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MODEL CLAUSES FOR CIVIL ENGINEERING WORKS

SECTION 23 STRUCTURAL REPAIR SURVEY

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SECTION 23

STRUCTURAL REPAIR SURVEY

Objective, purpose and extent of the survey

23.001 The objective of the survey is specified in Appendix 23/1.

The purpose of the survey is specified in Appendix 23/2.

The survey shall determine, record and present to the Employer's Representative:

- (i) the extent and location of the damage to and deterioration of the elements of the structure,
- (ii) the possible causes of the damage to and deterioration of the structure,
- (iii) the immediate effect of the damage and deterioration on the structural capacity and performance of the structure,
- (iv) the long term effects of the damage and deterioration on the structural capacity, performance and durability of the structure,
- (v) an estimate of the cost of the proposed repair works,
- (vi) an outline programme of the proposed repair works, which shall include details of (a) the envisaged disruption to rail and road traffic, and (b) the time to completion.

The extent of the survey and the recommendations it shall address are specified in Appendix 23/3.

Deliverables and report specification

23.002 Two printed copies and one electronic copy of the following shall be provided to the Employer's Representative:

- (i) factual report - which shall include the information specified in Appendix 23/4,
- (ii) interpretative report - which shall include the information specified in Appendix 23/5.

All reports shall identify the Engineer's Line Reference (ELR), mileage, the unique identification reference and local name of the structure, and the date of the survey.

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Survey photographs

23.003 The condition of the structure shall be recorded by digital photographs. Colour photographs shall be reproduced in the report, and an electronic (JPEG) copy of all photographs shall be provided with the report.

Photographs shall be of a sufficient size to show the detail or feature being photographed; be identifiable by a reference number (which includes the date of exposure); and be labelled with a description that includes the location and orientation of the photograph. The name and contact address of the photographer shall be provided.

The copyright of all photographs shall be vested in Network Rail and photographs shall not be used for any purpose whatsoever without Network Rail's written consent.

Photographs shall include:

- (i) general views - which for bridges should include views from its approaches at both superstructure and substructure levels,
- (ii) views of all defects recommended for repair,
- (iii) views of features considered by the Contractor to benefit from definition or amplification by photographs,
- (iv) views to clarify or amplify information provided in sketches,
- (v) views of details and components that are not readily accessible without using the access provided for undertaking the survey,
- (vi) views to illustrate the difficulty of accessing obscured parts and hidden parts of the structure.

Where appropriate, a ruler or other object shall be included in a view to provide a comparative scale to the photograph.

Photographs shall not be used as a substitute for dimensioned sketches.

Outline methodology

23.004 An outline methodology for the survey shall be submitted with the Tender. The outline methodology shall include details of:

- (i) the competency and experience of the Contractor's key personnel to carry out the survey,
- (ii) existing records, drawings and data that will be utilised in the survey,

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- (iii) the method of accessing the Site and the relevant parts/members/elements of the structure,
- (iv) the level of detail of the survey,
- (v) the method for surveying structural parts/members/elements that are hidden and/or otherwise not normally accessible or visible,
- (vi) the sampling and testing regime, including the organisation(s) undertaking this work and details of their experience and accreditation,
- (vii) the data that will be obtained from the survey,
- (viii) equipment proposed to be used,
- (ix) the monitoring equipment to be installed, and proposals for monitoring faults, deflections, crack widths etc.

Detailed methodology

23.005 A detailed methodology for the survey shall be submitted to the Employer's Representative for acceptance.

The detailed methodology shall include further details of the information submitted in accordance with Clause 23.004, other Clauses and Appendix 23/6.

The survey shall not commence until the detailed methodology has been accepted by the Employer's Representative.

Hazards likely to be encountered

23.006 The hazards known to exist at the Site are described in Appendix 23/7.

Emergency action

23.007 The Contractor shall follow the emergency procedure defined in Appendix 23/8 when the Contractor considers that during the course of the work the structure has or is likely to become unsafe.

The Contractor shall confirm that their personnel involved in the survey are (a) aware of the emergency procedure, and (b) able to follow it at all times during the work.

Site survey results

23.008 The results of the survey shall include:

- (i) notes, with sketches, indicating the nature, extent and degree of damage and/or deterioration,
- (ii) records of observations required for the factual and interpretative reports,
- (iii) sizes of relevant members/elements,