

**MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS
VOLUME 1 SPECIFICATION FOR HIGHWAY WORKS**

**SERIES 100
PRELIMINARIES**

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**NATIONAL ALTERATIONS OF THE
OVERSEEING ORGANISATIONS OF
SCOTLAND, WALES AND NORTHERN
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denotes a Clause which has a substitute National Clause for one or more of the Overseeing Organisations of Scotland, Wales or Northern Ireland.

PRELIMINARIES

101 Temporary Accommodation and Equipment for the Overseeing Organisation

1 The Contractor shall provide, maintain, service and remove all accommodation including contents, access roads and hardstanding thereto, as described in Appendix 1/1, for the use of the Overseeing Organisation.

2 Equipment, furnishings, fittings and supplies shall be located as described in Appendix 1/1. All temporary initial accommodation shall be ready for occupation on the date for commencement of the Works and all other accommodation complete with contents, access roads and hardstanding shall be ready for occupation and use by the Overseeing Organisation within four weeks of the date for commencement of the Works unless otherwise stated in Appendix 1/1.

3 Where stated in Appendix 1/1 the Contractor shall furnish and service accommodation made available by the Overseeing Organisation.

4 Telephones shall have a separate connection direct to a telephone exchange of a telecommunication code system with privacy for conversation for the exclusive use of the Overseeing Organisation.

5 All accommodation shall be regularly cleaned for so long as it is in use and suitable arrangements be made for the disposal of any waste arising from use of such accommodation.

6 All equipment supplied by the Contractor shall be of a quality and precision appropriate to its proposed use and shall be delivered in a serviceable condition. The Contractor shall maintain all such equipment in serviceable condition and replace, if necessary, any that becomes unserviceable. The Contractor shall ensure that any equipment needing periodic calibration is calibrated on delivery, annually and/or at other times as and when required by the Overseeing Organisation.

7 When major components of the Works are manufactured off the Site the Contractor shall arrange to make available adequate and secure accommodation as described in Appendix 1/1 at or adjacent to the place of, and during the period of, manufacture and testing.

102 Vehicles for the Overseeing Organisation

1 The Contractor shall provide transport as described in Appendix 1/2 for the exclusive use of the Overseeing

Organisation for any purpose in connection with the Works. The vehicles shall be delivered and maintained in good roadworthy condition. They shall have a current MOT Certificate where necessary, be licensed and insured for use on the public highway and shall have comprehensive insurance cover for any qualified driver authorised by the Overseeing Organisation together with any authorised passengers and the carriage of goods or samples. The Contractor shall provide fuel, oil and maintenance in conformity with the vehicle manufacturer's recommendations and shall keep clean the vehicles inside and out on a regular basis. A suitable replacement shall be provided for any vehicle out of service for more than 8 working hours.

103 Communication System for the Overseeing Organisation

1 When required in Appendix 1/3 the Contractor shall provide a communication system for the Overseeing Organisation as described therein, within 4 weeks of the date for commencement of the Works unless a different date for provision is required in Appendix 1/3.

2 The system, unless otherwise described in Appendix 1/3, shall be entirely separate from any provision for a communication system provided by the Contractor for his own use except that any aerial installation may be shared.

3 The system shall have an operating range which ensures reception throughout the Site.

4 The Contractor shall maintain the system, dismantling and removing it at the end of the period stated in Appendix 1/3. If the system is inoperative for any reason, it shall either be repaired or a replacement provided within 24 hours.

#104 Standards, Quality Assurance, Agrément Certificates and Other Approvals

Standards

1 Except where the specified standard implements or is technically equivalent to a Harmonised European Standard or to a European Standard adopted for use after 31 December 1985, any requirement for goods or materials to comply with the specified standard shall be

satisfied by compliance with:

- (i) a relevant standard or code of practice of a national standards body or equivalent body of any state of the European Economic Area or
- (ii) a relevant international standard recognised for use in any state of the European Economic Area or
- (iii) a technical regulation of any state of the European Economic Area or
- (iv) traditional procedures of manufacture of any state of the European Economic Area where these are the subject of a written technical description sufficiently detailed to permit assessment of the goods or materials for the use specified or
- (v) a European Technical Approval (ETA) issued in accordance with the Construction Products Directive 89/106/EEC (or, until procedures are available for the issue of ETAs, a specification sufficiently detailed to permit assessment) for goods or materials of an innovative nature or subject to innovative processes of manufacture and which fulfil the purpose provided for by the specified standard

provided that the proposed standard, code of practice, regulation, specification, technical description or European Technical Approval provides, in use, levels of safety, suitability and fitness for purpose equivalent to those required by the specified standard in so far as they are not inconsistent with the 'Essential Requirements' of the Construction Products Directive (89/106/EEC). This Clause applies also to works only in so far as the means of carrying out such works are indivisibly associated with the goods or materials for which an alternative standard, code of practice, regulation, specification or technical description is proposed.

Quality Assurance

2 When indicated at Appendix 1/24, the Contractor shall institute a quality management system complying with BS EN ISO 9002 and describe this in a Quality Plan. The Quality Plan shall also incorporate the requirements of Appendix 1/24. The Quality Plan shall be submitted to the Overseeing Organisation, within the period(s) given in Appendix 1/24, for acceptance, before any related work is commenced. The Contractor shall allow adequate time for written acceptance to be obtained.

3 Quality Plans and method statements shall indicate "hold points" as follows:

Contractor's hold points: points where no further work shall proceed without the written approval of a designated person of the Contractor's management, who shall be named in the Quality Plan.

Overseeing Organisation's hold points: points where no further work shall proceed without the written approval of a designated representative of the Overseeing Organisation.

The Contractor shall ensure the Quality Plans and associated quality documentation are available to all parties involved in the Works.

4 Where any work, goods or materials to be used in the Works are the subject of an accredited third party quality management scheme listed in Appendix A or an accredited third party product certification scheme listed in Appendix B, only work, goods or materials conforming with such a scheme shall be used and the Contractor shall in each case submit to the Overseeing Organisation a copy of the certificate of conformity affirming compliance with the scheme, unless the goods or materials bear a prescribed certification mark.

5 The requirement for any goods or materials to be manufactured or supplied subject to a quality management scheme listed in Appendix A or product certification scheme listed in Appendix B shall be satisfied by compliance with an equivalent quality management scheme or product certification scheme of any state of the European Economic Area, provided that the proposed scheme is designed to ensure in use levels of safety, suitability and fitness for purpose equivalent to those provided for by the scheme specified. This sub-Clause applies also to works only in so far as the means of carrying out such works are indivisibly associated with the goods or materials for which an alternative quality management scheme or product certification scheme is proposed.

6 Where any work, goods or materials to be used in the Works are the subject of a Supplier's quality management scheme listed in Appendix A, the Contractor shall require the Supplier of such items to prepare a Supplier's Quality Plan and submit it to the Overseeing Organisation. The Supplier's Quality Plan shall comply with the requirements of Appendix 1/24.

Quality Records

7 The Contractor shall require the Supplier to make available on request contemporary quality records as identified in BS EN ISO 9002 to demonstrate achievement of the required quality and the effectiveness of the quality system. Copies of all quality

records shall be made available immediately to the Overseeing Organisation. The Contractor shall require the Supplier to immediately report any non-conforming product to the Contractor. The Contractor shall immediately pass this report to the Overseeing Organisation, and undertake no further related work until remedial or other measures have been undertaken.

8 The Contractor shall submit the quality records required by this Specification as indicated in Appendix H. No item of work shall be considered complete until these records have been received by the Overseeing Organisation.

Note: Quality terms used in this Clause are as ISO 8402 (BS 4778).

British Board of Agrément Certificates

9 Where any work, goods or materials are required to have a British Board of Agrément Certificate only work, goods or materials so certificated shall be used and the Contractor shall in each case submit to the Overseeing Organisation a copy of the certificate. Types of work, goods and materials subject to such requirements are listed in Appendix C.

10 The requirements of Appendix C shall be satisfied by goods or materials having an equivalent Agrément certificate issued in any state of the European Economic Area, provided that the goods or materials covered by such certificate offer in use levels of safety, suitability and fitness for purpose equivalent to those incorporated in the British Board of Agrément Certificate. This sub-Clause applies also to works only in so far as the means of carrying out such works are indivisibly associated with the goods or materials for which an alternative Agrément certificate is proposed.

Statutory Type Approval

11 The requirements for statutory type approval are embodied in the Traffic Signs Regulations and General Directions 1994, the 'Pelican' Pedestrian Crossings Regulations and General Directions 1987, and subsequent amending Regulations. Traffic signs requiring such approval are listed in Appendix D. The Contractor shall submit written evidence to the Overseeing Organisation that the relevant statutory type approval has been obtained. Where the Contractor has designed part of the Works for which statutory type approval is required, application to the Secretary of State shall be made through the Overseeing Organisation.

Statutory Authorisation

12 Statutory authorisation is required before any traffic signs are incorporated into the Works where

these are of a character and/or are to be used in circumstances which have not been prescribed in the Traffic Signs Regulations and General Directions 1994, the 'Pelican' Pedestrian Crossings Regulations and General Directions 1987, or subsequent amending Regulations. Where the Contractor has designed part of the Works for which such authorisation is required, application to the Secretary of State shall be made through the Overseeing Organisation.

Type Approval/Registration

13 Where work, goods or materials are required to have type approval/registration only work, goods or materials so approved/registered shall be used and the Contractor shall in each case submit to the Overseeing Organisation a copy of the type approval/registration certificate. Types of work, goods and materials subject to such requirements are listed in Appendix E.

14 Where there is a requirement for work, goods or materials of the types listed in Appendix E to have type approval/registration this will be granted by the Overseeing Organisation where the work, goods or materials have an equivalent approval/registration of the national highway authority of any state of the European Economic Area, provided that such approval/registration offers in use levels of safety, suitability and fitness for purpose equivalent to those incorporated in the type approval/registration.

Named Suppliers or Manufacturers

15 Any requirement in the Contract to use goods or materials which are defined by reference to a named supplier or manufacturer shall be construed as referring to those goods or materials or equivalent. For the purposes of this sub-Clause equivalent goods or materials are those supplied from within the European Economic Area which provide in use levels of safety, suitability and fitness for purpose equivalent to those provided by the specified goods or materials in so far as they are not inconsistent with the 'Essential Requirements' of the Construction Products Directive (89/106/EEC).

Provision of Information

16 Unless otherwise specified, two copies of all information, including valid certificates, in respect of work, goods or materials proposed by the Contractor shall be supplied to the Overseeing Organisation. Where the original documentation is in a language other than English, it shall be accompanied by an English translation. Information and certificates shall be supplied at least four weeks prior to the use of the work, goods or materials in the Works.

17 When required in Appendix 1/4, three copies of detailed working and fabrication drawings shall be submitted for the Overseeing Organisation's approval and when the drawings have been approved the Contractor shall provide transparencies of the approved drawings to the Overseeing Organisation. Minimum period for submission of the drawings prior to commencement of the related works shall be as stated in Appendix 1/4. Such approval shall in no way relieve the Contractor of his responsibilities for the work under the Contract.

18 When the Contractor proposes to use a different standard, quality management scheme, product certification scheme, Agrément Certificate or type approval/registration from that specified the Contractor shall provide all the relevant information to enable the Overseeing Organisation to ascertain whether or not the proposal is equivalent to the specified requirement. The information shall be supplied at least 4 weeks prior to commencing the related works, to enable the evaluation of equivalence to be made, taking into account the programme for the Works.

105 Goods, Materials, Sampling and Testing

Goods and Materials

1 The Contractor shall maintain a record of the suppliers from whom he proposes to purchase the goods and materials necessary for the execution of the Works. Where a choice of goods or materials is listed in the Contract, the Contractor shall inform the Overseeing Organisation of the goods or materials he proposes to use. Any subsequent change of suppliers, goods or materials shall also be recorded.

Sampling and Testing

2 The testing scheduled in Appendix 1/5, including provision of the associated samples, shall be undertaken by the Contractor who shall supply to the Overseeing Organisation, when requested, within 24 hours of the completion of each test, a copy of the results. Where UKAS laboratory accreditation is required the results shall be reported on an official UKAS/NAMAS test report or certificate.

The following operations are not included in Appendix 1/5:

- (i) checking, inspecting, examining, measuring (except in connection with testing);
- (ii) trials and demonstrations;
- (iii) routine testing carried out by manufacturers and suppliers in compliance with a specified standard or specification;

(iv) testing of plant.

Where required in Appendix 1/5 a test certificate, complying with the provisions of the relevant standard or specification where applicable and certifying that the goods or materials have been tested and meet the specified requirements, shall be supplied to the Overseeing Organisation by the Contractor at least four weeks prior to the incorporation of the goods or materials in the Works.

3 Where required in Appendix 1/5 tests and associated sampling shall, except as allowed in sub-Clause 4 of this Clause, be undertaken only by testing laboratories accredited in accordance with EN 45001 by the United Kingdom Accreditation Service for such tests and sampling.

4 Where testing is carried out in another state of the European Economic Area such tests shall be undertaken by an appropriate organisation offering suitable and satisfactory evidence of technical and professional competence and independence. This condition shall be satisfied if the organisation is accredited in a state of the European Economic Area in accordance with the relevant parts of the EN 45000 series of standards for the tests carried out.

5 Where goods or materials are accepted on the basis of an equivalent standard, code of practice, specification, technical description, quality management scheme, product certification scheme or Agrément certificate as provided for in Clause 104, testing and sampling as specified in or applicable to such an equivalent standard, code of practice, specification, technical description, quality management scheme, product certification scheme or Agrément certificate is accepted and shall be substituted for those specified in Appendices 1/5 and 1/6 respectively.

6 The Contractor shall provide samples of goods and materials and deliver these to the Overseeing Organisation as described in Appendix 1/6. Where required in Appendix 1/6, the Contractor shall arrange for the sampling of such goods and materials to be undertaken by testing laboratories holding UKAS accreditation to EN45001 for such sampling. These samples shall be supplied in sufficient time for them to be tested for acceptability by the Overseeing Organisation, taking into account the programme for the Works.

7 Where testing is undertaken by a supplier or manufacturer in accordance with the Contract the Contractor shall ensure that each supplier and manufacturer will admit the Overseeing Organisation's representative to his premises during normal working hours for the purposes of inspecting, selecting the samples and witnessing the testing.

106 Design of Permanent Works by the Contractor

Structures

1 The Contractor shall design the structures listed in Appendix 1/10 (A) to comply with the design specifications and requirements therein. Where the Contractor proposes to design a structure (for which a choice of designs is offered) listed in Appendix 1/10 (B) he shall comply with the design specification and requirements therein. The Contractor shall follow the technical approval procedures given in Standard BD 2, for which purposes the Contractor shall be deemed to be the designer.

2 Where the Contractor is required to complete an outline Approval in Principle form, the Contractor shall forward two copies of the completed form to the Overseeing Organisation for acceptance.

3 The Contractor shall submit two copies of the completed design certificate and drawings for each structure listed in Appendix 1/10 to the Overseeing Organisation for acceptance.

Structural Elements and Other Features

4 The Contractor shall design the structural elements and other features listed in Appendix 1/11 to comply with the design specifications therein. Alternatively, the Contractor may propose an element or feature designed by the manufacturer. In either case, the Contractor shall submit his proposals to the Overseeing Organisation.

107 Site Extent and Limitations on Use

1 The extent of the Site and any limitations on its use shall be as described in Appendix 1/7.

108 Operatives for the Overseeing Organisation

1 The Contractor shall provide the Overseeing Organisation with, and maintain continuity of, operatives equal to the tasks, and capable of performing the functions, described in Appendix 1/8.

2 For site surveys and setting out, operatives shall be experienced in assisting engineers in such work.

3 For laboratory-related duties, operatives shall be capable of assisting laboratory staff in routine tasks.

4 Operatives provided under sub-Clauses 2 and 3 of this Clause shall have valid driving licences and driving experience suitable for the vehicles supplied in accordance with Appendix 1/2.

109 Control of Noise and Vibration

1 The Contractor shall comply with the recommendations for practical measures to reduce noise set out in BS 5228 : Parts 1,2 and 4 and with any specific requirements stated in Appendix 1/9.

2 The Contractor shall comply with any specific requirements for the control of vibration stated in Appendices 1/9, 2/4, 6/3, 6/13 and Clause 607.

3 Compliance with sub-Clauses 1 and 2 of this Clause does not confer immunity from relevant legal requirements.

110 Information Boards

1 The Contractor shall, within four weeks of the date for the commencement of the Works, provide and erect information boards at the locations and to the specification given in Appendix 1/21. The Contractor shall ensure that they are kept clean and maintained in a safe and legible condition and remove them on completion of the Works.

111 Existing Ground Levels

1 The Contractor shall satisfy himself that the existing ground levels as described in Appendix 1/12 are correct. Should the Contractor wish to dispute any levels he shall submit to the Overseeing Organisation a schedule of the position of the levels considered to be in error and a set of revised levels. The existing ground relevant to the disputed levels shall not be disturbed before the correct levels are determined.

#112 Setting Out

1 The Contractor shall, unless otherwise stated in Appendix 1/12, within 3 weeks of the date for commencement of the Works, carry out a check of the co-ordinates and levels of all permanent ground markers and permanent bench marks described in Appendix 1/12 and shall supply the Overseeing Organisation, if requested, with their position and level in order that they may be checked and revised if necessary. The Contractor shall identify and bring to the attention of the Overseeing Organisation any markers that are missing. The Contractor shall comply with any specific requirements for setting out described in Appendix 1/12.

2 The Contractor shall keep updated schedules and drawings of all bench marks (which shall be based on Ordnance Datum at Newlyn) used in the setting out and shall make these available to the Overseeing

Organisation when required.

3 The Contractor shall ensure that where necessary, in order to maintain his programme, lines and levels are set out in such time as to enable Statutory Undertakers' plant and other publicly or privately owned services or supplies to be installed, altered or removed.

4 The Contractor shall survey and record existing details of items which he is required to remove and subsequently replace. The level of survey information to be recorded is described in Appendix 1/12.

113 Programme of Works

1 Subject and without prejudice to the Conditions of Contract, the programme which the Contractor submits to the Overseeing Organisation shall comply with the specific requirements stated in Appendix 1/13.

114 Payment Applications

1 Unless otherwise described in the Contract, the Contractor shall comply with the requirements described in Appendix 1/14 concerning applications for payment.

115 Accommodation Works

1 The Contractor shall undertake and complete the accommodation works as described in Appendix 1/15. The Contractor shall give the Overseeing Organisation at least ten days' notice of the date he intends to start work on individual plots, for the benefit of each owner, lessee or occupier.

116 Privately and Publicly Owned Services or Supplies

1 The Contractor shall satisfy himself as to the exact position of Statutory Undertakers and other publicly and privately owned services or supplies affected by the Works.

2 The Contractor shall, during the progress of the Works take all measures required by any Statutory Undertaker or the management of other publicly or privately owned services or supplies, for the support and full protection of all such services or supplies.

3 Where privately or publicly owned services or supplies affected by the Works are subject to alteration, removal or addition, the Contractor shall be responsible for all arrangements with the owners and/or their agents for the execution and phasing of such works in accordance with his programme. Details of such work,

preliminary arrangements made by the Overseeing Organisation, and/or any orders already placed are given in Appendix 1/16.

4 Where work is being undertaken on a motorway the Contractor shall take all measures required by the Overseeing Organisation for the location and protection of all cabling, ducts and other devices which form part of the motorway communications system or other systems of the Overseeing Organisation. The Contractor shall comply with the "Special Requirements in Relation to Motorway Communications Systems". Where the motorway communications system or other system will be affected by the Works the Contractor shall ensure that an alternative system as described in Appendix 1/16 is fully operational prior to interrupting the existing system; any connections or disconnections to the existing system may only be undertaken by the Overseeing Organisation's maintenance agent. The Contractor shall be responsible for liaising, with the Overseeing Organisation's maintenance agent.

5 No services or supplies shall be interrupted without the written consent of the appropriate authority or owner, and the Contractor shall provide a satisfactory alternative before interrupting any existing service or supply, unless otherwise stated in Appendix 1/16.

#117 Traffic Safety and Management

1 When planning and undertaking work on highways open to traffic the Contractor shall take account of the recommendations contained in the following:

- (a) for work on motorways - "Planning for safety: Guidance Notes for the Health and Safety of Workers at In-Service Motorway Roadworks Sites", issued jointly by the Department of Transport, the Welsh Office, the Scottish Office Industry Department and the Federation of Civil Engineering Contractors;
- (b) for work on all highways - "Safety at Roadworks: Notes for Guidance (1994 edition)" issued jointly by the Department of Transport and the County Surveyors' Society;
- (c) for recovery vehicles - "Code of practice on Health and Safety for Vehicle Recovery Operators" published by the Association of Vehicle Recovery Operators.

2 When planning traffic safety and management measures the Contractor shall take into account the information contained in Appendices 1/17 and 1/18.

3 The Contractor shall, unless otherwise stated in Appendix 1/17, after consultation with any statutory, police or other authority concerned prepare and submit

traffic safety and management proposals within the timescale described in Appendix 1/17 to the Overseeing Organisation. These shall show the proposed traffic safety and management measures including provision of safety zones which he proposes for carrying out the Works. If stated in Appendix 1/17, the proposals shall include the provision of running lanes for the use of emergency vehicles within the Site. If required the Contractor shall make such changes to his proposals as may be necessary to meet the requirements of the Contract. Thereafter the Contractor shall furnish such details and information as may be necessitated by the Works.

4 The Contractor shall design, construct and maintain, or if Appendix 1/17 so provides shall construct and maintain, the central reserve crossovers described in Appendix 1/17 in accordance with the information stated therein. Unless otherwise described in Appendix 1/17, the Contractor shall remove those crossovers when no longer required and reinstate the central reserve to its original condition.

5 If the Contractor intends to construct central reserve crossovers as part of his traffic safety and management proposals he shall submit an outline of the proposals to the Overseeing Organisation in advance, in accordance with the requirements of sub-Clause 3 of this Clause.

6 The Contractor shall submit a formal application, as described in Appendix 1/17, to the appropriate authority for any statutory orders required to be made or notices required to be published in connection with his traffic safety and management proposals. The Contractor shall inform the Overseeing Organisation of details the Contractor has agreed with the highway authority for traffic signs, lighting, construction, maintenance and removal of any central reserve crossovers.

7 If stated in Appendix 1/17, the Contractor shall undertake the maintenance functions described therein and to the extent there described, on the lengths of highway there specified, until the issue of the appropriate certificate of completion.

8 The Contractor shall, unless otherwise stated in Appendix 1/17, provide, erect, maintain, reposition, cover and uncover and finally remove traffic signs as required by the Works. In so doing, such other measures shall be taken by the Contractor as may be necessitated by the Works in accordance with any special requirements in Appendix 1/17, recommendations in Chapter 8 of the Traffic Signs Manual published by The Stationery Office and amendments thereto detailed in Annex B of Advice Note TA 61 and in Standard TD 49, and other instructions of the Overseeing Organisation listed in Appendix 1/17. The recommendations of

Chapter 8 of the Traffic Signs Manual are further extended by Advice Notes TA 63 and TA 64. Where the circumstances of any particular situation are not covered by the recommendations or described in Appendices 1/17 or 1/18, the Contractor shall submit proposals for dealing with that situation to the Overseeing Organisation.

9 Where a temporary speed limit at road works has been imposed and the Works have been temporarily terminated, with the removal of traffic management measures, the Contractor shall ensure that the temporary speed limit signs are covered or taken down for the duration of the cessation of the Works. Where the temporary speed limit signs are covered, the covering material shall be of a glare-resistant type and securely fastened.

10 Traffic signs shall comply with the appropriate Clauses in Series 1200 of the Specification. The Contractor shall unless otherwise stated in Appendix 1/17 keep traffic signs clean, secure and legible and ensure that all signs required to be lit, whether by external or internal lighting, are so lit during periods when road vehicles are required to display lights.

11 Where the Contract provides that the Contractor shall not erect, maintain or reposition traffic signs, the Contractor shall not change in any manner the permanent or temporary traffic signs without instruction from the Overseeing Organisation and shall give such notice as is stated in Appendix 1/17 to indicate when signs should be moved compatible with the progress of the Works.

12 All traffic safety and management measures necessitated by the Works shall be fully operational before the Contractor commences any work which affects the public highway or the use of it.

13 Any area of highway which has been closed because of the Works shall not be re-opened until all appropriate traffic safety and management measures have been completed and the highway is in a suitable condition for public use.

14 Where work is carried out on, or adjacent to a highway open to traffic the Contractor shall ensure that vehicles and mobile plant under his control operating frequently or regularly on or adjacent to that highway in the execution of the Works shall be painted in a conspicuous colour and shall have sign boards reading 'Highway Maintenance' or where appropriate 'Motorway Maintenance'. The signs shall be in accordance with Diagram 7404 of Schedule 12, Part V of the Traffic Signs Regulations and General Directions 1994. The lettering shall be 150 mm x height for vehicles and plant except that for light vans and cars it

shall be the largest x height that can be accommodated out of the following heights: 37.5, 50, 62.5, 75 or 100 mm. In addition each such vehicle or item of plant shall be provided with one or more suitable roof mounted amber beacons fitted and operated in accordance with paragraph 2.3.7.4 of Chapter 8 of the Traffic Signs Manual and The Road Vehicle Lighting Regulations.

15 Temporary lighting shall be provided in accordance with Clause 1405 where required by Appendix 1/17, or by the Contractor in the execution of the Works.

16 Temporary Emergency Telephones shall be provided in accordance with Clause 1529 where required by Appendix 1/17, or by the Contractor in the execution of the Works in accordance with sub-Clause 117.3.

17 The Contractor shall provide and suitably sign points of entry to and exit from the Site, for vehicles and plant engaged on the Works. The Contractor shall ensure that when any vehicle or item of plant is reversing within the Site on or adjacent to a highway open to traffic, it does so only under the supervision of a person designated for the purpose of regulating traffic within the Site who shall be readily distinguishable from the remainder of the work force.

18 Where work is carried out on or adjacent to a highway open to traffic the Contractor shall ensure that the workforce and the site supervisory staff at all times wear high visibility warning clothing complying with BS EN 471. Clothing shall be to Table 1, Class 2 or 3 (Class 3 on motorways or other high speed roads) and shall comply with the requirements of para 4.2.3(b). In addition on motorways or other high speed roads full length sleeves meeting the requirements of para 4.2.4 shall be provided for coveralls and jackets. The colour of the clothing shall normally be “fluorescent yellow” or “fluorescent orange-red” complying with Table 2. The retroreflective material used shall be to Class 2 as defined at Table 5. Clothing complying with other specifications may be used in accordance with Clause 104.2 where they offer equivalent levels of performance in so far as the specification given is not inconsistent with the basic health and safety requirements set out in Annex 2 of the Personal Protective Equipment Directive (89/686/EEC). The Contractor shall ensure that the person in charge of the workforce is readily distinguishable from the person designated in sub-Clause 19 of this Clause and from the remainder of the workforce.

19 Where required in Appendix 1/17, the Contractor shall appoint a Traffic Safety and Control Officer who shall make all arrangements necessary for traffic safety and control including the provision and operation of breakdown recovery vehicles. The Traffic Safety and Control Officer shall have one or more nominated

deputies. The Contractor shall provide the Overseeing Organisation with the names of this Officer and his nominated deputies and with telephone numbers or details of other means by which they or one of them can be contacted at any time. Unless otherwise described in Appendix 1/17 the Traffic Safety and Control Officer or a nominated deputy shall be on the Site at all times when traffic management is in operation and shall be readily available to deal with matters related to traffic safety and control (including breakdown recovery vehicles).

20 If an accident or breakdown occurs on a carriageway or hard shoulder open to traffic within or in the vicinity of the Site, the Contractor and operators of recovery vehicles provided in accordance with Clause 120 shall act as requested by police officers acting under their statutory powers.

21 Where required in Appendix 1/17, the Contractor shall provide, erect, maintain and remove Driver Information Signs in accordance with sub-Clauses 22 to 31 of this Clause.

22 Sign face layouts shall be in accordance with Signs 7004 and 7005 of the Traffic Signs Regulations and General Directions 1994.

23 Legends shall be selected as appropriate from Table 1/1 unless stated otherwise in Appendix 1/17.

24 Sign 7004 shall describe the work activity taking place.

It shall be sited either

- (i) Two miles from major maintenance works and Type A works, as defined by Topic 4 of Chapter 8 of the Traffic Signs Manual, on high speed dual carriageways, or
- (ii) One mile from routine and minor maintenance works and Type B works, as defined by Topic 5 of Chapter 8 of the Traffic Signs Manual, on high speed dual carriageways.

25 Sign 7005 shall indicate how long delays are possible. It shall be sited one mile from major maintenance and Type A works. At the commencement of Works the legend shall read, for example “..... until Sept 98”. At least ten days before the end of carriageway restrictions the date shall be specified more precisely, for example “..... until 30 Sept”. This date shall be further updated, if necessary, until the restrictions are removed.

26 Sign 7004 shall be located within roadworks when part of the road is coned off, and the reason for this is not apparent from the carriageway, for any period exceeding 30 minutes, or one hour if road capacity is maintained.

27 Signs located within roadworks shall only be used where they can be located at least 50 metres beyond the downstream end of a taper and in a position which does not prejudice traffic safety.

28 If needed, Information Signs shall be sited at the beginning and at one kilometre intervals through the Works. They shall not be placed where they may distract drivers negotiating traffic management provisions.

29 Signs shall either be sited for the duration of the works where it is safe and appropriate to do so or provision made to enable their use at short notice.

30 The Contractor shall provide adequate storage facilities clear of any safety zone. Storage within the central reserve or in front of safety fencing shall not be permitted.

31 Information signs shall only be displayed within roadworks where they accurately reflect the reason for the inactivity.

118 Temporary Diversions for Traffic

1 The provisions of this Clause do not apply to any temporary access or accommodation works which the Contractor may construct for his sole use in the execution of the Works.

2 Each temporary diversion for traffic shall be made operative in advance of any interference with the existing arrangements and shall be maintained to the standard stated in Appendix 1/18 or if no standard is so stated, in accordance with sub-Clause 6 of this Clause.

Temporary Diversions for Traffic Specified by the Overseeing Organisation

3 The Contractor shall construct, maintain, remove and reinstate each temporary diversion for traffic specified in Appendix 1/18 in accordance with the details stated therein. Where stated in Appendix 1/18, the Contractor shall design each temporary diversion for traffic, including any temporary structures, in accordance with the details stated therein. Unless otherwise described in Appendix 1/18, the Contractor shall remove each temporary diversion for traffic as soon as it is no longer required.

TABLE 1/1 : Legends for Driver Information Signs at Roadworks

ADVANCE SIGN AT MAJOR WORKS (sited at 2 miles)			
Replacing worn out road	Renewing damaged bridge deck	Repairs to weak surface	Repairs to weak bridge supports
Bridge painting	Repairs to bridge	Installing new hard shoulder	Installing new drainage system
Installing new road markings	Installing new cabling*	Installing new lighting	Installing new safety fencing
Installing sign gantry	Building service area access	Ground survey works	Widening and road repairs
*This legend may be used for both electrical supply and communications cabling.			
ADVANCE SIGN AT MAJOR WORKS ONLY (sited at 1 mile)			
Delays possible until Sept* 98†		Delays possible until 30 Sept*	
*Month to read — Jan, Feb, Mar, Apr, May, June, July, Aug, Sept, Oct, Nov or Dec.			
†Year to read — 98 or 99 etc.			
ADVANCE SIGN AT ROUTINE AND MINOR WORKS (sited at 1 mile)			
Essential maintenance	Repairs due to road accident		
SIGN USED WITHIN ROADWORK SITES			
Work suspended	Repair work on bridge below	Lane closed for safety	
Unsuitable weather			
Road repairs	Further works ahead	Lane closed to protect workforce	
Materials hardening	Lane remains closed for safety purposes		

Temporary Diversions for Traffic Proposed by the Contractor

4 If the Contractor proposes to construct a temporary diversion for traffic as part of his intended traffic safety and management measures, he shall submit an outline of his proposals to the highway authority for their agreement and consultation with the police.

5 The Contractor shall submit a formal application to the appropriate authority for any statutory orders required to be made or notices required to be published through the Overseeing Organisation, allowing such time as is stated in Appendix 1/18 for the orders to be made and notices to be published.

6 The standard and siting of every temporary diversion for traffic shall be suitable in all respects for the class or classes of traffic using it, and its width shall be not less than that of the existing way except where indicated in Appendix 1/18.

7 The Contractor shall inform the Overseeing Organisation of any details agreed with the highway authority for traffic signs, lighting, construction, maintenance, removal and reinstatement of any temporary diversion for traffic proposed by the Contractor.

119 Routeing of Vehicles

1 The Contractor shall comply with the requirements described in Appendix 1/19 in connection with routeing of vehicles.

120 Recovery Vehicles for Breakdowns

1 When required in Appendix 1/20 the Contractor shall have available for immediate use recovery vehicles of a single recovery firm as described in Appendix 1/20. The Contractor shall arrange for the recovery vehicles to be inspected as described in Appendix 1/20 a minimum of 14 days before they are required.

2 The Contractor shall ensure that recovery vehicles are operated in accordance with the recommendations of the "Code of Practice on Health and Safety for Vehicle Recovery Operators" published by the Association of Vehicle Recovery Operators, and that operators work to the directions of the Traffic Safety and Control Officer or his deputy in accordance with sub-Clause 117.19.

3 The Contractor shall ensure that all recovery vehicles have accommodation for four adult passengers in addition to the recovery personnel.

4 The Contractor shall ensure that each light recovery vehicle has a crew of at least one operative and that each heavy recovery vehicle has a crew of at least two operatives.

5 The Contractor shall ensure that operators of recovery vehicles hold a certificate certifying successful completion of a course on breakdown recovery recognised by the Institute of the Motor Industry or the Motor Industry Training Standards Council.

6 The Contractor shall take out and maintain in force, insurance to cover the operation of recovery vehicles.

7 The Contractor shall ensure that once a recovery firm has been appointed, it is not changed except to a firm complying fully with the requirements of this Clause.

8 The Contractor shall ensure that all of the recovery vehicles are stationed at such points as described in Appendix 1/20 subject to specific requests from police officers acting under their statutory powers.

9 In addition to the recovery crew stated in sub-Clause 3 of this Clause, all incidents shall be attended and supervised by a trained recovery operative whose prime responsibility is traffic safety in relation to the recovery operation.

10 The Contractor shall ensure that the recovery vehicles are used to remove shed loads and vehicles that are stationary due to mechanical breakdown or accident damage or abandoned on a highway open to vehicles. The Contractor shall ensure that the recovery vehicle operators comply with the provisions contained within Appendix 1/20 in connection with this service, subject to specific requests from police officers acting under their statutory powers. The recovery service is to be provided between the 'Roadworks Ahead -2 miles' sign and the 'Road Clear' sign unless otherwise stated in Appendix 1/20.

11 The Contractor shall provide the facilities required by Appendix 1/20 and shall ensure that broken down, accident damaged or abandoned vehicles are not removed by the recovery vehicles other than to the location(s) described in Appendix 1/20 unless some other location has first been agreed with the police.

12 The Contractor shall make no charge for this recovery service to the owner or driver of the recovered vehicle.

13 The Contractor shall ensure that after depositing a broken down, accident damaged or abandoned vehicle at one of the designated locations, the recovery vehicle returns immediately to its station described in Appendix 1/20. The Contractor shall ensure that operators of recovery vehicles at no time attempt to repair vehicles that have broken down.

14 The Contractor shall ensure that the recovery vehicle drivers issue leaflets, as described in Appendix 1/20 to the drivers of vehicles requiring assistance, before the tow commences.

15 Recovery vehicles shall display a sign mounted so as to be clearly visible from the driving seat of a car at a distance of 3 m from the rear of the vehicles. The sign legend shall be "FREE TOW SERVICE. AVAILABLE ONLY TO END OF ROADWORKS". This sign shall at all times be clean and legible and shall not be obstructed.

16 The Contractor shall submit weekly to the Overseeing Organisation, duplicate information sheets logging the assistance given by the recovery vehicles. Blank sheets will be supplied by the Overseeing Organisation.

17 The Contractor shall provide equipment for communication as described in Appendix 1/20. The communication system shall be fully operational before the Contractor undertakes any work which requires recovery vehicles.

18 The Contractor shall ensure that recovery vehicle personnel at all times wear jackets complying with Table 1 Class 3 in BS EN 471, in accordance with sub-Clause 117.18.

19 A lighting board as described in Appendix 1/20 shall be secured to the rear of the vehicle being towed. The board shall be clearly visible to other drivers of vehicles approaching from the rear. It shall be maintained in clean and good working order.

121 Tidal, Flowing and Standing Water

1 The Contractor shall take measures and carry out any operation necessary for dealing with tidal, flowing or standing water within the Site.

122 Progress Photographs

1 The Contractor shall arrange, as described in Appendix 1/22, to have record photographs of the Works taken by a professional photographer.

2 All prints shall be marked on the reverse side with the date of exposure, name and address of photographer, identification reference number, and brief description of the work or features including chainage and direction of view.

3 The copyright of all photographs shall be vested in the Employer and the negatives and prints shall be delivered to the Overseeing Organisation within 4 weeks of exposure. The photographs shall not be used for any purpose whatsoever without the Overseeing Organisation's approval.

123 Not used

124 Health and Safety Restrictions, Precautions and Monitoring

1 The Contractor shall implement the requirements described in Appendix 1/23 to protect members of the public and persons visiting the site from risks arising from the use of equipment, materials or substances defined therein.

125 Temporary Closed Circuit Television (CCTV) System for the Monitoring of Traffic

General

1 Where required in Appendix 1/25, the Contractor shall design, provide, install, maintain, operate and, at the completion of the requirement, remove the temporary CCTV system as specified in this Clause.

The Contractor shall be responsible for obtaining any licences, power supplies and approvals required, including structural approvals, prior to the installation of any equipment.

2 The system shall be designed such that the whole of the works area, including both carriageways and hardshoulders, is covered at all times. There shall be sufficient overlap between the areas covered by adjacent cameras such that there are no blind spots. Supplementary cameras shall be provided in accordance with sub-Clause 6 of this Clause.

3 The system shall be completely independent from, and not cause any interference to, the motorway communications network.

4 The Contractor shall restore each site to its original condition following the removal of cameras and other equipment.

Cameras

5 All cameras shall provide blanket coverage of the works area and shall be fixed in direction of view. The orientation of all cameras on each carriageway shall be the same.

6 Where specified in Appendix 1/25, the Contractor shall design, provide, install, maintain, operate and, at the completion of the requirement, remove supplementary cameras at the locations specified in Appendix 1/25. These supplementary cameras shall have pan, tilt and zoom facilities providing an unimpaired view of traffic in all directions.

7 The cameras and their location shall take account of the sun and lighting such that their effectiveness is not reduced by glare over a 24 hour period.

8 Cameras shall be of a type that provides 24 hr/day operation.

Camera Supports

9 The Contractor shall be responsible for the design, provision, construction, maintenance, operation and, at the end of the requirement, removal of all necessary supporting structures and associated safety fencing, paving, steps and hand rails.

Maintenance

10 The minimum requirements for maintenance shall be:

- i) any faults shall be repaired or the equipment replaced within 4 hours of any fault or failure;
- ii) the whole system (including cameras, monitors and video recording equipment) shall be in full working order for no less than 160 hours in any 7 day period.

11 The cameras shall be located such that they can be removed, replaced and maintained without the need for traffic management.

Monitoring

12 The Contractor shall provide, train and maintain suitable staff for the monitoring of the works area covered by the temporary CCTV system.

13 The Contractor shall provide, maintain and, at the end of the requirement, remove suitable temporary accommodation for monitoring equipment and staff.

14 The monitoring staff shall be competent in the use of the system and shall be responsible for the reporting of breakdowns and faults to the Contractor.

15 The monitoring staff shall maintain a daily log of all incidents within the roadworks area. This log shall be available for inspection by the Overseeing Organisation and the police at all times. The monitoring staff shall report all incidents immediately to the Contractor's Traffic Safety and Control Officer. The Contractor shall provide a suitable communications system for use by the monitoring staff.

16 The monitoring equipment shall include:

- i) 450 mm monitors
- ii) VHS video recorders and sufficient tapes for the duration of the requirement
- iii) Time and date generator

The system shall be such that the image on the monitor and any video recording taken from it shall provide a legible image of the registration plate of any stationary vehicle within 150 metres of the camera.

All monitor images shall include the date, time and unique camera reference.

17 The Contractor shall provide, install, operate, maintain and, at the completion of the requirement, remove a dedicated communication link to the Police Control Office as detailed in Appendix 1/25.

NATIONAL ALTERATIONS OF THE OVERSEEING ORGANISATION OF WALES

150WO Checking Bar Schedules

1 The Contractor shall check the bar schedules and, make any corrections necessary. Checking shall be commenced sufficiently in advance of ordering steel reinforcement to allow for corrections and approvals. The Contractor shall be fully responsible for correctness of the schedules, and the Overseeing Organisation does not accept any liability whatsoever for any errors therein. The schedules, corrected as necessary, shall be the basis of admeasurement.

transfer. Counter-signatures must, however, be attached to printed copies of the data which should be filed for record purposes.

151WO Dimensional Accuracy

1 Before commencing any part of the Works, the Contractor shall check that all co-ordinates, levels and dimensions shown in the Contract Documents are correct. He shall check and satisfy himself that the various parts fit satisfactorily together and in relation to existing physical features. Checking shall be commenced sufficiently in advance of construction to allow for corrections. The Contractor shall be fully responsible for correctness and the Overseeing Organisation does not accept any liability whatsoever for any errors therein.

152WO Agreement on Measurements Involving Computer Equipment

1 If applicable all measurements relating to the Works which involve the use of computer equipment (whether in the taking of the measurements or in the storage of results of the measurements) and will have a bearing on valuations, payment and specification compliance shall, where practicable, be jointly undertaken by the Overseeing Organisation and Contractor's staff. The results of the measurement, as produced by or stored in the respective computer equipment, shall be complied to and certified as being correct by both parties. If joint measurement is not possible, independent check measuring shall be carried out and certifying counter-signatures shall be attached to the original measure and the check-measure.

2 If compatible computerised data-storage systems are employed by both the Overseeing Organisation and the Contractor, agreement on the correctness of the data can be based on data files transferred between the parties in the form of computer disks or by direct

NATIONAL ALTERATIONS OF THE OVERSEEING ORGANISATION OF NORTHERN IRELAND

104NI Standards, Quality Assurance, Agrément Certificates and Other Approvals

Standards

1 Except where the specified standard implements or is technically equivalent to a Harmonised European Standard or to a European Standard adopted for use after 31 December 1985, any requirement for goods or materials to comply with the specified standard shall be satisfied by compliance with

- (i) a relevant standard or code of practice of a national standards body or equivalent body of any state of the European Economic Area or
- (ii) a relevant international standard recognised for use in any state of the European Economic Area or
- (iii) a technical regulation of any state of the European Economic Area or
- (iv) traditional procedures of manufacture of any state of the European Economic Area where these are the subject of a written technical description sufficiently detailed to permit assessment of the goods or materials for the use specified or
- (v) a European Technical Approval (ETA) issued in accordance with the Construction Products Directive 89/106/EEC (or, until procedures are available for the issue of ETAs, a specification sufficiently detailed to permit assessment) for goods or materials of an innovative nature or subject to innovative processes of manufacture and which fulfil the purpose provided for by the specified standard.

provided that the proposed standard, code of practice, regulation, specification, technical description or European Technical Approval provides, in use, levels of safety, suitability and fitness for purpose equivalent to those required by the specified standard in so far as they are not inconsistent with the 'Essential Requirements' of the Construction Products Directive (89/106/EEC). This clause applies also to works only in so far as the means of carrying out such works are indivisibly associated with the goods or materials for which an alternative standard, code of practice, regulation, specification or technical description is proposed.

Quality Assurance

2 When indicated at Appendix 1/24, the Contractor shall institute a quality management system complying with BS EN ISO 9002 and describe this in a Quality Plan. The Quality Plan shall also incorporate the requirements of Appendix 1/24. The Quality Plan shall be submitted to the Overseeing Organisation, within the period(s) given in Appendix 1/24, for acceptance, before any related work is commenced. The Contractor shall allow adequate time for written acceptance to be obtained.

3 Quality Plans and method statements shall indicate "hold points" as follows:

Contractor's hold points: points where no further work shall proceed without the written approval of a designated person of the Contractor's management, who shall be named in the Quality Plan.

Overseeing Organisation's hold points: points where no further work shall proceed without the written approval of a designated representative of the Overseeing Organisation.

The Contractor shall ensure the Quality Plans and associated quality documentation are available to all parties involved in the Works.

4 Where any work, goods or materials to be used in the Works are the subject of an accredited third party quality management scheme listed in Appendix A or an accredited third party product certification scheme listed in Appendix B, only work, goods or materials conforming with such a scheme shall be used and the Contractor shall in each case submit to the Overseeing Organisation a copy of the certificate of conformity affirming compliance with the scheme, unless the goods or materials bear a prescribed certification mark.

5 The requirement for any goods or materials to be manufactured or supplied subject to a quality management scheme listed in Appendix A or product certification scheme listed in Appendix B shall be satisfied by compliance with an equivalent quality management scheme or product certification scheme of any state of the European Economic Area, provided that the proposed scheme is designed to ensure in use levels of safety, suitability and fitness for purpose equivalent to those provided for by the scheme specified. This sub-Clause applies also to works only in so far as the means

of carrying out such works are indivisibly associated with the goods or materials for which an alternative quality management scheme or product certification scheme is proposed.

6 Where any work, goods or materials to be used in the Works are the subject of a Supplier's quality management scheme listed in Appendix A, the Contractor shall require the Supplier of such items to prepare a Supplier's Quality Plan and submit it to the Overseeing Organisation. The Supplier's Quality Plan shall comply with the requirements of Appendix 1/24.

Quality Records

7 The Contractor shall require the Supplier to make available on request contemporary quality records as identified in BS EN ISO 9002 to demonstrate achievement of the required quality and the effectiveness of the quality system. Copies of all quality records shall be made available immediately to the Overseeing Organisation. The Contractor shall require the Supplier to immediately report any non-conforming product to the Contractor. The Contractor shall immediately pass this report to the Overseeing Organisation, and undertake no further related work until any remedial or other measures have been undertaken.

8 The Contractor shall submit the quality records required by this Specification as indicated in Appendix H. No item of work shall be considered complete until these records have been received by the Overseeing Organisation.

Note: Quality terms used in this Clause are as ISO 8402 (BS 4778).

British Board of Agrément Certificates

9 Where any work, goods or materials are required to have a British Board of Agrément Certificate only work, goods or materials so certificated shall be used and the Contractor shall in each case submit to the Overseeing Organisation a copy of the certificate. Types of work, goods and materials subject to such requirements are listed in Appendix C.

10 The requirements of Appendix C shall be satisfied by goods or materials having an equivalent Agrément certificate issued in any state of the European Economic Area, provided that the goods or materials covered by such certificate offer in use levels of safety, suitability and fitness for purpose equivalent to those incorporated in the British Board of Agrément Certificate. This sub-Clause applies also to works only in so far as the means of carrying out such works are indivisibly associated with the goods or materials for which an alternative Agrément certificate is proposed.

11 Not used.

12 Not used.

Type Approval/Registration

13 Where work, goods or materials are required to have type approval/registration only work, goods or materials so approved/registered shall be used and the Contractor shall in each case submit to the Overseeing Organisation a copy of the type approval/registration certificate. Types of work, goods and materials subject to such requirements are listed in Appendix E.

14 Where there is a requirement for work, goods or materials of the types listed in Appendix E to have type approval/registration this will be granted by the Overseeing Organisation where the work, goods or materials have an equivalent approval/registration of the national highway authority of any state of the European Economic Area, provided that such approval/registration offers in use levels of safety, suitability and fitness for purpose equivalent to those incorporated in the type approval/registration.

Named Suppliers or Manufacturers

15 Any requirement in the Contract to use goods or materials which are defined by reference to a named supplier or manufacturer shall be construed as referring to those goods or materials or equivalent. For the purposes of this sub-Clause equivalent goods or materials are those supplied from within the European Economic Area which provide in use levels of safety, suitability and fitness for purpose equivalent to those provided by the specified goods or materials in so far as they are not inconsistent with the 'Essential Requirements' of the Construction Products Directive (89/106/EEC).

Provision of Information

16 Unless otherwise specified, two copies of all information, including valid certificates, in respect of work, goods or materials proposed by the Contractor shall be supplied to the Overseeing Organisation. Where the original documentation is in a language other than English, it shall be accompanied by an English translation. Information and certificates shall be supplied at least four weeks prior to the use of the work, goods or materials in the Works.

17 When required in Appendix 1/4, three copies of detailed working and fabrication drawings shall be submitted for the Overseeing Organisation's approval and when the drawings have been approved the Contractor shall provide transparencies of the approved drawings to the Overseeing Organisation. Minimum period for submission of the drawings prior to

commencement of the related works shall be as stated in Appendix 1/4. Such approval shall in no way relieve the Contractor of his responsibilities for the work under the Contract.

18 When the Contractor proposes to use a different standard, quality management scheme, product certification scheme, Agrément Certificate or type approval/registration from that specified the Contractor shall provide all the relevant information to enable the Overseeing Organisation to ascertain whether or not the proposal is equivalent to the specified requirement. The information shall be supplied at least 4 weeks prior to commencing the related works, to enable the evaluation of equivalence to be made, taking into account the programme for the Works.

112NI Setting Out

1 The Contractor shall, unless otherwise stated in Appendix 1/12, within 3 weeks of the date for commencement of the Works, carry out a check of the co-ordinates and levels of all permanent ground markers and permanent bench marks described in Appendix 1/12 and shall supply the Overseeing Organisation, if requested, with their position and level in order that they may be checked and revised if necessary. The Contractor shall identify and bring to the attention of the Overseeing Organisation any markers that are missing. The Contractor shall comply with any specific requirements for setting out described in Appendix 1/12.

2 The Contractor shall keep updated schedules and drawings of all bench marks (which shall be based on Ordnance Datum of Belfast Mean Sea Level) used in the setting out and shall make these available to the Overseeing Organisation when required.

3 The Contractor shall ensure that where necessary, in order to maintain his programme, lines and levels are set out in such time as to enable Statutory Undertakers' plant and other publicly or privately owned services or supplies to be installed, altered or removed.

4 The Contractor shall survey and record existing details of items which he is required to remove and subsequently replace. The level of survey information to be recorded is described in Appendix 1/12.

117NI Traffic Safety and Management

1 When planning and undertaking work on highways open to traffic the Contractor shall take account of the recommendations contained in the following:

- (a) for work on motorways - "Planning for safety: Guidance Notes for the Health and Safety of

Workers at In-Service Motorway Roadworks Sites", issued jointly by the Department of Transport, the Welsh Office, the Scottish Office Industry Department and the Federation of Civil Engineering Contractors;

- (b) for work on all highways - "Safety at Roadworks: Notes for Guidance (1994 edition)" issued jointly by the Department of Transport and the County Surveyors' Society;
- (c) for recovery vehicles - "Code of practice on Health and Safety for Vehicle Recovery Operators" published by the Association of Vehicle Recovery Operators.

2 When planning traffic safety and management measures the Contractor shall take into account the information contained in Appendices 1/17 and 1/18.

3 The Contractor shall, unless otherwise stated in Appendix 1/17, after consultation with any statutory, police or other authority concerned prepare and submit traffic safety and management proposals within the timescale described in Appendix 1/17 to the Overseeing Organisation. These shall show the proposed traffic safety and management measures including provision of safety zones which he proposes for carrying out the Works. If stated in Appendix 1/17, the proposals shall include the provision of running lanes for the use of emergency vehicles within the Site. If required the Contractor shall make such changes to his proposals as may be necessary to meet the requirements of the Contract. Thereafter the Contractor shall furnish such details and information as may be necessitated by the Works.

4 The Contractor shall design, construct and maintain, or if Appendix 1/17 so provides shall construct and maintain, the central reserve crossovers described in Appendix 1/17 in accordance with the information stated therein. Unless otherwise described in Appendix 1/17, the Contractor shall remove those crossovers when no longer required and reinstate the central reserve to its original condition.

5 If the Contractor intends to construct central reserve crossovers as part of his traffic safety and management proposals he shall submit an outline of the proposals to the Overseeing Organisation in advance, in accordance with the requirements of sub-Clause 3 of this Clause.

6 The Contractor shall submit a formal application, as described in Appendix 1/17, to the appropriate authority for any statutory orders required to be made or notices required to be published in connection with his traffic safety and management proposals. The Contractor shall inform the Overseeing Organisation of details the Contractor has agreed with the highway

authority for traffic signs, lighting, construction, maintenance and removal of any central reserve crossovers.

7 If stated in Appendix 1/17, the Contractor shall undertake the maintenance functions described therein and to the extent there described, on the lengths of highway there specified, until the issue of the appropriate certificate of completion.

8 The Contractor shall, unless otherwise stated in Appendix 1/17, provide, erect, maintain, reposition, cover and uncover and finally remove traffic signs as required by the Works. In so doing, such other measures shall be taken by the Contractor as may be necessitated by the Works in accordance with any special requirements in Appendix 1/17, recommendations in Chapter 8 of the Traffic Signs Manual published by The Stationery Office and amendments thereto detailed in Annex B of Advice Note TA 61 and in Standard TD 49, and other instructions of the Overseeing Organisation listed in Appendix 1/17. The recommendations of Chapter 8 of the Traffic Signs Manual are further extended by Advice Notes TA 63 and TA 64. Where the circumstances of any particular situation are not covered by the recommendations or described in Appendices 1/17 or 1/18, the Contractor shall submit proposals for dealing with that situation to the Overseeing Organisation.

9 Where a temporary speed limit at road works has been imposed and the Works have been temporarily terminated, with the removal of traffic management measures, the Contractor shall ensure that the temporary speed limit signs are covered or taken down for the duration of the cessation of the Works. Where the temporary speed limit signs are covered, the covering material shall be of a glare-resistant type and securely fastened.

10 Traffic signs shall comply with the appropriate Clauses in Series 1200 of the Specification. The Contractor shall unless otherwise stated in Appendix 1/17 keep traffic signs clean, secure and legible and ensure that all signs required to be lit, whether by external or internal lighting, are so lit during periods when road vehicles are required to display lights.

11 Where the Contract provides that the Contractor shall not erect, maintain or reposition traffic signs, the Contractor shall not change in any manner the permanent or temporary traffic signs without instruction from the Overseeing Organisation and shall give such notice as is stated in Appendix 1/17 to indicate when signs should be moved compatible with the progress of the Works.

12 All traffic safety and management measures necessitated by the Works shall be fully operational

before the Contractor commences any work which affects the public highway or the use of it.

13 Any area of highway which has been closed because of the Works shall not be re-opened until all appropriate traffic safety and management measures have been completed and the highway is in a suitable condition for public use.

14 Where work is carried out on, or adjacent to a highway open to traffic the Contractor shall ensure that vehicles and mobile plant under his control operating frequently or regularly on or adjacent to that highway in the execution of the Works shall be painted in a conspicuous colour and shall have sign boards reading 'Road Maintenance' or where appropriate 'Motorway Maintenance'. The signs shall be in accordance with Diagram 7404 of Schedule 12, Part V of the Traffic Signs Regulations (Northern Ireland) 1997. The lettering shall be 150 mm x height for vehicles and plant except that for light vans and cars it shall be the largest x height that can be accommodated out of the following heights: 37.5, 50, 62.5, 75 or 100 mm. In addition each such vehicle or item of plant shall be provided with one or more suitable roof mounted amber beacons fitted and operated in accordance with paragraph 2.3.7.4 of Chapter 8 of the Traffic Signs Manual and The Road Traffic (Northern Ireland) Order 1981.

15 Temporary lighting shall be provided in accordance with Clause 1405 where required by Appendix 1/17, or by the Contractor in the execution of the Works.

16 Temporary Emergency Telephones shall be provided in accordance with Clause 1529 where required by Appendix 1/17, or by the Contractor in the execution of the Works in accordance with sub-Clause 117.3.

17 The Contractor shall provide and suitably sign points of entry to and exit from the Site, for vehicles and plant engaged on the Works. The Contractor shall ensure that when any vehicle or item of plant is reversing within the Site on or adjacent to a highway open to traffic, it does so only under the supervision of a person designated for the purpose of regulating traffic within the Site who shall be readily distinguishable from the remainder of the work force.

18 Where work is carried out on or adjacent to a highway open to traffic the Contractor shall ensure that the workforce and the site supervisory staff at all times wear high visibility warning clothing complying with BS EN 471. Clothing shall be to Table 1, Class 2 or 3 (Class 3 on motorways or other high speed roads) and shall comply with the requirements of para 4.2.3(b). In addition on motorways or other high speed roads full length sleeves meeting the requirements of para 4.2.4 shall be provided for coveralls and jackets. The colour

of the clothing shall normally be “fluorescent yellow” or “fluorescent orange-red” complying with Table 2. The retroreflective material used shall be to Class 2 as defined at Table 5. Clothing complying with other specifications may be used in accordance with Clause 104.2 where they offer equivalent levels of performance in so far as the specification given is not inconsistent with the basic health and safety requirements set out in Annex 2 of the Personal Protective Equipment Directive (89/686/EEC). The Contractor shall ensure that the person in charge of the workforce is readily distinguishable from the person designated in sub-Clause 19 of this Clause and from the remainder of the workforce.

19 Where required in Appendix 1/17, the Contractor shall appoint a Traffic Safety and Control Officer who shall make all arrangements necessary for traffic safety and control including the provision and operation of breakdown recovery vehicles. The Traffic Safety and Control Officer shall have one or more nominated deputies. The Contractor shall provide the Overseeing Organisation with the names of this Officer and his nominated deputies and with telephone numbers or details of other means by which they or one of them can be contacted at any time. Unless otherwise described in Appendix 1/17 the Traffic Safety and Control Officer or a nominated deputy shall be on the Site at all times when traffic management is in operation and shall be readily available to deal with matters related to traffic safety and control (including breakdown recovery vehicles).

20 If an accident or breakdown occurs on a carriageway or hard shoulder open to traffic within or in the vicinity of the Site, the Contractor and operators of recovery vehicles provided in accordance with Clause 120 shall act as requested by police officers acting under their statutory powers.

21 Where required in Appendix 1/17, the Contractor shall provide, erect, maintain and remove Driver Information Signs in accordance with sub-Clauses 22 to 31 of this Clause.

22 Sign face layouts shall be in accordance with Signs 7004 and 7005 of the Traffic Signs Regulations (Northern Ireland) 1997.

23 Legends shall be selected as appropriate from Table 1/1 unless stated otherwise in Appendix 1/17.

24 Sign 7004 shall describe the work activity taking place.

It shall be sited either

- (i) Two miles from major maintenance works and Type A works, as defined by Topic 4 of Chapter 8 of the Traffic Signs Manual, on high speed dual carriageways, or

- (ii) One mile from routine and minor maintenance works and Type B works, as defined by Topic 5 of Chapter 8 of the Traffic Signs Manual, on high speed dual carriageways.

25 Sign 7005 shall indicate how long delays are possible. It shall be sited one mile from major maintenance and Type A works. At the commencement of Works the legend shall read, for example “..... until Sept 98”. At least ten days before the end of carriageway restrictions the date shall be specified more precisely, for example “..... until 30 Sept”. This date shall be further updated, if necessary, until the restrictions are removed.

26 Sign 7004 shall be located within roadworks when part of the road is coned off, and the reason for this is not apparent from the carriageway, for any period exceeding 30 minutes, or one hour if road capacity is maintained.

27 Signs located within roadworks shall only be used where they can be located at least 50 metres beyond the downstream end of a taper and in a position which does not prejudice traffic safety.

28 If needed, Information Signs shall be sited at the beginning and at one kilometre intervals through the Works. They shall not be placed where they may distract drivers negotiating traffic management provisions.

29 Signs shall either be sited for the duration of the works where it is safe and appropriate to do so or provision made to enable their use at short notice.

30 The Contractor shall provide adequate storage facilities clear of any safety zone. Storage within the central reserve or in front of safety fencing shall not be permitted.

31 Information signs shall only be displayed within roadworks where they accurately reflect the reason for the inactivity.