVISIONS: (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BRMA-4-1 and BRMA-5-1	In ELEVATION, added curb transition. Revised VIEW D-D to SECTION D-D and clarified rebars in curb transition section. In SECTION B-B, revised wall width at curb and changed lap length. In REINFORCING STEEL SCHEDULE, revised bar length of RW0402 and curb transition rebars. In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified".
BRMA-6-1 and BRMA-7-1	In ELEVATION, removed rebar RL04, added rebar RS0401 and instruction note for rebar RL0603. Clarified payment of the terminal wall end support with shaded area and notes. Added curb transition and rebars. In SECTION A-A, added rebar RS0401 and reduced width to 2'-0". Revised VIEW D-D to SECTION D-D and clarified rebars in curb transition section. In REINFORCING STEEL SCHEDULE, added rebar RS0401 and revised curb transition rebars. In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified".
BRMA-6-2 and BRMA-7-2	In NOTES TO DESIGNER, revised 2'-6" to 2'-0".
BRMA-7-2	Added note in SECTION A-A for providing dimension for terminal wall end support.
BRMA-6-3	In REINFORCING STEEL SCHEDULE, revised note for modifying rebar lengths for projects with bituminous overlay.
BRMA-7-3	Added note in REINFORCING STEEL SCHEDULE for adding dimension and lengths to rebar RV0503 and RS0401 and revised note for modifying rebar lengths for projects with bituminous overlay.
BRMA-8-1 and BRMA-9-1	In SECTION B-B, revised lap length. In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified".
BRMA-10-1 and BRMA-11-1	In ELEVATION, added Top of slab line and removed rebar RL04, added rebar RS0401 and instruction note for rebar RL0603. Clarified payment of the terminal wall end support with shaded area and notes. In SECTION A-A, added rebar RS0401 and reduced width to 2'-0". In REINFORCING STEEL SCHEDULE, added rebar RS0401. In Notes, revised "Class A4" to "Low Shrinkage Class A4 Modified".
BRMA-8-2 thru BRMA-11-2	In NOTES TO DESIGNER, revised "... roadway surface" to "... top of sidewalk" and removed VIEW A-A, SECTION B-B and REINFORCING STEEL SCHEDULE notes for bituminous overlay.
BRMA-10-2 and BRMA-11-2	In REINFORCING STEEL SCHEDULE, added note for providing dimension and length to rebar RV0503 (and RS0401 for BRMA-11-2 only).

REVISIONS: (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BRSBD-1-1	Added Barrier delineator in SECTION A-A and VIEW C-C.
BRSBD-2-1	In Notes, revised instruction for barrier delineator.
BTB-1-1 and BTB-2-1	Added Barrier delineator in SIDE ELEVATION. In Notes, revised instruction for barrier delineator.
BTB-1-2 and BTB-2-2	Updated Manual reference.

RETAIN THIS MEMO IN FRONT OF INDEX TO PART 3

/original signed/
Prasad Nallapaneni, P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Charles A. Kilpatrick, P.E.
COMMISSIONER

October 15, 2015

SUBJECT: Manual of the Structure and Bridge Division – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Manual

VOIDED:

BR27C-16-AT-1 and 16-AT-2	Voided BR27C Rail Connections and Notes with Architectural Treatment.
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NEW ISSUES:

BBD-4-1 and -4-2	Re-issued Bearing Details for low profile bearings.
BCR-1-1 and 1-2, 2 and 5	Re-issued 27" Kansas Corral with modified terminal wall.
BCR-2-1 and 2-2 and BCR-5-1, 5-2 and 5-3	
BR27C-17-1 and -17-2	Issued BR27C Rail Connections for BR27C-15 and BR27C-15-AT.

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
All files	Revised date and number of sheets from all footer File No. Blocks.
TOC-5 thru -7, -14 thru -16, -23 and -27	Revised dates.
TOC-5	Added BBD-4-1 and -4-2
TOC-6	Added BCR-1-1 and -1-2, BCR-2-1 and -2-2 and BCR-5-1, -5-2 and -5-3.
TOC-16	Deleted BR27C-16-AT and added BR27C-17-1 and -17-2.

REVISIONS:(cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BBD-8-1 and -9-1	Increased dimension from ½” to 1” showing edge of laminated elastomeric bearing to edge of sole plate in all ELEVATIONS. Labeled “Centerline of beam” in all SECTIONS and in PLAN OF LAMINATED ELASTOMERIC BEARING. Added placement of steel dowel in PIER ELEVATION FIXED BEARING CONTINUOUS SPANS. Added “Bearing Type” column in Table, instructions to mark “Centerline of beam” on the top and bottom surfaces of the laminated elastomeric bearing, sheet no. fill-in for dowel and closure diaphragm details. Deleted sheet no. fill-in for designation of fixed or expansion bearings in Notes.
BBD-8-2 and -9-2	In Notes to Designer, deleted use of Lampad computer program and added note at fixed bearings.
BBD-9-2	Added table for minimum dimensions for “W” in Add the Following Notes, Dimensions, Details, Etc. to Standard.
BCR-3-1 and -4-1	Reduced concrete rail width from 1’-3” to 1’-2”. Increased rebar lap of RL04 series and RL0402 in TYPICAL SECTION AND PART ELEVATION, respectively. Changed placement of barrier delineator in TYPICAL SECTION BETWEEN POST, DECK SLABS AND SLAB SPANS. Added rebar RU0502 in SLAB SPANS. In Reinforcing Steel Schedule changed dimensions of rebars RU0502, RV0402 and RV0403.
BCR-3-2 and -4-2	In Notes to Designer, changed rail concrete pedestal width increased from 15” to 14”.
BCR-6-1 and -7-1	Reduced concrete terminal wall width from 1’-3” to 1’-2” in VIEW A-A. Reduced concrete terminal wall width and increased lap of rebar RW0403 in SECTION B-B. Changed dimension of rebar RW0401 in Reinforcing Steel Schedule.
BCR-8-1 and -9-1	Reduced concrete terminal wall width from 1’-3” to 1’-2” in SECTION A-A and SECTION B-B. Increased lap of rebar RL0402 in ELEVATION. In Reinforcing Steel Schedule, changed dimensions of rebar RV0402, revised rebar RV0405 and added rebars RV0406 and RS0401. Deleted SECTION C-C.
BCS-31A-1	In SECTION A-A, added notes to drain junction box.
BPF-4-1	Changed ASTM specification from F1080 to F1083, schedule 40 in Notes.
BPP-1-1	In Notes, changed “Seismic Performance Category B” to “Seismic Performance Zone 2”.

REVISIONS:(cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27C-15-1 and -15-AT-1	In SECTION B-B, replaced first rail from concrete pedestal on non-traffic side from HSS 4 x 3 x 1/4" steel tubing to HSS 4 x 2 x 1/4" steel tubing and relocated placement of barrier delineator from concrete pedestal to middle rail.
BR27C-15-AT-1	Added Bid price for architectural treatment note from BR27C-16-AT Notes (Cont'd.).
BR27C-12-1 thru -14-1	Relocated placement of barrier delineator from concrete pedestal to steel railing in SECTION B-B. In Notes, deleted placement of barrier delineator.
BR27C-12-AT-1 thru	In SECTION B-B, relocated placement of barrier delineator from and deleted placement of barrier delineator in Notes.
BR27C-14-AT-1	Added bid price for architectural treatment note to Notes from BR27C-16-AT Notes (Cont'd).
BR27C-12-2 thru -15-2	Revised figure showing placement of barrier delineator.
BR27C-12-AT-2 thru -15-AT-2	Revised figure showing placement of barrier delineator and reference to standard BR27C-16-AT for rail connections and notes.
BR27C-16-1	Deleted placement of barrier delineator in Notes.
BR27C-16-2	Edited use of standard to include BR27C-12-AT thru BR27C-15-AT.
BR411-2-1	Clarified dimensions in SECTION A-A and SECTION C-C.
BR411-3-1	Clarified dimensions in Window Types.
BWL-2-1	In TYPICAL SUPPORT DETAIL AT EXPANSION JOINT, changed steel L bar to match DETAIL A.

RETAIN THIS MEMO IN FRONT OF INDEX TO PART 3

/original signed/
Prasad Nallapaneni, P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Charles A. Kilpatrick, P.E.
COMMISSIONER

March 10, 2015

SUBJECT: Manual of the Structure and Bridge Division – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Manual

VOIDED:

None

NEW ISSUES:

None

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1, -6, -8 thru -21 and -25	Revised dates.
INSTR-1	Updated modification requirements and manual references.
BCS-28A and -29A	In Section B-B, revised rebars RV0502 and RV0401 and added additional longitudinal bars to match the changes to the BPB-3 series standards. Added new bars CT0401 in Section B-B, Plan view and Reinforcing Steel Schedule. Added a note for RT0401 bars under the Reinforcing Steel Schedule.
BIR-1-2, -2-2, -4-2 and -5-2	Updated test level.

REVISIONS:(cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BPB-3A and -3B	In Section A-A, revised rebars RV0502 and RV0401, revised concrete covers, added two more rows of RL04 series and removed RL04 bar at top of parapet. In Section A-A Alternate Reinforcing Steel, revised rebar RV0502, revised concrete covers and added dimension at bottom for welded wire fabric. In Section D-D, revised rebars RV0401 and RW0402, added one row of RL04, removed RL04 bar from top of parapet and changed embedment of bar RW0402 in wingwall. In Elevation view, added bars RV0404, added lap splice detail for RL04 series in U-Back Wing and revised minimum lap lengths. Revised Reinforcing Steel Schedule for rebars RV0401, RV0404, RV0502 and RW0402. Added a note for bar RT0401 under Reinforcing Steel Schedule.
BPB-3C and -3D	In Section A-A, revised rebars RV0502 and RV0401, revised concrete covers, added two more rows of RL04 series and removed RL04 bar at top of parapet. In Section A-A Alternate Reinforcing Steel, revised rebar RV0502, revised concrete covers and added dimension at bottom for welded wire fabric. In Section D-D, revised rebar RV0504, changed RV0401 to RV0405, added one row of RL04, deleted RL04 bar at top of parapet and added rebar RS0401. In Elevation view, added bars RS0401, added note for bar RL0602 and revised minimum lap lengths. In Terminal Wall elevation view, revised RV0401 to RV0405 in 1'-6" area from end of terminal wall. Revised Reinforcing Steel Schedule for rebars RV0401, RV0405, RV0502, RV0504 and RS0401. Added a note for bar RT0401 under Reinforcing Steel Schedule.
BPB-3A-AT thru -3D-AT	Added Detail A. Revised the diamond note under Section A-A by deleting the last sentence. Added a note for the gross concrete quantities under Reinforcing Steel Schedule to exclude the architectural treatment. Revised the last sentence in Notes to include coping. All other revisions are same as those noted for BPB-3A and -3B or BPB-3C and -3D.
BPB-3D-3 and BPB-3D-AT-3	Revised first sentence under Reinforcing Steel Schedule to include bar RS0401.
BPB-AT-1 thru -AT-12	In Section A-A, revised dimensions of the parapet shown in Inside Face, Outside Face and Both Faces, changed relief r shown on inside and outside faces to r1 and r2 respectively, revised the note for reliefs and deleted "Limit(s) of Architectural Treatment" under Section A-A. Added the table for reliefs.
BPB-AT-1-2 thru -AT-12-2	Updated manual references. Revised second paragraph on attachments. Added relief table instructions.

REVISIONS:(cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BPB-4A and -4B	In Section A-A, revised concrete cover callouts. In Section D-D, revised rebar RW0502 and added embedment of the bar in wingwall. In Elevation view, revised minimum lap lengths. Revised rebars RV0501, RV0502, RV0504 and RW0502 in Reinforcing Steel Schedule. Added a note for bar RT0401 under Reinforcing Steel Schedule.
BPB-4C and -4D	In Section A-A, revised concrete cover callouts. In Section D-D, revised rebar RV0505 and added rebar RS0401. In Elevation view, added bar RS0401, added note for bar RL0603 and revised minimum lap lengths. Revised rebars RV0501, RV0502, RV0504 and RV0505 and added rebar RS0401 in Reinforcing Steel Schedule. Added a note for bar RT0401 under Reinforcing Steel Schedule.
BPB-4A-AT thru -4D-AT	Added Detail A. Revised the diamond note under Section A-A by deleting the last sentence. Added a note for the gross concrete quantities under Reinforcing Steel Schedule to exclude the architectural treatment. Revised the last sentence in Notes to include coping. All other revisions are same as those noted for BPB-4A and -4B or BPB-4C and -4D.
BPB-4D-3 and BPB-4D-AT-3	Revised the second sentence under Reinforcing Steel Schedule to include bar RS0401.
BPB-AT-21 thru -AT-32	In Section A-A, revised dimensions of the parapet shown in Inside Face, Outside Face and Both Faces, changed relief r shown on inside and outside faces to r1 and r2 respectively, revised the note for reliefs and deleted "Limit(s) of Architectural Treatment" under Section A-A. Added the table for reliefs.
BPB-AT-21-2 thru -AT-32-2	Updated manual references. Revised second paragraph on attachments. Added relief table instructions.
BPF-3-1, -4-1 and -5-1	Replaced turnbuckles with truss rod tighteners.
BPPS-1-2 and -3-2	Clarified referenced line nomenclature.
BR27C-12 thru -15 BR27C-12-AT thru -15-AT	Revised position of RL04 bars, lap lengths and clear callouts. Revised bolt designation, showed reinforcement and added note to SECTION B-B. Used two bars in place of one RG04 series bar. Revised reinforcing steel dimensions.
BR27C-12-AT thru -15-AT	Added DETAIL A, revised diamond note and final note on architectural treatment bid price.

REVISIONS:(cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27C-12-2 thru -15-2 BR27C-12-AT-2 thru -15-AT-2	Updated manual references.
BR27C-12-3 thru -15-3 BR27C-12-AT-3 thru -15-AT-3	Revised instructions for Reinforcing Steel Schedule.
BR27C-16 and -16 AT	In RAIL EXPANSION JOINT DETAILS, changed Section C-C cut to A-A, added Section A-A cut to left side and removed slots from right side in ELEVATION VIEW. In RAIL EXPANSION JOINT DETAILS, revised hole diameter in SECTION D-D. Added note on alternate inner sleeve fabrication details.
BR27C-AT-1 thru -AT-12	In Section A-A, revised dimensions of the parapet shown in Inside Face, Outside Face and Both Faces, changed relief r shown on inside and outside faces to r1 and r2 respectively, revised the note for reliefs and deleted "Limit(s) of Architectural Treatment" under Section A-A. Added the table for reliefs.
BR27C-AT-1-2 thru -AT-12-2	Updated manual references. Revised second paragraph on attachments. Added relief table instructions.
BR27D-8 thru -10 and BR27D-8-AT thru -10-AT	Revised position of RL04 bars, lap lengths and clear callouts. Revised bolt designation, showed reinforcement and added note to SECTION B-B. Used two bars in place of one RG04 series bar. Revised reinforcing steel dimensions.
BR27D-8-AT thru -10-AT	Added DETAIL A, revised diamond note and final note on architectural treatment bid price.
BR27D-8-2 thru -10-2 BR27D-8-AT-2 thru -10-AT-2	Updated manual references.
BR27D-8-3 thru -10-3 BR27D-8-AT-3 thru -10-AT-3	Revised instructions for Reinforcing Steel Schedule.
BR27D-11 and -11-AT	In RAIL EXPANSION JOINT DETAILS, changed Section C-C cut to A-A, added Section A-A cut to left side and removed slots from right side in ELEVATION VIEW. In RAIL EXPANSION JOINT DETAILS, revised hole diameter in SECTION D-D. Added note on alternate inner sleeve fabrication details.

REVISIONS:(cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27D-AT-1 thru-AT-12	In Section A-A, revised dimensions of the parapet shown in Inside Face, Outside Face and Both Faces, changed relief shown on inside and outside faces to r1 and r2 respectively, revised the note for reliefs and deleted "Limit(s) of Architectural Treatment" under Section A-A. Add the table for reliefs.
BR27D-AT-1-2 thru -AT-12-2	Updated manual references. Revised second paragraph on attachments. Added relief table instructions.
BR27T-1 thru -10 and BR27T-1-AT thru -10-AT	Revised lap lengths, clear callouts and provided dimension for placement of RL04 bar in Section. Adjusted RL04 bar spacing in ELEVATION. Revised reinforcing steel dimensions.
BR27T-1-AT thru -10-AT	Added DETAIL A, revised diamond note and final note on architectural treatment bid price.
BTB-1	Revised PLATE WASHER D details.

RETAIN THIS MEMO IN FRONT OF INDEX TO PART 3

/original signed/
Prasad Nallapaneni, P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

December 30, 2013

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

VOIDED:

BR412-1 thru -7, Standards and notes voided.
BR412-1-2 thru -7-2
and -1-3 thru -7-3

NEW ISSUES:

<u>File Number</u>	<u>Description of change(s)</u>
BR27T-10, -10-2, -10-3 -10-AT, -10-AT-2 and -10-AT-3	Added separate 54" BR27C/BR27D standards for terminal walls on approach slab with full integral or semi-integral abutments.

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1, -13 thru -17 and -19 thru -22	Revised dates, inserted new standards, revised titles for usage and moved content to next sheet where necessary.
BPF-3 thru -5	Revised bolt and hole size in PLAN view.
BR27C-12 thru -15 and -12-AT thru -16-AT	Miscellaneous drafting, nomenclature and/or spelling changes.
BR27C-15 and -15-AT	Added detail for SECTION A-A without sidewalk and revised callouts for top of deck slab or top of sidewalk in existing details.

REVISIONS:(cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27C-13-2 thru -15-2 and -13-AT-2 thru -15-AT-2	Revised usage of standards.
BR27C-15-2, -15-3, -15-AT-2 and -15-AT-3	Added detail for railing on deck slab, geometric reference and bituminous overlay note. Moved some content to next sheet.
BR27D-8 thru -10 and -8-AT thru -11-AT	Miscellaneous drafting, nomenclature and/or spelling changes.
BR27D-9-2, -9-AT-2, -10-2 and -10-AT-2	Revised usage of standards.
BR27T-1 thru -8 and -1-AT thru -8-AT	Miscellaneous drafting changes. Revised lap length and reinforcing steel dimensions.
BR27T-3, -3-AT, -7 and -7-AT	Revised details of bars connecting concrete slab extension and deck slab end bolster. Revised bar spacing of vertical reinforcement in TERMINAL WALL.
BR27T-4, -4-AT, -8 and -8-AT	Revised details of bars connecting concrete slab extension and deck slab end bolster and reduced depth shown in details. Revised bar spacing of vertical reinforcement in TERMINAL WALL.
BR27T-9 and -9-AT	Miscellaneous drafting and nomenclature changes. Revised reinforcing steel dimensions. Replaced steel railing extension on approach slab with concrete parapet.
BR27T-1-2 thru -9-2 And -1-AT-2 thru -9-AT-2	Revised paragraph on Contractor's responsibility.
BR27T-5-2 thru -9-2 and -5-AT-2 thru -9-AT-2	Revised usage of standards.
BR27T-1-3 thru -9-3 and -1-AT-3 thru -9-AT-3	Revised Reinforcing Steel Schedule note.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

November 1, 2013

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

VOIDED:

None

NEW ISSUES:

None

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1, -19 and -20	Revised dates.
BR27T-3-1, BR27T-3-AT-1, BR27T-4-1 and BR27T-4-AT-1	Revised length of bar RV0501 in Reinforcing Steel Schedule from 6'-6" to 7'-0".

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
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For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

October 24, 2013

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

VOIDED:

None

NEW ISSUES:

<u>File Number</u>	<u>Description of change(s)</u>
BPB-4A-1 thru BPB-4D-1	Added 42" TL-5 crash tested parapet.
BPB-4A-2 thru BPB-4D-2 and BPB-4D-3	Added Notes to Designer .
BPB-4A-AT-1 thru BPB-4D-AT-1	Added details for architectural treatment for BPB-4 series parapets.
BPB-4A-AT-2, -3 thru BPB-4D-AT-2, -3	Added Notes to Designer.
BPB-AT-21-1 thru BPB-AT-32-1	Added architectural treatment for BPB-4 series parapets.
BPB-AT-21-2 thru BPB-AT-32-2	Added Notes to Designer.

NEW ISSUES:(cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BTB-2-1	Added Thrie-Beam Guardrail (Top Mount).
BTB-2-2	Added Notes to Designer for Thrie-Beam Guardrail.

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1 thru -24	Revised dates and numbers of sheets and added two new sheets.
BMB-3A-1 and BMB-5A-1	Rearranged the notes for uniformity.
BMB-3A-2 and BMB-5A-2	Notes to Designer: Miscellaneous editorial changes.
BPB-3A-2, BPB-3B-2 BPB-3C-2, BPB-3D-2 and BPB-3D-3	Notes to Designer: Miscellaneous editorial changes.
BPB-3A-AT-1, BPB-3B-AT-1, BPB-3C-AT-1 and BPB-3D-AT-1	Miscellaneous editorial changes.
BPB-3A-AT-2,-3 BPB-3B-AT-2,-3 BPB-3C-AT-2, -3 and BPB-3D-AT-2, -3	Notes to Designer: Miscellaneous editorial changes.
BPPS-1-1 and BPPS-3-1	Rearranged the notes for uniformity.
BR27C-13-1 thru BR27C-15-1, BR27D-9-1, BR27D-10-1, BR27C-12-AT-1 thru BR27C-15-AT-1 and BR27D-8-AT-1 thru BR27D-11-AT-1	Revised the notes for uniformity.
BR411-3-1	Revised the notes for uniformity.

REVISIONS:(cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR412-3-1, BR412-6-1 and BR412-7-1	Revised the notes for uniformity.
BRCAS-2-1 thru BRCAS-6-1	Revised the notes for uniformity.
BRMA-3-1	Revised the notes for uniformity.
BRMA-4-1 thru BRMA-11-1	Rearranged the notes for uniformity.
BRGC8-2-1	Revised the notes for uniformity.
BRSBD-2-1	Revised the notes for uniformity.
BTB-1-1	Added (Side Mount) to title.
BTB-1-2	Added "BTB Series" to title and revised notes.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

October 1, 2013

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

VOIDED:

None

NEW ISSUES:

None

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1 and 19 thru -22	Revised dates of sheets.
BR411-2-2	Removed language on FHWA.

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
BR412-2-2	Removed language on FHWA.
BRCAS-1-1	Corrected anchor bolt information.
BRCAS-2-1	Added dimension on post.
BRMA-2-2	Removed language on FHWA.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
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For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

August 30, 2013

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

The railing standards are revised to show a uniform format for the notes. Six new rail standards added. Architectural treatment is added to the BPB-3-series, BR27C-series and BR27D-series parapets/railings.

VOIDED:

None

NEW ISSUES:

File Number

Description of change(s)

BPB-3A-AT-1,
BPB-3B-AT-1,
BPB-3C-AT-1, and
BPB-3D-AT-1

Added details for architectural treatment for BPB-3 series parapets.

NEW ISSUES: (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BPB-3A-AT-2, thru BPB-3C-AT-2, and BPB-3D-AT-3	Added Notes to Designer.
BPB-AT-1-1, thru BPB-AT-12-1	Added architectural treatment for BPB-3 series parapets.
BPB-AT-1-2, thru BPB-AT-12-2	Added Notes to Designer.
BR-27-ATM-1-1, and BR-27-ATM-2-1	Added architectural treatment (medallions) for BR27C-series and BR27D-series rails.
BR-27-ATM-1-2, and BR-27-ATM-2-2	Added Notes to Designer.
BR27C-12-AT-1, thru BR27C-16-AT-1	Added details for architectural treatment for BR27C-series railing.
BR27C-12-AT-2, -3, thru BR27C-15-AT-2, -3 and BR27C-16-AT-2	Added Notes to Designer.
BR27C-AT-1-1, thru BR27C-AT-12-1	Added details of architectural treatment for BR27C-series railing.
BR27C-AT-1-2, thru BR27C-AT-12-2	Added Notes to Designer.
BR27D-8-AT-1, thru BR27D-11-AT-1	Added details for architectural treatment for BR27D-series railing.
BR27D-8-AT-2, -3, thru BR27D-10-AT-2, -3, and BR27D-11-AT-2	Added Notes to Designer.
BR27D-AT-1-1, thru BR27D-AT-12-1	Added details of architectural treatment for BR27D-series railing.
BR27D-AT-1-2, thru BR27D-AT-12-2	Added Notes to Designer.

NEW ISSUES: (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27T-1-AT-1, thru BR27T-9-AT-1	Added details for architectural treatment for BR27C-series and BR27D-series terminal walls.
BR27T-1-AT-2, -3, thru BR27T-9-AT-2, -3	Added Notes to Designer.
BR411-1-1, thru BR411-7-1	Added concrete railing, Texas C411.
BR411-1-2, -3, BR411-2-2, -3, BR411-3-2, BR411-4-2, -3 BR411-5-2, BR411-6-2, -3, and BR411-7-2, -3	Added Notes to Designer.
BR412-1-1, thru BR412-7-1	Added concrete railing, Texas C412.
BR412-1-2, -3, BR412-2-2, -3, BR412-3-2, and BR412-4-2, -3, thru BR412-7-2, -3	Added Notes to Designer.
BRCAS-1-1, thru BRCAS-6-1	Added steel railing, California ST-20S.
BRCAS-1-2, BRCAS-2-2, and BRCAS-3-2, -3, thru BRCAS-6-2, -3	Added Notes to Designer.
BRMA-1-1, thru BRMA-11-1	Added steel railing, Massachusetts S3.

NEW ISSUES: (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BRMA-1-2, thru BRMA-5-2, BRMA-6-2, -3, BRMA-7-2, -3, BRMA-8-2, BRMA-9-2, BRMA-10-2, -3, and BRMA-11-2, -3	Added Notes to Designer.
BRGC8-1-1 thru BRGC8-3-1	Added timber railing, GC-8000.
BRGC8-1-2 thru BRGC8-3-2	Added Notes to Designer.
BRSBD-1-1 thru BRSBD-3-1	Added timber railing, SBD01D.
BRSBD-1-2 thru BRSBD-3-2	Added Notes to Designer.

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1 thru -12	Revised dates of sheets and added new sheets.
BCR-3-1	Rearranged the notes for uniformity and revised 8 in. dimension to 1ft. - 3 in. for rebar RV0403.
BCR-4-1	Rearranged the notes for uniformity.
BCR-6-1 thru BCR-9-1	Rearranged the notes for uniformity and added dimension indicating cover on reinforcing steel.
BCR-3-2, BCR-4-2, BCR-6-2 thru BCR-9-2 and BCR-9-3	Revised the corrosion resistant reinforcing steel note. Title Block: Replace standard designation with plan number.
BIR-1-1	Revised 9 in. dimension to 1ft. - 3 in. for rebar RG0501 and added dimension indicating cover on reinforcing steel.

REVISIONS: (cont'd):

<u>File Number</u>	<u>Description of change(s)</u>
BIR-1-2, BIR-1-3 BIR-2-2, BIR-2-3 BIR-4-2, BIR-4-3 BIR-5-2 and BIR-5-3	Reinforcing Steel Schedule: Deleted rebar modification for slab depth and cross slope. Title Block: Replace standard designation with plan number. Added requirement to show dimension for rebar RG0501.
BIR-2-1, BIR-4-1 and BIR-5-1	Revised 9 in. dimension to 1ft. - 3 in. for rebar RG0501.
BIR-3-1	Rearranged the notes for uniformity.
BIR-3-2	Revised the corrosion resistant reinforcing steel note. Title Block: Replace standard designation with plan number.
BPB-3A-1, BPB-3B-1 BPB-3C-1 and BPB-3D-1	Rearranged the notes for uniformity and revised 8 in. dimension to 1ft. - 3 in. for rebar RV0502.
BPB-3A-2, BPB-3B-2 BPB-3C-2, BPB-3D-2 and BPB-3D-3	Reinforcing Steel Schedule: Deleted rebar modification for slab depth and cross slope; Title Block: Replace standard designation with plan number. Revised the corrosion resistant reinforcing steel note and made miscellaneous editorial changes.
BR27C-12-1 thru BR27C-15-1 and BR27D-8-1 thru BR27D-10-1	Rearranged the notes for uniformity, revised 7 in. dimension to 6½ in. for rebar RG0401 and revised the clearance to rebar note.
BR27C-12-2,-3 thru BR27C-15-2, -3 and BR27D-8-2, -3 thru BR27D-10-2, -3	Revised the corrosion resistant reinforcing steel note and made miscellaneous editorial changes.
BR27C-16-1 and BR27D-11-1	Rearranged the notes for uniformity, revised the cap screw diameter from ¾ in. to ½ in. Section A-A and Section C-C and revised slot dimension and hole diameter in. in Section B-B.
BR27C-16-2 and BR27D-11-2	Title Block: Replace standard designation with plan number. Made miscellaneous editorial changes.
BR27T-1-1, BR27T-2-1, BR27T-5-1 and BR27T-6-1	Rearranged the notes for uniformity and added dimension indicating cover on reinforcing steel.
BR27T-3-1 and BR27T-7-1	Rearranged the notes for uniformity and added dimension indicating cover on reinforcing steel, revised 7 in. dimension to 6½ in. for rebar RV0501 and deleted vertical dimension from rebar RV0502 and RV0503.

REVISIONS: (cont'd):

<u>File Number</u>	<u>Description of change(s)</u>
BR27T-4-1 and BR27T-8-1 BR27T-9-1	Rearranged the notes for uniformity and added dimension indicating cover on reinforcing steel, revised 7 in. dimension to 6½ in. for rebar RV0501 and deleted vertical dimension from rebar RV0502.
BR27T-1-2, -3, BR27T-2-2, -3, BR27T-5-2, -3 and BR27T-6-2, -3	Revised the corrosion resistant reinforcing steel note and made miscellaneous editorial changes.
BR27T-3-2, -3 and BR27T-7-3	Added note for requirement to show dimension and length for rebar RV0502 and RV0503. Revised the corrosion resistant reinforcing steel note and made miscellaneous editorial changes.
BR27T-4-2, -3, BR27T-8-2, -3 and BR27T-9-2, -3	Added note for requirement to show dimension and length for rebar RV0502. Revised the corrosion resistant reinforcing steel note and made miscellaneous editorial changes.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

May 3, 2013

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

The approach slab standards are revised due to concerns by bridge contractors as to grooving requirements for approach slabs (at grade, with asphalt overlay or buried) and whether the grooving should be in accordance with the *VDOT Road and Bridge Specifications*, Section 316 or Section 404. For simplicity, the standards are revised rather than the specifications. The payment for grooving on the approach slabs was previously addressed in the July 9, 2012 revision to the Manual of the Structure and Bridge Division, Volume V – Part 2, Chapter 3: Estimates quantities tables for superstructure. The note is added on the standard sheets for the Contractor's information.

VOIDED:

None

NEW ISSUES:

None

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
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TOC-1 thru -4	Revised date of sheets.
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Page 2
May 3, 2013

BAS-11 thru 20AR

Added note for grooving requirements and quantities.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

March 27, 2013

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

VOIDED:

<u>File Number</u>	<u>Description of change(s)</u>
BCF-1-1and BCF-1-2,	Contents of standard divided over two sheets.
BCF-2-1and BCF-2-2	Standard and notes deleted. General details for curved girder bridge cross frames are shown in Volume V – Part 2, Chapter 11.

NEW ISSUES:

<u>File Number</u>	<u>Description of change(s)</u>
BCF-4-1and BCF-5-1	Replaced BCF-1-1
BCF-4-2 and BCF-5-2	Notes to Designer for standard sheets.

REVISIONS:

TOC-1 and 2	Revised applicable names and dates.
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Page 2
March 27, 2012

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

December 14, 2012

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

VOIDED:

None

NEW ISSUES:

<u>File Number</u>	<u>Description of change(s)</u>
BPPS-1-1, BPPS-2-1, and BPPS-3-1	Added Pier Protection System standards. Supplemental information has been added to Manual of the Structure and Bridge Division, Volume V – Part 2, Chapter 15.
BPPS-1-2, BPPS-1-3, BPPS-2-2, BPPS-3-2, and BPPS-3-3	Notes to Designer for standard sheets.

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1, 5 and 8 thru 12	Revised date of sheet and updated to reflect the inclusion of new standards.
BCR-3-1 and BCR-4-1	Notes: Deleted reference to terminal walls; Revised the note to remove reference to dimensions and to omit reference to different cross slopes and slab depths; Reinforcing Steel: Deleted pin diameter for RU0502 rebar; PIERS: Revised detail to show 1'-7" depth of deflection joint.

REVISIONS (cont'd):

<u>File Number</u>	<u>Description of change(s)</u>
BCR-3-2 and BCR-4-2	Notes to Designer: Revised note defining Contractor's responsibility; Omitted requirement to add lengths for rebars in steel schedule.
BCR-6-1 and BCR-7-1	Notes: Added notes for bevels, Contractor's responsibility, class of concrete and bid item for terminal wall; ELEVATION: Added RW0403 to spacing; SECTION B-B: Added RW0403 rebar; Reinforcing steel Schedule: Added RW0403 bar.
BCR-6-2 and BCR-7-2	Notes to Designer: Revised note defining Contractor's responsibility and note pertaining to AW Series bars.
BCR-8-1 and BCR-9-1	Notes: Added notes for bevels, contractor responsibility, class of concrete and bid item for terminal wall.
BCR-8-2 and BCR-9-2	Notes to Designer: Revised note defining Contractor's responsibility.
BIR-1-1 and BIR-2-1	Notes: Omitted reference to BIR-1; SECTION B-B: Added 12 in. dimension to rebar RW0402; Reinforcing steel Schedule: Omitted 11 in. dimension and length for RG0501 rebar.
BIR-1-2 and BIR-2-2	Notes to Designer: Revised note defining Contractor's responsibility, added a note for AW series bars.
BIR-1-3 and BIR-2-3	Reinforcing steel Schedule: Replaced RL04 series with RG0501.
BIR-3-1	Notes: Revised the note to omit reference to different cross slopes and slab depths.
BIR-4-1 and BIR-5-1	Notes: Omitted reference to BIR-1; Reinforcing steel Schedule: Omitted 11 in. dimension and length for RG0501 rebar.
BIR-4-2 and BIR-5-2	Notes to Designer: Revised note defining Contractor's responsibility.
BIR-4-3 and BIR-5-3	Reinforcing steel Schedule: Replaced RL04 series with RG0501.
BMB-3A-1 and BMB-5A-1	Notes: Added note for class of concrete, revised the note to omit reference to different cross slopes and slab depths.
BMB-3A-2 and BMB-5A-2	Notes to Designer: Revised note defining Contractor's responsibility.

REVISIONS (cont'd):

<u>File Number</u>	<u>Description of change(s)</u>
BPB-3A-1 and BPB-3B-1	Notes: Revised the note to omit reference to different cross slopes and slab depths; SECTION D-D: Added 12 in. dimension to rebar RW0402.
BPB-3A-2	Notes to Designer: Revised note defining Contractor's responsibility, added a note for AW series bars.
BPB-3B-2	Notes to Designer: Revised note defining Contractor's responsibility, added a note for AW series bars; Reinforcing steel Schedule: Omitted the length for RL04 series bars.
BPB-3C-1 and BPB-3D-1	Notes: Revised the note to omit reference to different cross slopes and slab depths.
BPB-3C-2	Notes to Designer: Revised note defining Contractor's responsibility; Reinforcing steel Schedule: Omitted the length for RL04 series bars.
BPB-3D-2	Notes to Designer: Revised note defining Contractor's responsibility.
BPB-3D-3	Reinforcing steel Schedule: Omitted the length for RL04 series bars.
BPF-3-1, BPF-4-1 and BPF-5-1	Revised the note pertaining to grounding framing posts and railing.
BR27C-12-1, BR27C-13-1 BR27C-14-1 and BR27C-15-1	Notes: Added note for rounded edges, revised the note to omit reference to different cross slopes and slab depths.
BR27C-12-2 and BR27C-15-2	Notes to Designer: Revised note defining Contractor's responsibility.
BR27C-14-2	Notes to Designer: Revised note pertaining to rail connections.
BR27C-12-3 and BR27C-15-3	Reinforcing steel Schedule: Omitted the length for RL04 series bars.
BR27C-13-3 and BR27C-14-3	Notes to Designer: Revised note defining Contractor's responsibility; Reinforcing steel Schedule: Omitted the length for RL04 series bars.

REVISIONS (cont'd):

<u>File Number</u>	<u>Description of change(s)</u>
BR27D-8-1, BR27D-9-1 and BR27D-10-1	Notes: Added note for rounded edges, revised the note to omit reference to different cross slopes and slab depths.
BR27D-8-2	Notes to Designer: Revised note defining Contractor's responsibility.
BR27D-8-3	Reinforcing steel Schedule: Omitted the length for RL04 series bars.
BR27D-9-3 and BR27D-10-3	Notes to Designer: Revised note defining Contractor's Responsibility; Reinforcing steel Schedule: Omitted the length for RL04 series bars.
BR27T-1-1 thru BR27T-9-1	Notes: Added notes for bevels, Contractor's responsibility, class of concrete and bid item for terminal wall; Title block: Added "C" and "D" to BR27 series.
BR27T-1-2, BR27T-2-2, BR27T-5-2, BR27T-6-2	Notes to Designer: Revised note defining Contractor's responsibility and note pertaining to AW Series bars.
BR27T-3-2, BR27T-4-2, BR27T-7-2, BR27T-8-2 BR27T-9-2	Notes to Designer: Revised note defining Contractor's responsibility.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

August 30, 2012

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

The revision is intended to clarify modifications to standards. Design waivers/exceptions are required when changes to the standards are made.

VOIDED:

None

NEW ISSUES:

None

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1	Revised date of sheet.
INSTR-1	Revised modification policy; added instructions for completing the sheet.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

August 7, 2012

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

NOTES:

Standards are revised for corrosion resistant reinforcing (CRR) steel designations (Class I, II or III) that will be effective with the March 2013 ad date. For projects going to ad prior to that date, CRR steels that are designated on the standards must be changed to one or more of the following:

- corrosion resistant reinforcing steel – low carbon chromium
- corrosion resistant reinforcing steel – stainless clad
- corrosion resistant reinforcing steel – solid stainless

For more information on CRR, see the current IIM-S&B-81.

VOIDED:

None

NEW ISSUES:

None

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1, 4 thru 12	Revised date of applicable sheets.
BBD-8	Deleted Chamfer Detail and stud shear connector details in SECTIONS A-A and B-B. Under Notes, added sheet reference and deleted note for sole plate to be galvanized.
BCR-3-1 and BCR-4-1	Notes: Added "Class ..." to Corrosion Resistant Reinforcing Steel; revised note for different cross slopes and slab depths.
BCR-6-1 thru BCR-9-1	Notes: Added "Class ..." to Corrosion Resistant Reinforcing Steel.
BCR-3-2, BCR-4-2 and BCR-6-2 thru BCR-9-2	Notes: Replaced "type" with "Class I, II or III."
BCS-28A-1, BCS-30A-1 thru BCS-33A-1	Notes: Added "Class ..." to Corrosion Resistant Reinforcing Steel.
BCS-28A-3 and BCS-30A-3 thru BCS-33A-3	Notes: Replaced "type" with "Class I, II or III."
BGL-1-1	Notes: Type of bolt to use with galvanized and unpainted angles.
BGL-2-1	Notes: H. S. bolts for angles to be galvanized.
BIR-1-2, BIR-2-2, BIR-4-2 and BIR-5-2	Notes to Designer: Deleted fourth note.
BIR-3-1	Notes: Added "Class ..." to Corrosion Resistant Reinforcing Steel; added ASTM references for round head bolts, nuts and washers in fifth note; revised note for different cross slopes and slab depths.
BIR-3-2	Notes: Replaced "type" with "Class I, II or III."
BMB-3A-1 and BMB-5A-1	Notes: Added "Class ..." to Corrosion Resistant Reinforcing Steel; revised note for different cross slopes and slab depths.
BMB-3A-2 and BMB-5A-2	Notes to Designer: Deleted second note and replaced "type" with "Class I, II or III."

REVISIONS (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BPB-3A-1, BPB-3B-1, BPB-3C-1 and BPB-3D-1	Reinforcing Steel Schedule: Revised the dimensions and length of reinforcing bar RV0502; SECTION A-A: Added 2 in. dimension from reinforcing bar to face of curb; Notes: Added "Class ..." to Corrosion Resistant Reinforcing Steel; revised note for different cross slopes and slab depths.
BPB-3A-2, BPB-3B-2, BPB-3C-2, BPB-3D-2 and BPB-3D-3	Notes to Designer: Deleted note and replaced "type" with "Class I, II or III."
BPP-1-1	Added PROJECTING BAR CLIP DETAIL and revised clip note in PILE BUILD UP ELEVATION.
BR27C-12-1 thru BR27C-15-1 and BR27D-8-1 thru BR27D-10-1	Notes: Added "Class ..." to Corrosion Resistant Reinforcing Steel; added ASTM references for round head bolts, nuts and washers; revised diameter of bolt and hole to 3/4" and 7/8" respectively in seventh note; deleted nut cover and revised bolt extensions; revised cross slopes and slab depths. BASE PLATE DETAIL: Added "Not to scale" and redrew slots to proper scale.
BR27C-16-1 and BR27D-11-1	Moved notes to this sheet.
BR27C-12-3 thru BR27C-15-3 and BR27D-8-3 thru BR27D-10-3	Notes: Replaced "type" with "Class I, II or III."
BR27T-1-1 thru BR27T-9-1	Notes: Added "Class ..." to Corrosion Resistant Reinforcing Steel.
BR27T-1-2, BR27T-2-2, BR27T-3-3, BR27T-4-3, BR27T-5-2, BR27T-6-2, BR27T-7-3, BR27T-8-3 and BR27T-9-2	Notes: Replaced "type" with "Class I, II or III."
BTB-1-1	SIDE ELEVATION: Corrected location of the 3" dimension from bolt to top of deck; PLAN VIEW: Revised to show corrected post at SECTION A-A; ELEVATION VIEW: Revised to show corrected posts and align the end of bridge in both views. Added "Not to Scale" to sheet.
BTC-4-1 thru BTC-7-1	Added payment note.

REVISIONS (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BTC-4-1 and BTC-5-1	Notes: Added type of bolt to use with galvanized and unpainted angles.
BTC-6-1 and BTC-7-1	Notes: H. S. bolts for angles to be galvanized.
BWL-1-1	Notes: Added type of bolt to use with galvanized and unpainted angles.
BWL-2-1	Notes: H. S. bolts for angles to be galvanized.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
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For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

April 6, 2012

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

VOIDED:

<u>File Number</u>	<u>Description of change(s)</u>
BCR-1-1; BCR-2-1; and BCR-5-1 BCR-1-2; BCR-2-2 and BCR-5-2 BR27C-1-1 thru BR27C-11-1; BR27C-1-2 thru BR27C-11-2; BR27C-1-3; BR27C-2-3; BR27C-4-3 thru BD27C-11-3 BR27D-1-1 thru BR27D-7-1; BR27D-1-2 thru BR27D-7-2; BR27D-1-3; BR27D-2-3 and BR27D-4-3 thru BR27D-7-3	Replaced with series showing terminal wall shown either on abutment wingwall or superstructure

NEW ISSUES:

<u>File Number</u>	<u>Description of change(s)</u>
BCR-7-1	Added new standard showing cast-in-place terminal wall on abutment U-back wingwall.
BCR-7-2	Added notes to designer.
BCR-8-1 and BCR-9-1	Added new standard showing cast-in-place terminal wall on superstructure.
BCR-8-2, BCR-9-2 and BCR-9-3	Added notes to designer.
BIR-1-3 and BIR-2-3	Added notes to designer.
BIR-4-1 and BIR-5-1	Added new standard showing cast-in-place terminal wall on superstructure.
BIR-4-2; BIR-4-3; BIR-5-2 and BIR-5-3	Added notes to designer.
BPB-3C-1 and BPB-3D-1	Added new standard showing cast-in-place terminal wall on superstructure.
BPB-3C-2, BPB-3D-2 and BPB-3D-3	Added notes to designer.
BR27C-12-1	Replaced BR27C-1. Added notes referring to railing, base plate details and details showing continuity between railing and terminal wall on superstructure. Moved terminal wall and U back wing details to BR27T-1. Added reinforcing steel schedule for railing and sheet references.
BR27C-12-2	Replaced BR27C-1-2. Revised first note and miscellaneous details note. Added a note defining the Contractor's responsibility to determine the number of reinforcing bars and other details required.
BR27C-12-3	Replaced BR27C-1-3. Added a note to complete the type of corrosion resistant reinforcing steel required and the dimensions and lengths of rebars in schedule. Added sheet references.

NEW ISSUES (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27C-13-1	Replaced BR27C-6. Added notes referring to railing, base plate details and details showing continuity between railing and terminal wall on superstructure. Deleted terminal wall and U back wing details. Added reinforcing steel schedule for railing and sheet references.
BR27C-13-2	Replaced BR27C-6-2. Revised miscellaneous details note.
BR27C-13-3	Replaced BR27C-6-3. Added a note to complete the type of corrosion resistant reinforcing steel required and the dimensions and lengths of rebars in schedule. Added a note defining the Contractor's responsibility to determine the number of reinforcing bars and other details required. Added sheet references.
BR27C-14-1	Replaced BR27C-8. Added notes referring to railing, base plate details and details showing continuity between railing and terminal wall on superstructure. Moved terminal wall and U back wing details to BR27T-5. Added reinforcing steel schedule for railing and sheet references.
BR27C-14-2	Replaced BR27C-8-2. Revised first note and miscellaneous details note.
BR27C-14-3	Replaced BR27C-8-3. Added a note to complete the type of corrosion resistant reinforcing steel required and the dimensions and lengths of rebars in schedule. Added a note defining the Contractor's responsibility to determine the number of reinforcing bars and other details required. Added sheet references.
BR27C-15-1	Replaced BR27C-10-1. Added notes referring to railing, base plate details and details showing continuity between railing and terminal wall on superstructure. Moved terminal wall and U back wing details to BR27T-5. Added reinforcing steel schedule for railing and sheet references.
BR27C-15-2	Replaced BR27C-10-2. Revised first note and miscellaneous details note. Added a note defining the Contractor's responsibility to determine the number of reinforcing bars and other details required.

NEW ISSUES (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27C-15-3	Replaced BR27C-10-3. Added a note to complete the type of corrosion resistant reinforcing steel required and the dimensions and lengths of rebars in schedule. Added sheet references.
BR27C-16-1	Replaced BR27C-3-1. Removed base plate detail and reinforcing steel schedule. Omitted all notes except fabricator notes. Added sheet references.
BR27C-16-2	Replaced BR27C-3-2. Revised first note. Omitted notes pertaining to reinforcing steel and the note defining the Contractor's responsibility to determine the number of reinforcing bars and other details required.
BR27D-8-1	Replaced BR27D-1. Added notes referring to railing, base plate details and details showing continuity between railing and terminal wall on superstructure. Moved terminal wall and U back wing details to BR27T-1. Added reinforcing steel schedule for railing and sheet references.
BR27D-8-2	Replaced BR27D-1-2. Revised first note and miscellaneous details note. Added a note defining the Contractor's responsibility to determine the number of reinforcing bars and other details required.
BR27D-8-3	Replaced BR27D-1-3. Added a note to complete the type of corrosion resistant reinforcing steel required and the dimensions and lengths of rebars in schedule. Added sheet references.
BR27D-9-1	Replaced BR27D-4. Added notes referring to railing, base plate details and details showing continuity between railing and terminal wall on superstructure. Deleted terminal wall and U back wing details. Added reinforcing steel schedule for railing and sheet references.
BR27D-9-2	Replaced BR27D-4-2. Revised miscellaneous details note.
BR27D-9-3	Replaced BR27D-4-3. Added a note to complete the type of corrosion resistant reinforcing steel required and the dimensions and lengths of rebars in schedule. Added a note defining the Contractor's responsibility to determine the number of reinforcing bars and other details required. Added sheet references.

NEW ISSUES (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27D-10-1	Replaced BR27D-6-1. Added notes referring to railing, base plate details and details showing continuity between railing and terminal wall on superstructure. Moved terminal wall and U back wing details to BR27T-5. Added reinforcing steel schedule for railing and sheet references.
BR27D-10-2	Replaced BR27D-6-2. Revised miscellaneous details note.
BR27D-10-3	Replaced BR27D-6-3. Added a note defining the Contractor's responsibility to determine the number of reinforcing bars and other details required. Added a note to complete the type of corrosion resistant reinforcing steel required and the dimensions and lengths of rebars in schedule. Added sheet references.
BR27D-11-1	Replaced BR27D-3-1. Removed base plate detail and reinforcing steel schedule. Omitted all notes except fabricator notes. Added sheet references.
BR27D-11-2	Replaced BR27D-3-2. Revised first note. Omitted notes pertaining to reinforcing steel and the note defining the Contractor's responsibility to determine the number of reinforcing bars and other details required.
BR27T-1-1 and BR27T-5-1	Added new standard showing cast-in-place terminal wall on abutment U-back wingwall. Revised distance to bolts in View A-A.
BR27T-1-2; BR27T-1-3; BR27T-2-2; BR27T-2-3; BR27T-3-2; BR27T-3-3; BR27T-4-2; BR27T-4-3; BR27T-5-2; BR27T-5-3; BR27T-6-2; BR27T-6-3; BR27T-7-2; BR27T-7-3; BR27T-8-2; BR27T-8-3; BR27T-9-2 and BR27T-9-3	Added notes to designer. Revised distance to bolts in notes.
BR27T-2-1 and BR27T-6-1	Added new standard showing cast-in-place terminal wall on abutment wingwall. Revised distance to bolts in View A-A.

NEW ISSUES (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27T-3-1; BR27T-4-1; BR27T-7-1 and BR27T-8-1	Added new standard showing cast-in-place terminal wall on superstructure. Revised distance to bolts in View A-A.
BR27T-9-1	Added new standard showing cast-in-place terminal wall on approach slab. Revised distance to bolts in View A-A.

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1, 5 and 8 thru 11	Revised dates of applicable sheets.
BCR-3-1	Added notes referring to railing and details showing continuity between railing and terminal wall on superstructure. Omitted terminal wall reinforcing steel from schedule. Added sheet references.
BCR-3-2	Revised miscellaneous details note. Added a note to complete the type of corrosion resistant reinforcing steel required and the dimensions and lengths of rebars in schedule. Added sheet references.
BCR-4-1	Added notes referring to railing and details showing continuity between railing and terminal wall on superstructure. Omitted terminal wall reinforcing steel from schedule. Added sheet references.
BCR-4-2	Revised miscellaneous details note. Added a note to complete the type of corrosion resistant reinforcing steel required and the dimensions and lengths of rebars in schedule. Added sheet references.
BCR-6-1	Added reinforcing steel schedule. Omitted notes referring to railing. Revised distance to bolts in View A-A. Added sheet references.
BCR-6-2	Added a note defining the Contractor's responsibility to determine the number of reinforcing bars and other details required. Under View A-A, revised distance to bolts. Added sheet references.

REVISIONS (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BIR-1-1	Revised distance to bolts in View A-A.
BIR-1-2	Revised distance to bolts in notes.
BIR-2-1	Revised distance to bolts in View A-A.
BIR-2-2	Revised distance to bolts in notes.
BIR-3-1	Revised copyright date.
BIR-3-2	Revised usage of standard to include BIR-4 and BIR-5. Added sheet reference.
BPB-3A-1 and BPB-3B-1	Revised distance to bolts in Section D-D. Corrected misspelled word, "guardrail".
BPB-3A-2 and BPB-3B-2	Revised distance to bolts in notes. Added note to complete lengths of rebars in schedule and sheet references.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
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Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
COMMISSIONER

September 9, 2010

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1, TOC-9, TOC-10 and TOC-11	Revised dates of applicable sheets.
BR27C-1, BR27C-2 BR27C-6, BR27C-7 BR27C-8, BR27C-9 BR27C-10 and BR27C-11	Decreased clearance of RG04 series to face of rail from 2” to 1 ½” in Section E-E.
BR27C-3	Revised RG0401 and RG0402 dimension from 6½” to 7” in Reinforcing Steel Schedule.
BR27C-1-2 and BR27C-2-2	Revised section depiction header.
BR27C-2-3	Removed “and U-back Wing” from sheet header.
BR27C-6-2, BR27C-7-2, BR27C-8-2, BR27C-9-2, BR27C-10-2 and BR27C-11-2	Revised usage language to include all pedestrian and/or bicycle facilities.
BR27D-1 and BR27D-2	Decreased clearance of RG04 series to face of rail from 2” to 1 ½” in Section E-E and removed RG0402 callout from “PIERS – Continuous – without joint in slab” detail.

REVISIONS (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27D-3	Revised RG0401 and RG0402 dimension from 6½” to 7” in Reinforcing Steel Schedule. Revised detail layout to look similar to standard BR27C-3.
BR27D-4 and BR27D-5 BR27D-6 and BR27D-7	Decreased clearance of RG04 series to face of rail from 2” to 1 ½” in Section E-E.
BR27D-1-2 and BR27D-2-2	Revised section depiction header.
BR27D-4-2 and BR27D-5-2	Revised usage language to include all pedestrian and/or bicycle facilities and revised 1’-6” to 1’-7” in final note regarding Section D-D.
BR27D-6-2 and BR27D-7-2	Revised usage language to include all pedestrian and/or bicycle facilities.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Gregory A. Whirley
Acting COMMISSIONER

June 14, 2010

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

VOIDED:

<u>File Number</u>	<u>Description of change(s)</u>
BPF-3-3	Contents moved to previous sheet. Omitted note pertaining to threaded inserts.
BPF-4-3 and BPF-5-3	Contents moved to previous sheet.
BR27C-4 and BR27C-5	These rails are no longer used for sidewalk (pedestrian) applications.
BR27C-4-2, BR27C-4-3, BR27C-5-2 and BR27C-5-3	Notes are no longer needed.

NEW ISSUES:

<u>File Number</u>	<u>Description of change(s)</u>
None	

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1 thru -12	Revised dates of applicable sheets.
BAS-11A thru BAS-20AR	Revised notes: Add "Cost included in select backfill" to third paragraph.
BBD-8-1	Added a note to call for the sole plate to be galvanized. Revise distance to stud from 5 in. to 6 in. in Section A-A and B-B. Corrected location of arrowhead in Section A-A.
BCR-1-1	Revised the detail at pier with continuous slab to add "Top of slab." Revised length of rebar AB0402 from 7'-9" to 7'-0" in the reinforcing steel schedule.
BCR-2-1	Revised the detail at pier with continuous slab to delete the curb and add "Top of slab." Revised length of rebar AB0402 from 7'-9" to 7'-0" in the reinforcing steel schedule.
BCR-3-1	Revised length of deflection joint from 1'-9" to 2'-2" and added "Top of slab" in detail at pier with continuous slab. Revised length of rebar AB0402 from 7'-9" to 7'-0" in the reinforcing steel schedule.
BCR-4-1	Revised the detail at pier with continuous slab to delete the curb, revise length of deflection joint from 1'-9" to 2'-2" and added "Top of slab." Revised length of rebar AB0402 from 7'-9" to 7'-0" in the reinforcing steel schedule.
BCR-5-1 and BCR-6-1	Revised terminal wall length from 8'-0" to 7'-3."
BCS-31A-1	Removed extra wording "the post clears" in last note.
BEJ-6-1 and BEJ-7-1	Revised first note to delete "Unless otherwise noted." Added clip in Part Section at Abutment.
BEJ-6/7/10/11/12-6	Revised excess temperature allowance from "25%" to "20%" in third note.
BGL-1 and BGL-2	Revised the note for galvanization of miscellaneous hardware and added a note for structural steel for angles.
BIR-1-1	Revised reinforcing steel schedule and the designation for steel rail tubing from "TS" to "HSS" in all locations. Modified 7'-3" and 6'-9" dimension lines in Terminal Wall View. Noted location of the RL04 series reinforcement in Elevation View.

REVISIONS (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BIR-2-1	Revised reinforcing steel schedule and designation for steel rail tubing from "TS" to "HSS" in all locations. Noted location of the RL04 series reinforcement in Elevation View.
BIR-3-1	Revised designation for steel rail tubing from "TS" to "HSS" in all locations.
BPF-3-1	Modified Notes, PLAN, and Section A-A.
BPF-4-1	Modified Notes, and PLAN.
BPF-5-1	Revised misspelled word "welded" in tenth note. Modified Notes, and PLAN.
BPF-3-2, BPF-4-2 and BPF-5-2	Deleted the guidelines and considerations for placement of fence. Added a reference to new Volume V – Part 2, Chapter 30, Fencing (Pedestrian) for placement guidelines.
BR27C-1 and BR27C-2	Deleted "or top of sidewalk" from Section D-D and "without sidewalk" from Section E-E.
BR27C-1-2 and BR27C-2-2	Notes to Designer revised to delete the sidewalk (pedestrian) application for these rails and the modified detail for sidewalk applications. Railing standard is to be used only as a traffic barrier.
BR27C-3-1	Corrected misspelled word "Contractor" in eighteenth note. Revise designation for steel rail tubing from "TS" to "HSS" in all locations.
BR27C-3-2	Notes to Designer revised to delete reference to standards BR27C-4 and BR27C-5 which are voided.
BR27C-6-2, BR27C-7-2, BR27C-8-2, BR27C-9-2, BR27C-10-2 and BR27C-11-2	Notes to Designer revised to replace "multi-use" with "shared use."
BR27D-1 and BR27D-2	Deleted "or top of sidewalk" from Section D-D, "without sidewalk" from Section E-E (without sidewalk), Section E-E (with sidewalk) and reference to rebar RG0402 in Elevation View.
BR27D-1-2 and BR27D-2-2	Notes to Designer revised to delete the sidewalk (pedestrian) application for these rails and the detail for sidewalk applications.

REVISIONS (cont'd)

<u>File Number</u>	<u>Description of change(s)</u>
BR27D-3-1	Corrected misspelled word "Contractor" in eighteenth note. Revised designation for steel rail tubing from "TS" to "HSS" in Section A-A.
BR27D-4-2, BR27D-5-2, BR27D-6-2 and BR27D-7-2	Notes to Designer revised to replace "multi-use" to "shared use."
BTC-4	Revised the note for steel fittings/rods and the note for structural steel for angles.
BTC-5	Revised the note for steel fittings/rods and the note for structural steel for angles. Corrected misspelled word "positive" in fourth note.
BTC-6	Revised the note for structural steel for angles and moved the fifth note for threaded couplings to the fourth note position.
BTC-7	Revised the note for structural steel for angles.
BWL-1 and BWL-2	Revised the note for galvanization of miscellaneous hardware and added a note for structural steel for angles.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

David S. Ekern, P.E.
COMMISSIONER

January 7, 2010

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

VOIDED STANDARDS:

None

NEW ISSUES:

<u>File Number</u>	<u>Description of changes(s)</u>
TOC-12	Added new sheet to Table of Contents.

REVISIONS:

<u>File Number</u>	<u>Description of changes(s)</u>
TOC-1 and TOC-11	Revised date.
BCF-2	Made miscellaneous drafting changes.
BCR-5 and BCR-6	Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR).
BCR-5-2 and BCR-6-2	Added instructions for the designer to specify the type of CRR.
BCS-28A, BCS-30A, BCS-31A, BCS-32A, and BCS-33A	Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR).

REVISIONS (cont'd):

<u>File Number</u>	<u>Description of changes(s)</u>
BCS-28A-3, BCS-30A-3, BCS-31A-3, BCS-32A-3, and BCS-33A-3	Added instructions for the designer to specify the type of CRR.
BIR-3	Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR).
BIR-3-2	Added instructions for the designer to specify the type of CRR.
BMB-3A and BMB-5A	Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR).
BMB-3A-2 and BMB-5A-2	Added instructions for the designer to specify the type of CRR.
BPB-3A and BPB-3B	Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR).
BPB-3A-2 and BPB-3B-2	Added instructions for the designer to specify the type of CRR.
BPP-1	Revised the ninth note to call for hot dip galvanized reinforcing steel in bridges where piles are exposed.
BR27C-3 and BR27D-3	Revised the reinforcing steel note to call for corrosion resistant reinforcing steel (CRR).
BR27C-3-2 and BR27D-3-2	Added instructions for the designer to specify the type of CRR.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

David S. Ekern, P.E.
COMMISSIONER

November 2, 2009

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

VOIDED STANDARDS:

None

NEW ISSUES:

<u>File Number</u>	<u>Description of changes(s)</u>
TOC-12	Added page to Table of Contents.
BTB-1-1 and BTB-1-2	Thrie-Beam Guardrail added.

REVISIONS:

<u>File Number</u>	<u>Description of changes(s)</u>
TOC-1 to TOC-11	Updated to reflect the inclusion of new standard.

Page 2
November 2, 2009

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

David S. Ekern, P.E.
COMMISSIONER

May 29, 2009

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

NOTE: Effective with the December Advertisement, Standards shall be sealed and signed in accordance with Volume V – Part 2, File No. 01.16.1 thru 01.16.7.

VOIDED STANDARDS:

<u>File Number</u>	<u>Description</u>
BEJ-8-3 and BEJ-9-4	Replaced by new standards.
BEJ-6/7/8/9-5 thru -10	NOTES TO DESIGNER: Replaced by new notes to designer.

NEW ISSUES:

<u>File Number</u>	<u>Description of changes(s)</u>
BEJ-10-3, BEJ-11-4 and BEJ-12-5	Added at grade details for sliding plates. Eliminated skewed bearing stiffener detail. Minor drafting corrections.
BEJ-6/7/10/11/12-6 thru -11	NOTES TO DESIGNER: Sliding plate required at pedestrian and/or bicycle facilities regardless of tooth length. Added notes on use of computer program.

REVISIONS:

<u>File Number</u>	<u>Description of changes(s)</u>
All standard sheets	All standard sheets have been revised to reflect the border for sealing and signing of plans.

REVISIONS:

<u>File Number</u>	<u>Description of changes(s)</u>
BAS-11-1 thru BAS-20AR-1	Minor drafting corrections.
BBD-6-1, BBD-7A-2 and BBD-7B-3	Minor corrections to Notes.
BBD-8-1	Minor drafting corrections.
BBD-8-2	NOTES TO DESIGNER: Added note on use of computer program.
BBD-9-1	Modified Notes.
BBD-9-2	NOTES TO DESIGNER: Added note on use of computer program.
BCF-1-1 and BCF-2-1	Minor drafting corrections.
BCR-1-1 thru BCR-4-1	Added dimensions to detail for slab continuous over piers and minor corrections.
BCR-5-1 thru BCR-6-1	Modified terminal section.
BCS-21A-1 thru BCS-30A-1	Minor drafting corrections.
BCS-31A-1	Corrected rebar designation in PLAN and minor drafting corrections.
BCS-32A-1	Minor drafting corrections.
BCS-33A-1	Corrected rebar designation in PLAN and minor drafting corrections.
BEJ-1-1 thru BEJ-3-1	Minor drafting corrections.
BEJ-6-1 thru BEJ-7-2	Minor drafting corrections. Updated sheet references.
BGL-1-1	Minor drafting corrections.
BGL-1-2 and BGL-2-2	NOTES TO DESIGNER: Added note on location of utilities.
BIR-1-1 and BIR-2-1	Modified terminal section and minor drafting corrections.
BIR-3-1	Minor drafting correction.
BMB-3A-1	Deleted PART PLAN and minor correction.
BMB-5A-1	Deleted PART PLAN and minor corrections.
BPB-3A-1 thru BPB-3B-1	Modified terminal section, deleted PART PLAN and minor drafting corrections.
BPF-3-1 thru BPF-5-1	Modified details to reflect larger post size required. Added note for pipe material requirements. Minor drafting corrections.
BPF-3-2 thru BPF-5-2	NOTES TO DESIGNER: Modified weight of fence per foot for use in design.
BPP-1-1	Minor drafting corrections.

REVISIONS:

<u>File Number</u>	<u>Description of changes(s)</u>
BR27C-1-1 thru BR27C-2-1	Modified terminal wall and minor drafting corrections.
BR27C-3-1	Corrected BASE PLATE DETAIL and minor drafting correction.
BR27C-4-1 thru BR27C-11-1	Modified terminal wall and minor drafting corrections.
BR27D-1-1 thru BR27D-2-1	Modified terminal wall and minor drafting corrections.
BR27D-3-1	Corrected BASE PLATE DETAIL and minor drafting correction.
BR27D-4-1 thru BR27D-7-1	Modified terminal wall and minor drafting corrections.
BTC-4-1 thru BTC-7-1	Minor drafting corrections.
BTC-4-2 thru BTC-7-2	Added note on location of utilities.
BWL-1-1 and BWL-2-1	Minor drafting corrections.
BWL-1-2 and BWL-2-2	Added note on location of utilities.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

David S. Ekern, P.E.
COMMISSIONER

July 11, 2008

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3: Current Details (Standards)

All of the standard sheets in this series have been revised. Two blocks for the P.E. stamp have been added to the lower left hand corner and the copyright date has been changed to 2008. Some details have been rearranged to provide space for the P.E. stamps.

NOTE: Standard sheets are not required to be sealed and signed at this time.

VOIDED STANDARDS:

<u>File Number</u>	<u>Comments</u>
BBD-4	Not cost effective. Range of designs more economical with laminated bearing pads.
BBD-5	Not cost effective. Range of designs more economical with laminated bearing pads.
BPF-2	Standard replaced with standards BPF-4 and BPF-5.

NEW ISSUES:

<u>File Number</u>	<u>Description</u>
INSTR-2 and -3	Added instructions for external users for accessing Microstation (.dgn) files and for printing manual.

NEW ISSUES (cont'd):

<u>File Number</u>	<u>Description</u>
BCR-5	Adding the two blocks for the P.E. stamp to standards BCR-1 and BCR-2 required some of the details to be moved to another sheet. Therefore, the terminal wall details and notes were moved to this sheet. Note added for Contractor to adjust reinforcing steel for horizontal slope and vertical gradient.
BCR-6	Adding the two blocks for the P.E. stamp to standards BCR-3 and BCR-4 required some of the details to be moved to another sheet. Therefore, the terminal wall details and notes were moved to this sheet. Note added for Contractor to adjust reinforcing steel for horizontal slope and vertical gradient.
BCS-30A	Bridge conduit system for lighting for use with the BR27C-series without sidewalk
BCS-31A	Bridge conduit system for lighting for use with the BR27C-series with sidewalk.
BCS-32A	Bridge conduit system for lighting for use with the BR27D-series without sidewalk.
BCS-33A	Bridge conduit system for lighting for use with the BR27D-series with sidewalk.
BPF-4	Pedestrian fence details for use with the BR27C-series and BR27D-series rail without sidewalk.
BPF-5	Pedestrian fence details for use with the BR27C-series and BR27D-series rail with sidewalk.

REVISIONS:

<u>File Number</u>	<u>Description of change(s)</u>
TOC-1 thru -11 INSTR-1 BAS-series	Added -DGN link to each standard file. Table of contents updated. Falcon location changed. Deleted capacity note and note that approach slab is not included in bridge contract. Quantity items revised. Corners near abutments revised for skew for approach slabs with sidewalks (BAS-18L, -18R, -19L, -19R, -20L, -20R, -18AL, -18AR, -19AL, -19AR, -20AL and 20AR).
BCF-2-1	Changed DETAIL A to DETAIL C. Notes: Added note requiring Charpy V- Notch Impact Test. Misc. drafting corrections.
BCR-1-1	Added "Face of rail" to DECK SLABS, SLAB SPANS, and TYPICAL SECTION BETWEEN POSTS. Misc. drafting corrections. Moved some details to new standard BCR-5.

REVISIONS (cont'd):

<u>File Number</u>	<u>Description of change(s)</u>
BCR-1-2	NOTES TO DESIGNER: Some notes deleted and moved to BCR-5-2.
BCR-2-1	Added "Face of rail" to DECK SLABS, SLAB SPANS, and TYPICAL SECTION BETWEEN POSTS. Misc. drafting corrections. Moved some details to new standard BCR-5.
BCR-2-2	NOTES TO DESIGNER: Some notes deleted and moved to BCR-5-2.
BCR-3-1	Added "Face of rail" to DECK SLABS, SLAB SPANS, and TYPICAL SECTION BETWEEN POSTS. Misc. drafting corrections. Moved some details to new standard BCR-6.
BCR-3-2	NOTES TO DESIGNER: Some notes deleted and moved to BCR-6-2.
BCR-4-1	Added "Face of rail" to DECK SLABS, SLAB SPANS, and TYPICAL SECTION BETWEEN POSTS. Misc. drafting corrections. Moved some details to new standard BCR-6.
BCR-4-2	NOTES TO DESIGNER: Some notes deleted and moved to BCR-6-2.
BCS-21A-1	NOTES: Last note: Corrected "Section 705" to "Section 700." Circle with 8 under CONDUIT LAYOUT and SECTION A-A: Changed "metal conduit" to "galvanized steel pipe" and clarified details showing 2" conduit and 1" pipe.
BCS-22A-1	NOTES: Last note: Corrected "Section 705" to "Section 700." Circle with 8 under CONDUIT LAYOUT and SECTION A-A: Changed "metal conduit" to "galvanized steel pipe" and clarified details showing 2" conduit and 1" pipe.
BCS-28A-1	NOTES: Last note: Corrected "Section 705" to "Section 700." CONDUIT LAYOUT: Added 1" galvanized pipe.
BCS-29A-1	NOTES: Last note: Corrected "Section 705" to "Section 700." CONDUIT LAYOUT: Added 1" galvanized pipe.
BEJ-3-1	NOTES: "Section 105.02" to "Section 105.10." Deleted last note referencing Section 212 of the specifications.
BIR-1-1	Moved notes to standard BIR-3.
BIR-2-1	Moved notes to standard BIR-3.
BIR-3-1	Notes from BIR-1 and BIR-2 moved to this sheet. Deleted last sentence dealing with bid items. Note added for Contractor to adjust reinforcing steel for horizontal slope and vertical gradient.
BMB-3A-1	SECTION A-A: Added "Face of median curb." Note added for Contractor to adjust reinforcing steel for horizontal slope and vertical gradient.

REVISIONS (cont'd):

<u>File Number</u>	<u>Description of change(s)</u>
BMB-5A-1	SECTION A-A: Added "Face of median curb." Note added for Contractor to adjust reinforcing steel for horizontal slope and vertical gradient.
BPB-3A-1	Note added for Contractor to adjust reinforcing steel for horizontal slope and vertical gradient.
BPB-3B-1	Note added for Contractor to adjust reinforcing steel for horizontal slope and vertical gradient.
BPF-3-1	NOTES: Last note: "Section 705" changed to "Section 700."
BR27C-1-1 BR27C-2-1 BR27C-4-1 thru BR27C-11-1	Moved notes to standard BR27C-3. ELEVATION views: Revised post spacing(s) near abutment and at pier.
BR27C-3-1	Moved notes from BR27C-series. Note added for Contractor to adjust reinforcing steel for horizontal slope and vertical gradient. Misc. drafting corrections.
BR27D-1-1 BR27D-2-1 BR27D-4-1 thru BR27D-7-1	Moved notes to standard BR27D-3. ELEVATION views: Revised post spacing(s) near abutment and at pier. SECTION D-D: Plate size corrected to agree with standard BR27D-3.
BR27D-3-1	Moved notes from BR27C-series. Note added for Contractor to adjust reinforcing steel for horizontal slope and vertical gradient. Misc. drafting corrections.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3.

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

David S. Ekern, P.E.
COMMISSIONER

August 31, 2007

MEMORANDUM

TO: Holders of Manual

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details

All of the standards in the Manual of the Structure and Bridge Division Volume V – Part 3 have been revised including the NOTES TO DESIGNER. Major revisions include updating the standards to the drafting requirements of the office practice (Manual of the Structure and Bridge Division, Volume V – Part 2, Chapter 1) and conversion to MicroStation V8. Some standard sheets were congested and are now expanded to more sheets, etc. Due to the numerous changes, many editorial in nature, not all of the specific changes will be listed under REVISIONS. Only the major revisions will be noted.

NOTE: The three pipe aluminum rail standards used for sidewalk applications have been VOIDED. This rail was not crash tested. The standard may be used for projects through the April 2008 advertisement date. Thereafter, these standards may no longer be used. Two rails (BR27C-series and BR27D-series) that are crash tested have been developed for pedestrian/bicycle, multi-use and as traffic barriers.

VOIDED STANDARDS:

The following standards are VOIDED:

- BCF-3 Cross frame details for curved steel plate girders
- BCS-15A Bridge conduit system used with three-pipe aluminum rail (BMR-14 and -15)
- BEJ-4 and -5 Replaced with BEJ-6, -7, -8 and -9. Separated concrete and steel beams/girders. Separated details due to congestion of sheet.
- BMR-14 Three-pipe aluminum rail with terminal wall and U-back wingwall
- BMR-15 Three pipe aluminum rail with terminal wall

VOIDED STANDARDS (cont'd):

- BMR-18 Three pipe aluminum rail – miscellaneous details
- BTC-8 Telephone conduit system used with concrete T-beams

NEW ISSUES:

The following standards are new issues:

- BR27C-1 thru Steel tubular rail crash tested for TL-4 in various configurations for use as a
thru -11 traffic barrier and for sidewalk use (pedestrian/bicycle, multi-use).
- BR27D-1 Steel tubular rail crash tested for TL-2 in various configurations for use as a
thru -7 traffic barrier and for sidewalk use (pedestrian/bicycle, multi-use).
- BEJ-6 Tooth expansion joint for steel beams/girders (part of voided BEJ-4)
- BEJ-7 Tooth expansion joint for concrete beams. (part of voided BEJ-4)
- BEJ-8 and -9 Tooth expansion joint: miscellaneous details (previously BEJ-5)

REVISIONS:

As noted in the introduction, only the major changes are noted below:

- BAS-series Drainage apron note deleted. Since all projects require select backfill, the aggregate base material under the approach slab was deleted (SECTION B-B). For full width slabs, joint section revised.
- BBD-4 Data tables removed and added to NOTES TO DESIGNER. Table expanded requiring designer input.
- BBD-5 Data tables removed and added to NOTES TO DESIGNER. Table expanded requiring designer input.
- BBD-8 Updated sections to show Bulb-T.
- BBD-9 Alternate fixed assembly deleted. Details simplified.
- BCF-1 Added note on welding.

REVISIONS (cont'd):

- BCF-2 Deleted cross frames CF9, CF10, CF12 and CF13. Added note on welds. NOTES TO DESIGNER: Deleted details. Details will be placed in Chapter 11 of the office practice in the future.
- BCS-series Corrected longitudinal movement references on some sheets.
- BEJ-1 Deleted three-pipe aluminum rail from SECTION D-D. Modified section allowing for different rails/parapets.
and -2
- BGL-2 Replaced concrete beam with Bulb-T shape.
- BPF-2 Deleted 3-pipe aluminum rail from sections and changed dimensions in TYPICAL PART SECTION.
- BPP-1 Deleted 22" pile. Changed number of strands for several pile sizes.
- BTC-6 Replaced concrete beam with Bulb-T.
and -7
- BWL-2 Replaced concrete beam with Bulb-T.

**RETAIN THIS MEMO IN FRONT OF INDEX
TO VOLUME V – PART 3**

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

GREGORY A. WHIRLEY
ACTING COMMISSIONER

December 19, 2005

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM:

TO: Holders of Volume V - Part 3: Current Details (Standards)

REVISIONS:

<u>File No.</u>	<u>Sheet No.</u>	<u>Description of change(s)</u>
TOC-1 and 3		Changed dates for BBD-6, -7A, -7B.
BBD-6	1 of 7	Added four design notes for disc bearings.
BBD-7A	2 of 7	Added four design notes for disc bearings.
BBD-7B	3 of 7	Added four design notes for disc bearings.

**RETAIN THIS MEMO IN FRONT OF TABLE OF CONTENTS
TO VOLUME V – PART 3.**

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: George M. Clendenin, P.E.
State Structure and Bridge Engineer

Attachments



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

PHILIP A. SHUCET
COMMISSIONER

GEORGE M. CLENDENIN
STATE STRUCTURE AND BRIDGE ENGINEER

November 1, 2004

Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3 --- Current Details

REVISIONS:

The following sheets are revised:

- TOC** This sheet was previously named "INDEX." Sheets that are intended to be 11 x 17 are marked with an asterisk (*). Note added at the bottom of the sheet to explain asterisk symbol.
- INSTR** "Instructions" at top of sheet deleted. Added "GENERAL" to title at bottom of sheet.
- NOTE:** The borders on all 8 ½ x 11 sheets are now ½" except for the left which is 1". The font has been changed from Universe to Arial. In some instances the NOTES TO DESIGNER may have spilled over to additional sheet(s) due to the changes in the border and font. The 8 ½ x 11 sheets, except those revised above, have not been redistributed. They are available on the Internet..

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3.

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: George M. Clendenin, P.E.
State Structure and Bridge Engineer

Attachments



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

GREGORY A. WHIRLEY
ACTING COMMISSIONER

September 26, 2005

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM:

TO: Holders of Volume V - Part 3: Current Details (Standards)

REVISIONS:

<u>File No.</u>	<u>Sheet No.</u>	<u>Description of change(s)</u>
TOC-3		Changed dates for BBD-6, -7A, -7B (previously there was only -7) as well as notes to designer – from 6 to 7 sheets in this section.
BBD-6	1 of 7	Notes revised. Section A-A, Fixed Disc Bearing, Type F-F added. Updated drafting/detailing with current office practice (S&B Volume V – Part 2).
BBD-7A	2 of 7	This sheet along with BBD-7B replaces BBD-7. Notes revised. Section A-A, Guided Disc Expansion Bearing, Type EF, and Detail B added. Updated drafting/detailing with current office practice (S&B Volume V – Part 2).
BBD-7B	3 of 7	This sheet along with BBD-7A replaces BBD-7. Notes revised. Section B-B, Non-Guided Disc Expansion Bearing, Type EE added. Updated drafting/detailing with current office practice (S&B Volume V – Part 2).
BBD-6/7A&7B	4 of 7	Note 1 changed.
	5 of 7	Note 8: Reference to Special Provisions deleted; now in specs. Note 14 changed.
	6 of 7	Changed sheet number/date.
	7 of 7	Changed sheet number/date.

**RETAIN THIS MEMO IN FRONT OF TABLE OF CONTENTS
TO VOLUME V – PART 3.**

Page 2
September 26, 2005

/original signed/
Julius F. J. Völgyi, Jr., P.E.
Assistant State Structure and Bridge Engineer

For: George M. Clendenin, P.E
State Structure and Bridge Engineer

Attachments



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

1401 EAST BROAD STREET
RICHMOND, 23219-2000

CHARLES D. NOTTINGHAM
COMMISSIONER

MALCOLM T. KERLEY
STATE STRUCTURE AND BRIDGE ENGINEER

July 2, 2001

Manual of the Structure and Bridge Division
Volume V – Part 3
Current Details (Standards)

MEMORANDUM

TO: Holders of Volume V – Part 3 --- Current Details

NEW ISSUE:

The Manual of the Structure and Bridge Division, Volume V – Part 3 --- Current Details includes standards for approach slabs; bearings; joints; parapets, rails and barriers; fencing details; utilities (gas and water lines, lighting and telephone conduits), etc. The whole set of standards is being reissued with the date of July 2, 2001 (07-02-01) with new border sizes for the plan sheets.

REVISIONS:

This reissue of the current details incorporates the new border sheet and includes an update on drafting and detailing corrections, specification updates, and numerous other corrections/revisions. Standards with a date previous to the July 2, 2001 (07-02-01) issue have been placed in a VOIDED file for archival purposes.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 3.

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Attachments