Supplementary Information

The following information is associated with Network Rail Standard:
NR CIV/SD/630 Rev A

Additional Content Access

Click the link below to access CAD version of this drawing.

CAD Drawing

- CIV/SD/630

If you have any questions, or need assistance, please contact **IHS Support**

Information accessed via the links above is the property of the Copyright holder

IHS Additional Content Page

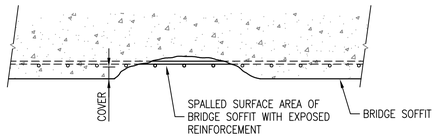
Documents
Document Sharing Hub

Copyright Network Rail
Provided by IHS under license with Network Rail
No reproduction or networking permitted without license from IHS
Full document details: NR NR-CIV-SD-630 ISSUE A 2008

Licensee=Weston Williamson/5989497001, User=sam, albett
Not for Resale, 03/27/2016 23:53:20 MDT

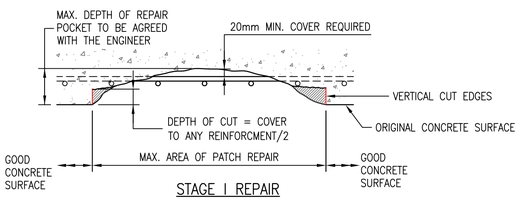
Full document details: NR NR-CIV-SD-630 ISSUE A 2008

REINFORCED CONCRETE



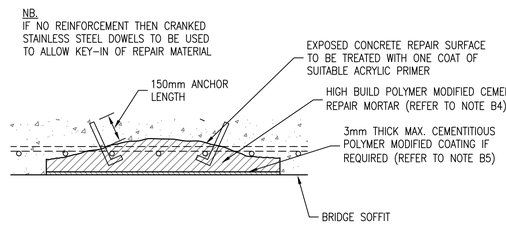
EXISTING CONDITION

SCALE 1:10



STAGE I REPAIR

1. VERTICALLY CUT CONCRETE BRIDGE SOFFIT ON BOUNDARY OF GOOD/SPALLED SURFACE AREA (i.e. ALL SIDES) TAKING CARE NOT TO EXCEED COVER TO ANY REINFORCEMENT/2
2. CAREFULLY REMOVE DAMAGED CONCRETE TO A MINIMUM OF 20mm BEHIND REINFORCEMENT IN ACCORDANCE WITH THE SPECIFICATION.
3. CAREFULLY REMOVE CONCRETE FROM AROUND REINFORCEMENT (INCLUDING REMOVAL OF ANY SCALE/RUST etc.) TO LEAVE A SURFACE FINISH OF SA 2.5.
4. CLEAN DOWN CONCRETE REPAIR SURFACE TO REMOVE DUST/DEBRIS/SCALE etc.

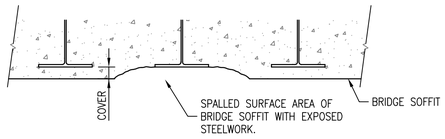


STAGE II REPAIR

1. EXPOSED CONCRETE SURFACE WITHIN REPAIR AREA TO RECEIVE PRIMER/BONDING AGENT.
2. REINFORCEMENT SHALL RECEIVE BAR PRIMER.
3. REPAIR POCKET TO BE FILLED WITH PATCH REPAIR MATERIAL.
4. OVERHEAD REPAIR WORK MAY REQUIRE REPAIR TO BE BUILT UP IN LAYERS

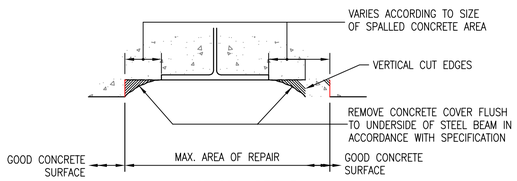
TYPE 1 REPAIR

JOISTS IN CONCRETE



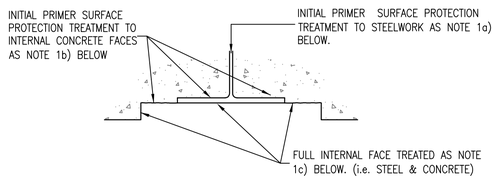
EXISTING CONDITION

SCALE 1:10



STAGE I REPAIR

1. VERTICALLY CUT CONCRETE BRIDGE SOFFIT ON BOUNDARY OF GOOD/SPALLED SURFACE AREA (i.e. ALL SIDES)
2. CAREFULLY REMOVE DETERIORATED CONCRETE COVER TO DEPTH OF STEEL BEAM.
3. CLEAN REMAINING CONCRETE SURFACE TO REMOVE DUST/DEBRIS
4. GRIT BLAST DEFECTIVE AREAS OF STEEL BEAM FLANGE TO REMOVE ALL TRACES OF EXISTING SURFACE PROTECTION TO LEAVE A CLEAN, DRY, CORROSION FREE SURFACE SUITABLE FOR APPLICATION OF SUITABLE PRIMER (i.e. SURFACE FINISH TO BE SA 2.5)

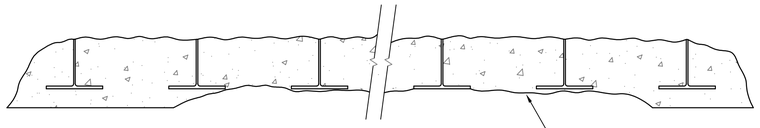


STAGE II REPAIR

1. SURFACE PROTECTION TREATMENT TO DEFECTIVE AREAS:-
   a. STEEL BOTTOM FLANGE:
      PRIMED WITH ONE COAT OF SUITABLE PRIMER
   b. INTERNAL CONCRETE FACES:
      PRIMED WITH ONE COAT OF SUITABLE PRIMER.
   c. BOTH PRIMED STEEL & CONCRETE FACES TO RECEIVE 2No COATS OF ACRYLIC MEMBRANE WATERPROOFING

TYPE 2 REPAIR

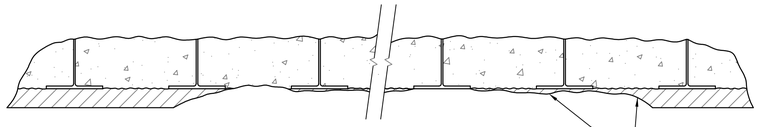
JOISTS IN CONCRETE



EXISTING CONDITION

SCALE 1:10

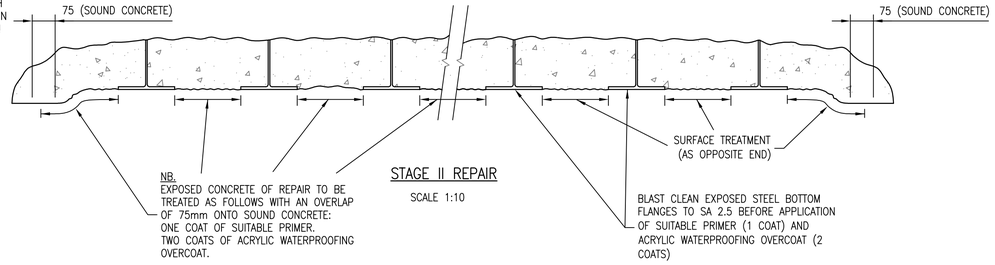
BADLY SPALLED AREAS OF BRIDGE SOFFIT WITH EXPOSED CORRODED STEEL BEAM FLANGES & LOOSE CONCRETE



STAGE I REPAIR

SCALE 1:10

CAREFULLY REMOVE CONCRETE COVER FLUSH TO BOTTOM FACE OF BEAM FLANGES THROUGHOUT AREA OF AFFECTED DECK SLAB.
(OR AS DIRECTED BY EMPLOYER'S REPRESENTATIVE)



STAGE II REPAIR

SCALE 1:10

TYPE 3 REPAIR

TABLE 1

SAFETY. HEALTH AND ENVIRONMENT RISK ASSESSMENT

DESIGNERS NOTES – CDM REG. 13(2)(B)
THE FOLLOWING ARE SIGNIFICANT HAZARDS WHICH MIGHT AFFECT THE HEALTH AND SAFETY OF THOSE UNDERTAKING THE WORKS OUTLINED IN THIS SET OF DRAWINGS ON RAILWAY STRUCTURES OR THOSE AFFECTED BY THESE ACTIVITIES. A SITE SPECIFIC RISK ASSESSMENT SHOULD ALWAYS BE UNDERTAKEN PRIOR TO COMMENCING ANY OF THE WORKS DESCRIBED ON SITE.
IT IS ASSUMED THAT A COMPETENT CONTRACTOR IS AWARE OF THE RISKS ASSOCIATED WITH GENERAL CONSTRUCTION ACTIVITIES UNDERTAKEN WITHIN THE RAILWAY ENVIRONMENT

RISK	STAGE	MITIGATION MEASURES
HAND/ARM VIBRATION DURING BREAKING OUT OF CONCRETE	C	PROCESS CAN GENERATE HAND/ARM VIBRATION. METHOD STATEMENT TO ADDRESS MAX. EXPOSURE LEVELS FOR HAND TOOLS
TEMPORARY WORKS FAILURE	D/C	WHERE REQUIRED, A FORM C SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF WORKS.
TEMPORARY WORKS BREACHING REQUIRED TRAIN CLEARANCES AND/OR RESTRICTING SIGNAL SIGHTING	D/O	DESIGNER'S SHALL ADDRESS THESE ISSUES IN A FORM C. SIGNAL SIGHTING ISSUES SHALL BE IDENTIFIED IN APPROPRIATED FORM A,B AND C SUBMISSIONS. APPROPRIATE MITIGATING MEASURES TO BE AGREED WITH NETWORK RAIL ON A SITE SPECIFIC BASIS.
WATERCOURSE CONTAMINATION	C	EA AGREEMENT TO BE OBTAINED FOR WORKS OVER WATER. METHOD STATEMENT TO ADDRESS ISSUE OF CONTAMINATION PREVENTION. i.e. WORKS ENCAPSULATION TO PREVENT SPENT GRIT ENTERING RIVER
TOXIC SURFACE FINISHES	D/C	EXPOSED STEEL JOISTS MAY HAVE EXISTING SURFACE TREATMENT CONTAINING LEAD. WHERE ENCOUNTERED CARRY OUT PAINT ANALYSIS PRIOR TO CONSTRUCTION WORK AND ESTABLISH PROCESS FOR PAINT REMOVAL.
ELECTROCUTION IN ELECTRIFIED LINE AREAS	D/C	CONTRACTOR METHOD STATEMENT TO IDENTIFY RISKS AND APPROPRITATE MITIGATING MEASURES.

NOTE: C = CONSTRUCTION, D = DESIGN, O = OPERATION.

TABLE 2

REPAIR OPTION SELECTION

EXISTING CONSTRUCTION	SURFACE FINISH IMPORTANT?	
	YES	NO
REINFORCED CONCRETE	TYPE 1	TYPE 1 – SEE NOTE 1
STEEL JOISTS IN CONCRETE	TYPE 2	TYPE 3

NOTES:
1. DEFECTS IN REINFORCED CONCRETE ARE TO BE REPAIRED USING A TYPE 1 REPAIR ONLY. THIS ENSURES THE ORIGINAL CONRETE COVER DIMENSION IS REINSTATED AS A MINIMUM.
2. WHERE DEFECTS RESULT FROM INSUFFICENT CONCRETE COVER PROVISION AT THE TIME OF CONSTRUCTION, DESIGNERS MAY SPECIFY RATES OF CARBONATION/DETERIORATION FOR ANY REPAIR MATERIALS. THIS CAN IMPROVE THE DURABILTY OF THE REINSTATED DETAIL. THIS APPROACH REMOVES THE RECUCTION IN CL;EARANCES TO PASSING TRAINS ASSOCIATED WITH 'BUILDING OUT' THE AREA OF REPAIR TO PROVIDE ADDITIONAL COVER AND LIMITS THE AESTHETIC IMPACT OF THE REPAIR ON A STRUCTURE.

DRAWING No. NR/CIV/SD/630

NOTES

A. GENERAL

A1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

A2. THE LOCATION AND EXTENT OF A REPAIR SHALL BE DEFINED ALONG WITH THE ROOT CAUSE OF THE DEFECT TO BE RECTIFIED BY SCHEME DESIGNER IN A PROJECT SPECIFIC FORM A TO BE AGREED WITH THE EMPLOYERS REPRESENTATIVE ON SITE.

A3. THE NATURE AND EXTENT OF ANY TEMPORARY WORKS REQUIRED FOR A REPAIR SHALL BE DEFINED BY THE SCHEME DESIGNER IN A PROJECT SPECIFIC FORM A.

A4. THIS DRAWING SHOWS TYPICAL DETAILS FOR REPAIR OF SPALLED CONCRETE SURFACES. THESE REPAIRS ARE APPLICABLE TO JOIST IN CONCRETE AND REINFORCED CONCRETE CONSTRUCTION ONLY. SUPERFICIAL REPAIRS TO PRE-STRESSED CONCRETE ELEMENTS MAY BE BASED ON THIS DRAWING, SUBJECT TO THE LIMITATIONS DETAILED IN NR/GN/CIV/008 SECTION 83.

A5. IN AREAS WITH BOTH AC AND DC ELECTRIFICATION ADDITIONAL MEASURES MAY BE REQUIRED TO MITIGATE THE RISK OF STRAY CURRENT AFFECTING THE STRUCTURE. DETAILS SHALL BE IDENTIFIED IN THE PROJECT SPECIFIC FORM A/B SUBMISSION.

B. SPECIFICATION

B1. WATERPROOFING SYSTEMS SHALL BE IN ACCORDANCE WITH NETWORK RAIL SPECIFICATION NR/GN/CIV/008 SECTION 111 UNLESS OTHERWISE SPECIFIED.

B2. ALL WATERPRROFING SYSTEMS USED ON UNDERLINE BRIDGE DECKS SHALL COMPLY WITH NR/SP/CIV/041 AND BE REGISTERED IN THE PARTS AND DRAWINGS DATABASE (PADS).

B3. EXPOSED STEEL SURFACES IN REPAIR AREAS SHALL BE BLAST CLEANED TO PROVIDE A SA 2.5 SURFACE FINISH IN ACCORDANCE WITH NETWORK RAIL COMPANY STANDARD NR/SP/CIV/039 PRIOR TO SURFACE TREATMENT APPLICATION.

B4. ALL SURFACE TREATMENTS TO STEEL SHALL BE APPLIED IN ACCORDANCE WITH NETWORK RAIL COMPANY STANDARD NR/SP/CIV/039 & MANUFACTURER'S INSTRUCTIONS.

B5. FIBRE AND POLYMER MODIFIED REINSTATEMENT MORTAR SHALL HAVE A COMPRESSIVE STRENGTH OF 22N/ MM2, A FLEXURAL STRENGTH OF 4.5N/MM2 AND A TENSILE STRENGTH OF 1.7N/ MM2 AT 28 DAYS.

B6. CEMENTITIOUS POLYMER MODIFIED COATING SHALL BE COMPATIBLE WITH UNDERLYING CEMENTITIOUS MORTAR TO WHICH IT IS TO ADHERE.

C. DESIGN ASSUMPTIONS

C1. THE SCHEME DESIGNER IS RESPONSIBLE FOR THE CORRECT APPLICATION OF THE DETAIL TO A SCHEME. ANY AMENDMENTS TO SURFACE TREATMENT SHALL BE ADDRESSED IN THE FORM A.

C2. THIS IS A GENERIC DRAWING AND IS IN ACCORDANCE WITH THE STANDARDS APPLICABLE AT THE DRAWING'S DATE OF APPROVAL. IT IS ASSUMED A SCHEME DESIGNER WILL INCORPORATE ANY SUBSEQUENT CHANGES IN STANDARDS.

D. INSTALLATION GUIDANCE

D1. ALL VERTICAL CUT FACES OF REINFORCED CONCRETE REPAIRS SHALL BE ROUGHENED TO ENABLE IMPROVED BOND PROPERTIES BETWEEN EXISTING AND NEW MATERIAL

Rev	Date	Description of revision	Design'd	C'kd
A	31/03/08	FIRST ISSUE	GPR	NGAY
P2	19/03/08	FORM B APPROVAL	GPR	NGAY
P1	13/04/06	FORM A APPROVAL	GPR	NGAY

Network Rail
40 Melton Street
London NW1 2EE
Tel: 020-7557-8000

Approved	P. CLARK	Senior Prog. Eng. Manager Infrastructure Inv. Construction	PC	01.04.08
	Name	Position	Signature	Date

Master copy with original signatures held by Network Rail HQ CIVIL ENGINEERING STANDARD DESIGN

© COPYRIGHT NETWORK RAIL 2008

MISCELLANEOUS & ANCILLARY STRUCTURES

TYPICAL SPALLED CONCRETE REPAIRS

Scale	1:10 U.N.O
Drawing Number	NR/CIV/SD/630 A

Documents Document Standard Hub

Licensee:Hanson Willbourn(0205991002). User:sam. sfirst
Copyright Network Rail
Provided by IHS under licence with Network Rail
No reproduction or networking permitted without licence from IHS