VOLUME 3 HIGHWAY STRUCTURES: INSPECTION AND MAINTENANCE

SECTION 2 MAINTENANCE

PART 1

BD 62/07

AS BUILT, OPERATIONAL AND MAINTENANCE RECORDS FOR HIGHWAY STRUCTURES

SUMMARY

This Standard gives the Overseeing Organisations' minimum requirements for the records to be collected and maintained for highway structures.

INSTRUCTIONS FOR USE

1. Remove Contents pages from Volume 3 and insert new Contents pages dated February 2007.

2. Remove BD 62/94 from Volume 3, Section 2 which is superseded by this new Standard and archive as appropriate.

3. Insert BD 62/07 into Volume 3, Section 2.

4. Please archive this sheet as appropriate.

Note: A quarterly index with a full set of Volume Contents Pages is available separately from The Stationery Office Ltd.

DESIGN MANUAL FOR ROADS AND BRIDGES

BD 62/07
Volume 3, Section 2,
Part 1

THE HIGHWAYS AGENCY

TRANSPORT SCOTLAND

WELSH ASSEMBLY GOVERNMENT
LLYWODRAETH CYNULLIAD CYMRU

THE DEPARTMENT FOR REGIONAL DEVELOPMENT
NORTHERN IRELAND

As Built, Operational and Maintenance Records for Highway Structures

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REGISTRATION OF AMENDMENTS

Amend No	Page No	Signature & Date of incorporation of amendments	Amend No	Page No	Signature & Date of incorporation of amendments

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Contents

1. INTRODUCTION

Mandatory Requirements

1.1 Paragraphs of this Standard that are highlighted by being contained in a box are mandatory. The remainder of the document contains advice and guidance.

General

1.2 This Standard describes certain records required for highway structures on motorways and other trunk roads or in Northern Ireland all designated roads, but should be read in conjunction with BD 53 (DMRB 3.1.6) – Inspection and Records for Road Tunnels, when dealing with highway tunnels.

1.3 This Standard should be read in conjunction with SD 11 (MCHW 6.1.2) – Requirements for Health and Safety File, and the Construction (Design and Management) Regulations (CDM) 1994: The Health and Safety File. The records described in the Standard are considered by the Overseeing Organisations to satisfy minimum compliance with the CDM Regulations with respect to structures records. The Overseeing Organisation in Northern Ireland has opted out of SD 11 in favour of the CDM Approved Code of Practice.

1.4 The records described by this Standard may not be sufficient for effective management in all circumstances. Where this is the case, supplementary records should be compiled.

1.5 The Standard also identifies how the records should be held and those parties responsible for creating, maintaining, reviewing and updating records, i.e. the Designer, Contractor, Agent and Overseeing Organisation.

1.6 This Standard supersedes BD 62/94 (DMRB 3.2.1) – As Built, Operational and Maintenance Records for Highway Structures, which is hereby withdrawn.

1.7 This Standard must be read in conjunction with BD 63 (DMRB 3.1.4) - Inspection of Highway Structures, which provides details of the records associated with inspections of highway structures.

Background

1.8 The records described in this Standard are specifically identified to support the business needs and processes for managing highway structures, important aspects of which include:

a. Providing information the Overseeing Organisations are legally required to hold.

b. Providing information that supports the management of highway structures, e.g. inspection scheduling, maintenance planning, structural reviews and assessments.

c. Ensuring that records remain current and accurate by adopting appropriate reviewing and updating procedures.

d. Ensuring that records are held in the required format, e.g. computerised Asset Management Systems.

e. Ensuring that records are created, maintained and managed by the relevant personnel/parties.

1.9 Details of the manner in which these records are to be held by respective Overseeing Organisations are provided within the Annexes.

Definitions

1.10 The following definitions apply in this Standard:

- **Agent** – a party appointed by the Overseeing Organisation to manage highway assets on their behalf, e.g. Maintaining Agent, Managing Agent, Managing Agent Contractor, Trunk Road Agent, Concessionaire, Service Provider or Operating Company. Where the Overseeing Organisation manages the highway assets internally, the Agent will be the branch or section to which the duties have been delegated.

- **Contractor** – the organisation contracted by the Overseeing Organisation or Agent to undertake construction works on its behalf.
- **Designer** – the organisation responsible for the overall design including proprietary components.
- **Structural Review** – a review of an individual structure or group of structures to establish or confirm the validity of its latest assessment (or its original design, if there has been no subsequent assessment).

Implementation

1.11 This Standard must be used forthwith. Additional and specific requirements for the four Overseeing Organisations in England, Scotland, Wales, and Northern Ireland are given in Annexes A to D respectively of this Standard.

Quality Assurance and Audit

1.12 Agents must amend, if necessary, their Quality Assurance system to reflect the requirements of this Standard.

1.13 The Overseeing Organisation reserves the right to audit Agents against this Standard.

Feedback

1.14 Any feedback on the use of this Standard must be provided in accordance with HD 34 Implementation and Use of the Standard Improvement System.

2. SCOPE

2.1 This Standard applies to highway structures over, under or alongside motorways and other trunk roads or in Northern Ireland all designated roads.

2.2 Table 1 describes the scope of highway structures this Standard applies to. The specific requirements of each Overseeing Organisation, which may replace or amplify certain aspects of Table 1, are provided in the Annexes and must be adopted.

2.3 The records produced and held for each structure should be appropriate to its complexity and size. Normally, the detail and quantity of records would increase as complexity and size increase. When a Designer or Agent are uncertain about the records that should be produced or held for a structure they should contact the Overseeing Organisation.

Table 1 Scope of Highway Structures Covered by BD 62

Structure Type	**Definition**	**Scope** (see Note 1)
Bridge, buried structure, subway underpass, culvert and any other similar structure	A structure supporting the highway as it crosses an obstacle (e.g. river, valley or flood plain) or a service (e.g. local road, railway or canal) OR A structure supporting the passage of a service (e.g. local road, railway, canal) over the highway	All structures with a clear span or internal diameter greater than 0.9m (0.9m or greater in Scotland)
Earth retaining structure	A structure associated with the highway where the dominant function is to retain earth	All structures with an effective retained height, i.e. the level of fill at the back of the structure above the finished ground level at the front of the structure, of 1.5m or greater (see Note 2)
Reinforced/strengthened soil/fill structure with hard facings	A structure associated with the highway where the dominant function is to stabilise the slope and/or retain earth	All structures with an effective retained height of 1.5m or greater (see Note 2)
Sign and/or signal gantry (see Note 3)	Portal and cantilever gantries that support signs and/or signals	Structural aspects of all sign/signal gantries
Mast (see Note 3)	Cantilever mast for traffic signal	Structural aspects of all cantilever masts
	High mast for lighting	Structural aspects of all lighting masts of 20m or greater, i.e. the vertical distance from top of post to bottom of flange
	Mast for camera, radio, speed camera and telecommunication transmission equipment	Structural aspects of all masts

Structure Type	**Definition**	**Scope** (see Note 1)
	Catenary lighting support system	Structural aspects of all catenary support systems
	Highway signs on posts	As agreed by the Overseeing Organisation
Access gantry (see Note 4)	A moveable structure providing access to a highway asset, typically for bridge inspection and maintenance	All moveable access gantries
Tunnels	An enclosed length of road of 150m or more	Structural aspects of all tunnels (refer to BD 53 for other criteria relevant to tunnels, e.g. M&E requirements)
Other structures	Other structures that are within the footprint of the highway, e.g. service/ utility crossings	Structures providing service only crossings either above or below the carriageway
	Other structures not in above subgroup as agreed with Overseeing Organisation	As agreed by the Overseeing Organisation
Third Party structures	Any of the above categories but owned by others, e.g. private owners or utility companies	As agreed with the Overseeing Organisation

Notes for Table 1:

1. Highway structures which are marginally outside these dimensions, especially those which are subject to hydraulic action, may be included within the scope of this Standard by agreement with the Overseeing Organisation. Also see the Annexes for any specific requirements.

2. Greater than 1.5m in Scotland and Northern Ireland.

3. Signs/signal gantries and masts – structural aspects should include foundations, columns, beams, arms and any structural connections between these. Due consideration should also be given to any significant attachments and their connections when preparing records.

4. Records for access gantries should also comply with The Institution of Structural Engineers publication *The Operation and Maintenance of Bridge Access Gantries and Runways*.

3. MANAGING RECORDS

General

3.1 This Standard describes certain records required for highway structures and the associated responsibilities for providing, maintaining, reviewing and updating these records.

3.2 The details of some records are described in other documentation, e.g. BDs and respective User Manuals/Guides for computerised Asset Management Systems. Where this is the case, the descriptions of the records are not duplicated in this Standard, instead the appropriate cross reference is provided. Where descriptions of records are not provided elsewhere then a description is provided in this Standard.

3.3 Records can be held in different formats, but are typically held as electronic or hard copy (also, electronic records can be held in different formats). This Standard only specifies formats in the Annexes, and in some cases refers to supporting documentation that specifies the required format. In this way, if the required format of the record changes, e.g. from hard copy to electronic or a change in electronic format, then this will be reflected in an amendment to the relevant Annex or supporting documentation.

Computerised Asset Management Systems

3.4 The Overseeing Organisations have computerised Asset Management Systems for highway structures. These systems hold records, assist the creation and maintenance of records, and support management processes, e.g. inspection and maintenance planning.

3.5 These systems have associated User Manuals and Help Files, which are periodically updated to provide additional guidance to users and/or to reflect changes and improvements to the system. This Standard does not replicate the guidance provided in User Manuals/ Help Files; instead this Standard refers to these documents where necessary.

3.6 Designers, Contractors, Agents and other relevant parties must use the Asset Management System, and associated User Manuals and Help Files, specified by the Overseeing Organisation. Details of the systems are provided in the Annexes.

3.7 Where this Standard refers to User Manuals/ Help Files these must be taken to be the latest versions.

3.8 The latest versions of User Manuals/Help Files can be obtained from the Overseeing Organisation. Contact details are provided in the Annexes.

Roles and Responsibilities

3.9 This Standard supports the creation and ongoing maintenance, review and updating of records. The roles and responsibilities for these activities are described, in general, in Table 2; the specific roles in each Overseeing Organisation may be described in the Annexes.

Table 2 Responsibilities for Records

Activity	Responsible Party
Creating a new structure on an Asset Management System	Overseeing Organisation
Providing records for a new structure OR works on, or modifications to, an existing structure	Engineer, Designer, Contractor and/or Agent
Providing, maintaining, reviewing and updating records for existing structures	Agent (some updating of records may require authorisation from the Overseeing Organisation)
Auditing records for new and existing structures	Overseeing Organisation and where required, self-audit by the Agent

3.10 Chapter 4 describes the records required for highway structures while Chapter 5 summarises these records and distinguishes between those required for new structures and those required for existing structures.

Other Records

3.11 The records defined in this Standard are considered by the Overseeing Organisations to be consistent with CDM Health and Safety File requirements and good asset management practice. However, it is recognised that Designers and Agents may require additional records to support their activities. Exclusion of such records from this Standard does not preclude Designers/Agents from holding them, but the Overseeing Organisations do not accept any financial or other responsibilities for these records unless formally agreed between the Designer/Agent and the Overseeing Organisation.

4. RECORDS FOR HIGHWAY STRUCTURES

General

4.1 This section describes certain records required for the whole life management of highway structures. The records are described under the following generic headings which are considered to represent the minimum requirements of the CDM Health and Safety File:

a. Inventory.

b. Drawings.

c. Design.

d. Construction and demolition.

e. Materials, components and treatments.

f. Certification and tests.

g. Operation.

h. Inspection.

i. Maintenance.

j. Structural assessment and load management.

k. Legal.

l. Environmental.

m. Supplementary records.

4.2 These records should be stored as required by the Overseeing Organisation, as such they may be stored electronically, in hard copy, or some combination of the two, and may be stored in one location, or a number of different locations. In whatever format or location the records are stored they should be easily accessible to those who require them and be clearly marked as belonging to a particular structure. For example, the first point of interaction with these records may be a one page/screen that presents the key information about the structure (e.g. reference, name, location, dimensions and pictures) and includes references/links to the more detailed records held under the above headings.

4.3 Designers must provide the Overseeing Organisation with records, in accordance with this Standard, for all new structures. For reconstructions, modifications and major maintenance, Designers must provide the information required to update these records.

4.4 Agents must maintain and update these records, in accordance with this Standard, for existing structures.

4.5 It is desirable that the records described in this Standard are held for all existing structures. For some existing structures there may be gaps between the records described in this Standard and those currently held. Agents should seek to identify these gaps and close them in a cost effective and efficient manner by combining record reviews, data collection and record creation with ongoing management activities. For example, these activities may be combined with General Inspections, Principal Inspections and/or routine maintenance activities.

4.6 Any significant costs associated with closing the gaps in records or updating records for existing highway structures must be agreed with the Overseeing Organisation.

4.7 Designers, Contractors, Agents and other relevant parties must check the relevant Overseeing Organisation Annex for any additional/ specific requirements and for details of how records are provided to the Overseeing Organisation.

4.8 During the life of a structure some records will be superseded, for example, following maintenance or assessment. In all instances superseded records should be retained in order to provide a full history for the structure as this may be beneficial to future management. Any superseded files should be clearly marked as such, including any reference to the file.

Inventory

4.9 Inventory records provide general information on each structure, these typically include:

a. General inventory details – may include structure name, structure reference, location, construction year, Designer, Agent, dimensions, headroom, restrictions, high/heavy load route, road carried/ obstacle crossed or obstacle carried/road crossed, and historic listing.

b. Structure type details – may include, for bridges for example, the number of spans and construction form. Table 1 presents the different structure types.

c. Structure summary – a summary of the key features of the structure, plus section drawings and location plan.

4.10 The Agent must review, and amend or update as necessary, the inventory information as a minimum:

a. As part of the Principal Inspection.

b. As soon as they become aware of any errors in the current information.

c. As soon as they become aware of any changes to the structure.

Drawings

4.11 Drawings must include the following as a minimum:

a. Location plan – showing the location of the structure on the network.

b. General Arrangement drawings – showing plan, elevation and cross–sectional details of the structure.

c. As-built drawings, these should include details of any:

- Built-in features.
- Any propriety components and protection systems.
- Service ducts and drainage systems.
- Reinforcement, post-tensioning, etc. and bar bending schedules.
- Demountable structures (e.g. gantries) including designated lifting positions, safe working loads, etc.

4.12 Drawings should also provide additional information considered necessary for the safe and effective management and maintenance of a structure.

Design

4.13 The following design records must be provided for new structures, modifications, major maintenance, upgrades and reconstructions in accordance with the Overseeing Organisation's requirements:

a. Copies of the signed Approval in Principle (AIP) document and any further addenda as required by BD 2, or other structure review process documents specific to the contract requirements, e.g. Technical Appraisal Forms (TAF) for DBFO.

b. Copies of the signed design and check certificates.

c. Copies of the signed Construction Compliance Certificates.

d. Key correspondence and/or reports relating to the design.

e. Any relevant design drawings not already covered by paragraph 4.11.

f. Key design option choice as permitted in the design standard.

4.14 BD 2 (DMRB 1.1.1) – Technical Approval of Highway Structures, provides more details on items (a), (b) and (c) above.

4.15 All records must contain the structure reference and the file references, date and version control number.

Construction and Demolition

4.16 For all new structures, modifications, major maintenance, upgrades and reconstructions, the Designer must provide details of:

a. The programme and methods of construction where special techniques were necessary, e.g. dewatering or ground freezing, sequential post tensioning and bearing fixings.

b. Any construction methods/features that may necessitate special techniques or precautions if a structure has to be demolished or extensively modified, e.g. method of demolition, sequence of demolition to avoid progressive collapse, jacking of the structure, or when extensive modifications are envisaged. Where appropriate, details of the special technique or precautions to be taken must be provided.

c. Any significant problems not anticipated that arose during construction (or reconstruction), the solutions adopted and the repercussions on future inspection, maintenance (e.g. materials out of specification) and/or demolition. Where appropriate these should be supplemented with instrument readings, sketches, photographs and/or reports.

d. Any temporary works left in the structure or associated earthworks.

e. Any monitoring carried out during construction or required after completion of the works.

4.17 The Designer must also provide precise details of any major hazards with Health and Safety implications known at the time of construction e.g. external stressing, strutting, hinging, arching etc., which may be important in planning maintenance and demolition methods.

Materials, Components and Treatments

4.18 The section suggests records that should be held for materials, treatments and components. The suggested records are not exhaustive. Agents, Designers, and Contractors should also give due consideration to the Manual of Contract Documents for Highway Works (MCHW) Volumes 1 (Specification for Highway Works) and Volume 2 (Notes for Guidance on the Specification of Highway Works) when determining the records to be held.

4.19 In all instances, where a product or material is covered by the Control of Substances Hazardous to Health (COSHH) Regulations full details of the product or material specification must be given.

4.20 Annex E provides examples of Information Sheets that may be used to hold details of materials, treatments and components.

Materials

4.21 Records must be provided for all materials used in the construction and maintenance of highway structures that could be of relevance to future inspection, maintenance, assessment, demolition and disposal. Records should include, as a minimum, details of the material, name and address of the supplier, name and address of any sub-contractors, and where appropriate, the material source and its location within the structure. Examples of the materials for which records must be provided include:

a. Concrete materials: cement; Ground Granulated Blastfurnace Slag (GGBS); Pulverised Fuel Ash (PFA); aggregates; ready mixed concrete; admixtures; mix proportions; reinforcing bars; prestressing wire; reinforcing fibres; strand or bar. Where a number of concrete mixes are supplied, their destinations must be recorded within each element, and histograms of concrete cube test results for each structural element.

b. Steel materials: plate; rolled sections; prefabricated steelwork, etc. weathering steel, type of fixings and torque settings for bolts.

c. Other materials: aluminium, timber, Fibre Reinforced Plastics (FRP) and imported fill.

Components

4.22 Components must include, but not be restricted to, expansion joints; drainage systems; bearings; parapets; waterproofing systems; precast units; reinforced earth components; brick, precast or masonry facings; lighting systems; and moving bridge equipment.

4.23 Component records must be created for all of the above. The records must provide the details of the component (product data sheet), name and address of the manufacturer/supplier/sub-contractor, date of installation and, where appropriate, any test results, the part number and manufacturer's drawing (also see drawings listed in paragraph 4.11).

4.24 Where appropriate, the manufacturer's recommendations for inspection and maintenance must be included along with relevant product literature.

Surface and Protective Treatments

4.25 Surface and protective treatment records must include, as a minimum, details of the product (product data sheet), name and address of the manufacturer/supplier and application contractor, the date of application, number of coats and life expectancy before re-coating. The area of the structure and/or components treated must be shown on the General Arrangement drawings.

4.26 Records must be provided for:

a. Paint – including a copy of the contract specification and details of any site trials, for example, paint system sheets and paint data sheets.

b. Concrete impregnation.

c. Concrete surface coatings.

d. Corrosion prevention system, e.g. inhibitors, sacrificial anodes, embedded parts, control boxes etc.

Certification and Tests

4.27 Certificates and test records must be provided for materials, components and treatments. These must include, where appropriate, but not be restricted to:

a. Compliance certificates, e.g. BS EN 1317 for parapets. Compliance test certificates must be provided for mechanical, electrical and hydraulic equipment.

b. Load test results, e.g. on precast beams, piles, bearings etc.

c. Mill certificates.

d. Cement analyses.

e. Cube test results related to position on the General Arrangement drawings.

f. Sulphate content in the mix.

g. Chloride content in the mix.

h. Alkali-aggregate reactivity/sodium oxide equivalent content in mix.

i. Analysis of fresh concrete, e.g. slump test and Concrete Fresh Analysis.

j. Air entrainment.

k. Silane tests.

l. Test results on fill adjacent to structure.

m. Ground investigation – Geotechnical Report Highway Structure Summary Information Form C required by BD 2.

n. Other relevant certificates, including, British Board of Agrément (BBA) and Highways Authorities Product Approval Scheme (HAPAS).

4.28 Where relevant, the above list should be extended to cover all tests and certificates required by the design/construction specification and deemed worthy of capture under CDM.

Operation

4.29 An operating manual and log book must be provided where appropriate for mechanical or electrical plant and equipment, for example, moveable bridges.

4.30 The manual must provide details of the day-to-day running of the equipment including where appropriate, but not be restricted to, operating procedures (user instructions), energy management and routine maintenance schedule (see paragraphs 4.38 to 4.41).

4.31 The log book must record activities including where appropriate, but not restricted to, times and dates of operation and name/ID of staff, time and dates of routine maintenance and name/ ID of staff.

Access

4.32 Records must provide details of any particular access arrangements. This must include, but not be restricted to, details/drawings of access to the site (including walkways, ladders and manholes), details of key holders or permits, and details of security to prevent unauthorised access. Details of procedures to obtain approval to enter including notice to landowners/interested parties must also be provided.

Inspection

New Structures, Reconstructions and Modifications

4.33 Acceptance Inspections must be carried out in accordance with BD 63 and the corresponding records provided, including details of any Special Inspection and/or monitoring requirements.

4.34 Chapter 5 provides a checklist of the records required for new structures, reconstructions and modifications. The Acceptance Inspection should be used to check that these records have been provided.

Existing Structures

4.35 Inspection schedules and records must be provided in accordance with BD 63 (DMRB 3.1.4) – Inspection of Highway Structures.

4.36 Condition information from previous inspections should be retained as the change of condition over time gives an indication of the rate of deterioration and, in some cases, remaining service life. This information can be used to inform lifecycle maintenance planning.

Maintenance

4.37 Where appropriate, the aforementioned records (paragraphs 4.9 through 4.36) must be reviewed and updated following maintenance work.

Routine Maintenance Schedule

4.38 Routine maintenance comprises tasks, generally undertaken on a 12 monthly basis, such as:

- removing graffiti;
- removing undesirable vegetation, e.g. that blocks drainage, may cause structural damage or restricts access;
- removing debris, bird droppings and other detritus that blocks drainage and promotes corrosion or other deterioration;
- clearing and ensuring correct operation of drain holes, drainage channels and drainage systems;
- repairing gap sealant to movement joints;
- checking operation of flap valves and greasing where required;
- checking and tightening where necessary any loose nuts and bolts to expansion joints, parapet supports and gantry holding down assemblies. Replacing nuts and bolts where appropriate;
- replacing expansion joint gaskets where this is a specific requirement defined for the structure/ component;

- removing general dirt and debris from bearings. Where appropriate, cleaning sliding and roller surfaces if accessible and re-greasing. Following any additional advice contained in the bearing manufacturer's instructions;
- ensuring free flow of water through culverts;
- ensuring correct operation of ancillary equipment (e.g. drainage pumps and associated sumps and pipework) and maintaining certification of lifting devices;
- checking (and rectifying where necessary) seating of drainage gratings or covers, replacing any missing or defective items;
- checking, cleaning and replacing pedestrian security measures (e.g. mirrors, handrails, non-slip surfaces);
- checking for scour damage around training works;
- checking holding down assemblies;
- repairing superficial defects in surface protection systems;
- ensuring special finishes are clean and perform to the appropriate standards.

4.39 Whilst many of these tasks are fairly minor in themselves, failure to carry them out may lead to deterioration of the structure and the need for more costly repair operations in the future. The Overseeing Organisations consider routine maintenance to be cost effective in whole life terms.

4.40 All structures, or groups of similar minor structures, must have a routine maintenance schedule consisting of cycle maintenance activities:

- **New structures, reconstructions and modifications** – Designers must identify and provide details of those items of routine maintenance which are appropriate for new structures, reconstructions and modifications. The Agent must use this information to prepare a schedule of routine maintenance activities, prior to or immediately following handover, which are appropriate for the structure/modification. This must include a review and, where appropriate, update of the routine maintenance schedule for the whole structure in the case of modifications. The schedule must be agreed with the Overseeing Organisation.
- **Existing structures** – if a routine maintenance schedule does not exist for a structure, then the Agent must identify those items of routine maintenance which are appropriate for the structure and prepare a schedule of activities. The schedule must be prepared during the next inspection. The schedule must be agreed with the Overseeing Organisation.

4.41 Routine maintenance schedules must be maintained by the Agent and updated, if necessary, in the light of new information and/or experience gained from maintaining the structure.

Design Features Affecting Maintenance

4.42 During design, construction, re-construction and modification (and their different phases), details of features which could have possible implications for future maintenance must be provided.

4.43 Any special maintenance requirements which have been assumed in the conception, design and construction must be recorded including specific maintenance needs. Full information on the actions required and the frequency of these actions must be provided, e.g. a Method Statement for maintenance work on structural significant details with difficult access, life expectancy of components such as joints and bearings.

4.44 The Designer must provide details on design/construction issues and/or structure characteristics where these may influence future assessment.

4.45 These may include design live loading, construction sequence and construction joint positions.

Ongoing Management of Existing structures

4.46 In general, maintenance records should be held that provide a full view of the maintenance cycle, including, but not restricted to:

a. List of maintenance needs – records should include details of the maintenance needs that have been identified, e.g. action required, quantity of work, estimated cost of works, date identified and recommended action date. Records should also indicate how the need was identified e.g. inspection, assessment, lifecycle maintenance plan.

b. Needs assessment – records should include the priority/importance of doing the work. Records should also describe how the needs are assessed, e.g. Risk and Value Management assessments and/or workshops.

c. Scheme/project development – records should provide details of the schemes/projects that have been developed around the maintenance needs, e.g. combining maintenance needs to make better use of resources. Where relevant, this should include the AIP or equivalent documentation, see paragraph 4.13. The records should provide a clear link between the maintenance needs and the subsequent scheme/project.

d. Work tracking and completion – records should include details of progress (against agreed milestones) and completion details, e.g. completion date, work acceptance and any problems encountered. Where appropriate, records should also be updated.

e. Lifecycle maintenance plan – where required by the Overseeing Organisation an optimised lifecycle maintenance plan, based on the expected future (60 years) maintenance needs, should be provided for each structure. The plan should take account of how the structure behaves and deteriorates, the life expectancy of materials, treatments and components, the required condition/performance, and optimised whole life costs. The assumptions and procedures used to develop the plan should be recorded.

4.47 Maintenance records should be retained as the details on maintenance needs, intervention frequencies and service lives can be used to inform maintenance planning.

Structural Assessment and Load Management

4.48 Also refer to BD 21, BD 48, BD 60, BD 79 and BD 86 and other relevant guidance for information and records relating to structural assessment and load management. In general, these include the following information, where appropriate, for each structure:

a. Date of last Structural Review and reason for review.

b. Outcome of Structural Review.

c. Date of next scheduled Structural Review.

d. Date of last structural assessment and reason for assessment.

e. AIP (see paragraph 4.13) for original structure (if the record exists) or equivalent, modifications/ major maintenance and assessments.

f. Code/standard/procedure used for assessment (or reason for exclusion from the assessment programme).

g. Assessor and checker.

h. The vehicle (loading) requirements for the structure, derived from the route requirements, e.g. 40 tonne, abnormal loading.

i. Critical assessment component.

j. Assessed capacity and/or live load capacity rating.

k. Structural Adequacy Factor (SAF), which is the ratio of Assessment Resistance (RA*) to the Assessment Load effects (SA*), i.e. SAF = RA*/ SA*.

l. Vehicle Ratings and Reserve Factors (see BD 86).

m. Assessment Inspection report.

n. Assessment report including details of the assessment assumptions and methodology.

o. Current loading restriction and interim measures.

p. Details of any interim measures currently in place, e.g. physical restrictions, signs, propping, etc.

q. Information to support the recommended regime for managing abnormal loads.

Legal

4.49 Records must be held of any contracts, licences, legal agreements etc. that influence management of a structure. For example, agreements or easements with landowners, railway authorities, local authorities and statutory undertakers.

Environmental

4.50 It is important that full account is taken of environmental issues during the design, operation and maintenance of highway structures. Relevant information should be held or cross referenced in the structure records, for example, environmental statement, Environmental Impact Assessment (EIA) and Sites of Special Scientific Interest (SSSI).

Supplementary Records

4.51 The records described by this Standard may not be sufficient for effective management in all circumstances. Where this is the case, supplementary records should be compiled.

4.52 Agents must agree any additional costs associated with supplementary records with the Overseeing Organisation prior to undertaking the work.

5. SUMMARY OF RECORDS

5.1 Table 3 summarises the records required for highway structures, and distinguishes between those required for new and existing structures. The terminology used in Table 3 is:

a. Provide – original records that must be created and provided.

b. Maintain – records that should be retained for the structure and are likely to require regular/ periodic reviewing, maintenance and updating throughout the structure's life in order to reflect changes. Superseded records should be retained in order to provide a full history for the structure but should be clearly marked as superseded.

c. Hold – records that should be retained for the structure but are unlikely to require regular/ periodic updating, but on occasion may require reviewing and updating. Superseded records should be retained in order to provide a full history for the structure but should be clearly marked as superseded.

d. N/A – not applicable.

5.2 Table 2 gives details of the parties that are responsible for providing records for new structures and providing and maintaining records for existing structures.

Table 3 Summary of Records

1. Record	2. Includes	3. Ref	4. New Structure	5. Existing Structure
Inventory	General inventory details	4.9	Provide	Maintain
	Structure type details	4.9	Provide	Maintain
	Structure summary	4.9	Provide	Maintain
Drawings	Location Plan (and/or Strip Map)	4.11	Provide	Hold
	General Arrangement drawings	4.11	Provide	Hold
	As-built drawings	4.11	Provide	Hold
Design	Approval in Principle or equivalent	4.13	Provide	Hold
	Design and check certificates	4.13	Provide	Hold
	Construction compliance certificates	4.13	Provide	Hold
	Key correspondence	4.13	Provide	Hold
	Design drawings	4.13	Provide	Hold
	Design option choice	4.13	Provide	Hold
Construction and Demolition	Special construction techniques	4.16	Provide	Hold
	Special demolition techniques	4.16	Provide	Hold
	Construction problems and repercussions	4.16	Provide	Hold
Materials, Components and Treatments	Materials	4.21	Provide	Maintain
	Components	4.22	Provide	Maintain
	Surface and protective treatments	4.25	Provide	Maintain
Certification and Tests		4.27	Provide	Hold
Operation	Operation Manual	4.29	Provide	Maintain
	Log book	4.29	Provide	Maintain
	Access	4.32	Provide	Maintain
Inspection	Acceptance Inspection (see Note 1)	4.33	Provide	Hold
	Inspection schedule	4.35	N/A	Provide/maintain
	Inspection records	4.35	N/A	Provide/Maintain
Maintenance (see Note 2)	Routine maintenance schedule	4.38	Provide	Maintain
	Design features affecting maintenance	4.42	Provide	Maintain
	Maintenance cycle	4.46	N/A	Provide/maintain
	Lifecycle maintenance plans	4.46	N/A	Provide/maintain
Assessment and Load Management	Assessments and review	4.48	N/A	Provide/maintain
	Load Management	4.48	N/A	Provide/maintain
Legal		4.49	Provide	Maintain
Environmental		4.50	Provide	Maintain
Supplementary records		4.51	Provide	Maintain

Notes for Table 3

1. BD 63 provides details of when an existing structure requires an Acceptance Inspection.

2. The party overseeing the maintenance or modification should update the necessary records.

6. REFERENCES

Design Manual for Roads and Bridges

BD 2 Technical Approval of Highway Structures (DMRB 1.1.1)

BD 21 The Assessment of Highway Bridges (DMRB 3.4.3)

BD 48 The Assessment and Strengthening of Highway Bridge Supports (DMRB 3.4.7)

BD 53 Inspection and Records for Road Tunnels (DMRB 3.1.6)

BD 60 Design of Highway Bridges for Vehicle Collision Loads (DMRB 1.3.5)

BD 63 Inspection of Highway Structures (DMRB 3.1.4)

BD 79 The Management of Sub-standard Highway Structures (DMRB 3.4.18)

BD 86 The Assessment of Highway Bridges and Structures for the Effects of Special Types General Order (STGO) and Special Order (SO) Vehicles (DMRB 3.4.19)

HD 34 Implementation and Use of the Standards Improvement System (DMRB 5.3.1)

MCHW

SD 11 Construction (Design and Management) Regulations 1994: Requirements for Health and Safety File (MCHW 6.1.2)

Other Publications

Control of Substances Hazardous to Health (COSHH) Regulations 2002

Construction (Design and Management) Regulations 1994: The Health and Safety File

7. ENQUIRIES

All technical enquiries or comments on this Standard should be sent in writing as appropriate to:

Chief Highway Engineer
The Highways Agency
123 Buckingham Palace Road
London
SW1W 9HA

G CLARKE
Chief Highway Engineer

Chief Road Engineer
Transport Scotland
Trunk Roads and Professional Services
8th Floor, Buchanan House
58 Port Dundas Road
Glasgow
G4 0HF

J HOWISON
Chief Road Engineer

Chief Highway Engineer
Transport Wales
Welsh Assembly Government
Cathays Parks
Cardiff
CF10 3NQ

M J A PARKER
Chief Highway Engineer
Transport Wales

Director of Engineering (Acting)
The Department for Regional Development
Roads Service
Clarence Court
10-18 Adelaide Street
Belfast BT2 8GB

R J M CAIRNS
Director of Engineering (Acting)

ANNEX A SPECIAL REQUIREMENTS: ENGLAND

General

A.1 Compliance with this Annex is deemed by the Highways Agency to represent compliance with the requirements of BD 62/07. The requirements of this Annex supersede those in IAN 38/02, IAN 45/02, IAN 62/05 and IAN 67/05, which are withdrawn.

A.2 Requirements for Agents are set out in the Highways Agency's Network Management Manual (NMM) Part 2, under "Records and Inspection of Highway Structures". Agents must comply with the NMM in the provision of records and inspections.

A.3 Records for new build, modifications and renewals works to trunk road highway structures in England must be supplied by the organisation responsible for the design of the works (the Designer), in accordance with the requirements of this Annex and taking account of SMIS online User Guidance. Such information supplied in accordance with this Standard is regarded as part of the Health & Safety (H&S) File required by SD 11/05 (MCHW 6.1.2) and the Designer must ensure that the H&S File is cross referenced as necessary to SMIS as the prime source of such information.

A.4 The review and acceptance from the Designer of SMIS data for new build, modifications and renewal works, together with the upkeep of SMIS Structure Files and operational records, is the responsibility of the Agent having/ taking responsibility for maintenance of the structure, who must ensure SMIS is populated correctly.

A.5 The Designer must provide appropriate information within the relevant timescales set out in this Annex.

Scope

A.6 The scope of highway structures for which records must be supplied is shown in Table 4.

Table 4 Scope of highway structures covered by BD 62

Structure Type (HA owned) (1)		SMIS Structure Type	Structures for which records are required
Bridge, buried structure, subway underpass, culvert and any other similar structure		Bridge and Large Culvert	Bridges and buried structures, including pedestrian subways or accommodation underpasses, and culverts, of single span 3m or greater
			Multicell culverts of cumulative span 5m or greater
			Bridges of span less than 3.0m but greater than 1.8m (2)
		Small Span Structure	Bridges of span less than 3.0m but greater than 1.8m (2)
			All culverts and buried structures of span less than 3m but greater than 1.8m
			Bridges and buried structures between 0.9m and 1.8m
			Corrugated metal culverts of span 0.9m or greater
Earth retaining structure		Retaining Wall	(3)
Reinforced/strengthened soil/fill structure with hard facings		Retaining Wall	(3)
Sign and/or signal gantry (cantilever and portal)		Sign/Signal Gantry	(3)
Mast	Cantilever mast for traffic signal	Sign/Signal Gantry	(3)
	High mast for lighting	Mast, or Mast Scheme	(3)
	Mast for camera, radio, speed camera and telecommunication transmission equipment	Mast	(3)
	Catenary lighting support systems	Mast Scheme	(3)
	Highway signs and posts	Not required on SMIS	Not applicable to SMIS
Access gantry		As a component of Bridge and Large Culvert	
Tunnels		Tunnel	(3)
Other structures		Service Crossings and Other Structures	Structures providing service only crossings either above or below the carriageway
		Service Crossings and Other Structures	Others not in this table but needing structural technical approval

Notes for Table 4:

1. For requirements for Designers involvement in third party owned highway structures see A12. For Agents involvement in third party structures see NMM 2.12.

2. Bridges 1.8m to 3.0m may be classed as either “Bridge and Large Culvert” or “Small Span Structure”, depending on information need. See flow chart in SMIS User Guidance Volume 2, or contact SMIS Administrator.

3. Scope as detailed in BD 62/07 Table 1.

Type of Records to be Supplied

A.7 The types of structure information to be supplied in accordance with paragraphs A.3 and A.4 are described in Chapter 4 of this Standard and are maintained within the relevant branch of the SMIS hierarchy by the Agent as detailed in the table in SMIS User Guidance Volume 1 under "BD 62 requirements". Information is initially supplied by the Designer as a combination of uploaded document files, and data keyed into relevant on-screen data fields.

A.8 The Designer must provide the Structure File records, in accordance with User Guidance Volume 2 "Electronic Submission of Documentation", in electronic record format, and where available also in native format. Supply in native format only is not acceptable. The SMIS Administrator can be contacted for advice.

A.9 The Designer must provide all required keyed-in data for the structure directly into SMIS by applying to the SMIS Administrator for online access, and working with the Agent taking/having responsibility for maintenance of the structure. The SMIS "Guide for Structure Designers" is available in the Manuals section of SMIS, or from the SMIS administrator.

A.10 The Designer must liaise with the Agent to establish an acceptable referencing system for the structure for SMIS inventory purposes.

A.11 Where bridge and culvert structures are modified to cater for road widening, the new construction must be supplied and input as part of the existing structure.

Timescales for records input to SMIS

A.12 For new build, modifications and renewals, Designers must submit the required inventory details and Structure File records to the relevant party within the timescales stated below:

- An Early Notification spreadsheet for each new structure, at the time of submission of the Approval In Principle form for the structure, sent to relevant Highways Agency Technical Approval contact.
- The structure inventory data, at least one month before the planned Pre Opening Inspection, POI (refer to BD 63), directly into SMIS.
- Structure File documents for the completed works, no later than three months from the opening (or re-opening) of the structure to traffic, directly into SMIS or to the SMIS Administrator.

Supply of Structure Records for Structures not to be Maintained by the Agent

A.13 Where a new structure has been constructed under an HA contract, but ownership is to be transferred to a third party, data and documentation must be supplied by the Designer as if the structure was to be maintained by the Agent.

A.14 The HA officer responsible for the transfer must arrange for the issue to the new Owner of any SMIS records, in particular as required by Construction (Design and Management) Regulations.

A.15 On request, the SMIS Administrator can supply a Structure Report to the responsible HA officer as a summary record of the SMIS inventory for the structure.

A.16 The HA officer must notify the SMIS Administrator of the date of the change of ownership of the structure not later than one week after the transfer.

Contacts

A.17 The SMIS Administrator can be contacted on smis@highways.gsi.gov.uk

A.18 Contact details for the relevant local HSE office can be obtained from the HSE website http://www.hse.gov.uk

ANNEX B SPECIAL REQUIREMENTS: SCOTLAND

General

B.1 As Built Records are a necessary requirement for the successful inspection and maintenance of road structures throughout their lives and the Engineer for each trunk road scheme should ensure that the As Built Records are carefully completed. The provision of adequate records of the works may make future investigations into their construction unnecessary. These records of the works should be prepared by site staff during the course of construction.

B.2 A set of As Built Records for each trunk road structure, as defined in this Annex, must be submitted to the Overseeing Organisation at the address below, prior to the issue of the Substantial Completion Certificate. The As Built Records of any subsequent changes must be submitted following acceptance of the work.

Bridges Section
Trunk Road Network Management Division
Transport Scotland
Buchanan House
58 Port Dundas Road
Glasgow, G4 0HF

Tel: 0141 272 7100
e-mail: www.transportscotland.gov.uk

B.3 Bridges Section will record As Built Records received in the trunk road bridges database and will issue copies to the appropriate Agent for retention by their bridges maintenance personnel. Where the Agent is responsible for the submission of the As Built Records then only one set should be submitted to the Overseeing Organisation together with confirmation that the other set is being retained by the Agent on the bridge record file.

Definition

B.4 **Engineer** – the person responsible for the supervision of the works.

Scope

B.5 This Standard and this Annex apply to the structures described in Table 1.

As-Built Records

B.6 As Built Records for each highway structure must consist of the following:

a. Two full sets of As Built Drawings on good quality A2 size paper (each marked "As Built Drawing" in red). These should be accompanied by a list of all drawings submitted.

b. Two Compact Disc (or other agreed electronic transfer device) containing copies of all As Built Drawings relating to individual structures, drawings to be in pdf or other agreed format e.g. tif. The structure name and reference number should be recorded on each Compact Disc together with the Drawing Numbers and Titles.

c. Two paper and two electronic (stored on compact discs or other agreed alternative) copies of the Structure Manual (for each structure or group of minor structures). The Manual should be suitably indexed for ease of use.

d. Two Colour Prints of Photograph(s) (Completed Structure) – not less than 150mm x 100mm. The photographs should also be submitted electronically on the Compact Discs.

e. One set of database input sheets As Built for the trunk road bridges database (please refer to the Trunk Road Bridges Database As Built Records Guide).

f. Each set of As Built Drawings must include a General Arrangement drawing showing the extent of concrete impregnation carried out and marked up with the following information:

i. Date of impregnation.

ii. Type of product (including specification).

iii. Manufacturer.

iv. Application contractor.

Structure Manual

B.7 For each structure or for a group of minor structures of similar design (e.g. culverts, sign gantries), the Designer must prepare an individual Manual of information from the design and construction phases which could have possible implications for future maintenance. This will be complementary to the As Built drawings.

B.8 The contents of this manual must comply with the requirements set down in Chapter 4 of this Standard. The forms to use for materials and components, and examples of the information to be included, are provided in Annex E.

ANNEX C SPECIAL REQUIREMENTS: WALES

General

C.1 As Built Records are a necessary requirement for the successful inspection and maintenance of road structures throughout their lives and the Engineer for each trunk road scheme should ensure that the As Built Records are carefully completed. The provision of adequate records of the works may make future investigations into their construction unnecessary. These records of the works should be prepared by site staff during the course of construction.

C.2 A set of As Built Records for trunk road structures, as defined in this Annex, must be submitted to the Overseeing Organisation at the address below, within three months from the date of issue of the Substantial Completion Certificate.

Chief Bridge Engineer
Transport Wales
Welsh Assembly Government
Cathays Park
Cardiff, CF10 3NQ

C.3 Transport Wales will record As-Built Records received in the trunk road bridges database and will issue copies to the appropriate Agent for retention by their bridges maintenance personnel. Where the Agent is responsible for the submission of the As Built Records then only one set should be submitted to the Overseeing Organisation together with confirmation that the other set is being retained by the Agent on the bridge record file.

C.4 Transport Wales maintain an Advice Note: Transport Wales Supplement to BD 62/07 and BD 63/07 that compliments this Standard. Agents, Designers, Contractors must follow the requirements set down in this Advice Note and check they are working to the latest version of the Advice Note. These requirements are in addition to those contained in the main body (Chapters 1 to 5) of this Standard and this annex.

Scope

C.5 This Standard and this Annex apply to the structures described in Table 1.

As-Built Records

C.6 As Built Records for each highway structure must consist of the following:

a. Two full sets of As Built Drawings on good quality A1 size paper (each marked “As Built Drawing” in red). These should be accompanied by a list of all drawings submitted.

b. Two Compact Disc (or other agreed electronic transfer device) copies of all As Built Drawings relating to individual structures, drawings to be in .pdf format. The structure name and structure reference number should be recorded on each Compact Disc. Each Compact Disc must have a searchable electronic index of Drawing Numbers and Titles.

c. Two paper and two electronic copies of the Structural Manual (for each structure or group of minor structures). The electronic copies are to be on Compact Disc and be in .pdf format. The structure name and structure reference number should be recorded on each Compact Disc. Each Compact Disc must have a searchable electronic index of contents.

d. Two Prints of Photograph(s) (Completed Structure.) Colour Prints – not less than 150mm x 100mm. The photographs must also be submitted electronically on Compact Disc in .jpg format. The structure name and structure reference number should be recorded on each Compact Disc. Each Compact Disc must have a searchable electronic index of contents.

e. One set of Trunk Road Bridge Database Sheets for the trunk road bridges database system (refer to the Advice Note).

f. Two paper copies of Form ROADS 277 (refer to the Advice Note).

g. Two copies of General Arrangement drawings, showing the extent of silane impregnation carried out and marked up with the following information:

   i. Date of impregnation.

   ii. Type of product (including specification).

   iii. Manufacturer.

   iv. Application contractor.

Structure Manual

C.7 For each structure or for a group of minor structures of similar design (e.g. culverts, sign gantries), the Designer must prepare an individual Manual of information from the design and construction phases which could have possible implications for future maintenance. This will be complementary to the As Built drawings.

C.8 The contents of this manual must comply with the requirements set down in Chapter 4 of this Standard. The forms to use for materials and components, and examples of the information to be included, are provided in Annex E.

ANNEX D SPECIAL REQUIREMENTS: NORTHERN IRELAND

General

D.1 In Northern Ireland MCHW document SD 11 is not applicable. The Overseeing Organisation applies the principles of the CDM Approved Code of Practice. The Designer must determine which, if any, of the records listed in paragraph 4.1 need to be put into or be referenced in the H&S File.

D.2 A set of As Built Records for road structures, as defined in this Annex, must be submitted to the appropriate Roads Service Divisional Office within six months from the date of issue of the Maintenance Certificate:

D.3 Structures Section within the appropriate Roads Service Divisional Office will record As Built Records received in the Roads Service Bridge Management System (RSBMS) and will issue copies to the appropriate Agent for retention by their bridges maintenance personnel.

Scope

D.4 This Standard and this Annex apply to the structures described in Table 1 and any amplification to this table, specific to Northern Ireland, contained in BD 2.

As-Built Records

D.5 As Built Records for each highway structure must consist of the following:

a. Two full sets of A2 size As Built Drawings on good quality paper (each marked "As Built Drawing" in red). These should be accompanied by a list of all drawings submitted.

b. Two Compact Disc copies of all drawings relating to individual structures, drawings to be AutoCad and saved in *.dwg format. The structure name and structure reference number should be recorded on each Compact Disc together with the Drawing Nos.

c. Two paper copies and an electronic copy (stored on Compact Disc) of the Structural Manual (for each structure or group of minor structures).

d. Two Prints of Photograph(s) (Completed Structure) plus electronic copy stored on Compact Disc. Colour Prints – not less than 150mm x 100mm.

e. One set of database input sheets As-Built for the Roads Service Bridge Management System (RSBMS), the latest versions of these sheets can be obtained from the Overseeing Organisation.

f. Two copies of GA drawings, showing the extent of silane impregnation carried out and marked up with the following information:

   i. Date of impregnation.

   ii. Type of product (including specification).

   iii. Manufacturer.

   iv. Application contractor.

Structure Manual

D.6 For each structure or for a group of minor structures of similar design (e.g. culverts, sign gantries), the Designer must prepare an individual Structure Manual of information from the design and construction phases which could have possible implications for future maintenance. This will be complementary to the As-Built drawings.

D.7 The contents of this manual must comply with the requirements set down in Chapter 4 of this Standard. The forms to use for materials and components, and examples of the information to be included, are provided in Annex E.

ANNEX E EXAMPLES

General

E.1 This Annex provides examples of forms that may be used to record information that will assist the ongoing management of a structure. The examples provided are:

- Example 1: Materials Information Sheet – may be used for materials such as concrete (insitu or precast), cement for concrete, coarse and fine aggregates for concrete, reinforcement, granular backfill, etc.
- Example 2: Components and Products: Joints Information Sheet – where each row on the sheet should relate to a joint in a specific position on the bridge, for example, Deck/North Abutment Joint, Deck Joint over pier etc.
- Example 3: Components and Products: Parapets Information Sheet – may be used to provide details of each parapet type.
- Example 4: Components and Products: Bridge Bearings Information Sheet – where each row on the sheet may relate to a specific bearing type.
- Example 5: Components and Products: Waterproofing Information Sheet.
- Example 6: Components and Products: Miscellaneous Information Sheet – may be used to record information about components such as prestressed concrete beams, gratings and frames, etc.
- Example 7: Protection of Steelwork: Contract Specification 1900 – may be used to provide details of:
  - Environment – the exposure conditions, e.g. road salts and grit.
  - Required Durability of System – the expected timing and type of maintenance, e.g. minor and major after x_1 and x_2 years respectively.
  - Paint System – the specification for preparation, coating, thickness etc.
  - Special Considerations – any special considerations for this paint system, area of application etc.
  - Variations and Minimum Requirements – any permitted variations and minimum requirements or tolerances.
  - Fixings – treatment of any fixings, e.g. bolts and nuts.
  - Other – other information relevant to this paint system.
- Example 8: Notes for Inspection and Maintenance – example text is provided.

E.2 These examples are provided as guidance and Agents may wish to tailor them to reflect their specific management needs.

Example 1: Materials Information Sheet

MATERIALS INFORMATION SHEET

Scheme name			
Sructure name(s)			
Structure ref no(s)			
Main Contractor			
Material (enter all materials used)	**Supplier's Name and Address**	**Source Name and Address**	**Element and/or location on structure**

Example 2: Components and Products – Joints Information Sheet

JOINTS INFORMATION SHEET

Scheme name			
Structure name(s)			
Structure ref no(s)			
Joint Location	**1. Relevant Drawing No's** **2. Contract Reference No**	**Joint Type**	**Manufacturer's Name and Address**
	1.		
	2.		
	1.		
	2.		
	1.		
	2.		
	1.		
	2.		
	1.		
	2.		
	1.		
	2.		

Example 3: Components and Products – Parapets Information Sheet

PARAPETS INFORMATION SHEET

Scheme name			
Structure name(s)			
Structure ref no(s)			
Parapet Type	**Fabricator and Erector's Name and Address**	**1. Relevant Drawing No's** **2. Contract Reference No**	**Manufacturer's Name and Address**
		1. 2.	
		1. 2.	
		1. 2.	
		1. 2.	
		1. 2.	

Example 4: Components and Products – Bridge Bearings Information Sheet

BRIDGE BEARINGS INFORMATION SHEET

Scheme name			
Structure name(s)			
Structure ref no(s)			
Bearing Types	**1. Relevant Drawing No's** **2. Contract Reference No**	**Manufacturer's Reference Number**	**Manufacturer's Name and Address**
	1.		
	2.		
	1.		
	2.		
	1.		
	2.		
	1.		
	2.		
	1.		
	2.		

Example 5: Components and Products – Waterproofing Information Sheet

WATERPROOFING INFORMATION SHEET

Scheme name		
Structure name(s)		
Structure ref no(s)		
Component/Product/Material (enter all components/ products/materials used)	**Installer Name and Address**	**Manufacturer/Supplier/Source Name and Address**

Example 6: Components and Products – Miscellaneous Information Sheet

MISCELLANEOUS INFORMATION SHEET

Scheme name			
Structure name(s)			
Structure ref no(s)			
Component/Product/Material (enter all components/ products/materials used)	**Manufacturer/Supplier/Source Name and Address**	**Relevant Drawing No's**	**Location on Structure**

Example 7: Protection of Steelwork – Contract Specification 1900

INFORMATION SHEET: PROTECTION OF STEELWORK AGAINST CORROSION

Scheme name	
Structure name(s)	
Structure ref no(s)	
Standard Ref	
1. Environment	
2. Required durability of systems	
3. Paint System	
4. Special considerations	
5. Variations and minimum requirements	
6. Fixings	
7.	
8.	

Example 8: Notes for Inspection and Maintenance

INFORMATION SHEET: NOTES FOR INSPECTION AND MAINTENANCE

Structure name(s)	
Structure ref no(s)	
Central Pier Base	Excavation to founding level revealed some small fissures in the underlying sandstone. These were cleaned out, inspected and grouted up prior to construction of the base slab. Further details are given in the report, sketch and correspondence following these notes.
Drainage	Bearing shelf drainage at abutments and centre pier should be inspected and cleared as necessary. The outlet pipes should be inspected and rodded. Gullies at base of abutments should be inspected and cleared as necessary. The rear face drainage layer outfalls by underground pipe to manholes. These outlets should be inspected to ensure they are functioning correctly. Any significant accumulations of silt and debris on the bearing shelf or in the drainage system should be noted and investigated.
Waterproofing	The bridge deck east service bay has a waterproof membrane of mastic asphalt. The west service bay invert is waterproofed with Conidec. Any defects in the deck surfacing should be investigated to assess possible damage to the waterproofing. The service bay cover slabs are covered by Bituthene and Bitushield. Deck waterproofing must remain intact for the reinforcement in the deck slab to be protected as required.
Joints	Sealants to expansion and movement joints should be checked for deterioration. The epoxy mortar transition strips should be checked for debonding or cracking. Holding down bolts to cover plates should be checked for tightness.
Bearings	Guides and dowels and rubber pot bearings should be inspected to ensure they are functioning correctly and to note any failure or excessive wear of moving elements. Metal sections of bearings, guides and dowels should be checked for corrosion and painted as necessary. Rubber bearings should be inspected to ensure that the rubber protection to the steel laminations has not cracked or debonded. The condition of the bearing seating material should also be checked. Holding-down bolts should be checked for tightness and any welds checked for cracking.
Alkali-Aggregate Reactivity	During the construction contract period the Overseeing Organisation issued additional substitute specification clauses to cover potential alkali-aggregate problems. The Test House (give name) carried out an assessment of the aggregates and concrete with particular reference to concrete mix details and cement contents. Calculations using the figures given in the Test House (give name) report with information from cement provided (give name) gave total alkali contents for the Class 45/20 concrete marginally above the 3.0 kg/m^3 maximum recommended. Cement with a lower alkali content was used for the parapet edge beams. For the other mixes calculations gave total alkali contents less than 3.0 kg/m3. Further details are included in the appendix on Alkali-Aggregate Reactivity.
Services and service bays	The services carried on the deck are indicated on the drawings. Particular attention should be paid to the pipe bays to ensure they are properly drained and that services are not leaking. It should be noted that the pipe bays are not designed to carry backfill. Vent pipes with flame traps lead from each service bay, to prevent pressure build up in the event of a mains failure.
Etc.	