



**THE HIGHWAYS AGENCY**

**BD 53/95**



**THE SCOTTISH OFFICE DEVELOPMENT DEPARTMENT**



**THE WELSH OFFICE  
Y SWYDDFA GYMREIG**



**THE DEPARTMENT OF THE ENVIRONMENT  
FOR NORTHERN IRELAND**

# **Inspection and Records for Road Tunnels**

**Summary:** This standard describes the procedures to be carried out for the inspection and recording of the reported condition of road tunnels located within Motorways and other Trunk Roads.

**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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**VOLUME 3      HIGHWAY  
STRUCTURES:  
INSPECTION AND  
MAINTENANCE  
SECTION 1      INSPECTION**

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**PART 6**

**BD 53/95**

**INSPECTION AND RECORDS FOR  
ROAD TUNNELS**

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# 1. GENERAL

1.1 This Standard describes the procedures to be carried out for the inspection and recording of the reported condition of road tunnels located within Motorways and other Trunk Roads. Reporting requirements also include for the recording of traffic incidents; information concerning tunnel maintenance and operational feedback.

1.2 The procedures cover structure, services buildings, plant rooms, mechanical and electrical equipment, and all monitoring and control systems associated with the functioning of a tunnel.

1.3 For the purposes of this Standard a road tunnel is defined to be an enclosed length of 150 metres or more.

1.4 This Standard is consistent with, and requires to be read in conjunction with, the following two Standards and Advice Note which describe general requirements for inspection, maintenance, operation and the recording methodology for highway structures:

- i. BD 62(DMRB 3.2.1) - As Built, Operational and Maintenance Records for Highway Structures
- ii. BD 63(DMRB 3.1.4) - Inspection of Highway Structures
- iii. BA 63(DMRB 3.1.5) - Inspection of Highway Structures.

1.5 The required procedures are generally overseen by a Maintaining Agent (MA) in conjunction with the Overseeing Organisation (OO) acting on behalf of the respective Highway Authorities of Central Government for England, Scotland, Wales and Northern Ireland. [In Northern Ireland the term Maintaining Agent shall be replaced by Roads Service Divisional Office.]

1.6 The Tunnel Operating Authority (TOA) is defined as the agency, or combination of agencies, set up and supervised by the MA with the prior approval of the OO. The TOA is responsible for the day to day maintenance, management and operation of a road tunnel. It is responsible for undertaking inspections and providing records within the scope of this standard.

## UK Application by Overseeing Organisation

1.7 Specific inspection requirements for the Overseeing Organisations of England, Scotland, Wales and Northern Ireland are given, where appropriate, in the text and Appendix C.

## Implementation

1.8 This Standard shall be used forthwith for the inspection and reporting requirements of road tunnels. The programme of inspections shall be agreed between the MA and OO.

## 2. SCOPE

2.1 Inspections, records and operational feedback requirements for road tunnels are listed below:

### **Tunnel Structure**

2.2 All parts of the tunnel structure including:

- i. Structural lining, cladding and panels, walls, roofs, floors, doorways and portals
- ii. Service buildings and plant rooms
- iii. Ventilation shafts.

### **Tunnel Mechanical and Electrical (M&E) Equipment**

2.3 All equipment and systems associated with plant monitoring and control, traffic, communications and safety including:

- i. Ventilation
- ii. Lighting
- iii. Drainage and pumping
- iv. Fire safety and emergency response systems and alarms
- v. Communication and traffic control systems, including remote controls and closures
- vi. Tunnel operation and plant control systems
- vii. Power supply and distribution
- viii. Service buildings and plant rooms.

### **Operational Feedback**

2.4 The TOA shall maintain a record of all incidents, accidents, maintenance, closures and associated expenditure. Such information is required to assist the formulation and review of policy and criteria for the safe and economic operation of existing and future tunnels. These records will also form the basis for any upgrading or refurbishment requirements.

## 3. INSPECTION CATEGORIES

### Introduction

3.1 For highway structures the categories of inspection required for safeguarding the public and to plan priorities for maintenance works are set out in BD 63 (DMRB 3.1.4) and the associated BA63 (DMRB 3.1.5). The equivalent categories of inspection for road tunnels to meet similar needs are given in 3.5 to 3.18. In addition, particular detailed requirements for inspection are normally contained within the maintenance manuals prepared for each road tunnel.

3.2 Inspections are to be undertaken by the TOA. The frequency of such inspections shall be influenced by the environmental and operating conditions within the road tunnel, and the limited life of certain M&E equipment.

3.3 Should an inspection reveal a hazard to the travelling public, TOA staff or emergency services, or a serious defect or damage to the road tunnel then the MA and tunnel owner must be informed without delay.

### Periodic inspection categories

3.4 Periodic inspections shall be carried out at regular intervals. Their detailed requirements are as described below. The categories and special requirements for acceptance inspections are given in Chapter 4. Periodic inspections are categorised into the four following types:

- i. Superficial
- ii. General
- iii. Principal
- iv. Special

### Superficial inspections

3.5 A regular, informal inspection for obvious deficiencies which could lead to accidents or unnecessarily high maintenance costs. Such inspections shall be carried out by the TOA's staff as an "ongoing responsibility" whenever they are in the vicinity of a tunnel, such as during periods of routine maintenance and tunnel closure. The TOA shall encourage its staff to be continuously vigilant and to report any item which may require urgent attention. Common examples include collision damage, road settlement, water

seepage, ice formation, movement or cracking of the tunnel lining and portal walls or defective equipment, signals and controls.

### General inspection

3.6 A thorough, visual inspection of representative parts of the road tunnel and its equipment.

3.7 Inspections are required not later than:

- i. Two years after the last general or principal inspection for the tunnel structure/s.
- ii. One year after the last general or principal inspection for M&E functions.

3.8 An emergency drill (see 3.14) together with all relevant emergency services may be undertaken as part of the M&E inspection.

### Principal inspection

3.9 As part of the principal inspection, reference shall be made to all relevant as-built drawings, wiring diagrams, operation manuals for maintenance and inspection for the road tunnel including the "Tunnel Operation and Safety Liaison Group: Consultation Document".

3.10 A close and detailed examination shall be made of all accessible parts of the tunnel and may involve removal of cladding, casings, mountings to fans etc in order to gain access.

3.11 Inspections shall be carried out at intervals agreed with the OO but will normally not exceed:

- i. Six years, but exceptionally up to ten years, for road tunnel structures.
- ii. Three years, but exceptionally up to five years, for the M&E functions.

3.12 A principal inspection shall be considered to replace the need for any general inspection due in any one year.

3.13 In many cases special access and testing equipment may be required and it may also be necessary to employ specialist firms.

3.14 An emergency drill with relevant emergency services shall be undertaken as part of the M&E inspection. The purpose of the drill is to demonstrate the correct operation of all safety and emergency equipment for the road tunnel as well as demonstrate the adequacy of response by the emergency services. A de-briefing meeting shall be held with the emergency services, MA and TOA after the drill. Minutes of the meeting shall be recorded by the TOA.

3.15 The principal inspection report shall refer to and review all documents relating to operation, maintenance and safety for compliance with current Standards and completeness. Any necessary changes shall be recommended, costed and recorded. The report shall include detailed recommendations for any remedial or refurbishment works, with estimated costs. All conclusions and recommendations arising from this inspection shall be included in a suitable format for Approval in Principle of any tunnel refurbishment.

**Special inspections**

3.16 A close examination of a particular area or defect which is of concern. It may be necessary to employ specialist inspection firms and equipment.

3.17 A special inspection shall be carried out:

- i. To investigate a specific problem, either found during an inspection or known to have occurred on other similar road tunnels.
- ii. At intervals not exceeding six months, for any part of the road tunnel structure which has a weight restriction, or other form of restriction to reduce either traffic or any other imposed loading.
- iii. When any part of the tunnel structure has to carry an Abnormal Indivisible Load before, during and after the passage of the load if either:
  - a. an assessment indicates that the margin of safety is below that which would be required for a design to current standards, or,
  - b. similar loads are not known to have been safely carried.

Note - If as a result of such inspection and assessment, the load carrying capacity is in question, then the MA and OO shall be informed.

- iv. If subsidence occurs in an area of mineral extraction.
- v. If settlement, heave, movement or deflection occurs greater than that which has been allowed for in the design or signs of distress are observed, the cause shall be identified. Steps shall be taken to monitor the rate of any settlement etc and to assess the urgency of any remedial measures required.
- vi. For the tunnel structure and equipment after flooding.
- vii. After a major accident or a fire within or adjacent to the road tunnel to investigate possible damage to the road tunnel, equipment and all safety functions.

3.18 The special inspection report shall include detailed recommendations for remedial or refurbishment works with estimated costs. All conclusions and recommendations shall be included in a suitable format for Approval in Principle of road tunnel refurbishment.

## 4. ACCEPTANCE INSPECTIONS

4.1 Acceptance inspections are required at handover of a new or existing road tunnel. The inspection shall be of the principal type as described in 3.9 to 3.15.

4.2 There are two classes of acceptance inspection:

- i. For new road tunnels, including refurbishment of existing road tunnels
- ii. Existing road tunnels

### **New and refurbished road tunnels**

4.3 About one month before the issue of a Certificate of Completion or opening of the road tunnel, the TOA, in conjunction with the Engineer, MA and OO, shall carry out a joint inspection (of principal inspection type) of the new road tunnel. The inspection will include any service buildings, plant rooms, associated structures and equipment and emergency drill. The purpose of the inspection is to identify and record any work still to be completed under the Contract and any other items required to enable the MA through the TOA to take over maintenance and operational responsibilities.

4.4 It is essential that any permanent access provisions and features effecting general safety and security of the tunnel are discussed in detail and all necessary records, maintenance and operating manuals are supplied to the MA/TOA before handover of the maintenance and operational responsibilities.

4.5 The date on which the MA takes over maintenance responsibility shall be recorded in the Tunnels Register (see 6.6).

4.6 During the Maintenance Period of the (construction or refurbishment) Contract, the TOA shall not be responsible for the repair of any defect which is the responsibility of the Contractor, but shall report any such defects to the MA who will inform the OO.

4.7 The TOA, in conjunction with the Engineer, MA and OO shall carry out a further joint inspection about one month before the end of the Maintenance Period to ensure that all work outstanding under the Contract has been completed.

4.8 Unless otherwise agreed by the OO, new or refurbished tunnels shall have an initial principal inspection as soon as practical after opening. [In Scotland an initial principal inspection, together with relevant records, shall replace the joint inspection at the end of the maintenance period, see 4.7]

4.9 A further principal inspection shall be undertaken four to five years after the issuing of the Maintenance Certificate to ensure that latent defects are recorded and appropriate action is taken within the period of Limited Liability. [In Scotland, within the Prescriptive Period].

### **Existing tunnels**

4.10 It will normally be necessary to carry out a principal inspection when a new MA/TOA takes over responsibility for a road tunnel already in service. The former TOA shall hand over all documentation and records relevant to the road tunnel maintenance and operation to the new TOA. Where any documentation is omitted or not available, sufficient documents for the continued safe use of the road tunnel shall be prepared as a part of the principal inspection report.

4.11 The requirements of 4.4 and 4.5 are also applicable to taking over existing road tunnels.

## 5. SAFETY

### General

5.1 The requirements for health and safety to be observed during inspections of road tunnels and any associated structures and equipment are generally as given in BD 63 (DMRB 3.1.4) and BA 63 DMRB (3.1.5).

5.2 General statutory safety requirements must be observed at all times. List of suitable reference is given in Chapter 7

5.3 Particular advice is likely to be given in various Operators Guides, Maintenance Manuals and associated safety documents.

### Toxic mould growth

5.4 Wherever mould growth is suspected or encountered anywhere within a tunnel, the local area shall be treated as toxic. Refer to BD 63 (DMRB 3.1.4) for guidance on how to proceed.

## 6. RECORDS AND FORMS

### Introduction

6.1 The TOA is required to keep and update records for all road tunnels as defined in 1.3, for which it is responsible. A complete list of the required records, with their distribution, is given in Appendix B.

6.2 Copies of blank forms shall be obtained from the Overseeing Organisation (OO). Such forms may be photocopied provided that legibility is maintained.

6.3 The majority of documents will in practice be prepared by the TOA. Exceptions to this are:

- i. Operation and Maintenance Manuals and all records relating to new construction or refurbishment prepared and supplied by the Engineer/Designer.
- ii. Records in respect of existing tunnels which, wherever possible, shall be obtained from the former operating authority. It is the new TOA's responsibility, however, to identify and request, via the MA, the making good of any deficiencies in such documentation.

6.4 The TOA shall provide, in addition, all appropriate copies of records to the MA and OO.

6.5 Reference may be made to BD 62 (DMRB 3.2.1) for guidance on how to complete these forms and records.

### Tunnels Register

6.6 A Tunnels Register comprising initially form Tunnels 277 is required for each road tunnel. If this form has not been previously completed, it should be completed, together with form Tunnels 11/94, as part of the principal inspection programme and be updated as necessary.

6.7 Revised forms are required following major renewal works or modifications. For minor works, updates may be notified in writing.

### Tunnel Operation and Maintenance Record

6.8 Tunnel operation and maintenance records are required for each road tunnel. Records, comprising the following items, shall be prepared each year and copied to the OO (see Appendix B).

- i. Tunnels 1/94 - Trunk Road/Motorway Tunnels: Tunnel Events.
- ii. Tunnels 2/94 - Trunk Road/Motorway Tunnels: Operation Summary and Costs.

6.9 The information on accidents, incidents, power consumption and costs forms a valuable feedback from computerised monitoring, control and data gathering. Currently most road tunnels are operated without staff and record automatically, therefore it is possible to obtain records of tunnel performance each year without placing a great burden on management resources. The Tunnels Register information (see 6.6 and 6.7) can also be stored as a computer record by the TOA.

### Database

6.10 Information from the forms listed in Appendix B is suitable for storage in a computerised database managed by respective OOs. Until such database facilities are made available, paper records shall be kept. The TOA may obtain information from the database by arrangement with the OO.

## **7. REFERENCES**

1. BD 62 - As Built, Operational and Maintenance Records for Highway Structures (DMRB 3.2.1).
2. BD 63 - Inspection of Highway Structures (DMRB 3.1.4).
3. BA 63 - Inspection of Highway Structures (DMRB 3.1.5).
4. Health and Safety at Work Act etc 1974.
5. Management of Health and Safety at Work Regulations, 1992.
6. HSE Leaflet IND(6)84L, 7/91C 300
7. Construction (Design and Management) Regulations, 1995.
8. Factories Act, 1961.
9. Traffic Signs Manual (HMSO).
10. Regulations for Electrical Installations, 16th Edition (IEE).
11. Personal Protective Equipment at Work Regulations, 1992.

## 8. ENQUIRIES

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

The Chief Highway Engineer  
The Highways Agency  
St Christopher House  
Southwark Street  
London SE1 OTE

T A ROCHESTER  
Chief Highway Engineer

The Deputy Chief Engineer  
The Scottish Office Industry Department  
National Roads Directorate  
New St Andrew's House  
Edinburgh EH1 3TA

N B MACKENZIE  
Deputy Chief Engineer

Director of Highways  
Welsh Office  
Y Swyddfa Gymreig  
Government Buildings  
Ty Glas Road  
Llanishen  
Cardiff CF4 5PL

K J THOMAS  
Director of Highways

The Director of Roads Service  
Department of the Environment for  
Northern Ireland  
Roads Service Headquarters  
Clarence Court  
10-18 Adelaide Street  
Belfast BT2 8GB

W J McCOUBREY  
Director of Roads Service

# FORM - TUNNELS 1/94

## TRUNK ROAD/MOTORWAY TUNNELS TUNNEL EVENTS

### 1. Accidents, closures and maintenance events:

Name of tunnel:

Location of tunnel/Region:

Tunnel Operating Authority:

Tunnel bore number/identifier:

From: - date and time

To: - date and time

Event type (see 2):

Associated cost of event:

Closure required (Y/N):

### 2. Event types

The possible events will be:

*accidents:*

1. Fires
2. Personal injury
3. Vehicular accident
4. Damage to structure/equipment/lining
5. Accidental spillage
6. Any other (specify)

*maintenance:*

Provide a summary description of maintenance regimes, frequencies and any associated tunnel closures.

7. Routine maintenance (specify)
8. Emergency maintenance (specify)
9. Tunnel washing
10. Any other (specify)

*other events:*

11. Vehicle breakdown
12. Failure of power, fans, lights, communications, systems
13. Inspections
14. Over height vehicle
15. Any other (specify)

### 3. Description

Provide a brief description of the incident (up to 100 characters):





**Appendix A**

**Defects Assessments (cont.)**

BET 11/94

**E. FIRE SAFETY**

	Estimated Cost (£)	Extent	Severity	Work recc and Priority	Comments
1. Cross Connections					
2. Fire Extinguishers					
3. Fire Hydrants/Hoses					
4. Fire Detectors/Alarms					

**F. COMMUNICATIONS AND TRAFFIC CONTROLS**

1. Emergency/External/Internal Phones					
2. CCTV					
3. Radio System/Leaky Feeders					
4. Communication Operator/Police etc.					
5. Overheight Detector					
6. Variable Message Signs					
7. Loop Detectors					

**G. PLANT CONTROL**

1. Plant Monitor					
2. Plant Control					
3. Data Logging					
4. Telemetry System					

**H. ELECTRICAL POWER**

1. Cables					
2. Trunking					
3. Earthing					
4. HV System					
5. LV System					
6. UPS					
7. Standby Generator					
8. Switch Gear					

**(ADDITIONAL ITEMS)**

1.					
2.					
3.					
4.					
5.					
6.					

**ANY COMMENTS**

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**Reason for priority allocation**

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Name of Team Leader  
Name of Organisation

--	--

Signed

--	--

Date

--	--

940690AA



Name of Tunnel

[Empty box for Name of Tunnel]

TUNNELS 277

Location of Tunnel .....	County/Borough .....	NATIONAL GRID REFERENCE	<input type="text"/>	<input type="text"/>
Maintaining Agent .....	Road through Tunnel .....		E	N
Operating Authority .....	River/Road above Tunnel .....	File Ref. HQ .....		
Traffic Authority .....	Drainage Authority .....	File Ref RO/OA .....		
Fire Authority .....				

Date of Construction .....	Designer .....	Type of Construction .....
Date of Refurbishment .....	Toll Y/N .....	Tunnel Type/No. of Bores .....
Design Load		Speed/Highway Type .....
Tunnel Base .....		
Above Tunnel .....		
Development Load .....		
Restrictions .....		
Special Loads .....		
Statutory Authorities with services within the tunnel .....		
Locations of		
Tunnel Service Building .....		
Plant Room .....		
Control Room .....		
Maintenance Office .....		
Others .....		
By Laws/Restrictions .....		

  

	Bore 1	Bore 2
Length .....	.....	.....
O/A Width/Dia. ....	.....	.....
No. of Lanes .....	.....	.....
Headroom/Traffic Gauge .....	.....	.....
Max. Height/Structure Gauge .....	.....	.....
Primary Lining .....	.....	.....
Secondary Lining/Cladding .....	.....	.....
state briefly .....	.....	.....
1. Ventilation .....	.....	.....
2. Lights .....	.....	.....
3. Pump/Drainage .....	.....	.....
4. Fire Safety .....	.....	.....
5. Communication .....	.....	.....
6. Concrete Impregnation/Painting .....	.....	.....

Site Plan (1:2500) and Photograph(s)

[Dimensional Elevation and Cross Section of Tunnel overleaf]

TUNNELS 277

*Elevation and Cross Section of Tunnel*

*Indicate all materials, type of piling walls, cross section widths of lanes, verges, headroom, traffic and structure gauges.*

940690BB

# REQUIRED RECORDS AND FORMS

## SUMMARY LIST AND DISTRIBUTION

	<u>TOA</u>	<u>MA</u>	<u>OO</u>	
<b>B1. Tunnel Documents</b>				
i.	Original design documents, reports, calculations and TA forms	YES	YES	TA FORM ONLY
ii.	As-built drawings including details of modifications and renewals	YES	YES	GENERAL LAYOUTS ONLY
iii.	Administration legal documents	YES	YES	NO
iv.	Inspection reports	YES	YES	NO
v.	Tunnel operation and safety documents	YES	YES	NO
vi.	Maintenance and operational manuals	YES	YES	NO
<b>B2. Tunnel Register and Forms</b>				
i.	Form: Tunnels 1/94	YES	YES	NOTE 3
ii.	Form: Tunnels 2/94	YES	YES	NOTE 3
iii.	Form: Tunnels 11/94	YES	YES	YES
iv.	Form: Tunnels 277	YES	YES	YES

- NOTES:**
1. All correspondence or copies of forms should be sent to the OO through the MA.
  2. Column OO (Overseeing Organisation) is not applicable to Wales (See Appendix C for Wales).
  3. An annual summary only is required.

# UK APPLICATION OF PROCEDURES FOR ROAD TUNNELS

## APPLICATION OF PROCEDURES FOR ROAD TUNNELS IN ENGLAND

### General

C1. This appendix describes the organisation and division of responsibility involved in the procedures for road tunnels on Motorways and other Trunk Roads in England.

### Overseeing Organisation (OO)

C2. The Overseeing Organisation responsible for the application of this Standard and general matters relating to any interpretation of the procedures rests with Bridges Engineering Division (BE) of the Highways Agency. BE Division is also the Technical Approval Authority for road tunnels in England.

### Maintaining Agent (MA)

C3. These procedures are supervised by the relevant Network Management Division located in the Regional Offices of the Highway Agency. The Network Management Division may appoint a Maintaining Agent (MA) to carry out, on its behalf, maintenance and operational tasks for the road network. Such tasks may be delegated, by agreement, to Local Highway Authorities, or may be undertaken by Consulting Engineers or other Agents under other forms of agreement.

### Tunnel Operating Authority (TOA)

C4. The functions and responsibilities of the Tunnel Operating Authority (TOA) are as defined at 1.6. The TOA will normally be set up and supervised, with the agreement of the relevant Network Management Division and OO, by the Maintaining Agent.

## APPLICATION OF PROCEDURES FOR ROAD TUNNELS IN SCOTLAND

### General

C5. At present there are no road tunnels within the motorway and trunk road network in Scotland. This appendix describes the organisation and division of responsibility which will be involved in these procedures if any future structure of that type is constructed.

### Overseeing Organisation (OO)

C6. The Overseeing Organisation with responsibility for the application of this Standard and general matters relating to the interpretation of the procedures is the Bridges Section of the Scottish Office Industry Department National Roads Directorate. Bridges Section is also the Technical Approval Authority for road tunnels in Scotland.

### Maintaining Agent (MA)

C7. The procedures are managed by the relevant Maintaining Agent who shall, subject to the OOs approval, set up and supervise a Tunnel Operating Authority to carry out day to day work on their behalf.

### Tunnel Operating Authority (TOA)

C8. The requirements for the Tunnel Operating Authority (TOA) are generally as defined in C4.

## Appendix C

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### APPLICATION OF PROCEDURES FOR ROAD TUNNELS IN WALES

#### General

**C9.** This appendix describes the organisation and division of responsibility involved in these procedures for road tunnels on Motorways and other Trunk Roads in Wales.

#### Overseeing Organisation (OO)

**C10** The Overseeing Organisation with responsibility for the application of this Standard and general matters relating to the interpretation of the procedures is Bridges Engineering Division (BE) of the Highways Agency. BE Division is also the Technical Approval Authority for tunnels in Wales, but all related communications are to be routed via the Welsh Office.

#### Maintaining Agent (MA)

**C11.** The procedures are managed by the Network Management Division 5 of the Welsh Office Highways Directorate. The appointment of a Maintaining Agent is generally as for C3.

#### Tunnel Operating Authority (TOA)

**C12.** The requirements for the Tunnel Operating Authority (TOA) are generally as defined in C4.

#### Records and Forms

**C13.** The TOA should discuss and agree the records and computer database requirements with the MA.

### APPLICATION OF PROCEDURES FOR ROAD TUNNELS IN NORTHERN IRELAND

#### General

**C14.** This appendix describes the organisation and division of responsibility involved in these procedures for road tunnels on all roads in Northern Ireland.

#### Overseeing Organisation (OO)

**C15.** The Overseeing Organisation responsible for the application of this Standard and general matters relating to the interpretation of the procedures is the Department of the Environment for Northern Ireland, Roads Service Headquarters. The Technical approval Authority for tunnels in Northern Ireland is headed by the Assistant Chief Engineer (Works) at Roads Service Headquarters.

#### Maintaining Agent (MA)

**C16.** In Northern Ireland these procedures are supervised by the relevant Roads Service Division Office.

#### Tunnel Operating Authority (TOA)

**C17.** The functions and responsibilities of the Tunnel Operating Authority (TOA) are as defined at 1.6. The appointment of a Tunnel Operating Authority by the MA to carry out day-to-day work on their behalf, shall be subject to the approval of the Overseeing Organisation.