

RHB03 STANDARD DRAWING GUIDANCE (SDG) (do not show on plans)

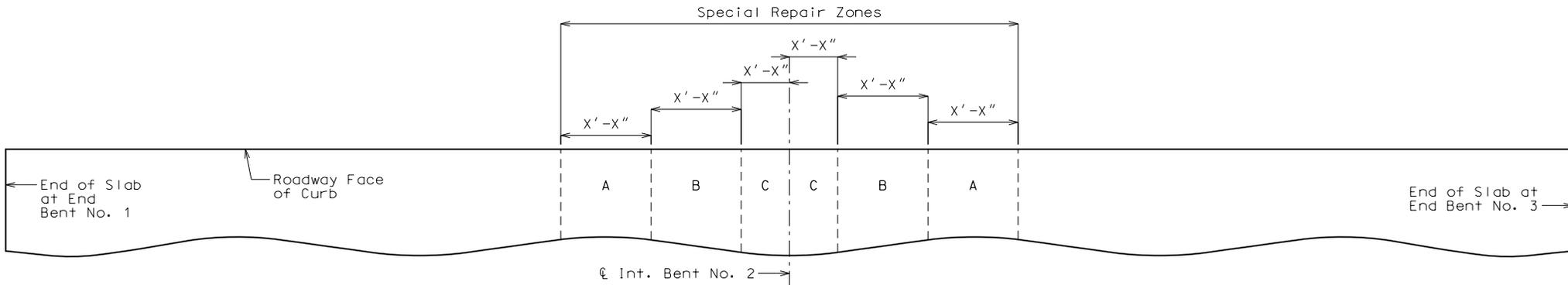
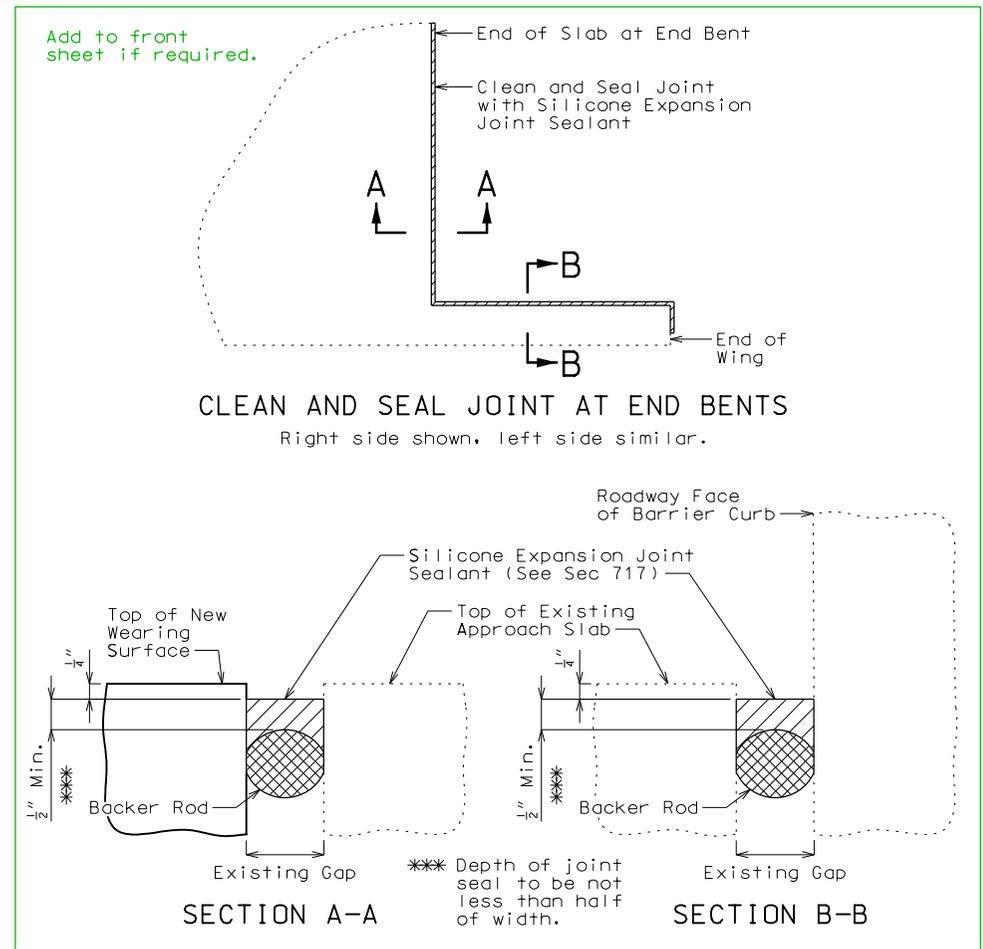
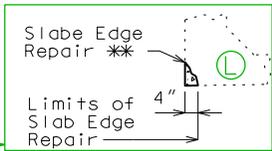
Select the appropriate 1st and 2nd sheet. Draw typical section as required and scale to fit within attached border replacing the provided example. Modify other details and notes as required (match orientation of actual reinforcement).

Transverse repair zoning over intermediate bents is required for these structures. Longitudinal repair zoning in spans is required only when hydro demolition is required and is based on anticipated quantity of deck repair if not overlaid, confidence of anticipated quantity of deck repair if overlaid, deck rating (e.g. 6 or better may not need zoning), See EPG 751.40 (If only transverse zoning is required, Zones shall be called "Special Repair Zones").

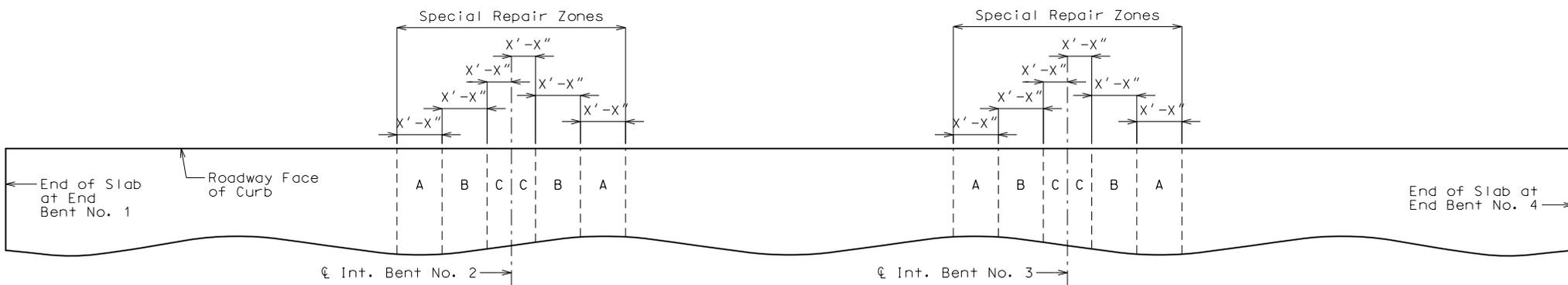
Wearing surface thickness can vary according to grade elevation requirements and minimum barrier curb height requirements. Maximum thickness should be limited to 3" (Ref. Organizational Results Research Report OR06.004, May 2006). Limit excludes reinforced concrete slab wearing surfaces.

Will need to adjust wearing surface thickness when detailing a thin wearing surface (1" or less), but it is a preferred detailing practice to show a discernable thickness on the plans. No thickness is shown for crack filler application.

- (A) Show difference as $\text{plus/minus } X'' \pm$, see Bridge Memo or SPM. e.g. $\text{Match existing grade plus } 2\frac{1}{4}'' \pm$
- (B) Identify new wearing surface (See Bridge Memo or SPM). Specify minimum thickness in deck details. Typically 1/4" thicker outside special repair zones for Hydro Case 1 & 2.
- (C) Identify existing wearing surface and thickness, see Bridge Memo or existing plans.
- (D) See Bridge Memo or SPM, typically 1/2". Use 1" if more than 30% of existing deck needs repair. Verify there will be a minimum of 1/2" of concrete above the top bars after scarification.
- (E) See Bridge Memo or SPM, typically 1/4" inside special repair zones to avoid deeper penetration into newly repaired areas and 1/2" outside special repair zones.
- (F) See existing plans.
- (G) Use appropriate reference (☉ Structure, ☉ Roadway, ☉ Median, etc.)
- (H) Two types of overhang rehabilitation are shown. Cleaning and epoxy coating is preferred because of the relative short life of slab edge repair and unformed repair especially when over traffic. However in urban regions repairing the overhang may be preferred. Consult with SPM or SLE.
- (I) Scarification prior to adding first wearing surface or removing a portion of the deck when removing an existing wearing surface is not required for seal coat, asphalt, UBAWS, epoxy polymer or MMA polymer slurry wearing surfaces.
- (J) Monolithic deck repair should only be allowed where longitudinal zoning is not required.
- (K) May be used for aesthetics when there will be an extensive patchwork of repairs visible to the public.
- (L) If deterioration is within 4 inches of edge then slab edge repair may be used instead of unformed superstructure repair.



PART PLAN OF SLAB SHOWING SPECIAL REPAIR ZONES



PART PLAN OF SLAB SHOWING SPECIAL REPAIR ZONES

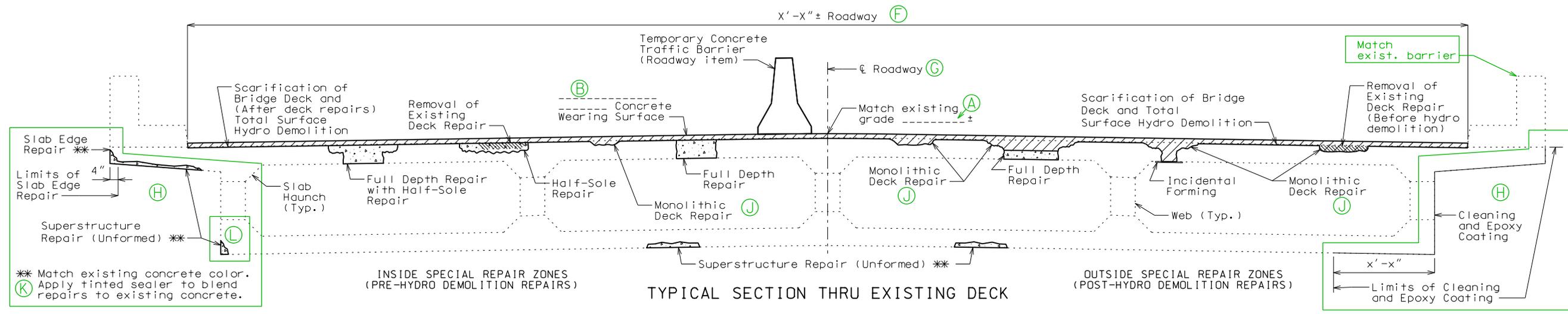
Two spans and three spans shown. These details can be used on Sheets RHB03j and RHB03L for conventional deck repair only projects.

Detach all unused border reference files before requesting PDFs for sign and seal.

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

U.I.P. AND REHABILITATE EXISTING (X'-X'-X') CONTINUOUS CONCRETE BOX GIRDER SPANS

SEC/SUR * TWP * RGE *



TYPICAL SECTION THRU EXISTING DECK

Hydro Demolition Case 1A:

Zoned Conventional Deck Repair Before Hydro Demolition and Non-Zoned Monolithic Deck Repair After Hydro Demolition (Adding First Wearing Surface)

Item	Quantity	Unit	Total
Scarification of Bridge Deck	216-10.00	sq. yard	X
Total Surface Hydro Demolition	216-10.01	sq. yard	X
Removal of Existing Deck Repair	216-15.03	sq. foot	X
Supplementary Wearing Surface Material	505-00.04	cu. yard	X
Latex Modified Concrete Wearing Surface	505-20.00	sq. yard	X
Substructure Repair (Formed)	704-01.01	sq. foot	X
Substructure Repair (Unformed)	704-01.02	sq. foot	X
Superstructure Repair (Unformed)	704-01.03	sq. foot	X
Half-Sole Repair	704-01.04	sq. foot	X
Full Depth Repair	704-01.06	sq. foot	X
Slab Edge Repair (Bridges)	704-01.07	linear foot	X
Cleaning and Epoxy Coating	704-01.13	sq. foot	X

STANDARD DRAWING GUIDANCE (do not show on plans):

Use for the following concrete wearing surfaces:

- 1 3/4" to 3" Latex Modified
- 2 1/4" to 3" Silica Fume
- 1 3/4" to 3" Latex Modified Very Early Strength
- 1 3/4" to 3" CSA Cement Very Early Strength
- 3" to 4" Steel Fiber Reinforced

If optional concrete wearing surface is specified and low slump or polyester polymer is an option:

1. Add the allowed options in parentheses to the typical section title below and also to the RHB03e sheet title.
2. Add to this sheet the typical section from Sheet RHB03e with "(Low Slump Concrete)" added to the title.
3. Add "(Low Slump Concrete)" to the RHB03f sheet title and revise the sheet number from two to three. Sheet RHB03e will not be used.

Replace as required *

B3.8 * Supplementary wearing surface material for monolithic deck repair will be paid for at the fixed unit price in accordance with Sec 109.

B3.9 (If required) General Notes:

- A1.1 Design Specifications: 2002 AASTHO LFD (17th Ed.) Standard Specifications Bridge Deck Rating =
- A1.2 Design Loading: HS20=44 Modified () and Military 24,000 lb Tandem Axle ()
- A1.3 Design Unit Stresses: Class B-1 Concrete (Half-Sole and Full Depth Repair) f'c = 4,000 psi Miscellaneous:
- I1.0.1 Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (roadway item).
- I1.0.2 All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.
- I1.1 Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.
- I1.2 Contractor shall verify all dimensions in field before ordering new material.
- I1.10 In order to maintain grade and a minimum thickness of wearing surface as shown on plans it may be necessary to use additional quantities of wearing surface at various locations throughout the structure. The cost of furnishing and installing the wearing surface will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of wearing surface.
- A3.8 Traffic Handling: Structure to be closed during construction. Traffic to be maintained on during construction. See roadway plans for traffic control and Sheet No. for staged construction details.

REPAIRS TO BRIDGE: ROUTE * OVER *

ROUTE * FROM * TO * ABOUT * MILES * OF * BEGINNING STATION -----± (Match Existing)

Designed
Detailed
Checked

DATE PREPARED: 9/8/2021
 ROUTE: * STATE: MO
 DISTRICT: BR SHEET NO. 1
 COUNTY: *
 JOB NO.: *
 CONTRACT ID.: *
 PROJECT NO.: *
 BRIDGE NO.: RHB03a

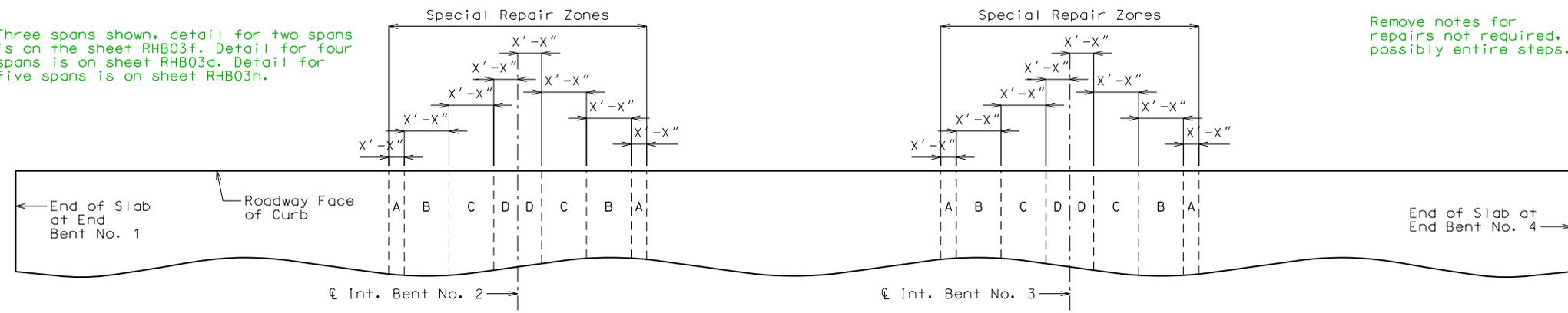
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)

MoDOT

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Three spans shown, detail for two spans is on the sheet RHB03f. Detail for four spans is on sheet RHB03d. Detail for five spans is on sheet RHB03h.



PART PLAN OF SLAB SHOWING SPECIAL REPAIR ZONES

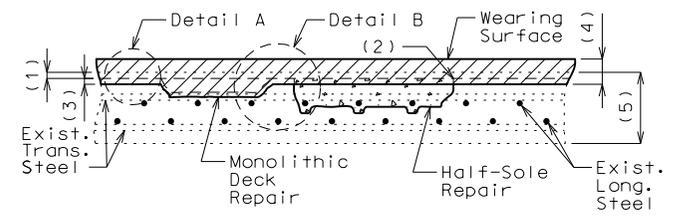
Remove notes for repairs not required, possibly entire steps.

Deck Repair Notes:

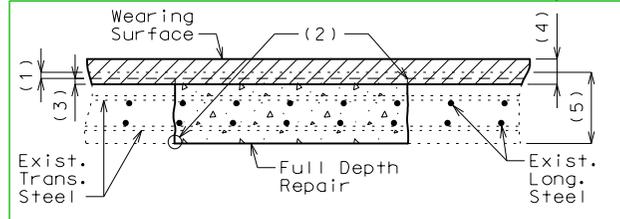
- Order of Repair:
1. Scarify existing deck $\text{\textcircled{D}}$ ".
 2. Power wash deck to identify sound and unsound existing deck repair.
 3. Inside special repair zones, complete the following repairs:
 - a. Removal of existing deck repair
 - b. Half-sole repair
 - c. Full depth repair
 4. Outside special repair zones, remove existing deck repair.
 5. Complete total surface hydro demolition, removing $\text{\textcircled{E}}$ " minimum of sound concrete inside special repair zones and removing $\text{\textcircled{E}}$ " minimum of sound concrete and all deteriorated concrete outside special repair zones.
 6. Sound deck and if needed complete incidental concrete removal.
 7. Outside special repair zones, complete full depth repair.
 8. Place new wearing surface including additional material for areas of monolithic deck repair.

Replace with Note 13.3 for structures with single column bents.

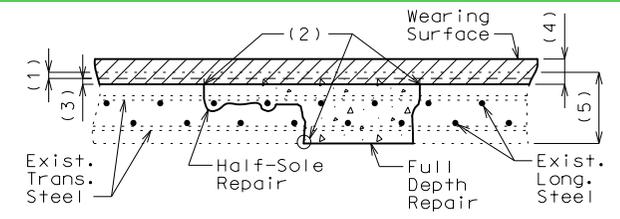
Remove if repair is not required.



MONOLITHIC AND HALF-SOLE REPAIR

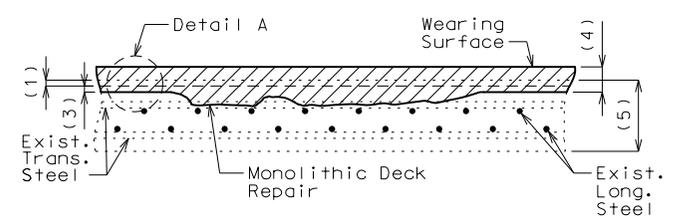


FULL DEPTH REPAIR

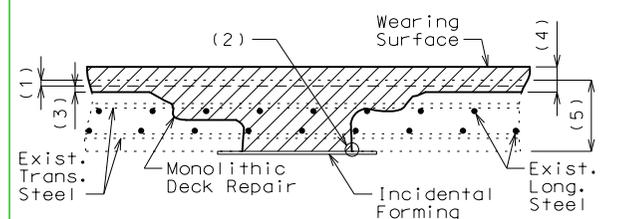


FULL DEPTH REPAIR WITH HALF-SOLE REPAIR

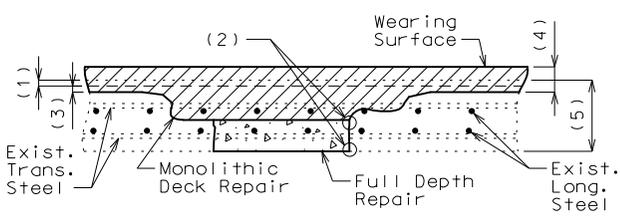
DECK REPAIR INSIDE SPECIAL REPAIR ZONES (BEFORE HYDRO DEMOLITION)



MONOLITHIC DECK REPAIR

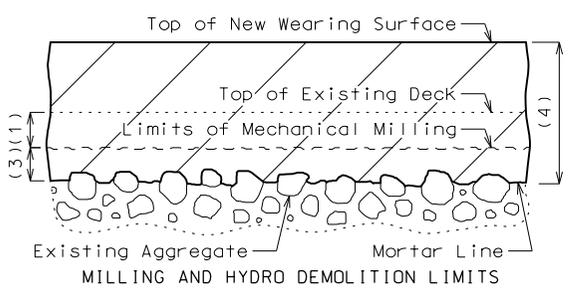


MONOLITHIC DECK REPAIR REQUIRING INCIDENTAL FORMING



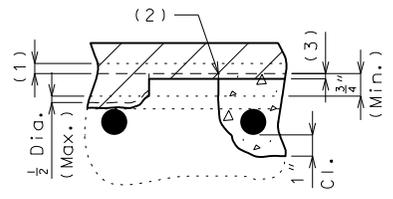
MONOLITHIC DECK REPAIR REQUIRING FULL DEPTH REPAIR

DECK REPAIR OUTSIDE SPECIAL REPAIR ZONES (AFTER HYDRO DEMOLITION)



DETAIL A

- (1) $\text{\textcircled{D}}$ " scarification of existing deck
- (2) 1" vertical side shall be established outside the deteriorated area.
- (3) Total surface hydro demolition of sound concrete, measured to mortar line:
 - $\text{\textcircled{E}}$ " minimum inside special repair zones
 - $\text{\textcircled{E}}$ " minimum outside special repair zones
- (4) $\text{\textcircled{B}}$ concrete wearing surface:
 - $\text{\textcircled{E}}$ " minimum inside special repair zones
 - $\text{\textcircled{E}}$ " minimum outside special repair zones
- (5) Original thickness of top slab



DETAIL B

Monolithic deck repair shall be used when only half the diameter or less of the top bar is exposed.

Clearance around top bar and around bottom bar at the intersection of top bar shall be required when more than half the diameter of the top bar is exposed.

DECK REPAIR DETAILS

13.2

Deck repair required in the areas designated as special repair zones shall be completed before hydro demolition in alphabetical sequence beginning with Zone A. Zones with the same letter designation may be repaired at the same time. Hydro demolition shall not move forward until the repairs in all special repair zones are completed and properly cured.

13.4

Any deck repair in areas not designated as a special repair zone shall be completed after hydro demolition.

13.5

Removal and deck repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone.

13.16

Total width of full depth repair shall not exceed 1/3 of the deck width at one time. For any area of deck repair that extends over a web and is more than 18 inches in length along the web, the concrete removal including removal with hydro demolition shall stop at the centerline of web and repair completed in this area. Prior to continuing work in this area, the concrete shall have attained a compressive strength of 3200 psi. No traffic shall be permitted over the web that is undergoing repair.

13.17

When the full depth repair extends over a diaphragm or web and the deteriorated concrete extends into the diaphragm or web, all deteriorated concrete shall be removed and replaced as full depth repair. Concrete in webs shall not be removed below the slab haunch of the girder without prior review and approval from the engineer.

13.20

Interior falsework installed by the contractor resting on the bottom slab shall be removed where entry access is available.

13.21

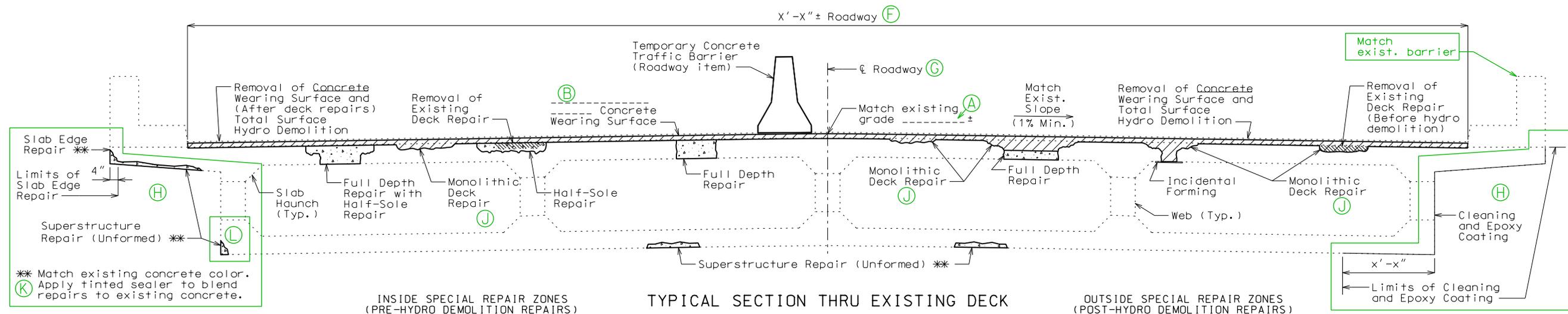
If any single repair area does not exceed 9 square feet in size and the total repair area within a special repair zone does not exceed 27 square feet, the special repair zone may be repaired at the same time as an adjacent zone.

13.22

Half-sole repair in the special repair zone, on either side of the intermediate bents, shall be to a depth that will not expose half the diameter of the longitudinal reinforcing bar. Full depth repair shall be made when removal of deteriorated concrete exposes half or more of the diameter of the longitudinal reinforcing bar.

DATE PREPARED	9/8/2021	
	ROUTE	STATE
	* BR	MO
	DISTRICT	SHEET NO.
	BR	2
COUNTY	*	
JOB NO.	*	
CONTRACT ID.		
PROJECT NO.		
BRIDGE NO.	RHB03b	
DESCRIPTION		
DATE		
TRANSITATION		
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	

U.I.P. AND REHABILITATE EXISTING (X'-X'-X') CONTINUOUS CONCRETE BOX GIRDER SPANS



TYPICAL SECTION THRU EXISTING DECK

Estimated Quantities			
Item	Quantity	Unit	Total
Total Surface Hydro Demolition	216-10.01	sq. yard	X
Removal of Concrete Wearing Surface	216-15.02	sq. foot	X
Removal of Existing Deck Repair	216-15.03	sq. foot	X
Supplementary Wearing Surface Material	505-00.04	cu. yard	X
Latex Modified Concrete Wearing Surface	505-20.00	sq. yard	X
Substructure Repair (Formed)	704-01.01	sq. foot	X
Substructure Repair (Unformed)	704-01.02	sq. foot	X
Superstructure Repair (Unformed)	704-01.03	sq. foot	X
Half-Sole Repair	704-01.04	sq. foot	X
Full Depth Repair	704-01.06	sq. foot	X
Slab Edge Repair (Bridges)	704-01.07	linear foot	X
Cleaning and Epoxy Coating	704-01.13	sq. foot	X

Hydro Demolition Case 1B:

Zoned Conventional Deck Repair Before Hydro Demolition and Non-Zoned Monolithic Deck Repair After Hydro Demolition

(Replacing Existing Wearing Surface)

STANDARD DRAWING GUIDANCE (do not show on plans):

Use for the following concrete wearing surfaces:

- 1 3/4" to 3" Latex Modified
- 2 1/4" to 3" Silica Fume
- 1 3/4" to 3" Latex Modified Very Early Strength
- 1 3/4" to 3" CSA Cement Very Early Strength
- 3" to 4" Steel Fiber Reinforced

- If optional concrete wearing surface is specified and low slump or polyester polymer is an option:
1. Add the allowed options in parentheses to the typical section title below and also to the RHB03h sheet title.
 2. Add to this sheet the typical section from Sheet RHB03g with "(Low Slump Concrete)" added to the title.
 3. Add "(Low Slump Concrete)" to the RHB03h sheet title and revise the sheet number from two to three. Sheet RHB03g will not be used.

Replace as required

B3.8 * Supplementary wearing surface material for monolithic deck repair will be paid for at the fixed unit price in accordance with Sec 109.

B3.9 (If required)

General Notes:

- A1.1 Design Specifications: 2002 AASTHO LFD (17th Ed.) Standard Specifications Bridge Deck Rating =
- A1.2 Design Loading: HS20=44 Modified () and Military 24,000 lb Tandem Axle ()
- A1.3 Design Unit Stresses: Class B-1 Concrete (Half-Sole and Full Depth Repair) f'c = 4,000 psi
- Miscellaneous:
 - 11.0.1 Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (roadway item).
 - 11.0.2 All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.
 - 11.1 Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.
 - 11.2 Contractor shall verify all dimensions in field before ordering new material.
 - 11.10 In order to maintain grade and a minimum thickness of wearing surface as shown on plans it may be necessary to use additional quantities of wearing surface at various locations throughout the structure. The cost of furnishing and installing the wearing surface will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of wearing surface.
- Traffic Handling:
 - A3.8 Structure to be closed during construction. Traffic to be maintained on during construction. See roadway plans for traffic control and Sheet No. for staged construction details.

REPAIRS TO BRIDGE: ROUTE * OVER *

ROUTE * FROM * TO *
ABOUT * MILES * OF *
BEGINNING STATION -----± (Match Existing)

Designed
Detailed
Checked

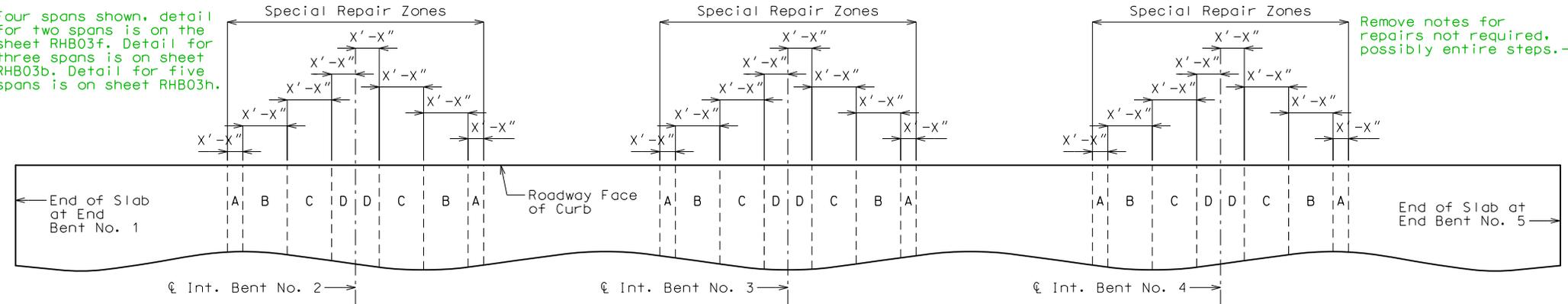


DATE PREPARED 9/8/2021
ROUTE * STATE MO
DISTRICT BR SHEET NO. 1
COUNTY *
JOB NO. *
CONTRACT ID.
PROJECT NO.
BRIDGE NO. RHB03c

DESCRIPTION
DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Four spans shown, detail for two spans is on the sheet RHB03f. Detail for three spans is on sheet RHB03b. Detail for five spans is on sheet RHB03h.



PART PLAN OF SLAB SHOWING SPECIAL REPAIR ZONES

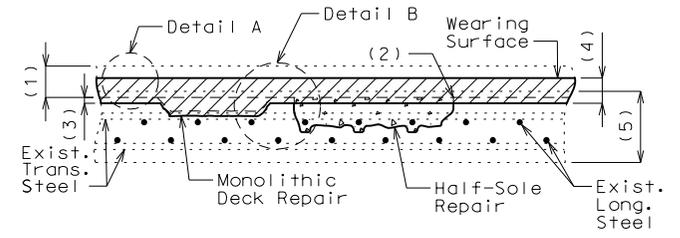
Remove notes for repairs not required, possibly entire steps.

Deck Repair Notes:

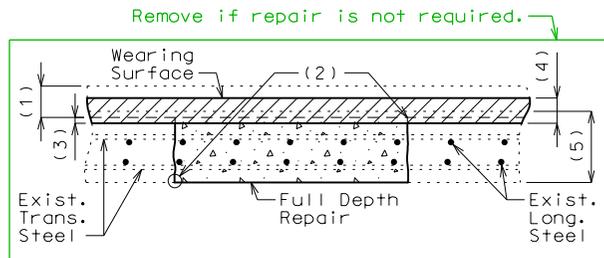
- Order of Repair:
1. Remove existing wearing surface plus D'' of existing deck.
 2. Power wash deck to identify sound and unsound existing deck repair.
 3. Inside special repair zones, complete the following repairs:
 - a. Removal of existing deck repair
 - b. Half-sole repair
 - c. Full depth repair
 4. Outside special repair zones, remove existing deck repair.
 5. Complete total surface hydro demolition, removing E'' minimum of sound concrete inside special repair zones and removing A'' minimum of sound concrete and all deteriorated concrete outside special repair zones.
 6. Sound deck and if needed complete incidental concrete removal.
 7. Outside special repair zones, complete full depth repair.
 8. Place new wearing surface including additional material for areas of monolithic deck repair.

Replace with Note 13.3 for structures with single column bents.

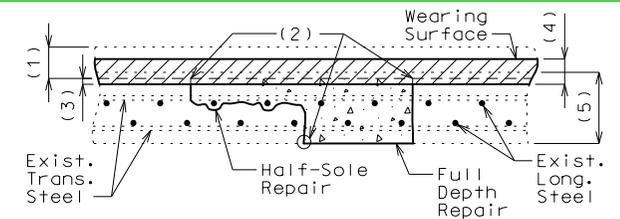
- Special Repair Zones:
- 13.2 Deck repair required in the areas designated as special repair zones shall be completed before hydro demolition in alphabetical sequence beginning with Zone A. Zones with the same letter designation may be repaired at the same time. Hydro demolition shall not move forward until the repairs in all special repair zones are completed and properly cured.
 - 13.4 Any deck repair in areas not designated as a special repair zone shall be completed after hydro demolition.
 - 13.5 Removal and deck repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone.
 - 13.16 Total width of full depth repair shall not exceed 1/3 of the deck width at one time. For any area of deck repair that extends over a web and is more than 18 inches in length along the web, the concrete removal including removal with hydro demolition shall stop at the centerline of web and repair completed in this area. Prior to continuing work in this area, the concrete shall have attained a compressive strength of 3200 psi. No traffic shall be permitted over the web that is undergoing repair.
 - 13.17 When the full depth repair extends over a diaphragm or web and the deteriorated concrete extends into the diaphragm or web, all deteriorated concrete shall be removed and replaced as full depth repair. Concrete in webs shall not be removed below the slab haunch of the girder without prior review and approval from the engineer.
 - 13.20 Interior falsework installed by the contractor resting on the bottom slab shall be removed where entry access is available.
 - 13.21 If any single repair area does not exceed 9 square feet in size and the total repair area within a special repair zone does not exceed 27 square feet, the special repair zone may be repaired at the same time as an adjacent zone.
 - 13.22 Half-sole repair in the special repair zone, on either side of the intermediate bents, shall be to a depth that will not expose half the diameter of the longitudinal reinforcing bar. Full depth repair shall be made when removal of deteriorated concrete exposes half or more of the diameter of the longitudinal reinforcing bar.



MONOLITHIC AND HALF-SOLE REPAIR

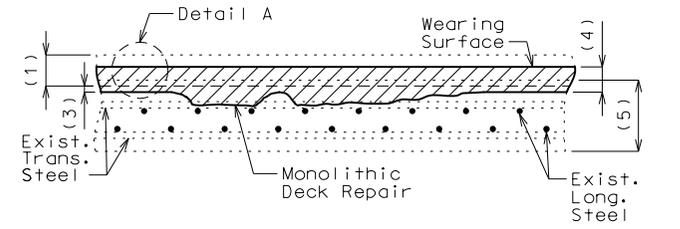


FULL DEPTH REPAIR

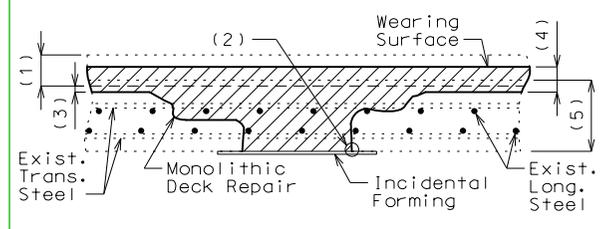


FULL DEPTH REPAIR WITH HALF-SOLE REPAIR

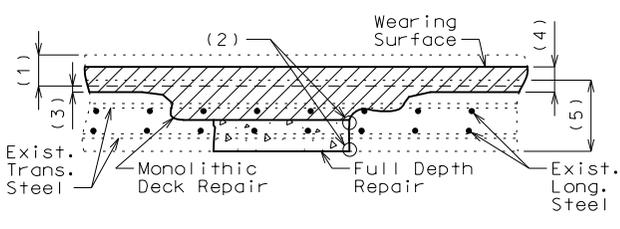
DECK REPAIR INSIDE SPECIAL REPAIR ZONES (BEFORE HYDRO DEMOLITION)



MONOLITHIC DECK REPAIR

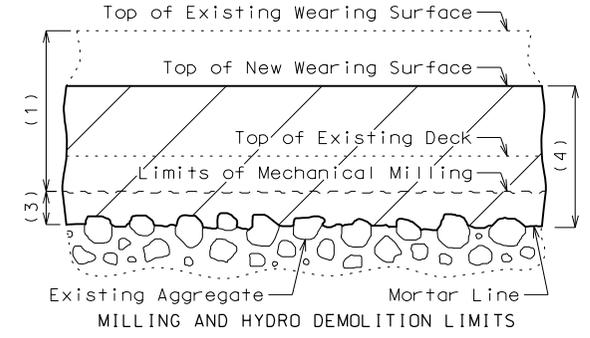


MONOLITHIC DECK REPAIR REQUIRING INCIDENTAL FORMING



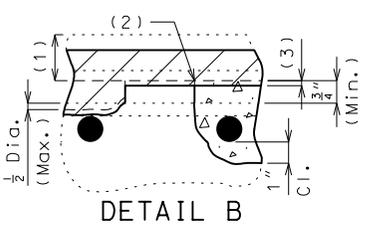
MONOLITHIC DECK REPAIR REQUIRING FULL DEPTH REPAIR

DECK REPAIR OUTSIDE SPECIAL REPAIR ZONES (AFTER HYDRO DEMOLITION)



DETAIL A

- (1) Removal of existing C'' ± wearing surface plus D'' of existing deck
- (2) 1" vertical side shall be established outside the deteriorated area.
- (3) Total surface hydro demolition of sound concrete, measured to mortar line:
 - E'' minimum inside special repair zones
 - E'' minimum outside special repair zones
- (4) B'' concrete wearing surface:
 - E'' minimum inside special repair zones
 - E'' minimum outside special repair zones
- (5) Original thickness of top slab minus previous scarification



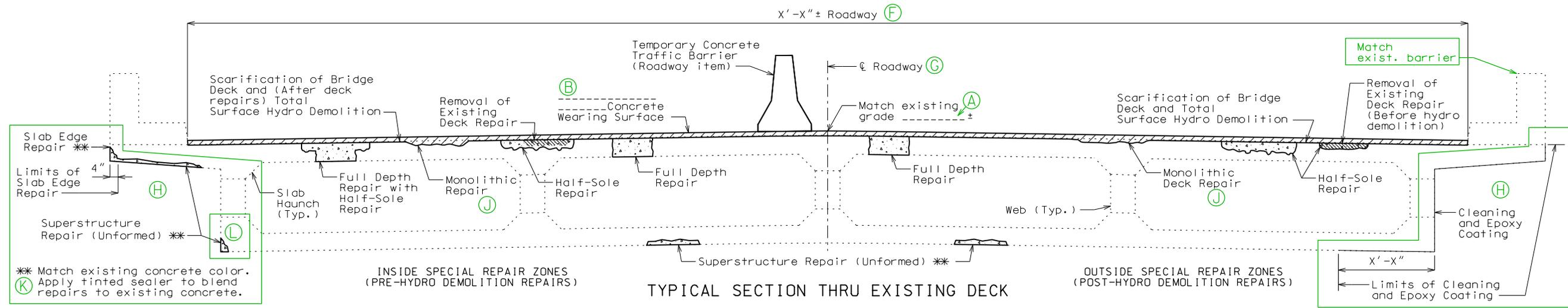
DETAIL B

DECK REPAIR DETAILS

DATE PREPARED	9/8/2021
ROUTE	STATE
DISTRICT	MO
BR	SHEET NO. 2
COUNTY	*
JOB NO.	*
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	RHB03d
DESCRIPTION	
DATE	
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	
105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	

U.I.P. AND REHABILITATE EXISTING (X'-X'-X') CONTINUOUS CONCRETE BOX GIRDER SPANS

SEC/SUR * TWP * RGE *



TYPICAL SECTION THRU EXISTING DECK

** Match existing concrete color. Apply tinted sealer to blend repairs to existing concrete.

Estimated Quantities			
Item	Quantity	Unit	Total
Scarification of Bridge Deck	216-10.00	sq. yard	X
Total Surface Hydro Demolition	216-10.01	sq. yard	X
Removal of Existing Deck Repair	216-15.03	sq. foot	X
Supplementary Wearing Surface Material	505-00.04	cu. yard	X
Low Slump Concrete Wearing Surface	505-10.00	sq. yard	X
Substructure Repair (Formed)	704-01.01	sq. foot	X
Substructure Repair (Unformed)	704-01.02	sq. foot	X
Superstructure Repair (Unformed)	704-01.03	sq. foot	X
Half-Sole Repair	704-01.04	sq. foot	X
Full Depth Repair	704-01.06	sq. foot	X
Slab Edge Repair (Bridges)	704-01.07	linear foot	X
Cleaning and Epoxy Coating	704-01.13	sq. foot	X

Hydro Demolition Case 2A:

Zoned Conventional Deck Repair Before Hydro Demolition and Non-Zoned Conventional Deck Repair After Hydro Demolition

(Adding First Wearing Surface)

STANDARD DRAWING GUIDANCE (do not show on plans):

- Use for the following concrete wearing surfaces:
 - (B) 2 1/4" to 3" Low Slump
 - (B) 3/4" to 3" Polyester Polymer

If optional concrete wearing surface is specified and low slump or polyester polymer is an option follow guidance on Sheet RHB03a.

Replace as required *

11.0.3 (If required) →

- B3.8 * Supplementary wearing surface material for monolithic deck repair will be paid for at the fixed unit price in accordance with Sec 109.
- B3.9 (If required)
- General Notes:**
- A1.1 Design Specifications:
2002 AASTHO LFD (17th Ed.) Standard Specifications
Bridge Deck Rating =
- A1.2 Design Loading: Year
HS20=44 Modified () and Military 24,000 lb Tandem Axle () Year
- A1.3 Design Unit Stresses:
Class Concrete (Half-Sole and Full Depth Repair) f'c = 4,000 psi
- Miscellaneous:
- 11.0.1 Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (roadway item).
- 11.0.2 All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.
- 11.1 Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.
- 11.2 Contractor shall verify all dimensions in field before ordering new material.
- 11.10 In order to maintain grade and a minimum thickness of wearing surface as shown on plans it may be necessary to use additional quantities of wearing surface at various locations throughout the structure. The cost of furnishing and installing the wearing surface will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of wearing surface.
- Traffic Handling:
- A3.8 Structure to be closed during construction. Traffic to be maintained on _____ during construction. See roadway plans for traffic control and Sheet No. _____ for staged construction details.

REPAIRS TO BRIDGE: ROUTE * OVER *

ROUTE * FROM * TO *
ABOUT * MILES * OF *
BEGINNING STATION _____ ± (Match Existing)

Designed
Detailed
Checked

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of

THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

DATE PREPARED: 9/8/2021

ROUTE: * STATE: MO

DISTRICT: BR SHEET NO. 1

COUNTY: *

JOB NO.:

CONTRACT ID.:

PROJECT NO.:

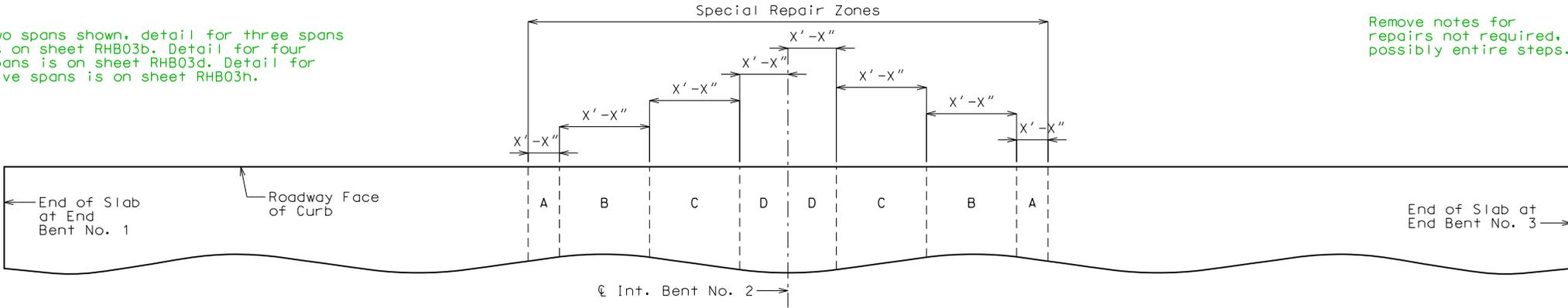
BRIDGE NO. RHB03e

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

Two spans shown, detail for three spans is on sheet RHB03b. Detail for four spans is on sheet RHB03d. Detail for five spans is on sheet RHB03h.



PART PLAN OF SLAB SHOWING SPECIAL REPAIR ZONES

Remove notes for repairs not required, possibly entire steps.

Replace with Note 13.3 for structures with single column bents.

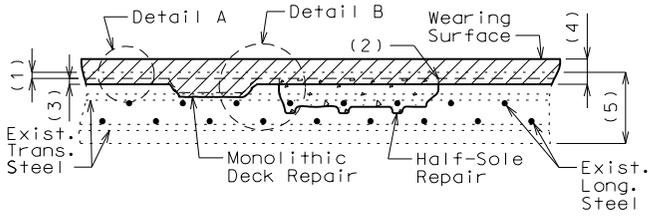
Deck Repair Notes:

- Order of Repair:
1. Scarify existing deck D_- .
 2. Power wash deck to identify sound and unsound existing deck repair.
 3. Inside special repair zones, complete the following repairs:
 - a. Removal of existing deck repair
 - b. Half-sole repair
 - c. Full depth repair
 4. Outside special repair zones, remove existing deck repair.
 5. Complete total surface hydro demolition, removing E_- minimum of sound concrete inside special repair zones and removing E_- minimum of sound concrete and all deteriorated concrete outside special repair zones.
 6. Sound deck and if needed complete incidental concrete removal.
 7. Outside special repair zones, complete the following repairs:
 - a. Half-sole repair
 - b. Full depth repair
 8. Place new wearing surface including additional material for areas of monolithic deck repair.

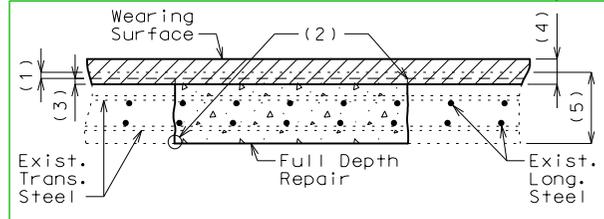
Special Repair Zones:

13.2 Deck repair required in the areas designated as special repair zones shall be completed before hydro demolition in alphabetical sequence beginning with Zone A. Zones with the same letter designation may be repaired at the same time. Hydro demolition shall not move forward until the repairs in all special repair zones are completed and properly cured.

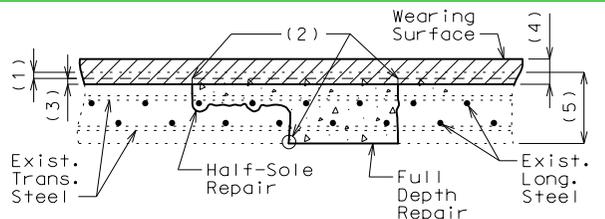
- 13.4 Any deck repair in areas not designated as a special repair zone shall be completed after hydro demolition.
- 13.5 Removal and deck repair shall be completed in one special repair zone and concrete shall have attained a compressive strength of 3200 psi before work can be started in the next special repair zone.
- 13.16 Total width of full depth repair shall not exceed 1/3 of the deck width at one time. For any area of deck repair that extends over a web and is more than 18 inches in length along the web, the concrete removal including removal with hydro demolition shall stop at the centerline of web and repair completed in this area, the concrete shall have attained a compressive strength of 3200 psi. No traffic shall be permitted over the web that is undergoing repair.
- 13.17 When the full depth repair extends over a diaphragm or web and the deteriorated concrete extends into the diaphragm or web, all deteriorated concrete shall be removed and replaced as full depth repair. Concrete in webs shall not be removed below the slab haunch of the girder without prior review and approval from the engineer.
- 13.20 Interior falsework installed by the contractor resting on the bottom slab shall be removed where entry access is available.
- 13.21 If any single repair area does not exceed 9 square feet in size and the total repair area within a special repair zone does not exceed 27 square feet, the special repair zone may be repaired at the same time as an adjacent zone.
- 13.22 Half-sole repair in the special repair zone, on either side of the intermediate bents, shall be to a depth that will not expose half the diameter of the longitudinal reinforcing bar. Full depth repair shall be made when removal of deteriorated concrete exposes half or more of the diameter of the longitudinal reinforcing bar.



MONOLITHIC AND HALF-SOLE REPAIR

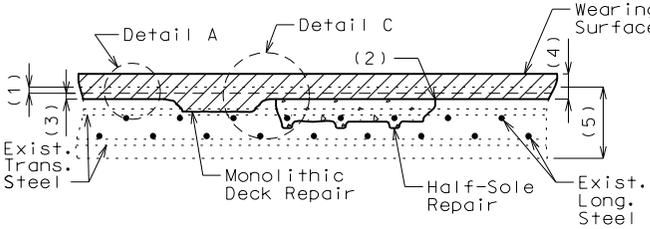


FULL DEPTH REPAIR

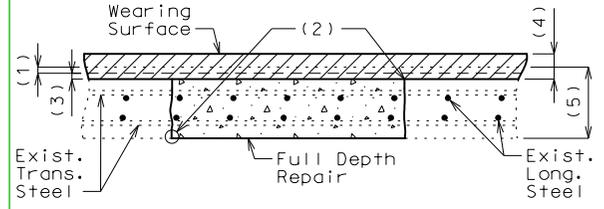


FULL DEPTH REPAIR WITH HALF-SOLE REPAIR

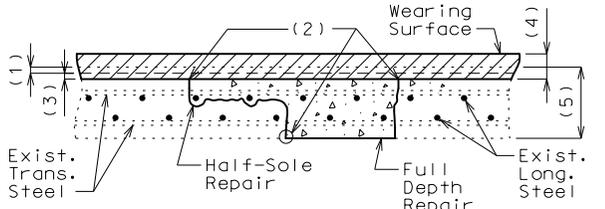
DECK REPAIR INSIDE SPECIAL REPAIR ZONES (BEFORE HYDRO DEMOLITION)



MONOLITHIC AND HALF-SOLE REPAIR

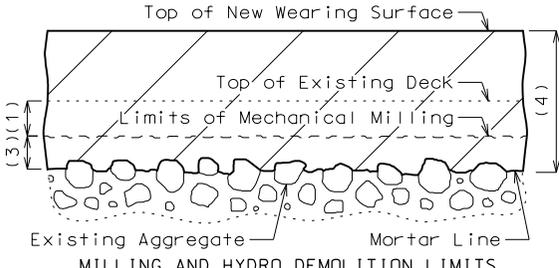


FULL DEPTH REPAIR

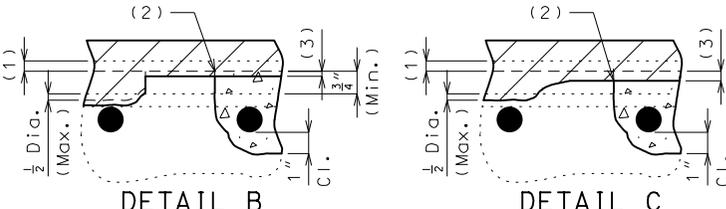


FULL DEPTH REPAIR WITH HALF-SOLE REPAIR

DECK REPAIR OUTSIDE SPECIAL REPAIR ZONES (AFTER HYDRO DEMOLITION)



DETAIL A



DETAIL B

DETAIL C

Monolithic deck repair shall be used when only half the diameter or less of the top bar is exposed.

Clearance around top bar and around bottom bar at the intersection of top bar shall be required when more than half the diameter of the top bar is exposed.

DECK REPAIR DETAILS

THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

DATE PREPARED: 9/8/2021

ROUTE: * STATE: MO

DISTRICT: BR SHEET NO.: 2

COUNTY: *

JOB NO.: *

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: RHB03f

DESCRIPTION:

DATE:

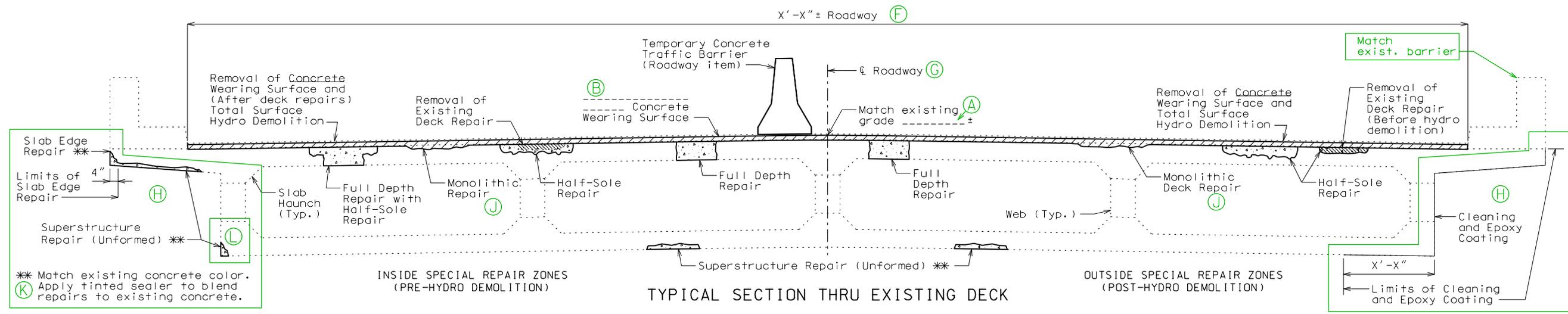
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MADOT

105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MDOT (1-888-275-6636)

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

U.I.P. AND REHABILITATE EXISTING (X'-X'-X') CONTINUOUS CONCRETE BOX GIRDER SPANS



** Match existing concrete color.
 (K) Apply tinted sealer to blend repairs to existing concrete.

Hydro Demolition Case 2B:

Zoned Conventional Deck Repair Before Hydro Demolition and
 Non-Zoned Conventional Deck Repair After Hydro Demolition

(Replacing Existing Wearing Surface)

STANDARD DRAWING GUIDANCE (do not show on plans):

- Use for the following concrete wearing surfaces:
- (A) 2 1/4" to 3" Low Slump
- (B) 3/4" to 3" Polyester Polymer

If optional concrete wearing surface is specified and low slump or polyester polymer is an option follow guidance on Sheet RHB03c.

Estimated Quantities			
Item	Quantity	Unit	Total
Total Surface Hydro Demolition	216-10.01	sq. yard	X
Removal of Concrete Wearing Surface	216-15.02	sq. foot	X
Removal of Existing Deck Repair	216-15.03	sq. foot	X
Supplementary Wearing Surface Material	505-00.04	cu. yard	X
Low Slump Concrete Wearing Surface	505-10.00	sq. yard	X
Substructure Repair (Formed)	704-01.01	sq. foot	X
Substructure Repair (Unformed)	704-01.02	sq. foot	X
Superstructure Repair (Unformed)	704-01.03	sq. foot	X
Half-Sole Repair	704-01.04	sq. foot	X
Full Depth Repair	704-01.06	sq. foot	X
Slab Edge Repair (Bridges)	704-01.07	linear foot	X
Cleaning and Epoxy Coating	704-01.13	sq. foot	X

Replace as required *

B3.8 * Supplementary wearing surface material for monolithic deck repair will be paid for at the fixed unit price in accordance with Sec 109.
 B3.9 (If required)

General Notes:

- A1.1 Design Specifications:
 2002 AASTHO LFD (17th Ed.) Standard Specifications
 Bridge Deck Rating =
- A1.2 Design Loading:
 HS20=44 Modified () and Military 24,000 lb Tandem Axle ()
- A1.3 Design Unit Stresses:
 Class B-1 Concrete (Half-Sole and Full Depth Repair) f'c = 4,000 psi
- Miscellaneous:
- 11.0.1 Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (roadway item).
- 11.0.2 All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.
- 11.1 Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.
- 11.2 Contractor shall verify all dimensions in field before ordering new material.
- 11.10 In order to maintain grade and a minimum thickness of wearing surface as shown on plans it may be necessary to use additional quantities of wearing surface at various locations throughout the structure. The cost of furnishing and installing the wearing surface will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of wearing surface.
- Traffic Handling:
- A3.8 Structure to be closed during construction. Traffic to be maintained on during construction. See roadway plans for traffic control and Sheet No. for staged construction details.

11.0.3 (If required)

REPAIRS TO BRIDGE: ROUTE * OVER *

ROUTE * FROM * TO *
 ABOUT * MILES * OF *
 BEGINNING STATION -----± (Match Existing)

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 9/8/2021
 ROUTE * STATE MO
 DISTRICT BR SHEET NO. 1
 COUNTY *
 JOB NO. *
 CONTRACT ID. *
 PROJECT NO.
 BRIDGE NO. RHB03g

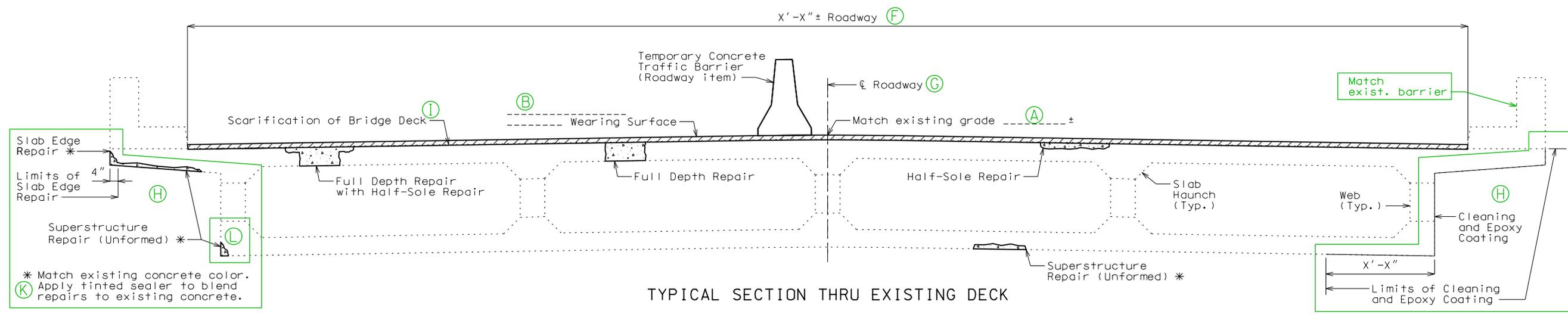
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
 MDOT
 105 WEST CAPITOL JEFFERSON CITY, MO 65102
 1-888-ASK-MDOT (1-888-275-6636)

Designed
 Detailed
 Checked

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

U.I.P. AND REHABILITATE EXISTING (X'-X'-X') CONTINUOUS CONCRETE BOX GIRDER SPANS



TYPICAL SECTION THRU EXISTING DECK

Conventional Deck Repair Only
(Case A)
(Adding First Wearing Surface or Applying Concrete Crack Filler)

Replace as required →

Estimated Quantities			
Item	Quantity	Unit	Total
Scarification of Bridge Deck	216-10.00	sq. yard	X
Latex Modified Concrete Wearing Surface	505-20.00	sq. yard	X
Substructure Repair (Formed)	704-01.01	sq. foot	X
Substructure Repair (Unformed)	704-01.02	sq. foot	X
Superstructure Repair (Unformed)	704-01.03	sq. foot	X
Half-Sole Repair	704-01.04	sq. foot	X
Full Depth Repair	704-01.06	sq. foot	X
Slab Edge Repair (Bridges)	704-01.07	linear foot	X
Cleaning and Epoxy Coating	704-01.13	sq. foot	X

STANDARD DRAWING GUIDANCE (do not show on plans):

May be used for all wearing surfaces and when applying concrete crack filler:

Scarification not required when applying concrete crack filler or with the following wearing surfaces:

- Seal Coat
 - Asphalt
 - UBAWS
 - Epoxy Polymer
 - MMA Polymer Slurry
- ② 2 1/4" to 3" Low Slump Concrete
 - 1 3/4" to 3" Latex Modified Concrete
 - 2 1/4" to 3" Silica Fume Concrete
 - 1 3/4" to 3" Latex Modified Very Early Strength Concrete
 - 1 3/4" to 3" CSA Cement Very Early Strength Concrete
 - 3" to 4" Steel Fiber Reinforced Concrete
 - 1/4" Epoxy Polymer
 - 3/4" to 3" Polyester Polymer Concrete
 - 3/8" MMA Polymer Slurry
 - 4" to 5" Reinforced Concrete Slab
 - 3/8" Chip Seal Grade A1
 - 1" to 3" Optional Asphaltic Concrete
 - 1/2" to 3/4" Optional Ultrathin Bonded Asphalt

General Notes:

- A1.1 Design Specifications:
2002 AASTHO LFD (17th Ed.) Standard Specifications
Bridge Deck Rating =
- A1.2 Design Loading: HS_{20-44} Modified () and Military 24,000 lb Tandem Axle ()
- A1.3 Design Unit Stresses:
Class B-1 Concrete (Half-Sole and Full Depth Repair) $f'c = 4,000$ psi
- Miscellaneous:
 - 11.0.1 Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (roadway item).
 - 11.0.2 All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.
 - 11.1 Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.
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- Traffic Handling:
- A3.8 Structure to be closed during construction. Traffic to be maintained on during construction. See roadway plans for traffic control and Sheet No. for staged construction details.

REPAIRS TO BRIDGE: ROUTE * OVER *

ROUTE * FROM * TO *
ABOUT * MILES * OF *
BEGINNING STATION _____ ± (Match Existing)

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."
DATE PREPARED 9/8/2021
ROUTE * STATE MO
DISTRICT BR SHEET NO. 1
COUNTY *
JOB NO. *
CONTRACT ID. *
PROJECT NO. *
BRIDGE NO. RHB03 i

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL JEFFERSON CITY, MO 65102
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Designed
Detailed
Checked

