

Aberdeen Western Peripheral Route / Balmedie - Tipperty

Competition for the Design, Build, Finance and
Operation of the Aberdeen Western Peripheral Route /
Balmedie - Tipperty

Volume Five

Schedule 4: O&M Works Requirements

Part 2: Routine Maintenance

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1 Routine Maintenance: Management

1.1 Introduction

- 1.1.1 This Part of these O&M Works Requirements specifies the maintenance requirements and procedures that shall be adopted and implemented by the Company for the day to day operational management of the O&M Works Site.
- 1.1.2 The inspections, patrols and maintenance requirements include but shall not be limited to the management of and procedural requirements for a range of activities which shall be generally cyclical or short term in nature and necessary to keep the O&M Roads in a good and safe working order and safeguard the environment. The requirements of this Part shall only apply to the O&M Roads subject to an Access Road Level of Service to the extent necessary to comply with the requirements of Part 10 of these O&M Works Requirements and to the Restricted Services Roads, to the extent necessary to comply with the requirements of Part 11 of these O&M Works Requirements.
- 1.1.3 Section 1 of this Part shall not apply to the routine inspection of structural elements of Structures.
- 1.1.4 This Part shall also apply to non-structural elements of Structures.
- 1.1.5 These requirements do not cover major structural maintenance for the replacement or renewal of worn-out road pavements although the procedural requirements may assist in pavement management.
- 1.1.6 There may be instances where the Company is required to carry out additional inspections, Safety Patrols and maintenance requirements to take account of local conditions. Details of such local requirements are provided in Appendix L.
- 1.1.7 At the Restricted Services Commencement Date there may be items of Construction Plant and equipment within O&M Works Site which require maintenance. Such items shall normally be related to safety and include temporary safety barriers, temporary supports to Structures, temporary electrical works and temporary traffic management equipment and related equipment to make safe Category 1 Defects. During the mobilisation period, the Company shall agree the requirements and availability of all such items of Construction Plant and equipment after the Restricted Services Commencement Date with the outgoing Scottish Minister's 'Trunk Road Management O&M Works Site'.
- 1.1.8 Wherever practicable, the Company shall minimise the environmental impacts and disruption to Users arising from inspections and maintenance by undertaking multiple activities concurrently.

1.2 Routine Maintenance and Quality System

- 1.2.1 The Company shall use the routine maintenance and management function (RMMF) of the Integrated Roads Information System as referenced at Section 15 of Part 1 of these O&M Works Requirements, in accordance with this Part to implement, monitor and record all inspections, Safety Patrols, Category 1 Defects and Category 2 Defects and Routine Maintenance Operations undertaken on the O&M Works Site, including maintenance of Traffic Scotland Maintained Equipment.

Where the RMMF and/or the Lighting Management Function (LMF), forming part of the RMMF, is used to make entries relating to Roadside Electrical Assets such entries and records shall include all attributes detailed within the Trunk Road Inventory Manual. Entries and records made relating to inspections, maintenance and defects etc. at Roadside Electrical Assets shall be undertaken in accordance with the Trunk Road Inspection Manual. The identifying ID associated with the Roadside Electrical Assets shall be recorded as part of any entry or record made for such assets.

1.2.2 A data capture device as specified in paragraph 15.1.7 of Part 1 of these O&M Works Requirements shall be used during inspections and patrols to record a range of data relating to the O&M Works and for uploading and downloading such data to and from the RMMF. Data shall include:

- (i) Category 1 Defects and Category 2 Defects;
- (ii) Inspections and Safety Patrol data;
- (iii) Electrical testing data;
- (iv) Electricity meter readings;
- (v) New accessibility barriers that are not recorded in the RMMF; and
- (vi) Missing assets and incorrectly located, described or identified assets or their attributes.

1.2.3 All Category 1 Defects and Category 2 Defects and new accessibility barriers shall be recorded within the RMMF within 24 hours of identification. All other maintenance data and data associated with maintenance shall be recorded within the RMMF within 4 Business Days of the activity being completed on each inventory item. The Inspections and Safety Patrols data shall include but not be limited to:

- (i) date of Inspection or Safety Patrol;
- (ii) time that each section was commenced;
- (iii) link;
- (iv) section;
- (v) start chainage;
- (vi) end chainage;
- (vii) names of the inspectors;
- (viii) method of inspection;
- (ix) details of weather conditions;
- (x) road surface conditions;
- (xi) Category 1 Defects and Category 2 Defects – if none input “none”; and
- (xii) other relevant information.

1.2.4 Records of all Operations shall be incorporated in the RMMF within 4 Business Days of completion of such Operations. Routine Maintenance records shall include but not be limited to:

- (i) dates of execution of Operations;
- (ii) link;

- (iii) section;
- (iv) start chainage;
- (v) end chainage;
- (vi) Operations carried out; and
- (vii) methods used.

1.2.5 The Company shall include in its O&M Works Quality Plan procedures for validation of all data for correctness and completeness before it shall be incorporated within the RMMF. The Company shall maintain the accuracy of the RMMF data at all times. When the Company discovers any error or omission in the RMMF data such error or omission shall be corrected in the RMMF by the Company within 4 Business Days of its discovery.

The Company shall include or procure the inclusion of documented procedures for the effective management of inspections, patrols and Routine Maintenance activities in the O&M Works Quality Plan. The procedures shall include, but shall not be limited to:

- (i) how the Company shall use the RMMF;
- (ii) Operations that shall be carried out by inspection and patrol teams to make Category 1 Defects safe at the time of inspection or patrol, by immediate repairs or removal of hazards or other procedures for making safe or dealing with exceptional circumstances;
- (iii) storage and retrieval of all records using either the RMMF or other storage facilities;
- (iv) checklists that shall be used for all types of inspections and patrols;
- (v) records that shall be maintained to support the robustness of all types of inspections and patrols;
- (vi) how the Company shall validate all data for correctness and completeness before it shall be incorporated into the RMMF;
- (vii) how the Company shall monitor and demonstrate the accuracy and rigorousness of its inspections and patrols;
- (viii) how the Company shall carry out its Safety Inspection and Safety Patrol duties including:
 - (a) the vehicles to be utilised for and the equipment to be carried by them; and
 - (b) details covering inspection and Safety Patrol routes such as programmes, resources, estimated inspection speeds and average durations.
- (ix) how the Company shall carry out its Detailed Inspection duties;
 - (a) the equipment to be used by Detailed Inspection teams;
 - (b) programmes, resources; and
 - (c) method statements.
- (x) how the Company shall carry out its maintenance and how the required timescales will be achieved;
- (xi) how the Company shall group Category 2 Defects together, prioritises the repairs and prepare programmes for the repairs; and

- (xii) method statements for all inspecting and maintaining all types of roadside electrical apparatus in accordance with guidelines within Transport Scotland guidance document 'LDS8023_09 – Electrical Maintenance Guidelines and the O&M Requirements'.

1.2.6 Defects and Response Times

Category 1 Defects shall be dealt with as required by paragraphs 1.2.6 (i) (a) to (k) inclusive. Category 2 Defects shall be dealt with as required by paragraphs 1.2.6 (ii) (a) to (e), inclusive.

Defects shall be classified as either Category 1 Defects or Category 2 Defects by the Company after consideration of the potential impact upon all Users, including but not limited to motorists, motorcyclists and non motorised Users.

- (i) Category 1 Defects
 - (a) Defects that require prompt attention because they represent an immediate or imminent hazard shall be classified as Category 1 Defects. Guidance is provided at Section 4 of Appendix A.
 - (b) Category 1 Defects shall be made safe at the time of inspection, if practicable, by taking one of the following actions:
 - (i) Execute immediate repairs;
 - (ii) Remove hazard; or
 - (iii) Take such other measures as shall be necessary to protect the public and other Users.
 - (c) When a Category 1 Defect cannot be repaired immediately and the hazard cannot be removed by the inspection team or Safety Patrol, warning signs shall be erected immediately on the verge in advance of the Category 1 Defect. Such signs shall be maintained in place until such time as a temporary or permanent repair shall have been completed.
 - (d) Where a Category 1 Defect shall be of a very serious nature rendering the O&M Road unsafe for Users, the Company in co-ordination with the Police shall close the appropriate part of the O&M Road for as short a period as possible whilst remedial action shall be undertaken.
 - (e) Where an immediate permanent repair of a Category 1 Defect or removal of the hazard shall not be practicable, temporary or permanent repairs shall be undertaken as soon as possible but in any case not later than required by the following timescales:
 - (i) Category 1 Defects on Carriageways no later than 06:00 hours following identification; and
 - (ii) All other Category 1 Defects within 24 hours of identification.
 - (f) All Category 1 Defects which have been temporarily repaired shall be permanently repaired within 28 days, with the exception of within 56 days for bridge parapets.
 - (g) Where Category 1 Defects with potentially serious consequences for Users of the O&M Roads shall have been made safe by means of temporary signing or repair the

Company shall make arrangements for a special inspection regime to ensure that the continued integrity of the signing or repair shall be maintained until a permanent repair can be made.

- (h) The Company shall not be permitted to re-categorise Category 1 Defect as Category 2 Defect after the completion of a temporary repair. Category 1 Defects shall remain as that category until the permanent repair shall have been carried out or shall no longer be required.
- (i) Where Category 1 Defects have been made safe by means of temporary signing or repair, the Company shall make arrangements to ensure that the continued integrity of the signing or repair is maintained until a permanent repair can be made.
- (j) For Category 1 Defects associated with missing warning or mandatory traffic signs, temporary repairs must include for the provision of adequate substitute signing.
- (k) Within 24 hours of identification, the Company shall attach a photograph of each Category 1 Defect to the corresponding RMMF record. A photograph of each temporary and permanent repair shall also be attached to the RMMF record within four days of completion of each repair.

Notwithstanding any temporary repair, hazard mitigation measures or interim measures that may be taken by the Company or others in respect of a Category 1 Defect, such Category 1 Defect shall be deemed to exist until permanently remedied.

(ii) Category 2 Defects

Category 2 Defects are those defects that shall not be Category 1 Defects but which shall:

- (a) involve a risk of structural deterioration;
- (b) risk development into a Category 1 Defect prior to the next Detailed Inspection;
- (c) constitute a reduction in safety;
- (d) constitute a reduction in level of service or amenity; or
- (e) constitute an environmental threat.

Category 2 Defects shall be dealt with in accordance with the requirements of paragraphs 1.2.7 to 1.2.9, inclusive.

1.2.7 The Company shall assign a level of priority to each Category 2 Defect – from urgent, high, medium or low, which shall be categorised as 2.1, 2.2, 2.3 or 2.4. Category 2 Defects shall be dealt with in accordance with the following requirements:

Urgent - Category 2.1	Defects shall be repaired within 24 hours; a temporary repair shall be permanently repaired within 28 days.
High – Category 2.2	Defects shall be permanently repaired within 28 days.

Medium – Category 2.3	Defects shall be permanently repaired within 24 weeks.
Low – Category 2.4	Defects shall be noted and incorporated within planned programme of Operations.

- 1.2.8 Category 2 Defects shall be repaired by the Company within planned programmes of Operations, whenever possible, taking into account the relevant priority for repair, which shall be recorded within the RMMF.
- 1.2.9 Identified maintenance activities shall be carried out by the Company within the stated response times unless specified otherwise in this Part.
- 1.2.10 The Company shall programme the check lists for inventory items within the RMMF into the data capture devices used for inspections and patrols such that:
- (i) only the permitted inventory and maintenance codes can be used within the relevant Detailed Inspection codes for each infrastructure item shown in Appendix; and
 - (ii) inventory codes can only be used if the inventory item exists in the individual section.
- 1.2.11 For roadside electrical assets, road lighting and power supplies, collection of information shall include the exact location and as installed unique identification of any faulty asset as identified from site.
- 1.3 Inspections and Patrols
- 1.3.1 The programme of inspections shall commence during the first week following the Restricted Services Commencement Date.
- 1.3.2 The Company shall carry out the following types of inspections:
- (i) Safety Inspections;
 - (ii) Safety Patrols;
 - (iii) Night Time Safety Patrols.
 - (iv) Ad hoc Inspections; and
 - (v) Detailed Inspections.
- 1.3.3 The Company shall operate procedures whereby its staff and employees travelling within the O&M Works Site, for purposes other than carrying out specified inspections, shall report any defects observed.
- 1.3.4 The Company shall undertake the inspections specified in paragraph 1.3.2 at the frequencies specified in Table 1.3, unless the requirements elsewhere in this Part and in Part 5 of these O&M Works Requirements are more onerous, in which case they shall apply.

Table 1.3 Inspection, patrol and Testing Frequencies

Safety Patrol frequency	Carried out such that interval between Safety Inspections and Safety Patrols does not exceed 4 days.
Safety Inspection frequency	Maximum of every 7 days
Night Time Safety Patrols frequency	April to Sept – Every 28 days Oct to March – Every 14 days (Note paragraph 1.7 requirements)
Detailed Inspections frequency	As paragraph 3.3.1 in Appendix A
Electrical Inspection and Testing to BS7671	As defined in TD23 of the DMRB and LDS8005, however electrical inspection and testing shall be at a maximum of 5 year intervals in accordance with Transport Scotland requirements.

1.3.5 At least 8 weeks prior to the Restricted Services Commencement Date the Company shall submit to the Contracting Authority an O&M Works Site inspection programme for the following Contract Year and thereafter at annual intervals.

1.4 Safety Inspections

1.4.1 Safety Inspections shall be designed primarily to identify Category 1 Defects. The inspection shall inspect all that can be seen within the O&M Works Site from a slow moving vehicle. Safety Inspections shall be carried out using trained personnel operating as a two person team. Personnel undertaking Safety Inspections shall deal with debris and hazards as specified in paragraph 1.4.3.

1.4.2 At least one Safety Inspection of all pedestrian and cycle facilities shall be carried out by the Company on foot every 6 months.

1.4.3 Category 1 Defects encountered by the Company shall be dealt with as set out in paragraph 1.2.6. Safety Inspection personnel shall also record other obvious Defects. Appendix A contains schedules of types of defects and some criteria information that should be considered and recorded by the Company.

1.4.4 The vehicle that shall be used for Safety Inspections shall as a minimum meet the following requirements:

- (i) it shall be conspicuously coloured with a sign attached at the rear stating "ROAD SURVEY" in accordance with Chapter 8 of the Traffic Signs Manual;
- (ii) it shall be fitted with roof mounted light bars or at least two amber flashing beacons in accordance with Chapter 8 of the Traffic Signs Manual;
- (iii) it shall be fitted with an automatic distance recorder reading at 1 metre intervals and accurate to +/- 1 percent;
- (iv) it shall be fitted with a communication system which shall enable immediate contact to be made with the appropriate depot; and

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- (v) it shall carry signs and cones, to enable defects to be fenced off or to advise road Users of a defect.
- 1.4.5 Where possible Safety Inspections shall be carried out during off-peak traffic periods in order to minimise traffic disruption. At least 2 of these inspections each year shall be carried out either during or immediately following a period of wet weather to identify areas prone to flooding.
- 1.4.6 Safety Inspections shall be recorded against the network referencing and include the date and time each link and section was completed. All Safety Inspection data, including inspection route and defect data, shall be uploaded into the RMMF within 24 hours of the Safety Patrol commencing.
- 1.4.7 Slip roads and link roads within interchanges shall be inspected at the same frequency as the associated main carriageways of the O&M Roads.
- 1.5 Safety Patrols
- 1.5.1 Safety Patrols supplement Safety Inspections by providing more frequent surveillance of the routes to identify Category 1 Defects.
- 1.5.2 Safety Patrols, where possible, shall be carried out during off-peak traffic to minimise traffic disruption. The Company shall include documented procedures in its O&M Works Quality Plan for determining the appropriate inspection speeds for Safety Patrols.
- 1.5.3 Safety Patrols shall be recorded against the network referencing and include the date and time each link and section was completed. All Safety Patrol data, including inspection route and defect data, shall be uploaded into the RMMF within 24 hours of the Safety Patrol commencing.
- 1.6 Night Time Safety Patrols
- 1.6.1 The Company shall carry out night time Safety Patrols of all illuminated roadside electrical assets in accordance with the requirements of the DMRB except that they shall be carried out at intervals not exceeding 14 days from 1 October to 31 March and at intervals not exceeding 28 days from 1 April to 30 September.
- 1.6.2 Night time Safety Patrol data shall be downloaded by the Company onto the RMMF within 24 hours of the survey being completed. The night time Safety Patrol data shall include details of weather conditions, road surface conditions, initials of the inspector and all other relevant factors
- 1.7 Ad hoc Inspections
- 1.7.1 Ad hoc inspections shall be carried out as necessary in response to reports of defects or Incidents on the network from Company staff or any third party. The Company may use Incident Response Resources or other Company resources to carry out ad hoc inspections and investigate reported defects or Incidents.
- 1.7.2 All confirmed Category 1 Defects and Category 2 Defects identified by ad hoc inspections shall be uploaded into the RMMF within 24 hours of identification.
- 1.8 Detailed Inspection Requirements
- 1.8.1 Detailed Inspections shall be walking inspections which involve comprehensive scrutiny of the assets and are designed primarily to identify Category 2 Defects, with programmes of routine maintenance usually being derived to deal with them. In respect of Roadside Electrical apparatus the definition of 'Detailed Inspection' shall be as defined within TD23 of the
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Design Manual for Roads and Bridges (DMRB).

- 1.8.2 Requirements for the Detailed Inspections are specified in this Part of these O&M Works Requirements, including its Appendix A. Detailed Inspections shall be completed within a maximum of 14 days of their programmed completion date, unless there is prior written agreement from the Contracting Authority to the contrary.
- 1.8.3 Arrangements for Detailed Inspections by the Company shall seek to minimise disruption to traffic, other road Users and the public whilst ensuring adequate access for proper inspection and a safe working environment for the inspection personnel involved. Whenever practicable Detailed Inspections that require Lane Occupations shall be carried out in conjunction with other maintenance work. Where separate Lane Occupations are necessary, inspections shall be undertaken in off-peak traffic conditions.
- 1.8.4 Detailed Inspections by the Company shall be carried out from the footway, hard shoulder, grass verge or nearside Lane, as appropriate.
- 1.8.5 Additional Detailed Inspections by the Company shall be carried out from the central reserve, protected by offside Lane Occupations, at intervals not exceeding 2 years. Inspections shall cover all items within and adjacent to the central reservation. Any centre Lanes and offside Lanes of the carriageway including the road markings and road studs of such Lanes, shall be inspected.
- 1.8.6 Appendix A of this Part defines the items that shall be inspected and the defects to be noted by the Company. The Company shall program check lists into the data capture devices used to record inspections. Detailed Inspection data including those showing a nil return, shall be entered by the Company onto the RMMF database within 4 days of completion of such inspections.
- 1.8.7 The Company shall validate the accuracy of inventory during Detailed Inspections. Any errors shall be recorded as a defect and corrected within four days. Such errors shall also be processed and corrected in accordance with the documented procedures in the Company's Quality System.
- 1.8.8 The maintenance response requirements are defined in this Part of these O&M Works Requirements in paragraph 1.2.7 for Category 2 Defects identified during a Detailed Inspection and in Section 2, including references to Appendix A of this Part, for maintenance activity requirements.

1.9 Observations by the Contracting Authority

1.9.1 General

- (i) The Contracting Authority may observe situations within the O&M Works Site which are immediately hazardous or non compliant with the O&M Works Requirements. In such circumstances a 'notice' shall be issued to the Company.
- (ii) Such notices shall not be deemed as instructions from the Contracting Authority to the Company.
- (iii) Such notices are a method of formally identifying issues on the network.
- (iv) The Company shall ensure it addresses and responds immediately to any hazard notice.

1.9.2 Notifications

- (i) Written confirmation of the hazard or non compliance shall be issued by the Contracting Authority on the same day it shall have been observed. This shall be sent directly to the Company by e-mail.
- (ii) Each such written confirmation shall be given a unique reference number by the Contracting Authority.
- (iii) Each such written confirmation shall include details of the hazard or non compliance and to whom and when the verbal report was given. Link, section and chainage shall be given, if available, for road defects and traffic management hazards and non compliances, together with a textual location description.
- (iv) Where possible a photograph shall be sent with each written hazard confirmation.

1.9.3 Actions by the Company

- (i) Once the Company shall have received a notice the Company shall respond directly to the Contracting Authority.
- (ii) The response from the Company shall be within 7 days unless the notice states otherwise. A faster response, for example 24 hours, may be required if surfacing operations shall be on-going or a slower response, for example 28 days, for issues such as weed growth.
- (iii) Such response time shall not be related to the time taken for action by the Company in dealing with an observation by the Contracting Authority. The response may take the form of a written reply showing the Company's intended actions or reasons for no action. The Company shall be under no obligation to work to any deadline other than those contained in this Agreement.

1.9.4 Monitoring of Notices Issued by the Contracting Authority

- (i) A record of each notice issued by the Contracting Authority, including the date of issue, their required reply date, and the response from the Company, shall be maintained by the Company.

2 Routine and Cyclic Maintenance: Activities

2.1 Carriageway

2.1.1 General

- (i) The requirements of this Section 2.1 shall relate to the surface of carriageways, which shall include, hard strips, hard shoulders, crossovers, lay-bys, central islands and central reserves.
- (ii) These requirements cover minor repairs to surfaces and shall include operations to maintain the carriageway in a safe and acceptable condition. This includes the repair of individual potholes or the patching of limited areas where surface deterioration shall require attention.
- (iii) These requirements do not include the replacement or renewal of those parts of the O&M Works Site which shall have become unserviceable and which require structural pavement maintenance work including surface dressing.

2.1.2 Inspection Requirements

- (i) Inspection of carriageways shall be carried out by the Company in accordance with the requirements of Section 1 of this Part.
- (ii) Inspections shall be carried out at the intervals and frequencies defined in Section 3.3 of Appendix A to this Part. Detailed Inspections of carriageways shall be used by the Company to identify those types of defects likely to require Routine Maintenance, including additional structural pavement condition surveys, and shall not be used by the Company to establish general structural pavement condition.

2.1.3 Cyclic Maintenance

- (i) Cyclic maintenance of carriageways shall include but not be limited to weed control in accordance with Clause 3002 of the Specification.

2.2 Non-Motorised User Facilities

2.2.1 General

- (i) The requirements of this Section 2.2 shall relate to repairs to non motorised User facilities and shall include Operations to maintain the non motorised User facilities in a safe and acceptable condition. This shall include the repair of individual potholes or the patching of limited areas where surface deterioration requires attention. It shall also relate to the identification of areas requiring the replacement or renewal of those parts which have become unserviceable and which shall require structural pavement maintenance.
- (ii) Pedestrian facilities shall be non motorised User facilities and shall include paved areas for pedestrians within the O&M Works Site. Pedestrian facilities include footpaths, footways, the walking surfaces of subways, underbridges, overbridges and pedestrian rights of way within the O&M Works Site.
- (iii) Cycle facilities shall be non motorised User facilities and shall

include paved facilities available for persons with pedal cycles with or without a right of way on foot within the O&M Works Site.

- (iv) Cyclic maintenance of pedestrian and cycle facilities shall include but not be limited to weed control in accordance with Clause 3002 of the Specification.

2.2.2 Inspection Requirements

- (i) Inspection of non motorised User facilities shall be carried out by the Company in accordance with the requirements of Section 1 of this Part.
- (ii) The Company shall carry out Detailed Inspections by employees on foot.

2.2.3 Maintenance Requirements

- (i) Pre-cast concrete or stone footway slabs which shall have only superficial cracks need not be replaced as a routine maintenance operation unless there shall be a need to reset the slab because of another defect.
- (ii) Graffiti shall be treated as a Category 2.1 Defect and shall be removed by the Company.
- (iii) Cyclic maintenance of non motorised User facilities shall include but not be limited to weed control in accordance with Clause 3002 of the Specification.

2.3 Covers, Gratings, Frames and Boxes

2.3.1 General

- (i) The requirements of this Section 2.3 shall relate to repairs and replacement of all types of gratings covers frames and boxes within carriageways, verges and non motorised User facilities within the O&M Works Site.
- (ii) Many covers in carriageway, verges and non motorised User facilities are the responsibility of Undertakers and other parties. The New Roads and Streetworks Act 1991 Act (Section 82) requires an Undertaker to maintain its apparatus in the street to the reasonable satisfaction of the roads authority. Covers, gratings or frames associated with the Traffic Scotland Maintained Equipment are the property of the Scottish Ministers and the responsibility to maintain this apparatus shall fall to the Company.
- (iii) Where an inspection or Safety Patrol by the Company identifies a hazardous defect it shall be made safe in accordance with the requirements of paragraph 1.2.6.
- (iv) Where the cover or frame that has a defect is the property of an Undertaker or third party the Company shall give notice to the Undertaker or third party to carry out permanent repairs within a specified period equal to that in which the Company would be required to complete similar repairs.
- (v) Records of defects of Undertakers' apparatus and of actions taken shall be entered into the RMMF. Category 1 Defects shall remain recorded as un-repaired in the RMMF until the Company shall witness that a permanent repair shall have been completed.

- (vi) The performance of the Undertakers shall be monitored by the Company using the RMMF and reported to the Contracting Authority within 4 weeks of the end of the Contract Year.

2.3.2 Inspection Requirements

- (i) Inspection of gratings covers frames and boxes shall be carried out by the Company in accordance with the requirements of Section 1 of this Part.
- (ii) The Company shall, when inspecting the gratings of gullies and other similar surface water catchment items take the opportunity to check that the item is functioning satisfactorily.
- (iii) Rocking gratings or covers with only small movements under load may nevertheless be a nuisance in semi-urban areas because of the intrusive noise they make. If complaints shall be received the Company shall inspect such defects and if confirmed they shall be treated as Category 2.1 Defects.

2.3.3 Maintenance Requirements

- (i) The Company shall replace a cracked or broken item where it is unstable.
- (ii) Cyclic maintenance of gratings covers frames and boxes shall include but not be limited to weed control in accordance with Clause 3002 of the Specification.

2.4 Kerbs, Edgings and Pre-formed Channels

2.4.1 General

- (i) The requirements of this Section 2.4 shall relate to repairs to kerbs edgings quadrants and pre-formed channels of all types and shall include maintaining these items in a safe and acceptable condition.

2.4.2 Inspection Requirements

- (i) Inspection of kerbs edgings quadrants and pre-formed channels shall be carried out by the Company in accordance with the requirements of Section 1 of this Part.

2.4.3 Maintenance Requirements

- (i) The Company shall include short, sometimes isolated, lengths of kerb serving gullies or grips.
- (ii) Routine Maintenance of kerbs and edgings shall include but not be limited to weed control in accordance with Clause 3002 of the Specification.

2.5 Road Drainage

2.5.1 General

- (i) The requirements of this Section 2.5 shall relate to all types of road drainage including piped drainage systems, gullies, catchpits and interceptors, piped grips, ditches, filter drains, culverts and small span bridges, settlement, attenuation and storage ponds and otherwise, along with any related ancillary items.
- (ii) In determining the requirements for maintenance of road drainage the following points shall be considered by the Company:

- (a) Surface water reduces safety particularly if allowed to pond on a running carriageway;
 - (b) The road pavement structure shall be adequately drained to allow reduction of maintenance responsibilities and prolong the life of the road;
 - (c) The Relevant Authorities have a duty to prevent nuisance to adjoining landowners by flooding and to ensure that polluted effluent from the clearing of road drainage shall not be directed indiscriminately into watercourses.
- (iii) Maintenance considerations in this Section 2.5 shall be in addition to those stated in paragraphs 1.2.7 to 1.2.9, inclusive.
 - (iv) The Company shall identify parts of the road drainage that regularly do not operate satisfactorily and take the necessary remedial action to solve the problem.
 - (v) The Company shall apply the requirements of this Section 2.5 to the requirements of Sections 2.6 to 2.15, inclusive.

2.6 Piped Drainage Systems

2.6.1 General

- (i) The requirements of this Section 2.6 shall relate to piped drainage systems. Piped drainage systems shall include, but shall not be limited to, piped drains, combined drainage and kerb systems, feeder pipes, slot drains, kerb or channel offlet pipes, kerb block drains, channels through chambers, piped grips covered by the Series 500 of the Specification, drainage facilities that are not Structures and other drains not defined in Sections 2.11 or 2.12 as filter drains or culverts and small span bridges.
- (ii) Piped grips shall be defined as short lengths of pipe carrying water from a road channel across a verge to a ditch, piped drainage system or chamber.
- (iii) Piped grips are often located at known sensitive drainage points and therefore shall require regular attention by the Company. The connecting pipe often laid close to the surface and shall therefore be prone to damage which may in turn result in blockage.
- (iv) Piped drainage systems should be self-cleansing and maintenance shall only become necessary when a blockage or other fault occurs.
- (v) The Company shall identify parts of piped drainage systems that regularly do not operate satisfactorily, including from inspections, Safety Patrols, reports from emergency services and complaints, request or comments from the public, and shall rectify those parts that regularly do not operate satisfactorily.

2.6.2 Inspection Requirements

- (i) Detailed Inspection piped drainage systems shall be carried out by the Company in accordance with the requirements of Section 1 at intervals of 1 and 2 years respectively.
- (ii) Detailed Inspections shall be external and carried out from each end of each section of each length of the piped drainage system to determine general structural condition and signs of silting or blockage.

- (iii) The content of Section 2.5 shall be considered by the Company when inspecting or investigating defects or potential defects of piped drainage systems.

2.6.3 Maintenance Requirements

- (i) Maintenance in accordance with Clause 6104AR of Part 5 of the O&M Works Requirements shall be carried out on all piped drainage systems when blockages or major restrictions in capacity shall be detected.
- (ii) The Company shall pressure jet with clean water all slot drains and all kerb block drains once per year to remove any silt and ensure free flow. All debris lodged in the slots or block holes shall be removed at this time.
- (iii) The Company shall clean other drains when blockages or major reductions in capacity leading to flooding occur.

2.7 Gullies, Manholes, Catchpits and Interceptors

2.7.1 General

- (i) The requirements of this Section 2.7 shall relate to gullies manholes catchpits, soakaways, oil separators and other interceptors.
- (ii) The content of Section 2.5 shall be considered by the Company when inspecting or investigating defects or potential defects of gullies manholes catchpits, soakaways, oil separators and other interceptors.

2.7.2 Inspection Requirements

- (i) The inspection shall be carried out by the Company when the items shall be open for emptying.
- (ii) Inspection of gullies manholes catchpits, soakaways, oil separators and other interceptors shall be carried out by the Company in accordance with the requirements of Section 1.

2.7.3 Maintenance Requirements

- (i) The Company shall empty gullies manholes catchpits and interceptors when necessary to ensure water does not stand on the adjacent carriageway or flow past the gully and shall ensure that silt traps and oil separators and otherwise are effective.
- (ii) The Company shall dispose of all collected sediment debris and polluted water to a licensed waste management facility in accordance with the requirements of Scottish Environment Protection Agency (SEPA), unless SEPA agree otherwise. Where SEPA agree, polluted water may be disposed of in an alternative manner provided the necessary discharge consents arrangements with sewerage Undertakers and permits have been obtained.
- (iii) Polluted water shall not be used to dislodge compacted materials in a gully or catchpit if there is any risk of that water being discharged into the drainage system. Polluted water shall not be used to refill gully pots. After emptying shall have been carried out the outlet pipe of gullies shall be jetted with clean water when practicable to ensure that it shall be flowing freely away. Any restrictions in flow shall be noted and the Company shall undertake investigations as necessary.

- (iv) The Company shall cleanse oil interceptors to avoid pollution.
- (v) The Company shall not jet or surcharge gullies with polluted water or discharge polluted water and/or sludge into watercourses or land other than suitably licensed waste management facilities.
- (vi) Cyclic Maintenance shall be carried out in accordance with Clause 6102AR of Part 5 of the O&M Works Requirements at frequencies required by that Clause and in any case not less than once in each Contract Year.

2.8 Drainage Grips

2.8.1 General

- (i) The requirements of this Section 2.8 shall relate to drainage grips defined as open channels cut across rural verges and leading to ditches, piped drainage systems or filter drains.
- (ii) Drainage grips are often located at known sensitive drainage points.
- (iii) The open channel of drainage grips can be prone to damage which may result in blockage.
- (iv) The content of Section 2.5 shall be considered by the Company when inspecting or investigating defects or potential defects of drainage grips.

2.8.2 Inspection Requirements

- (i) Inspection of drainage grips shall be carried out by the Company in accordance with the requirements of Section 1 of this Part.

2.8.3 Maintenance Requirements

- (i) The Company shall clean and recut drainage grips, including at locations where there shall be a drainage need but there shall be no evidence of a drainage grip, as necessary, such that free flow shall not be impeded and water shall not stand on the carriageway adjacent to the grip.
- (ii) Cyclic Maintenance shall be carried out in accordance with Clause 6103AR of Part 5 of the O&M Works Requirements at frequencies required by that Clause and in any case not less than once in each Contract Year and as and when blockages occur.

2.9 Ditches

2.9.1 General

- (i) The requirements of this Section 2.9 shall relate to ditches.
- (ii) If not properly monitored ditches can become overgrown with vegetation, silted up, blocked with debris or rubbish and suffer bank erosion to the extent that the flow becomes impeded.
- (iii) These undesirable effects shall be prevented by the Company. Water in ditches shall not in itself be normally harmful unless stagnation occurs (resulting in a possible health hazard), flooding shall be caused or a resulting higher water table adversely affects the road or other structural foundations. Defects can also cause a nuisance to adjacent land users.
- (iv) The content of Section 2.5 shall be considered by the Company when inspecting or investigating defects or potential defects of

gullies manholes catchpits, soakaways, oil separators and other interceptors.

2.9.2 Inspection Requirements

- (i) Inspection of ditches shall be carried out by the Company in accordance with the requirements of Section 1 of this Part.
- (ii) The Company shall carry out Detailed Inspections at intervals not exceeding 5 years.

2.9.3 Maintenance Requirements

- (i) The Company shall clear out ditches as necessary such that free flow shall not be impeded.
- (ii) Cyclic maintenance of ditches shall include but not limited to weed control in accordance with Clause 3002 of the Specification.

2.10 Filter Material, Filter Drains and Soakaways

2.10.1 General

- (i) The requirements of this Section 2.10 shall relate to filter material, filter drains and soakaways, which may incorporate a properly formed invert or collection pipe. If pipes are incorporated the requirements in this Section 2.10 shall also apply.
- (ii) Filter drains and soakaways act as a drain for surface water run-off from carriageways, hardshoulders, verges, cutting and embankment slopes and adjacent land. Separately or in combination they also control the ground water level below the O&M Works Site and other structures, adjacent verges, and land outside the O&M Works Site.
- (iii) The efficiency of filter drains and soakaways can be impaired by the formation of a silt crust (with attendant vegetation growth) at the top of the filter material or by the accumulation of trapped silt in the lower layers. Each defect can occur with or without the other.
- (iv) The surface defect can be detected by inspection at ground level, but the deeper accumulations can only be confirmed by excavation, usually by means of trial pits. Ponding at the surface may occur if defects are present where the drain performs the dual role of the surface and sub-surface water collection. If there shall be no obvious surface defect, ponding may indicate silt in the lower layers.
- (v) The content of Section 2.5 shall be considered by the Company when inspecting or investigating defects or potential defects of filter material, filter drains and soakaways.

2.10.2 Inspection Requirements

- (i) Inspection of filter material, filter drains and soakaways shall be carried out by the Company in accordance with the requirements of Section 1 of this Part.

2.10.3 Maintenance Requirements

- (i) The Company shall undertake maintenance in accordance with Clause 6105AR of Part 5 of the O&M Works Requirements at the following minimum frequencies:
 - (a) 3 years in verges and central reserves; and
 - (b) 5 years in areas remote from the carriageway.

- (ii) Cyclic Maintenance of filter material shall include but not be limited to weed control in accordance with Clause 3002 of the Specification.

2.11 Culverts, Small Span Bridges and Drainage Structures

2.11.1 General

- (i) The requirements of this Section 2.11 shall relate to culverts, small span bridges and drainage structures.
- (ii) Culverts, small span bridges and drainage structures shall include box culverts and drainage structures other than Structures and other than piped drainage systems.
- (iii) Many culverts, small span bridges and drainage structures can tolerate some silting and vegetation growth before efficiency is impaired to the point where they shall be cleared. Grilles, trash screens or watergates fitted across the ends of some culverts are however particularly prone to blockage restricting the free flow of water through the culvert.
- (iv) The content of Section 2.5 shall be considered by the Company when inspecting or investigating defects or potential defects of culverts, small span bridges and drainage structures.

2.11.2 Inspection Requirements

- (i) Inspection of culverts, small span bridges and drainage structures shall be carried out by the Company in accordance with the requirements of Section 1, subject to paragraph 2.11.2 (ii).
- (ii) The Company shall carry out Detailed Inspection twice yearly in February or March and September or October each year and shall include the inspection of grills, trash screens and watergates.

2.11.3 Maintenance Requirements

- (i) Cyclic Maintenance shall be carried out in accordance with Clause 6106AR of Part 5 of the O&M Works Requirements as required either during the Detailed Inspection or within 28 days of the Detailed Inspection or at such times as may be required when blockages or major reductions in capacity shall be detected.

2.12 Settlement, Attenuation and Balancing Ponds

2.12.1 General

- (i) The requirements of this Section 2.12 shall relate to settlement, attenuation and balancing ponds and otherwise. These requirements exclude any associated feeder pipes or ditches as referred to in Sections 2.6 to 2.9.
- (ii) Settlement, attenuation and balancing ponds and otherwise and associated feeder pipes or ditches are provided for flood control and anti-pollution purposes.
- (iii) The Company shall pay particular attention to the following possible faults and safety aspects. Typical defects that shall be categorised shall include but not be limited to:
 - (a) silting in the settlement, attenuation and balancing ponds and otherwise causing a loss of storage capacity;

- (b) damage or erosion to the banks, walls or bunds of settlement, attenuation and balancing ponds and otherwise;
 - (c) damage or obstruction to the settlement, attenuation and balancing ponds and otherwise outlet which shall or may affect the controlled rate of discharge; and
 - (d) safety aspects including, but not limited to, the maintenance of fences, screens or planting to prevent the public, particularly children, gaining access.
- (iv) Settlement, attenuation and balancing ponds and otherwise may become important sites for nature conservation. Prior to commencing any maintenance of a pond the Contracting Authority shall be consulted by the Company to ascertain whether specialist environmental advice shall be required.
- (v) Settlement, attenuation and balancing ponds and otherwise may be sited some distance from the roads in the O&M Works Site.

2.12.2 Inspection Requirements

- (i) Inspection frequencies in accordance with the requirements of Section 1 shall not apply to settlement, attenuation and balancing ponds and otherwise.
- (ii) The Company shall carry out Detailed Inspections of settlement, attenuation and balancing ponds and otherwise at 6 month intervals. One inspection shall take place in the spring and one in the autumn.

2.12.3 Maintenance Repairs

- (i) The Company shall carry out Operations as necessary to ensure that free flow shall not be impeded and capacity not be measurably or otherwise significantly diminished.
- (ii) There shall be no Cyclic Maintenance requirements for settlement, attenuation and balancing ponds and otherwise. However, maintenance shall include weed control in accordance with Clause 3002 of the Specification and in compliance with 2.12.1 (iv) of this Part.

2.13 Ancillary Drainage Items

2.13.1 General

- (i) The requirements of this Section 2.13 shall relate to ancillary drainage items. Ancillary drainage items shall include but not be limited to outfalls, headwalls, aprons, sluices, tidal flaps, penstocks, valves, spillways, trash screens, watergates, grilles, tidal flaps, pumps and other specialist equipment.
- (ii) The Company shall inspect the complete drainage system which may include many ancillary items. Inspections shall note erosion, mechanical damage and operational efficiency.
- (iii) A schedule of ancillary items for drainage, including but not limited to: headwalls, aprons, spillways, trash screens, watergates, grilles, all sluices, tidal flaps, penstocks, valves and pumps, shall be provided and maintained by the Company.
- (iv) The content of Section 2.5 shall be considered by the Company

when inspecting or investigating defects or potential defects of ancillary drainage items.

2.13.2 Inspection Requirements

- (i) Inspection frequencies in accordance with the requirements of Section 1 shall not apply to ancillary drainage items.
- (ii) The Company shall carry out Detailed Inspections of outfalls headwalls and aprons at intervals of not exceeding 1 year.
- (iii) The Company shall carry out Detailed Inspections of ancillary drainage items other than outfalls headwalls and aprons at 6 monthly intervals during the spring and autumn of each year.
- (iv) The Company shall carry out Detailed Inspections of pumps and other specialised mechanical equipment at intervals not exceeding 6 months or in accordance with the manufacturers' written recommendations and/or instructions if these shall be more frequent.

2.13.3 Maintenance Requirements

- (i) Cyclic Maintenance shall be carried out in accordance with Clause 6107AR of Part 5 of the O&M Works Requirements either during the Detailed Inspection or within 28 days of the Detailed Inspection or as required to ensure free flow shall not be impeded.

2.14 Flooding

2.14.1 General

- (i) The requirements of this Section 2.14 shall relate to maintenance requirements in the event of flooding of the O&M Works Site caused by the inadequate provision or operation of road drainage, abnormally high river and tidal water, or by inadequacies in the non-road drainage system.
- (ii) The Company shall ensure that the drainage systems and associated Structures referred to in this Part are maintained in accordance with the requirements of this Part to be structurally sound and able to remove water from trafficked surfaces and sub-layers without causing pollution and flooding and that the effects of any flooding are mitigated.
- (iii) Flooding shall be defined as a sufficient amount of water lying on the network which:
 - (a) represents a hazard to Users;
 - (b) may interrupt the free flow of traffic; or
 - (c) causes damage to other Structures or the carriageway.
- (iv) Flooding may arise from a blockage or some other fault identified as a result of an inspection, patrol, report from an Emergency Service, report or complaint from the public or complaint from any other source. Flooding may also arise from a blockage or some other fault in the drainage systems on adjoining properties or land which interfaces with the O&M Roads network drainage systems.
- (v) Where immediate repairs do not remove the flooding, the Company shall erect flood warning signs where any or all of the situations referred to in paragraph 2.14.1(iii) of this part occur.

- (vi) A flooding report in the format shown in Appendix M of this Part shall be completed for each occurrence of flooding and attached to the relevant Defect Record in the routine maintenance and management function of the Integrated Road Information System within four days. Additional documentation such as photographs, reports and results of further investigation shall also be attached.

2.14.2 Inspection Requirements

- (i) The Company shall carry out inspections to determine areas prone to flooding and report the findings to the Contracting Authority within 12 months of the Restricted Services Commencement Date and annually thereafter.
- (ii) The Company shall carry out Detailed Inspections during periods of wet weather:
 - (a) at known flooding Disruption Risk Sites, and
 - (b) to identify other areas of flooding or evidence of flooding.
- (iii) The Company shall also carry out Detailed Inspections as necessary to identify any flooding reported as a result of an inspection, patrol, report from Emergency Service, report or complaint from the public or complaint from any other source.
- (iv) Information gathered from such inspections shall be taken into account when preparing the flooding management plan.

2.14.3 Maintenance Requirements

- (i) Where flooding occurs causing hazardous conditions the Company shall immediately place in position warning signs and, if necessary, closure and diversion signs. Road closures, Lane Occupations, diversions and otherwise may be required in certain instances. The Company shall carry out such Operations as are necessary to allow the O&M Works Site to be re-opened promptly. As soon as the O&M Works Site is reopened, the Company shall immediately remove all warning, closure and diversion signs and otherwise.
- (ii) When any serious flooding shall have occurred, the Company shall carry out an investigation into the causes and shall submit to the Contracting Authority within 14 days of such incident a report explaining the cause(s) of the flooding, what actions the Company shall have taken, what further actions the Company shall be planning to take and explaining any limitations on these actions for preventing reoccurrences of the flooding and, if relevant, make recommendations to the Contracting Authority when mitigation actions shall be outside the responsibility of the Company.
- (iii) If the cause of the flooding shall be attributable to the actions of a third party the Company shall notify in writing the third party immediately and request that action shall be taken to prevent the flooding. The Company shall report such incidents in writing to the Contracting Authority.

2.15 Network Operations and Miscellaneous Equipment

2.15.1 General

- (i) The requirements of this Section 2.15 shall relate to Traffic Scotland

- Maintained Equipment, miscellaneous equipment and communications equipment, which shall include but not be limited to the equipment described at paragraph 6.1.4.
- (ii) Maintenance of the Traffic Scotland Active Maintained Equipment defined in paragraph 6.1.2 shall be undertaken by authorised contractors under separate contracts which shall be managed directly by Transport Scotland and out with the scope of this Agreement apart from provision of traffic management measures defined in Section 6.
 - (iii) The extent of the Company's inspection, maintenance, replacement, repair and any other Service responsibilities for Traffic Scotland Maintained Equipment required in Section 6 shall take precedence over the requirements in this sub-section 2.15.
 - (iv) The Company shall carry out Detailed Inspections of all the equipment described in paragraph 2.15.2 and the results shall be entered into the RMMF and transferred into the Fault Quality System, as described in Section 1 and Section 6.
 - (v) The Company shall not interfere with any equipment defined in paragraph 6.1.2 which it shall have inspected but shall ensure that any faults identified in that equipment during the course of the Company's Detailed Inspections shall be reported to the Traffic Scotland Manager via the Fault Quality System described in Section 6.
 - (vi) The Company shall hold a record of the above ground equipment in the RMMF. In addition the Company shall maintain record drawings showing the installation location, origin and destination of communication cable runs, electrical supply and associated power cables to equipment and cabinets. These records shall be amended by the Company within 14 days of any change to the installations and copied to the Traffic Scotland Manager.
 - (vii) Where access is required by any of the parties to an electrical equipment cabinet that provides electrical energy to both a Company maintained device and communications and miscellaneous equipment maintained by others, it shall be undertaken in accordance with the access procedure set out in Appendix N of this Part. The maintenance, inspection and testing regime for such electrical equipment cabinets is set out in Appendix N of this Part.

2.15.2 Inspection Requirements

- (i) The Company shall carry out Detailed Inspections on the various items of equipment in accordance with the requirements in Section 1, except as defined otherwise in this Part and as follows:
 - (a) Matrix Signals and Variable Message Signs
 - (i) The Company shall carry out Detailed Inspections of matrix signals and variable message signs for obscuration legibility and physical damage including legibility of the signal identification number every 3 months.
 - (b) Equipment Cabinets
 - (i) The Company shall carry out Detailed Inspections of

cabinet sites to check their structural condition and surface protective finish, the satisfactory operation of seals, hinges and locks, the apparent waterproofness of the installation and that paths, steps and handrails provide safe unobstructed access and to confirm that external identification numbers are still present.

(c) CCTV and Speed Cameras

- (i) The Company shall carry out inspections every 3 months for physical damage and safe access.

2.15.3 Maintenance Requirements

- (i) The following requirements shall be in addition to those stated in paragraph 1.2.6 and Section 6.
- (a) Any breakdown or damage to any of the types of equipment listed in paragraph 2.15.2 which shall render it inoperable or unsafe shall be deemed to be an emergency and where such equipment is the responsibility of others, as referred to in paragraph 2.15.1, the Company shall provide such assistance to the Scottish Minister's authorised contractor as may be required.
- (b) In addition the Company shall comply with the night time Safety Patrols requirements of Section 1.6 of this Part.

2.16 Embankments and Cuttings

2.16.1 General

- (i) The requirements of this Section 2.16 shall relate to inspections by the Company of embankments and cuttings, including rip-rap faces.
- (ii) The Company shall perform the functions of the managing agent as specified in HD 41 of the DMRB.
- (iii) Guidance on inspections by the Company and on failure modes and their identification together with procedures for repairs are specified in HD41 of the DMRB.
- (iv) Geotechnical assets may be in the ownership of the adjacent landowner and if so it may be the landowner's responsibility to maintain the stability of the asset from adversely affecting the O&M Works Site. The Company shall inform in writing any adjacent landowner of any potential geotechnical problems on his land which could affect the O&M Works Site and liaise with the landowner regarding take the necessary remedial action. The Company shall consult with the Contracting Authority on the necessary course of action.

2.16.2 Inspection Requirements

- (i) Inspection frequencies in accordance with the requirements of Section 1 shall not apply to embankments and cuttings.
- (ii) The Company shall carry out Detailed Inspections of all embankments and cuttings to check for any indication of instability at intervals not more than 1 year in accordance with the inspection, maintenance and records, including RMMF, requirements of HD41 of the DMRB.

- (iii) Where the Company finds evidence that an embankment or cutting may be unstable in any way a slope failure report (using Geotechnical Maintenance Form Part A in Appendix B to HD 41 of the DMRB) together with a remedial works proposal (using Geotechnical Maintenance Form Part B in Appendix B to HD 41 of the DMRB) shall be submitted to the Contracting Authority within 14 days of the inspection.
- (iv) In addition to the inspection requirements of this Section 2.16, the Company shall increase the inspection frequency in order to ensure that the safety of Users, the public and adjacent landowners shall be maintained if it shall be found that areas of the O&M Works Site become prone to regular Defects appearing that could in any way be due to geotechnical instability.

2.16.3 Maintenance Requirements

- (i) The Company shall carry out Operations to remove debris from behind netting, repair and replace netting, removal of debris in rock traps and from behind rock fences and shall deal with Emergencies in accordance with these O&M Works Requirements.
- (ii) Other maintenance shall only be undertaken with the agreement of the Contracting Authority following the submission of the Geotechnical Maintenance Forms Part A and Part B as specified in paragraph 2.16.2.

2.17 Geotechnical Assets

2.17.1 General

- (i) Geotechnical assets include cuttings and embankments and a wide range of natural geological strata and man-made materials, many of which may have been reworked, mixed or modified. These materials may also be supported, strengthened or drained to aid stability or reduce subsidence.
 - (ii) Geotechnical assets may be in the ownership of the adjacent land owner. Where they are not the responsibility of the Contracting Authority, it is the landowner's responsibility to maintain the stability of the assets to prevent them from affecting the O&M Roads adversely. The Company shall notify adjacent landowners, in writing, of any potential geotechnical problems on their land which could affect the O&M Roads and liaise with the landowner regarding the necessary remedial action. Copies of all correspondence shall be forwarded to the Contractor. The Company shall report any recommendations regarding remedial action and any failures of the landowners in fulfilling their responsibilities to the Contracting Authority.
 - (iii) Guidance on inspections by the Operating Company and on geotechnical features, their identification and the procedures for repairs shall be as detailed in the DMRB.
- (a)

2.17.2 Inspections

- (i) Detailed Inspections of geotechnical assets shall be carried out at intervals not exceeding 12 months.

2.17.3 Maintenance

- (i) Maintenance of geotechnical assets shall be carried out as necessary in accordance with clause 6130AR of the Specification and shall include the removal of debris from behind netting, in rock.

2.18 Sweeping and Cleansing of Roads

2.18.1 General

- (i) The requirements of this Section 2.18 relate to the Scottish Ministers' duty under Sections 89(1) and (2) of the Environmental Protection Act 1990 to keep motorways and special roads clear of litter and refuse and to keep motorways and special roads clean.
- (ii) In carrying out this duty the Company shall comply with the Code of Practice on Litter and Refuse and in any case litter shall not be allowed to fall below grade C as specified in the CoP.
- (iii) Special roads to which these requirements shall apply are the A90 and A956 Special Roads.
- (iv) For the purpose of this Agreement any reference to grassed areas in the Code of Practice for Litter and Refuse shall include all areas of the O&M Works Site other than hard surfaced areas.

2.18.2 Inspection Requirements

- (i) Detailed Inspections in accordance with the requirements of Section 1 shall not apply to sweeping and cleansing of roads.

2.18.3 The O&M Works Quality Plan shall document how it shall comply with the requirements referred to in this Section 2.19 and in Clause 3101AR of Part 5 of the O&M Works Requirements.

2.18.4 Maintenance Requirements

- (i) O&M Roads subject to Trunk Road Level of Service
 - (a) The Company shall ensure all areas within the boundaries of the O&M Roads subject to Trunk Road Level of Service shall be swept and/or scavenged as the need arises in order to remove litter, refuse and debris and achieve the standards of cleanliness set out in the Environmental Protection Act 1990: Code of Practice on Litter and Refuse. If a particular source of wind blown litter can be identified the Company shall request the owners to control their site more effectively. The Company shall send a report to the Contracting Authority detailing the problem and action taken.
 - (b) Dealing with detritus and vegetation growth in channels which is likely to obstruct the flow of water or cause structural deterioration does not fall within the scope of the Environmental Protection Act 1990.
- (ii) O&M Roads subject to Access Road Level of Service
 - (a) On O&M Roads subject to Access Road Level of Service the Company shall ensure all road maintenance requirements of sweeping and cleansing shall be met including the service of notices under the Environmental Protection Act 1990.
 - (b) Dealing with detritus and vegetation growth in channels, which is likely to obstruct the flow of water or cause structural deterioration, does not fall within the scope of the Environmental

Protection Act 1990. Such detritus and growth shall be treated in accordance with the requirements of Section 2.12.

2.18.5 Requirements over and above the Environmental Protection Act 1990

- (i) Notwithstanding the requirements of the Environmental Protection Act 1990 the Company shall sweep twice each Contract Year all paved areas including non motorised User facilities within the O&M Works Site where this has not been carried out by the local authority.

2.18.6 Maintenance in respect of sweeping and cleansing and litter and refuse shall comply with the requirements of Clauses 3101AR and 3102AR of Part 5 of the O&M Works Requirements.

2.19 Removal of Dead Animals

2.19.1 General

- (i) The Company shall comply with the requirements of Clause 3103AR of Part 5 of the O&M Works Requirements.
- (ii) Dead animals which constitute a hazard or a risk to health or to the environment shall be treated as Category 1 Defects. All other dead animals will be removed within 24 hours of notification or discovery.
- (iii) If the animal is a domestic pet any microchip identification shall be scanned and any identification tags shall be removed and delivered to the police together with a brief description of the animal.
- (iv) The Company shall attempt to contact the owner of the dead animal and shall keep the carcass of any domestic animal for a period of 2 weeks in conditions to prevent further deterioration in case the owner wishes to claim back the carcass. After this period, the Company shall dispose of the carcass in accordance with the requirements of the local authority.
- (v) There shall be no requirement to keep the carcass of any non-domestic animal, which shall be disposed of in accordance with the requirements of the local authority.

2.19.2 Inspection Requirements

- (i) There shall be no Detailed Inspection requirement for removal of dead animals.

2.19.3 Maintenance Requirements

- (i) There shall be no Routine Maintenance requirement for removal of dead animals.
- (ii) Cleaning shall include as a minimum hand or mechanical sweeping of all hard areas, removal of objects, water supply, removal of sweepings and disposal of material and objects.

2.20 Road Restraint Systems (Pedestrian and Vehicular)

2.20.1 General

- (i) The requirements of this Section 2.20 shall relate to road restraint systems (pedestrian and vehicular) including but not limited to:
 - (a) tensioned corrugated beam safety fence;
 - (b) untensioned corrugated beam safety fence;

- (c) open box beam safety fence;
 - (d) tensioned rectangular hollow section safety fence;
 - (e) wire rope safety fence;
 - (f) concrete barriers; and
 - (g) pedestrian guard railing as defined in paragraph 4.21 of BS EN 1317-1:1998.
- (ii) The requirements of this section shall not relate to vehicle parapets as defined in paragraph 4.14 of BS EN 1317-1:1998.
 - (iii) All inspections and maintenance of road restraint systems shall comply with BS7669 Part 3: 1994.

2.20.2 Inspection Requirements

- (i) Detailed Inspections in accordance with the frequency requirements of Section 1 shall not apply to vehicle road restraint systems.
- (ii) The Company shall carry out Detailed Inspections of all vehicle road restraint systems excluding concrete barriers at intervals not exceeding 2 years, but including in respect of mounting height, surface protective treatment and structural condition. The Detailed Inspection shall be carried out in accordance with the requirements of BS7669 Part 3: 1994.
- (iii) The Company shall carry out Detailed Inspections at intervals not exceeding 2 years of all tensioning devices.
- (iv) The Company shall carry out Detailed Inspections of concrete barriers in respect of height and structural condition at intervals not exceeding 2 years.
- (v) The Company shall carry out inspections of pedestrian road restraint systems in accordance with the requirements of Section 1 with respect to height and condition.

2.20.3 Because of the potential danger to Users, damaged sections of road restraint systems (pedestrian and vehicular) shall be treated as Category 2 Defects.

2.20.4 Maintenance Requirements

- (i) The following requirements shall be in addition to those stated in paragraphs 1.2.6 to 1.2.10.
- (ii) Maintenance of road restraint systems shall include, inter alia, the repair of damaged sections and correct assembly and Operation, including the tension of steel tensioned road restraint systems, including wire rope.
- (iii) Where an inspection shows a section of steel road restraint system extending to 20 metres or more to be mounted at heights outside the limits specified in paragraph 2.21.5 the Company shall remedy the situation within 12 weeks of such inspection. Where a survey shows inadequate surface protection this shall be treated as a Category 2 Defect.
- (iv) The Company shall reset road restraint systems connections to the correct torque when inspections shall be undertaken.

2.20.5 Mounting Heights for Steel Road Restraint Systems

- (i) The specified limits of the mounting heights for the various steel road restraint systems shall be:
 - (a) Tensioned Corrugated Beam and Open Box Beam Road Restraint Systems:
580 millimetre to 640 millimetre to the centre of the beam.
 - (b) Wire Rope Road Restraint Systems:
575 millimetre to 595 millimetre to mid point of top ropes; and
480 millimetre to 500 millimetre to centre line of lower ropes.
 - (c) Untensioned Corrugated Beam Road Restraint Systems:
500 millimetre to 560 millimetre to the centre of the beam (where the safety fence was erected to a nominal height of 530 millimetre to the centre of the beam); and
580 millimetre to 640 millimetre to the centre of the beam (where the safety fence was erected to a nominal height of 610 millimetre to the centre of the beam).

2.21 Fences, Walls, Screens and Noise Barriers

2.21.1 General

- (i) The requirements of this Section 2.21 shall relate to all types of fences (excluding road restraint systems), walls, screen fences, snow fences and noise barriers which shall be the responsibility of the Contracting Authority.
- (ii) These requirements do not relate to parapets and guard rails on Structures, including the structural elements of noise barriers except in the case of Category 1 Defects.
- (iii) These requirements do not relate to retaining walls which shall be classified as Structures.
- (iv) Fences, walls, screens or noise barriers along the boundaries of roads other than Special Roads shall generally be the responsibility of the adjoining landowner.
- (v) Walls which retain a road within the O&M Works Site shall generally be the responsibility of the Contracting Authority. Boundary walls which retain land above a road generally shall be the responsibility of the landowner.

2.21.2 Inspection Requirements

- (i) Inspection of fences, walls, screen fences, snow fences and noise barriers shall be carried out by the Company in accordance with the requirements of Section 1 and the additional requirements of this Section 2.22.
- (ii) The Company shall carry out Detailed Inspections of fences, walls, screen fences, and noise barriers in respect of integrity and stockproof qualities. The Company shall identify areas of repeated vandalism and notify the Contracting Authority in writing.
- (iii) The Company shall carry out Detailed Inspections of fences, walls, screen fences, and noise barriers in respect of structural condition at intervals of 2 years.

- (iv) Where defects shall be identified by the Company in fences, walls, screen fences, snow fences and noise barriers which shall not be the responsibility of the Contracting Authority the Company shall notify the owner and shall in writing request that repairs shall be carried out.
- (v) When maintenance shall be required on existing retaining walls, consideration shall be given by the Company to the provision of non motorised User protection in accordance with BA48 of the DMRB. Where the Company considers that such protection would be appropriate, it shall submit a report to the Contracting Authority for written instruction.
- (vi) Detailed Inspection shall identify steel concrete and timber elements which as a result of long term deterioration shall require replacement.

2.21.3 Maintenance Requirements

- (i) There shall be no Cyclic Maintenance requirement for fences, walls, screens and noise barriers.
- (ii) The Company shall treat defects in boundary fences which shall be in urban areas, adjacent to public open spaces, and other high risk locations where children could stray onto the Trunk Roads, as Category 1 Defects.

2.22 Road Studs

2.22.1 General

- (i) The requirements of this section relate to reflective and non-reflective road studs of all types and colours including stainless steel and other studs installed as link and section markers.
- (ii) To be effective, all types of road studs shall be firmly fixed and set at the correct level. Reflecting types shall retain their reflectivity. Some reflecting types are designed to be self cleansing but the lenses can become dirty or obscured by deposits of detritus and can become less effective by becoming more deeply embedded in the road surface.

2.22.2 Inspection Requirements

- (i) Detailed Inspections in accordance with the frequency requirements of Section 1 shall not apply to road studs.
- (ii) The Company shall carry out Detailed Inspections of road studs in accordance with the inspections methods and frequencies of paragraphs 3.6 to 3.11 inclusive of TD26 of the DRMB.
- (iii) Inspections for reflectivity of retro-reflective road studs carried out in accordance with paragraph 3.9 of TD26 of the DRMB shall be made every 14 days during October to March inclusive and every 28 days during April to September inclusive of each Contract Year.
- (iv) The Company shall wherever possible carry out Detailed Inspections when Lane closures for other activities are in operation. Where displacement of road studs is beginning to occur in significant number which may be indicative of a general fault with the road studs then specific Lane closures for road stud inspection shall be undertaken.

- (v) Detailed Inspections of intelligent road studs shall be carried out in accordance with the manufacturer's recommendations.

2.22.3 Maintenance Requirements

- (i) There shall be no Cyclic Maintenance requirement for retro-reflective and non reflective road studs.
- (ii) Maintenance of intelligent road studs shall be carried out in accordance with the manufacturer's recommendations.

2.22.4 Categorisation of Defects and Response Times

- (i) Categorisation of defects in accordance with the requirements of Section 1 shall not apply to road studs.
- (ii) Categorisation of defects and response times shall be carried out in accordance with paragraphs 3.12 to 3.15 inclusive of TD26 of the DRMB.
- (iii) The Company shall programme major maintenance O&M Works to enable the O&M Works to be completed before the onset of winter.
- (iv) All reflecting road studs shall comply with BS EN 1463-1:1998.

2.23 Road Markings

2.23.1 General

- (i) The requirements of this Section 2.23 shall relate to the maintenance of road markings.

2.23.2 Inspection Requirements

- (i) Detailed Inspections in accordance with the frequency requirements of Section 1 shall not apply to road markings.
- (ii) The Company shall carry out Detailed Inspections of road markings in accordance with methods of Inspection and frequencies or paragraphs 2.5 to 2.9 inclusive of TD26 of the DMRB.

2.23.3 Maintenance Requirements

- (i) Categorisation of Defects in accordance with the requirements of Section 1 shall not apply to road markings.
- (ii) Categorisation of Defects and response times for permanent repairs shall be carried out in accordance with paragraphs 2.12 to 2.17 inclusive of TD26 of the DMRB.

2.24 Road Traffic Signs

2.24.1 General

- (i) The requirements of this Section 2.24 shall relate to permanent road traffic signs including, but not limited to, permanent bollards, permanent marker posts, telephone hoods, refuge beacons, ILCS equipment and painted surfaces of vehicle road restraint systems painted for road safety purposes. Road traffic signs shall also include all authorised signs owned by third parties including tourist signs, boundary signs, roadside services signs, motoring organisation signs, Ministry of Defence signs or any other authorised signs.
- (ii) The Company shall maintain record drawings of illuminated signs showing electrical installation, supply and distribution details.

These record drawings shall be amended by the Company within 10 days of any changes being effected.

2.24.2 Inspection Requirements

- (i) Detailed Inspections in accordance with the frequency requirements of Section 1 shall not apply to road traffic signs.
- (ii) The Company shall carry out Detailed Inspections of traffic signs in accordance with the types of inspection and frequencies required by paragraph 2.3 of TD25 of the DMRB.
- (iii) The Company shall carry out testing for electrical safety as required by paragraph 5.1.9 of TD25 of the DMRB, but at not more than 5 yearly intervals.
- (iv) The measured coefficient of retroreflectivity results shall be recorded against each relevant inventory item in the routine maintenance and management function of the Integrated Road Information System.

2.24.3 Maintenance Requirements

- (i) The Company shall carry out cyclic maintenance in accordance with and at the frequencies as referred to in paragraph 5.1 of TD25 of the DMRB.
- (ii) The Company shall maintain power supplies.

2.24.4 Categorisation of Defects and Response Times

- (i) Categorisation of defects in accordance with the requirements of Section 1 requirements shall not apply to road traffic signs.
- (ii) Category 1 Defects for road traffic signs shall be those categories of defects as referred to in Chapter 3 of TD25 of the DMRB as "Category 1" and "Category 2 (High and Medium Priority)".
- (iii) Category 2 Defects for road traffic signs shall be deemed to be of the category of defect referred to in Chapter 3 of TD25 of the DMRB as "Category 2 (Lower Priority)".
- (iv) Response times for completion of permanent repairs shall be as referred to in Chapter 4 of TD25 of the DMRB. For "Category 2 (High and Medium Priority)" an urban trunk road shall be any trunk O&M Road that shall be subject to a speed limit less than the national speed limit for that type of road.

2.25 Road Traffic Signals

2.25.1 General

- (i) The requirements of this Section 2.25 shall relate to permanent traffic signal installations and associated equipment and signalled pedestrian crossings.
- (ii) Traffic signal installations may be equipped with remote monitoring facilities for certain aspects of operation. Where such monitoring is provided the fault log shall be regularly checked.
- (iii) The Company shall maintain record drawings showing installation electrical supply and distribution details. Record drawings shall be amended by the Company within 10 days of any change.
- (iv) Where traffic signals are monitored remotely by a local roads

authority, the maintenance and operation of such traffic signals shall remain the responsibility of the local roads authority. The Company shall maintain the outstation and its associated equipment including the communications line.

- (v) The inspection and maintenance of traffic signals which are the responsibility of the local roads authority shall be undertaken by the Company in liaison with the local roads authority. The Company shall give the local roads authority a minimum of 10 Business Days' notice of any inspection or planned maintenance activity that may require the signals to be off central control, switched off or which is likely to have a significant impact on the normal flow of traffic. Where the inspection is to include an operational review of the performance of the traffic signals, the Company shall consult with the local roads authority to identify any operational issues of which the local roads authority may be aware that should be considered within the review.
- (vi) No later than 12 months after the Restricted Services Commencement Date, the Company shall undertake a full review of the signal equipment for which it is responsible to establish a detailed inventory of the existing equipment, facilities and special provisions and plans in use on the network. This information shall be used to provide and maintain the following records for each installation:
 - (a) installation drawing;
 - (b) electrical supply and distribution details;
 - (c) designer's 'Specification for the Traffic Signal Controller TR2500', (or equivalent);
 - (d) final 'Specification For Traffic Signal Controller TR2500' (or equivalent);
 - (e) communications details;
 - (f) detector location plans;
 - (g) operational strategy;
 - (h) valid electrical test certificate;
 - (i) valid detector test certificate;
 - (j) outstation transmission unit and or remote equipment wiring schedule; and
 - (k) Site maintenance log book.
- (vii) All Site information shall be maintained in a central repository and in the controller cabinet, with the exception of the Site maintenance log book which shall be retained only within the controller cabinet and updated on every visit.
- (viii) Site information and drawings shall be amended by the Company within 10 Business Days of any change being effected.
- (ix) The Company shall provide any missing Records during the first 12 months of Restricted Services.

2.25.2 Inspection Requirements

- (i) Detailed Inspections in accordance with the frequency requirements of Section 1 shall not apply to road traffic signals.
- (ii) The Company shall carry out Detailed Inspections in accordance with the inspection requirements and frequencies of paragraph 2.3 of TD24 of the DMRB and the electrical safety requirements and frequencies as required by paragraph 4.2 of TD24 of the DMRB.
- (iii) Detailed Inspections shall include review of the traffic signal settings for control of traffic.
- (iv) The Company shall report the results of the reviews in writing to the Contracting Authority with recommended changes not later than 28 days after the end of each Contract Year.

2.25.3 Maintenance Requirements

- (i) The Company shall carry out maintenance of traffic signals in accordance with Clause 1276AR of Part 5 of the O&M Works Requirements as required but at the frequencies referred to in paragraph 3.1 of TD24 of the DMRB.
- (ii) The Company shall maintain power supplies.

2.25.4 Categorisation of Defects and Response Times

- (i) Category 1 Defects for road traffic signals shall be deemed to be those categories of defects referred to in Chapter 3 of TD24 of the DMRB as "Category (i)". Category 1 Defects shall be permanently repaired within the period specified in Clause 1277AR of Part 5 of the O&M Works Requirements of such defects being identified or reported.
- (ii) Category 2 Defects for road traffic signals shall be deemed to be those categories of defects as referred to in Chapter 3 of TD24 of the DMRB as "Category (ii)".
- (iii) The Company shall in addition, carry out permanent repairs of Category 2 Defects in traffic signal installations within 6 weeks of identification or as otherwise specified in Clause 1274AR of Part 5 of the O&M Works Requirements.

2.26 Roadside Electrical Assets and Power Supplies

2.26.1 General

- (i) The requirements of this Section 2.26 shall relate to all roadside electrical assets, road lighting and ILCS equipment and power supplies including but not limited to catenary systems, aircraft and marine navigation lights on Structures and high masts up to and including 20 metres including their hoists, winches and cables.
- (ii) Where electrical apparatus is located adjacent to the O&M Road boundary, the Company shall comply with Transport Scotland guidance document 'LDS8022_09-Guidance on the Definition of Electrical Maintenance Responsibilities and Boundaries in relation to Roadside Electrical Equipment and Lighting'.
- (iii) The Company shall liaise with local authorities in accordance with Transport Scotland guidance document 'LDS8017_09 – Special Requirements for Local Authority Roadside Electrical Apparatus'.
- (iv) The Company shall remove any redundant electrical assets in

- accordance with Transport Scotland guidance document 'LDS8013_09 – Guidance on making Roadside Electrical Apparatus obsolete, redundant or derelict'.
- (v) The Company shall report any failure of air or sea navigational aids to the relevant authority and respond to the Defect in accordance with the requirements of this Part.
 - (vi) The Company shall make reference to Transport Scotland guidance document 'LDS8025_09 – Typical Drawings for Roadside Electrical Apparatus'.
 - (vii) The Company shall obtain consent from the Contracting Authority prior to carrying out structural work such as repairs, adjustments, re-riveting, part replacement, modifications and re-welding.
 - (viii) Motorway Road Lighting Control System (MoRLiCS) is subject to an Operations Safety System and the associated responsibilities as required.
 - (ix) All costs associated with the receiving of data from Transport Scotland relating to traffic flow information and its integration to MoRLiCS and/or IRIS to enable the implementation of a dynamic ILCS shall be borne by the Company.

2.26.2 Inspection Requirements

- (i) The Company shall submit Method Statements and maintenance procedures in relation to the Detailed Inspections and maintenance of roadside electrical assets, road lighting and power supplies to the Contracting Authority for approval. Detailed Inspections shall be in accordance with Clause 1.8 of this Part, TD23 of the Design Manual for Roads and Bridges, and the Transport Scotland Trunk Road Inspection Manual. Detailed Inspections and testing shall be carried out by the Company in accordance with the requirements and timescales of Transport Scotland guidance document 'LDS8023_09 – Electrical Maintenance Guidelines'.
- (ii) Detailed Inspections shall be carried out by the Company on lighting and associated road side electrical assets in accordance with the initial verification, periodic inspection, and testing and minor works certification requirements of Transport Scotland guidance document 'LDS8005 – Electrical Inspection and Testing of Lighting and associated electrical assets and Installations with Model Forms'. The Company shall carry out periodic inspection and testing on approximately twenty percent of the electrical assets on an annual basis from the Restricted Services Commencement Date. All electrical assets shall be tested at least once every five years. The Company shall produce a programme of works for periodic inspection and testing, coinciding where possible with Detailed Inspections.
- (iii) Detailed Inspections shall be carried out by the Company on non lighting roadside electrical assets in accordance with the initial verification, periodical inspection and testing and minor work certification requirements of BS 7671:2008 incorporating

Amendment No. 1:2011 and associated Guidance Note 3 (Inspection & Testing) together with the manufacturer's requirements for such assets. The Company shall carry out periodic inspection and testing on approximately twenty percent of the electrical assets on an annual basis from the Restricted Services Commencement Date. All electrical assets shall be tested once at least every five years. The Company shall produce a programme of works for periodic inspection and testing, coinciding where possible with Detailed Inspections.

- (iv) Detailed Inspections shall be carried out by the Company on portable and transportable equipment which forms part of the electrical installation in compliance with the Electricity at Work Regulations 1989. The Company shall identify the portable or transportable equipment for the inclusion in or exclusion from the electrical installation periodic testing. The details of the tests shall be agreed with the Contracting Authority, and approved as 'extent and limitations' section in accordance with the requirements of BS 7671:2008 incorporating Amendment No. 1:2011 and associated Guidance Note 3 (Inspection & Testing).
- (v) At the end of each quarter the Company shall submit to the Contracting Authority periodic inspection and testing certification, including periodic inspection reports, schedules of inspections, schedules of circuit details and test results.

2.26.3 Maintenance Requirements

- (i) Maintenance shall be carried out by the Company in accordance with the requirements of Transport Scotland guidance document LDS8023_09 – Electrical Maintenance Guidelines and clauses 6120AR, 6122AR and 6124AR of Schedule 4 Part 5.
- (ii) The Company shall clean luminaries every two years or at the time of the Routine Electrical inspection, whichever is sooner.
- (iii) Bulk lamp changes shall be carried out by the Company at the intervals given in Table 2.26.3/1. This Table replaces Tables 4 and 5 in TD23/99 of the DMRB.
- (iv) LED luminaires shall not be subject to bulk lamp change, however they shall be replaced when the luminaire light output is below 80% of its initial design output and/or 10% or more of the individual LEDs of a given luminaire are defective.
- (v) When no bulk lamp change is required all work listed in TD23 and elsewhere in this Agreement that should be carried out coincidental with bulk lamp changes must instead be carried out at intervals no greater than 36 months or as otherwise required in this Agreement.
- (vi) The Company shall maintain all power supplies.

Table 2.26.3/1 Maximum Intervals for Bulk Lamp Changes

Lamp Type	Nomenclature as TD23 of the DMRB	Bulk Change Interval For Dusk to Dawn	Bulk Change Interval For 24 Hour Per Day Operation

C		Operation	
Low Pressure Sodium	SOX	24 months	12 months
High Pressure Mercury	MBFU		
High Pressure Fluorescent	MCFE SLPL		
High Pressure Sodium	SON SON-T	36 months	18 months
Low Pressure Sodium	SOX-E		
Ceramic Metal Halide	CMH		
Light Emitting Diode	LED (Not accommodated for in TD23 of the DMRB)	Refer to clauses 2.26.3 (iv) and (v)	Refer to clauses 2.26.3 (iv) and (v)

2.26.4 Categorisation of Defects and Response Times

- (i) Category 1 Defects for road lighting shall be deemed to be those categories of defects as referred to in Chapter 3 of TD23 of the DMRB as “Category 1” and “Category 2 (High and Medium Priority)” as described in paragraph 3.4 Table 1 and Table 2 of TD23 of the DMRB.
- (ii) Category 2 Defects for road traffic lighting shall be deemed to be the category of defect referred to in Chapter 3 of TD23 of the DMRB as “Category 2 (Low Priority)”.
- (iii) Response times for completion of permanent repairs shall be as referred to in Chapter 4 of TD23 of the DMRB. For “Category 2 (High and Medium Priority)” an urban trunk road shall be any trunk O&M Road subject to Trunk Road Level of Service that shall be subject to a speed limit less than the national speed limit for that type of road.

2.27 Weather Stations

2.27.1 General

- (i) The requirements of this Section 2.27 shall relate to Weather Stations including but not limited to ice prediction equipment. The

requirements for Weather Stations shall also be requirements for 'road sensors'.

- (ii) The Company shall retain or replace all existing Weather Stations on the Project Roads unless otherwise approved in writing by the Contracting Authority.
- (iii) Any failures of Weather Stations shall be classed as a Category 1 Defect. The Company shall be responsible for reporting all Defects, liaising with specialist contractors and providing Defects Status Reports to the Traffic Scotland Service Provider.
- (iv) Electrical maintenance and inspections for Weather Stations shall be carried out in accordance with clause 2.26 of this Part and as necessary throughout each Contract Year.

2.27.2 Inspection Requirements

- (i) The Company shall carry out Detailed Inspections and calibration checks on Weather Stations in accordance with the manufacturers' recommendations during August to September and during December to February in each Contract Year, except for closed circuit television equipment which shall have maintenance carried out as necessary throughout each Contract Year.
- (ii) These Detailed Inspections and calibration checks shall be carried out by a suitably qualified personnel consented to in writing by the Contracting Authority.
- (iii) Calibration and test certificates shall be attached to the relevant inventory records in the routine maintenance and management function of the Integrated Roads Information System.
- (iv) Detailed Inspections in accordance with the frequency requirements of Section 1 shall not apply to Weather Stations.

2.27.3 Maintenance Requirements

- (i) Cyclic Maintenance requirements for Weather Stations shall be in accordance with BS7671 'EE Wiring Regulations' and shall be undertaken every five years.

2.27.4 Categorisation of Defects and Response Times

- (i) Closed circuit television equipment, except for the image server and video link, shall have a response time of 12 hours during the Winter Service Period; and a response time of 24 hours during the non Winter Service Period.
- (ii) Closed circuit television image server and video link shall have a response time of two hours, with a repair within four hours.
- (iii) All other Weather Station equipment shall have response times in accordance with clause 1.2.6 of this Part.

2.28 Removal of Graffiti

2.28.1 General

- (i) The requirements as referred to in this section relate to the removal of graffiti including posters, paint and encrusted deposits.

2.28.2 Inspection Requirements

- (i) Detailed Inspections shall be undertaken as necessary to identify areas of graffiti on the network.
- (ii) Detailed Inspections shall be determined by the Company. The O&M Works Quality Plan shall document how it shall comply with the requirements with Clause 2671AR of Part 5 of the O&M Works Requirements.

2.28.3 Maintenance Requirements

- (i) Maintenance shall be carried out in accordance with Clause 2671AR of Part 5 of the O&M Works Requirements at the following frequencies:
- (ii) Offensive graffiti which is:
 - (a) racist;
 - (b) religiously bigoted;
 - (c) inflammatory;
 - (d) political; or
 - (e) sexually explicit or obscene;shall be removed within 2 days of identification.
- (iii) Other graffiti shall be removed within 25 Business Days.

2.29 Node Markers

- 2.29.1 Detailed Inspections of node markers shall be carried out by the Company at intervals not exceeding 12 months and as necessary to ensure that all node markers on the O&M Roads shall be accurately located and visible at all times.
- 2.29.2 During inspections, the node marker location shall be checked against the location coordinates and documents stored in the Integrated Road Information System.
- 2.29.3 Any node markers that are found to be missing or defective shall be replaced by the Company within 25 Business Days of their identification to the location described in the node marker location document.
- 2.29.4 Where node marker location documents are no longer accurate due to changes such as speed limits, changed junction geometry or any other reference points, the Company shall provide revised node marker location documents for approval by the Contracting Authority and replace the node markers within 25 Business Days of receiving approval.
- 2.29.5 In all cases, node studs shall be installed in accordance with the Scottish Executive Advice Note 'Node Marker Standards'.

3 Winter Service - Operations and Management

3.1 Introduction

- 3.1.1 Notwithstanding the provisions of Clauses 2801AR to 2808AR, inclusive contained in Part 5 of these O&M Works Requirements this Section 3 specifies the requirements for Winter Service Operations and management.
- 3.1.2 The requirements for Winter Service Operations and management shall allow the safe movement of Users of the O&M Works Site and keep to a minimum the delay caused to such Users by adverse winter weather (ice and snow). The incidence and severity of winter conditions varies considerably throughout the season and from year to year and the resource requirements can fluctuate widely. The requirement shall be to provide a level of resources to cope with the winter conditions normally associated with North East Scotland with the facility to provide additional resources to deal effectively with all winter weather conditions which can be expected to arise. Notwithstanding the winter service resources which shall be provided by the Company, contained elsewhere within this Agreement, the Company shall provide sufficient resources to ensure that all reasonable measures are taken to keep O&M Roads open to their Users at all times.
- 3.1.3 The Company shall be responsible for providing the Winter Service Operations and management and achieve the level of service specified in this Section and the other provisions of this Agreement. The Company shall nominate a Winter Service Duty Officer who shall be responsible for ensuring the delivery of the Winter Service Operations and management as required by paragraph 3.6.1.
- 3.1.4 The Winter Service Period shall be the period from 1 October to 15 May in the subsequent year, unless specified otherwise in this Agreement.
- 3.1.5 The Company shall provide a pre-wetted system for precautionary salting of all carriageways.
- 3.1.6 If winter conditions shall occur out with the Winter Service Period the Company shall provide and maintain the Winter Service in accordance with this section for the duration of such winter conditions.
- 3.1.7 The Company shall assist the Scottish Ministers in the preparation of an annual Winter Service publicity leaflet and shall carry out its distribution to filling stations, motorist service centres, motoring organisations, libraries and other public and private distribution outlets within the O&M Works Site.

3.2 Planning and Reporting Requirements

3.2.1 Winter Service Plan

- (i) The Winter Service Plan and its appendices shall be a part of the Disruption Risk Management Plan and the O&M Manual and shall be a controlled item within the Quality System. It shall be the Company's proposals for delivering the Winter Service in any Winter Service Period to meet statutory duties and the requirements of this Section 3. The Winter Service Plan applicable at the Restricted Service Commencement Date shall be incorporated in Schedule 3 (Conceptual Design). The Company's Winter Service Plan shall comply with the requirements of Transport Scotland's 'Manual for the Management of the Risk of Unplanned Network Disruption'.

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- (ii) Each Winter Service Plan shall be prepared by the Company in accordance with the requirements noted at Appendices C and D.
 - (iii) The arrangements for Winter Service Operations at the boundaries of the O&M Works Site with the North East Management Unit, local authority areas, or private landowners and for O&M Roads subject to an Access Road Level of Service shall be set out in each Winter Service Plan.
 - (iv) The Company shall provide details in each Winter Service Plan for specific arrangements to ensure precautionary treatments to the same standards are provided for all O&M Roads subject to Trunk Road Level of Service within the O&M Works Site when forecasts issued by the expert weather forecasting service, as referred to in paragraph 3.4.1, indicates that there shall be a low confidence.
 - (v) The Company shall prepare rosters detailing the availability of all Company staff required to provide the Winter Service throughout the Winter Service Period. The rosters shall include names, addresses and telephone numbers of the staff listed and shall be included in each Winter Service Plan.
 - (vi) The Company shall provide details in its Winter Service Plan of the proposed arrangements for safe clearing of all O&M Roads when they are covered in snow or ice. The Winter Service Plan shall include the Company's processes and procedures for deciding when it shall be unsafe to continue with, or commence, clearing Operations; arrangements for dealing with vulnerable gradient locations and other areas requiring special attention and arrangements for controlling access to key routes in severe conditions.
 - (vii) The Company shall provide in its Winter Service Plan its proposals for dealing with freezing rain/ rain falling on extremely cold surfaces including advance planning, operational arrangements and hazard mitigation measures. When preparing its Winter Service Plan the Company shall take into account the guidance related to dealing with freezing rain contained in paragraph 5.6.6 of Part 5 of the Highways Agency Network Management Manual.
 - (viii) The Winter Service Plan shall describe the arrangements and the response times to be used by the Company to mobilise Winter Constructional Plant and such other resources as shall be required to meet the requirements of this Section 3.
 - (ix) In preparing each Winter Service Plan the Company shall consult with:
 - (a) The emergency services;
 - (b) Adjacent local authorities and their agents;
 - (c) North East Management Unit; and
 - (d) Other interested parties.
 - (x) Where the Restricted Services Commencement Date is between 10 October and 15 May, the Company shall provide the Winter Service Plan 60 days prior to the Restricted Services Commencement Date.
 - (xi) Prior to 31 July of each Year from the Restricted Services Commencement Date a Winter Service Plan for the O&M Works

Site for the forthcoming Winter Service Period shall be formulated by the Company and submitted for written consent to the Contracting Authority.

- (xii) When consented to by the Contracting Authority, each Winter Service Plan shall be incorporated into the O&M Works Quality Plan.
- (xiii) The Company shall ensure its Winter Service Plan is kept under review prior to and during the Winter Service Period and any amendments required to accommodate changes in resource levels and the like shall be made. The Company shall submit its amended Winter Service Plan to the Contracting Authority for written consent. When consented to, the Company's amended Winter Service Plan shall be incorporated into its Quality System.
- (xiv) Prior to the commencement of each Winter Service Period, the company shall provide one controlled Electronic copy of each approved Winter Service Plan to:
 - (a) The Contracting Authority;
 - (b) Transport Scotland;
 - (c) The Emergency Services;
 - (d) North East Management Unit;
 - (e) adjacent local authorities and their agents;
 - (f) the Performance Audit Group; and
 - (g) other operating companies.
- (xv) The Company shall support Transport Scotland in the operation of the Scottish Salt Group as directed by the Contracting Authority. For the purposes of this Part, the "Scottish Salt Group" includes representatives from the Society of Local Authority Chief Executives (SOLACE), the Society of Chief Officers of Transportation in Scotland (SCOTS), Convention of Scottish Local Authorities (COSLA) and Transport Scotland. Its function is to monitor local authority and trunk road service provider's salt returns, identify pressure points, arrange Mutual Aid, input to the United Kingdom Salt Cell, liaise with salt suppliers, provide salt conservation guidance, identify alternative salt suppliers and identify alternative de-icers.

3.2.2 Notification

- (i) The Company shall notify the Contracting Authority immediately by telephone of any major incident arising on the O&M Works Site as a result of winter conditions and in particular of any roads or parts of roads closed to traffic followed up within 12 hours with written confirmation. An electronic text report shall be submitted to the Contracting Authority within 12 hours of the Company becoming aware of such incident occurring.

3.2.3 Records

- (i) The Company shall keep daily records held electronically which can be easily accessed for all Winter Service Operations, including management activities. Records shall be held within the O&M Works Quality Plan and be available for inspection by the

Contracting Authority at any time during the Service Period. The records shall include but not be limited to:

- (a) Decisions taken when and by whom;
- (b) Planned and actual treatment records;
- (c) Planned and actual response times achieved;
- (d) Planned and actual commencement times;
- (e) Planned and actual route times;
- (f) Planned and actual spread rates;
- (g) Observations and actions taken by the Winter Service Patrols;
- (h) Output from Winter Constructional Plant on-board data capture devices;
- (i) Winter Constructional Plant down time and software faults;
- (j) Winter Constructional Plant deployment records (including global positioning system records) and driver operator logs;
- (k) Logs (both manual and electronic) of telephone, e-mail and two way communication calls;
- (l) Loading point de-icing stocks and replenishment orders;
- (m) Ice prediction system records;
- (n) Weather forecasts and actual weather experienced;
- (o) Complaints from members of the public and Users;
- (p) Accidents resulting from winter conditions;
- (q) Road closures due to winter conditions;
- (r) Weights and volumes as appropriate from de-icing material(s) spread for each route;
- (s) Pre and mid-season road sensor calibration systems;
- (t) Winter Constructional Plant calibration certificates;
- (u) Actual salt stocks held including strategic salt stocks; and
- (v) A log of hours for each operative spent on "call out" or "standby" shall be kept in accordance with the procedures in the O&M Works Quality Plan.

3.2.4 Reporting

- (i) A Winter Service report shall be an annual review by the Company of the Winter Service Operations for the previous Winter Service Period which shall help inform the Contracting Authority and the Company as to the requirements for the next Winter Service Plan.
- (ii) Prior to the 31st of May of each year the Company shall submit to the Contracting Authority a Winter Service report prepared for the immediately preceding Winter Service Period ending 15th May.
- (iii) Each Winter Service annual report shall provide:
 - (a) An executive summary of the annual report;
 - (b) An overview and review of the service provided;

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- (c) A summary of key performance reports;
 - (d) Information on significant events and related actions;
 - (e) An assessment of the accuracy of weather forecasts provided;
 - (f) An assessment of road sensor performance;
 - (g) An analysis of the ability of the O&M Works Quality Plan to capture reported non compliances;
 - (h) Innovations and improvements implemented;
 - (i) Planned continuous improvements, including recommendations for the Contracting Authority;
 - (j) An executive summary of the annual report;
 - (k) Actions taking during periods of low confidence forecasts of variable and marginal winter weather conditions; and
 - (l) Use of reserve spreading vehicles and mechanical snow clearance plant.
- (iv) An annual review meeting between the Company and the Contracting Authority shall take place no later than 10 Business Days after each annual Winter Service report shall have been submitted to the Contracting Authority to consider the finding(s) of such Winter Service report.
 - (v) Within 24 hours of completing any Winter Service Operations, a report shall be completed by the Company. Such report shall be in an electronic format, agreed with the Contracting Authority, based on information taken directly from the spreading vehicles' data logging and reporting system.
 - (vi) The report shall be held electronically in accordance with the procedures in the O&M Works Quality Plan.
 - (vii) Each day during the Winter Service Period the Company shall produce planned treatments for the following 24 hour period and actual treatments the previous 24 hour period for each precautionary treatment route and each Winter Service patrol route. These reports which shall be recorded by the Company in an electronic format and shall include:
 - (a) summary forecast and actual weather data;
 - (b) planned and actual spread rates;
 - (c) planned and actual commencement times;
 - (d) completion times for each route;
 - (e) amount of de-icing material spread for each route and the cumulative amount spread by weight during the current Winter Service Period;
 - (f) plough usage;
 - (g) number of treatment days (capability) of de-icing material available for each depot based on six treatments per route per day at 20 grammes per square metre;
 - (h) the weather forecast accuracy; and
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- (i) any other relevant information.

The Company shall upload its daily report on planned treatments for the following 24 hour period onto the Traffic Scotland website by 15:00 hours each day during the Winter Service Period.

- (viii) The Company shall provide the Contracting Authority with a monthly salt stock monitoring report for the O&M Works Site detailing salt stocks held, past usage and a forecast of usage and supply arrangements including actual and imminent salt orders. Such reports shall be produced and submitted to the Contracting Authority on the first Business Day of each month during the Winter Service Period.
- (ix) For each operative, a log of hours spent on “call out” or “standby” shall be kept in accordance with the documented procedures in the O&M Works Quality Plan.

- 3.2.5 The Company shall include procedures for the Winter Service Plan and specified records and reports in the O&M Works Quality Plan and shall procure and include therein all other procedures, records and reports associated with an Operation in respect of the Winter Service.

3.3 Basic Facility

- 3.3.1 Operatives operating winter Constructional Plant shall hold current recognised qualifications and shall have the skills and experience to operate such Plant safely.
- 3.3.2 The Company shall ensure that at least 30 days prior to the commencement of each Winter Service Period sufficient drivers and operatives shall be available to provide the Winter Service Operations and to meet the required response times.
- 3.3.3 The Company shall ensure that, throughout each Winter Service Period, sufficient trained operatives are available for each item of front line and loading winter Constructional Plant such that up to 24 hours per day working can be carried out
- 3.3.4 Every operative based at a vehicle loading point shall be familiar with and able to undertake every precautionary treatment route serviced by that point.
- 3.3.5 Every driver based at a vehicle loading point shall have a basic knowledge of every precautionary treatment route serviced by that point and shall be capable of undertaking that route if necessary.
- 3.3.6 The Company shall ensure that, throughout the Winter Service Period, sufficient resources are available to minimise disruption to Winter Service Operations caused by breakdown or any other similar circumstance and that Winter Service Operations shall not be delayed.

The Company shall arrange for the necessary repairs to be carried out without delay unless such repair compromises delivery of the Winter Service Operations, in which case the Company shall mobilise the reserve winter Constructional Plant to meet the required response times. The Company shall ensure that repairs are carried out to main fleet vehicles without delay while the reserve fleet is operational.

- 3.3.7 A system that allows spoken communication with other winter Constructional Plant and the Winter Service Duty Officer shall be fitted in all winter Constructional Plant. Such system shall be effective at all times and

within all parts of the O&M Works Site including at the location of the Winter Service Duty Officer.

- 3.3.8 The Company shall be responsible for all arrangements necessary to ensure the availability of the operatives to meet the response times detailed in this Part.

Prior to 1 October each year the Company shall:

- (i) travel the whole length of each precautionary treatment route in the winter Constructional Plant to be used for precautionary treatment for such route at speeds not exceeding those required by this Section 3 for such precautionary treatment; and
- (ii) fit and remove the plough to all winter Constructional Plant to be so equipped,

in order to ensure its operatives are familiar with the route and plant to be used.

- 3.3.9 Records requirements of this sub-section 3.3 shall include but not be limited to details of:

- (i) time taken from depot to start of treatment route;
- (ii) time taken to travel the route;
- (iii) time taken to travel the treated route;
- (iv) time taken to fit the plough;
- (v) any problems encountered and actions taken to resolve them;
- (vi) proposed longer term solutions to prevent the recurrence of such problems; and
- (vii) any other relevant information.

These records shall be held electronically by the Company in accordance with the documented procedures in the Quality System.

3.4 Equipment and Services

- 3.4.1 The Company shall provide the following to assist with its decision making process:

- (i) The Company shall have continuous access to an expert weather forecasting service;
- (ii) a computerised road weather information system including hardware, software and telecommunication links required to obtain, interpret and display as a minimum:
 - (a) road sensor data (forecast and actual);
 - (b) historical thermal maps (where these are available, they shall be provided to the Company by the Contracting Authority but these will not be up to date);
 - (c) weather data;
 - (d) weather camera images;
 - (e) frontline winter Constructional Plant sensor data (air, road surface temperature and spreading rates) in real time;
 - (f) visual warnings and audible alarms for winter duty staff; and

- (g) other relevant information; and
- (h) weather camera images.

in a manner that predicts trends in weather and road conditions.

- 3.4.2 The computerised road weather information system shall be accessible to the expert weather forecasting service and shall be able to accept and access data from road sensors, mobile road sensors, alarms and action logs that shall be outside the O&M Works Site or otherwise shall be additional to those provided on the O&M Works Site by the Company or the Scottish Ministers as at Appendix D.
 - 3.4.3 The Company shall be responsible for the provision of everything within the system with the exception of road sensors, weather cameras and historical thermal maps.
 - 3.4.4 The computerised road weather information system shall be proposed by the Company for consent in writing by the Contracting Authority and details submitted at least 4 weeks prior to the Restricted Services Commencement Date. The Contracting Authority shall require a minimum of 14 days notice to consider and issue their consent. If consent is refused, the Company shall submit a revised system for approval within 10 Business Days of such refusal.
 - 3.4.5 The computerised road weather information system required at 3.4.1(ii) shall have suitable computer terminals and software for the display of weather related radar information from the expert weather forecasting service. Such information shall be accessible to the Company at all times during the Winter Service Period to assist in the Winter Service Operations decision making process.
 - 3.4.6 The Company shall provide the Contracting Authority with real time access to computerised road weather information system and arrange for access to the expert weather forecaster's website to allow remote monitoring of proposed daily actions.
- 3.5 Other Provisions
- 3.5.1 The Company shall be responsible for all telecommunication links to meet the provisions of this Part of these O&M Works Requirements.
 - 3.5.2 Telecommunications charges associated with the computer systems and all necessary links to third parties to allow the Company to meet its obligations to this Agreement shall be the responsibility of the Company.
 - 3.5.3 All road sensors and weather prediction equipment shall use an open protocol based upon the Department for Transport developed TR2020C protocol. Updated protocols may be used but only where open access of the protocol shall be available to the Contracting Authority to allow access to such protocol to other providers of equipment or service. For new and replacement weather stations, open protocol shall be provided at outstation level to ensure full functionality is available to other providers of equipment or service.
 - 3.5.4 Road sensors shall be maintained by the Company in accordance with the requirements of this Part of these O&M Works Requirements.
 - 3.5.5 Road sensors shall be polled by the Company at intervals of 20 minutes between 1 October and 15 May inclusive and hourly at all other times during the Winter Service Period to obtain updates of road conditions.

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- 3.5.6 The words 'road sensors' and 'weather stations' shall have the same meaning.
- 3.5.7 The Company shall ensure that all cameras are operational throughout each Contract Year and as a minimum weather camera images shall be updated every 10 minutes. These images shall be delivered to the Traffic Scotland Service website in a format agreed with the Contracting Authority.
- 3.5.8 The Company shall hold welfare kits and shall distribute these in the event of a Critical Incident as defined in Part 1 which involves stranded vehicles. The welfare kit shall be carried by each Winter Service patrol and shall as minimum include 24 space blankets, 24 bottles of water and 24 energy bars.
- 3.6 Winter Service Duty Officer
- 3.6.1 The Winter Service Duty Officer shall be authorised by the Company to take decisions and to issue instructions on behalf of the Company for implementing and directing the Winter Service and shall take such decisions and issue instructions as shall be required for implementing and directing the Winter Service at all times as required by this Section 3. The Winter Service Duty Officer shall be trained and competent to undertake this role and shall keep all Records relating to each decision made. The Winter Service Duty Officer shall be on duty in the control room whenever Winter Service Operations are planned.
- 3.7 Decision Making
- 3.7.1 The Contracting Authority shall provide road sensor data and historical thermal maps where available to the Company prior to the Restricted Services Commencement Date.
- 3.7.2 During the Winter Service Period the Company shall monitor and interpret:
- (i) weather conditions;
 - (ii) O&M Roads conditions;
 - (iii) data from road and mobile road sensors;
 - (iv) the computerised road weather information system;
 - (v) actual weather conditions and Traffic Scotland cameras; and
 - (vi) historical thermal maps (when provided by the Contracting Authority);
- to ensure that the Winter Service Duty Officer receives and monitors climatic and road information to assist in the decision making process and in taking appropriate actions.
- 3.7.3 Thermal mapping and weather station data, where available prior to the Restricted Services Commencement Date, shall be supplied to the Company by the Contracting Authority.
- 3.7.4 When conditions described in paragraph 3.2.1(iv) shall be forecast, action shall be taken by the Company to maintain the O&M Works Site in a safe condition based on the Winter Service Plan.
- 3.7.5 Following any precautionary treatment undertaken by the Company the Winter Service Duty Officer shall continue to monitor the weather forecasts and the actual weather conditions including, but not limited to, data from the
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computerised road weather information system, to determine the on-going effectiveness of the treatment and to instruct further treatment when this shall be required. This shall be particularly important in situations where:

- (i) precipitation shall be forecast or has occurred that may reduce the effectiveness of a treatment; or
- (ii) the trend data from the computerised road weather information system shall change from that predicted.

Notwithstanding any other provisions of this Agreement, where the information available to the Winter Service Duty Officer shall cast doubt on the on-going effectiveness of any precautionary treatment that shall have been undertaken in terms of the ability of residual levels of de-icing material remaining on any pavement surface to deal with forecast or actual weather conditions, the Winter Service Duty Officer shall arrange for further precautionary treatment to be carried out.

3.8 Winter Service Exercises

3.8.1 The Company shall carry out Winter Service “snow desk” exercises prior to 1 October of each Winter Service Period. Such exercises shall be based on scenarios provided by the Contracting Authority and shall serve to test the effectiveness of the Company’s proposed Winter Service personnel.

3.8.2 The Company shall assess its own performance and it shall also be assessed by the Contracting Authority. In the event that the performance is deemed unsatisfactory by any party, the Company shall be required to take remedial action to demonstrably improve the effectiveness of the Winter Service personnel.

3.9 Liaison and Communication

3.9.1 During the Winter Service Period, the Company shall report the known effects of adverse weather conditions to the Traffic Scotland Service Provider. The Company shall liaise closely with:

- (i) the Police;
- (ii) the Traffic Scotland Service Provider;
- (iii) adjacent local road and highway authorities;
- (iv) North East Management Unit; and
- (v) the Contracting Authority

to monitor adverse winter weather and travelling conditions and ensure that its Winter Service Plan for provision of Winter Service Operations at boundary interfaces is implemented.

3.9.2 When a Winter Service Operation shall be planned the Company shall notify electronically:

- (i) the Contracting Authority;
- (ii) Transport Scotland;
- (iii) the Police;
- (iv) adjacent road authorities and/or their agents;
- (v) North East Management Unit; and
- (vi) the Traffic Scotland Provider,

to inform them of such Operations and when appropriate request that messages be displayed on all relevant electronic warning systems and variable message signs.

- 3.9.3 The Company shall liaise with the Police who may supply information to the media regarding road travelling conditions during periods of adverse winter weather.

3.10 Winter Service Patrols

- 3.10.1 From 1 November to 31 March inclusive, the Company shall carry out Winter Service patrols.

- 3.10.2 All Winter Service patrol vehicles shall comprise a pre-wet spreader with a minimum capacity of six cubic metres and with full functionality that meets the requirements of the Part 5 of the O&M Works Requirements.

- 3.10.3 Winter Service patrols shall be carried out between 02:00hrs and 04:00hrs, 04:00hrs and 06:00hrs, 06:00hrs and 08:00hrs and 08:00hrs and 10:00hrs. All parts of the Winter Service patrol route must be covered within each one hour period. Winter Service Patrols shall operate outwith the specified times when forecasts indicate snow and ice conditions causing an increased risk of delays and disruption to road users.

- 3.10.4 When the road surface temperature for any climatic area within a Winter Service patrol route is forecast at any time between 02:00hrs to 10:00hrs to be less than, or equal to, 3°C each Winter Service patrol shall alternate between a one hour patrol and a one hour stand by on each route. All Winter Service patrol routes shall be completed within one hour of commencement.

- 3.10.5 The Winter Service patrol routes shall be further designed so that the patrol vehicle, when working, is able to attend any location on its route within 30 minutes of receiving a call from the Winter Service Duty Officer.

- 3.10.6 Winter Service patrols shall:

- (i) patrol all carriageways of trunk O&M Roads, excluding slip roads;
- (ii) report on road conditions encountered to, and take instruction on treatments from, the Winter Service Duty Officer;
- (iii) provide an immediate response when instructed to carry out treatments or other de-icing Operations by the Winter Service Duty Officer;
- (iv) deal with any situation on the Winter Service patrol route requiring immediate attention;
- (v) Pay particular attention to areas requiring special attention;
- (vi) undertake short stops for minor maintenance such as clearing grips and removing debris; and
- (vii) provide daily reports.

Where any situation on the Winter Service patrol route cannot be resolved by any of the actions described in this paragraph, the company shall deploy additional resources to resolve the situation.

- 3.10.7 The Company shall monitor the operation of Winter Service patrols and shall take any action necessary to ensure that it complies with the requirements of this Part.

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- 3.10.8 Winter Constructional Plant for Winter Service patrols shall be loaded with sufficient de-icing material for the routes to be treated at the commencement of the Winter Service patrol and comply with the requirements of this Part.
- 3.10.9 Winter Service patrols shall allow for rest periods, patrolling both sides of dual carriageways and all actions required in accordance with paragraph 3.10.6 of this Part.
- 3.10.10 Between 02:00hrs and 10:00hrs, winter Constructional Plant for Winter Service patrols shall be used only for its primary function of Winter Service patrols.
- 3.10.11 Between 10:00hrs and 02:00hrs, winter Constructional Plant for Winter Service patrols may be used by the Company for the clearance of snow and ice. Such usage shall only take place where it does not conflict with its primary function or when the extent of the snowfall requires it to be used for snow clearing on the Winter Service patrol route.
- 3.10.12 Areas requiring special attention are described in Appendix B of this Part and are areas where frost or ice is prone to occur or where water run-off is likely to happen.
- 3.10.13 The Company shall review the areas requiring special attention referred to in Appendix B of this Part at least once every year and amend the list as it considers necessary
- 3.11 Airwave Communications
- 3.11.1 Winter Service patrols shall use an encrypted digital radio communications system known as Airwave. The Company shall utilise this equipment as a dedicated communication system between Winter Service patrol personnel, the Traffic Scotland Control Centre, the Winter Service Duty Officer and the police.
- 3.11.2 In order to carry out the services required, the company shall be required to apply for, acquire and operate a TETRA Encryption Algorithm 2 sub-user licence for use with this communication system. The Company shall be solely responsible for the procurement of, and conforming to any conditions of, this licence.
- 3.11.3 The Company shall comply with the various codes of practice that apply to this type of licence. These codes, guidance on the Airwave sharers list and TETRA Encryption Algorithm 2 licensing are available from Ofcom website at <http://licensing.ofcom.org.uk/radiocommunication-licenses/business-radio/guidance-for-licensees/airwave-emergency-services/airwave/>.
- 3.11.4 The Company shall develop a method statement for the use of Airwave in compliance with *Traffic Scotland Airwave Users Guide/Operating/Protocols and Procedures* and include the method statement in the O&M Works Quality Plan.
- 3.11.5 The Company shall indemnify the Contracting Authority against any claims arising as a result of negligence or any other action on its part, relating to the use, storage and compliance of Airwave equipment and the Company's TETRA Encryption Algorithm 2 sub-user licence.
- 3.12 Road Closures
- 3.12.1 The Police are responsible for taking decisions to close roads during periods of adverse weather or road conditions. When the Police, in consultation with the Company, consider that the road is unsafe for
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vehicular traffic, the Company shall arrange with the Police to close the road(s) and, if applicable, snow gates as considered necessary following such consultation.

3.12.2 The Company shall provide regular updates to the Traffic Scotland Service Provider by telephone and e-mail of progress on clearing the closed section of road and the expected and actual time of re-opening.

3.12.3 The Company shall immediately notify the Traffic Scotland Service Provider by telephone following a Critical Incident which has caused or will cause significant disruption to traffic flow.

3.12.4 The Company shall comply with the requirements of Part 1 of this schedule regarding notification of Critical Incidents to the Contracting Authority and Performance Audit Group.

3.13 Salt Bins, Snow fences, Shelter Belts and Snow Poles

3.13.1 During each Winter Service Period the Company shall maintain as a minimum the current salt bins provided within the O&M Works Site.

3.13.2 The Company shall review the current locations of salt bins and consider provision of additional locations to improve the Winter Service. It shall make appropriate recommendations in each Winter Service Report.

3.13.3 By 30 September each year, salt bins shall be provided and placed at existing locations within the O&M Works Site. Throughout the Winter Service Period the Company shall:

- (i) replenish the salt bins with salt to ensure that a sufficient supply is always available for public use;
- (ii) replace damaged, vandalised or missing salt bins within 48 hours of the damage, vandalism or absence becoming known by the company; and
- (iii) at the end of each Winter Service Period, collect and take all salt bins to the Company's depots for storage.

Before storage, the Company shall empty and wash the salt bins and grease their hinges.

3.13.4 The Company shall review the need for snow fences, shelter belts and snow poles and where it considers that alterations to existing provisions shall be necessary to improve the Winter Service, it shall make appropriate recommendations in each Winter Service Report.

3.13.5 When notified to do so by the Contracting Authority, the Company shall design and erect snow fences in accordance with the recommendations set out in Transport and Road Research Laboratory Report LR 362 "Snow Fences" by L E Hogbin dated January 1970, unless otherwise consented to in writing by the Contracting Authority.

3.14 Records

3.14.1 The Company shall complete and keep daily Records for Winter Service Operations requirements. The Records shall be held electronically and have a remote access facility available to the Contracting Authority and the Performance Audit Group. The format of these Records shall be in accordance with the documented procedure in the Company's Quality System as it relates to Winter Service. Data transmitted from the Winter Service Plant shall be received and stored in accordance with Clause 2804AR of Part 5 of the O&M Works Requirements.

3.15 Precautionary Treatment

3.15.1 Precautionary Treatment

- (i) The Company shall undertake such precautionary treatment as is required by this Part.
- (ii) Precautionary treatment Operations shall commence at the time and be carried out at the spread rates instructed by the Winter Service Duty Officer.
- (iii) Precautionary treatment for carriageways
 - (a) The total width of carriageways including but not limited to:
 - (i) slip roads;
 - (ii) hardshoulders;
 - (iii) hard strips;
 - (iv) turning Lanes;
 - (v) central reserve crossovers;
 - (vi) lay-byes;
 - (vii) bus bays;
 - (viii) cycle lanes;
 - (ix) hatched areas; and
 - (x) any other trafficked area.shall receive precautionary treatments
- (iv) The minimum requirements for de-icing material spread rates for precautionary treatment shall be as provided in Tables 1, 2 and 3 of Appendix B.
- (v) The Company shall put into place arrangements for precautionary treatment when road surface temperatures of less than or equal to plus 1° C and relative humidity levels of less than or equal to 80% shall be forecast or present. When such conditions prevail, salt moisture content for precautionary treatment shall be increased to 5%.
- (vi) The Company shall put into place arrangements to ensure that precautionary treatments for carriageways with negative texture surfaces shall be applied as close as shall be practicable to the time forecast for road surface temperatures to be at less than or equal to plus 1° C.
- (vii) The Company shall provide precautionary treatment for carriageways on the O&M Roads when road surface temperatures fall or shall be forecast to fall to less than or equal to plus 1°C or when snow conditions shall be forecast.
- (viii) During precautionary treatments, all winter Constructional Plant shall be driven in a manner appropriate to the prevailing weather conditions, and within the speed limit, but not exceeding 40 miles per hour.
- (ix) A spreading vehicle shall not be used to treat a carriageway of more than 3 Lanes in a single pass. The hardshoulder is a Lane and shall

be counted as such in this context. If the width of carriageway to receive de-icing treatment is greater than 3 Lanes de-icing treatment shall be carried out either:

- (a) with two passes of the spreading vehicle; or
- (b) by the use of a second spreading vehicle.

Spread patterns shall be adjusted to suit the carriageway width and the Lane in which the spreading vehicle is travelling.

- (x) O&M Roads with temporary traffic management including contra-flow running may require the Company to amend a treatment route. Particular care shall be taken by the Company to ensure that all Lanes and contra-flow crossovers shall be adequately treated with de-icing material prior to removal of temporary traffic management and reopening to traffic.
- (xi) In the event of a breakdown on any of the Company's front line winter Constructional Plant details of:
 - (a) the cause of the breakdown;
 - (b) the time of the breakdown;
 - (c) the location of the breakdown; and
 - (d) any other relevant information.

shall be recorded, and the Company shall make immediate arrangements for reserve winter Constructional Plant to be made available in order to comply with the requirements of this Agreement.

- (xii) Where potassium acetate or other approved de-icing agent is to be used it shall be applied before ice forms or snow settles on surfaces whenever there is a likelihood of the road surface temperature falling to less than or equal to plus 1°C.
- (xiii) The Company shall put into place arrangements to deal with variable road and weather conditions that may occur after precautionary treatments have been completed.
- (xiv) Not Used
- (xv) Precautionary treatment for non motorised User facilities:
 - (a) Precautionary treatments shall be carried out on footways when surface temperatures shall be forecast to fall to less than or equal to plus 1°C or when snow conditions shall be expected;
 - (b) Precautionary treatment for non motorised User facilities shall be carried out as a separate Operation to carriageway precautionary treatments utilising equipment suitable for the purpose;
 - (c) The minimum spread rate for de-icing materials for precautionary treatments to non motorised User facilities shall be 20 millilitres per square metre with a minimum concentration of 20 percent. Actual treatment levels shall be discussed with the relevant local roads authorities; and
 - (d) The total width of non motorised User facilities shall be treated.
- (xvi) The Company shall use pre-wetted salt in accordance with the Specification for precautionary de-icing treatments on all

carriageway treatment routes in the O&M Works Site. Details of the Company's proposals for such use shall be provided as shown in Annex WSP2 to Appendix D of this Part and in its Winter Service Plan.

- (xvii) The Company may, within its Winter Service Plan, propose the use of dry salt in accordance with the requirements of Appendix B to enable the effective de-icing of carriageway treatment routes during certain weather conditions.

3.16 Response Times

- 3.16.1 When an immediate response shall be required for snow and ice clearance, precautionary treatment or other de-icing Operations the Company shall mobilise and commence such snow and ice clearance precautionary treatment and other de-icing Operations within one hour of the Winter Service Duty Officer's decision.
- 3.16.2 When a planned response is required for precautionary treatment and other de-icing Operations the Company shall mobilise and commence precautionary treatments to ensure completion before snow or ice conditions shall be predicted to occur as indicated by the expert weather forecasting service.
- 3.16.3 For immediate or planned responses the Company shall complete precautionary treatment routes within two hours from the commencement of precautionary treatment and other de-icing Operations.
- 3.16.4 Should a frontline winter Constructional Plant vehicle break down once it has been mobilised then a reserve winter Constructional Plant vehicle shall require to be mobilised and commence Operations within one hour of the breakdown.
- 3.16.5 The response times for snow and ice clearance for footways, footbridges and cycling facilities shall be as follows:
- (i) Footways and footbridges shall be cleared of all snow and ice by 08:00 or within two hours of snow ceasing to fall during the period 06:00 to 18:00 hours.
 - (ii) Cycling facilities shall be cleared of all snow and ice by 17:00 hours the following weekday (if the following day is a Saturday or Sunday then the area shall be cleared on the next Monday). For the purpose of this paragraph a weekday shall mean Monday to Friday inclusive.

3.17 Snow and Ice Clearance

- 3.17.1 The Company shall ensure sufficient resources are mobilised to prevent snow or ice from remaining on the O&M Roads. The Company shall put into place specific arrangements to ensure that these resources shall be mobilised to keep the roads free of snow and ice.
- 3.17.2 Subject to the other provisions of this Agreement spreading of de-icing materials during ploughing shall be at the rate of spread instructed by the Winter Service Duty Officer. During prolonged periods of snow fall ploughing shall be continuous from the onset of snow to prevent a build-up of snow and compaction by traffic. Ploughing shall continue until the roads shall be clear of snow and ice.
- 3.17.3 The plough blade shall be set as close to the road surface as shall be consistent with removal of the maximum amount of snow whilst avoiding

damage to the road surface, other equipment in the road surface, and the plough blade.

- 3.17.4 The total width of carriageways including but not limited to slip roads, hardshoulders, hard strips, turning Lanes, central reserve crossovers, lay-byes, bus bays, hatched areas and any other trafficked area shall be cleared of snow and ice.
- 3.17.5 When planning and carrying out snow clearance the Company shall pay particular attention to the layout of the carriageway in terms of the overall number of Lanes and the location of entrance and exit slip Lanes. Snow clearance of slip roads shall be co-ordinated with main carriageway clearance. A clear path shall be kept open between those entry and exit points where frequent Lane changes are necessary.
- 3.17.6 On dual carriageway and multi-Lane roads echelon ploughing (2 or more vehicles moving in the same direction one behind each other on adjacent Lanes) shall be employed when required. Only the right hand Lane shall be ploughed towards the central reservation. Irregular windrows caused by ploughing passes, especially those which weave from one Lane to another, shall be avoided. Lanes shall be completely cleared and the windrows of snow remaining shall form a smooth and continuous line without sudden encroachments into the cleared path. Clearance work shall proceed continuously until no snow remains on the carriageway, including hardshoulders/hardstrips.
- 3.17.7 During and after prolonged falls of snow, ploughing shall be used continuously from the onset to prevent snow build up and compaction by traffic and to ensure the snow clearance of all O&M Roads. Such ploughing shall be supplemented by simultaneous de-icing treatment at a rate of not less than 20 grammes per square metre. If the road surface temperature continues to fall and the need for ploughing continues or ice or hard packed snow/ice shall have formed, the salt spread rate shall be increased as necessary up to 40 grammes per square metre in accordance with the minimum requirements in Table 4 of Appendix B.
- 3.17.8 Where conventional ploughing or snow blowing is not possible, for example in built up areas, in exceptional circumstances when the snow on the road shall be deep and cannot be removed, when de-icing treatment over packed snow shall be likely to provide an unacceptable surface, when the traffic shall be insufficient to disperse the snow, or through certain traffic management conditions, the Company shall carry out Operations to lift, remove and dispose of snow and ice by appropriate means. If snow blowers are used then where the snow is being directed onto adjacent land, the Company shall obtain the prior agreement of the landowner and the Scottish Environment Protection Agency. Such Operations shall be followed by de-icing treatment.
- 3.17.9 Where there shall be a formation of hard packed snow and ice not exceeding 20 millimetre thick and the air temperature is above minus 5°C removal shall be achieved by using successive spreading of de-icing material in accordance with Table 4 of Appendix B.

Consideration shall be given to alternative de-icing materials in accordance with paragraph 3.19.3 of this Part.

The Scottish Ministers own two icebreakers (Raiko P16 model). These shall be shared by the Company with operating companies on a priority basis as determined by the Scottish Ministers. The Company shall make all

necessary arrangements with operating companies for the safe storage and sharing of this equipment.

- 3.17.10 When the air temperature shall be less than or equal to minus 5°C or where the snow or ice is more than 20 millimetres thick a single sized abrasive aggregate of particle size of 6 or 5 millimetres, sharp and having low fines content shall be added to the de-icing material on a 1:1 ratio. Application of the initial treatment technique should be resumed as soon as possible since abrasives contribute little to the removal of snow/ice and may block drains and gullies upon thawing. Abrasives should not be used on structures where there shall be any danger of blockage to drains. Abrasive aggregates shall be considered by the Company as a supplement in urban areas where de-icing material alone would provide an unacceptably slippery surface.
- 3.17.11 When snowploughing or snow blowing Operations shall be undertaken care shall be taken that snow shall not build up across or against, railway tracks, gates, bridge parapets, fences, walls and other boundaries.
- 3.17.12 Where snow clearance shall be carried out adjacent to railway overhead electricity cables special care shall be exercised to ensure snow shall not cause electrical short circuits or other damage.
- 3.17.13 During prolonged periods of snow fall at locations where the use of salt for de-icing shall be prohibited, ploughing shall be continuous followed by repeated applications of de-icing chemical.
- 3.17.14 Lifting and removal of snow and ice from grade separated junctions and other locations shall be undertaken where necessary. Sites for the disposal of snow and ice arising from such Operations shall comply with the requirement of the Scottish Environment Protection Agency. The Company shall provide temporary traffic management including road closures where required for these Operations.
- 3.17.15 When ploughing to the nearside, other vehicles (unless stationary or on the hardshoulder) shall not be overtaken. Snow shall not be thrown over bridge parapets onto the road beneath. When ploughing to the central reservation the speed shall be such as shall not throw snow into the path of traffic on the opposing carriageway.
- 3.17.16 In the event of significant snow falls where snow ploughing is being carried out by the front line and reserve winter Constructional Plant is not sufficient the Winter Service Duty Officer shall deploy additional winter Constructional Plant for snow clearance to ensure delays caused by the weather conditions shall be kept to a minimum.
- 3.17.17 When machine snow clearance shall be not suitable (including clearance around carriageway obstructions) hand snow clearance and salting shall be carried out.
- 3.17.18 Snow and ice shall be cleared in such a manner that it shall not be deposited on adjacent or underlying paved surfaces. Following clearance of snow and ice from non-motorised User facilities de-icing material shall be spread at a minimum spread rate of 20 grams per square metre to prevent ice formation on the cleared surfaces with the total width being treated.
- 3.17.19 The application of salting, ploughing or blowing Operations shall otherwise comply with the requirements of Table 4 of Appendix B.
- 3.18 Winter Constructional Plant
- 3.18.1 The Company shall ensure that the winter Constructional Plant listed in

Appendix D shall be available as necessary for the Winter Service Operations such winter Constructional Plant being the minimum to be used in connection with the Winter Service Operations.

- 3.18.2 The Company shall ensure that its winter Constructional Plant shall be maintained in accordance with the manufacturer's recommendations.
- 3.18.3 When used on a public road for operator training and maintenance runs the spinner disc at the rear of the winter Constructional Plant shall be covered in such a way that damage by sharp edges in the event of an accident shall be reduced to a minimum.
- 3.18.4 Front line and reserve winter Constructional Plant shall be fitted with on-board electronic data loggers fitted in accordance with Clause 2803AR of Part 5 of these O&M Works Requirements, with or connected to a global positioning system, all of which shall provide an accurate record of:
- (i) time;
 - (ii) distance travelled;
 - (iii) times when de-icing materials shall have been spread;
 - (iv) rate of spread; and
 - (v) width of spread.

All continuously referenced to the Ordnance Survey grid. The on-board electronic data loggers shall be capable of transmitting their data in near real time to a web accessible database in accordance with the requirements of Clause 2804AR of Part 5 of these O&M Works Requirements. In the event of an on-board electronic data logger malfunction, the Company shall prepare a similar written record within 12 hours.

- 3.18.5 The Company shall measure and record the weight of de-icing material spread on each occasion on each precautionary treatment route. Such apparatus shall be fitted to winter Constructional Plant or shall be located at depots and shall be additional to the data loggers required at paragraph 3.18.4.
- 3.18.6 As a minimum requirement, in September and January of each year the Company shall calibrate all de-icing material spreading equipment. The calibration shall be in accordance with the requirements of BS1622:1989 or equivalent or where BS1622:1989 or equivalent does not provide for the calibration of the Company's de-icing spreading equipment the Company shall carry out calibration in a manner proposed in writing by the Company and consented to in writing by the Contracting Authority and in accordance with the requirements of the specific material being used.
- September testing shall comply with the requirements of tests 'A' and 'B' and January testing shall comply with the requirements of test 'B' of BS1622:1989 or equivalent. Re-calibration and testing shall be carried out after repairs to the spreading equipment and at other times when necessary to ensure the accuracy of de-icing material spreading. All calibration and re-calibration shall be independently carried out and certified. Calibration certificates shall be held in accordance with the requirements of the Winter Service Plan and the Company's Quality System.
- 3.18.7 The winter Constructional Plant that shall be used for spreading de-icing materials shall be of sufficient capacity to enable the Company to fulfil its obligations for Winter Service Operations.

3.18.8 Winter Constructional Plant used for spreading salt shall:

- (i) be of robust construction and shall comply fully with the requirements of the Motor Vehicle Construction and Use Regulations;
- (ii) have a suitable wheelbase to accommodate the appropriate salt spreader body without excessive overhang behind the rear spring suspension brackets;
- (iii) be fitted with an engine that develops sufficient horsepower to cater for snow clearing and Winter Service Operations;
- (iv) be of proven design and comply fully with the requirements of BS.1622 – Spreaders for the Winter Maintenance of Roads, or equivalent;
- (v) be capable of spreading dry salt to BS 3247, or equivalent;
- (vi) be capable of symmetrical and asymmetrical spreading in accordance with the Class A1 requirements of BS 1622, or equivalent;
- (vii) be fitted with a hopper that itself shall be fitted with removable salt screens;
- (viii) be fitted with a spreading mechanism at the rear of the machine designed to minimise damage to passing vehicles when the machine is operating
- (ix) be fitted with a spreader the level of which shall be not greater than 350 millimetres above the road surface and shall be capable of even distribution of salt over the full width of spread at rates between 10 grammes per square metre and 40 grammes per square metre and the trajectory of the salt leaving the spreader shall at no time be higher than 150 millimetres above the point of distribution;
- (x) be fitted with a salt discharge indicator connected to the salt spreading machine that shall inform the operator if spreading shall have ceased;
- (xi) be fitted with an electronic data logger in accordance with in accordance with the requirements of this Section 3;
- (xii) be fitted with an on board global positioning system in accordance with the requirements of this Part;
- (xiii) have as a minimum:
 - (a) 2 rotating amber beacons fitted to the vehicle on the roof of the cab with a visible arc of at least 270° to the front;
 - (b) 1 rotating amber beacon at the rear of the vehicle (which in the case of a vehicle spreading de-icing material shall be at the rear of the salt hopper) with a visible arc of at least 270° to the rear that shall be in operation whilst precautionary treatment and snow and ice clearance Operations are being carried out;
 - (c) be fitted with a sign board reading “SPREADING” fitted to the back of the salt hopper and visible to following vehicles the lettering shall be 160 millimetres ‘x’ height in black capitals from the ‘Transport heavy alphabet’ described in the Traffic Signs

Regulations and General Directions on a yellow Class 1 reflective background in accordance with BS 381C or equivalent lemon yellow No 355 or equivalent;

- (d) be fitted with a passenger seat;
- (e) be painted golden yellow to BS 4800 or equivalent; and
- (f) Comply with any other relevant requirements of this Part relating to winter Constructional Plant.

3.18.9 Winter Constructional Plant used for spreading pre-wetted salt shall:

- (i) be capable of delivering a constant supply of brine of the appropriate concentration;
- (ii) comply with the requirements of this Section 3 where such requirements shall not be inconsistent with the spreading of pre-wetted salt; and
- (iii) comply with any other requirements to ensure the effective distribution of pre-wetted salt to comply with the requirements of this Section 3.

The Company shall demonstrate to the Contracting Authority that the brine delivery system of the winter Constructional Plant used for spreading pre-wetted salt shall meet all the requirements of this paragraph 3.18.10 and the Company shall provide in writing to the Contracting Authority the method that shall be employed to ensure that the quantity of the brine being applied during each route treatment is correct.

3.18.10 Winter Constructional Plant used for spreading potassium acetate salts in solution or other de-icing materials shall comply with the requirements of this Section 3 and ensure the effective distribution of potassium acetate or other de-icing materials.

3.18.11 The Company shall provide a range of snowploughs that shall be capable of clearing all snow conditions in the O&M Works Site.

3.18.12 Snow blowers if used, shall:

- (i) be capable of blowing up to 600 tonnes of snow per hour;
- (ii) have a width of cutter head to be at least 1.8 metres;
- (iii) be capable of operating in up to 4 metres depth of snow; and
- (iv) be fitted with lights to permit effective operation during poor visibility and the hours of darkness.

3.18.13 All winter Constructional Plant used for Winter Service Operations shall:

- (i) comply with the requirements of this Part and Part 5 of these O&M Works Requirements;
- (ii) be fitted with a snowplough; and
- (iii) have a minimum of two additional headlamps fitted to permit forward visibility when a snow plough is fitted.

3.18.14 Front Line Winter Constructional Plant

- (i) The Company's minimum front line, reserve and additional winter Constructional Plant available for the Winter Service Operations shall be as referred to in Annex WSP 5 of Appendix D of this Part. The minimum loading winter Constructional Plant available within

the O&M Works Site for loading front line, reserve and additional winter Constructional Plant shall also be as referred to in Annex WSP 5 of Appendix D of this Part.

- (ii) Front line winter Constructional Plant shall comprise vehicles and equipment permanently available within the O&M Works Site that is required for:
 - (a) precautionary treatments;
 - (b) snow and ice clearance to a fallen or formed depth not exceeding 100mm, but excluding winter Constructional Plant not required to be capable of spreading whilst echelon ploughing;
 - (c) Winter Service patrols; and
 - (d) compliance with the requirements of this Schedule.
- (iii) All front line winter Constructional Plant shall be fitted with measuring devices for air temperature and road surface temperature which shall be capable of transmitting data to the on-board data logging system for remote real time display on the computerised road weather information system.
- (iv) Front line winter Constructional Plant fleet shall, as a minimum, have the ability to:
 - (a) carry out precautionary treatment to all routes simultaneously;
 - (b) clear ice and snow lying to a depth up to 100 mm; and
 - (c) spread pre-wetted salt.

3.18.15 Reserve Winter Constructional Plant

- (i) The Company's reserve winter Constructional Plant shall be that part of the winter Constructional Plant permanently available within the O&M Works Site to supplement front line winter Constructional Plant for the Winter Service Operations in situations:
 - (a) When such front line winter Constructional Plant is not be available for whatever reason for Winter Service Operations; or
 - (b) to clear snow and ice in accordance with the requirements of this Section 3, the reserve winter Constructional Plant may also be used to supplement front line winter Constructional Plant in snow conditions.
- (ii) Subject to the other provisions of this Agreement the minimum reserve winter Constructional Plant shall be as referred to in Annex WSP 5 of Appendix D.

3.18.16 Additional Winter Constructional Plant

- (i) The additional winter Constructional Plant shall be that part of the winter Constructional Plant that is available for Winter Service Operations, either directly under the control of the Company or through contingency arrangements with third parties, to deal with:
 - (a) snow and ice lying to a depth of more than 100mm; and
 - (b) any other winter weather conditions which cannot be managed by front line or reserve winter Constructional Plant.

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- (ii) Mobilisation arrangements for additional winter Constructional Plant shall be as referred to in Annex WSP 5 of Appendix D.
 - (iii) Subject to the other provisions of this Agreement the Company's minimum front line winter Constructional Plant permanently within the O&M Works Site for the Winter Service Operations for non motorised User facilities shall be as in Annex WSP 5 of Appendix D.
- 3.18.17 Mobilisation arrangements for winter Constructional Plant for non motorised User facilities shall be as referred to in Table 4 of Annex WSP 5 to Appendix D.
- 3.18.18 Loading Winter Constructional Plant
- (i) The minimum loading winter Constructional Plant available within the O&M Works Site for loading:
 - (a) front line;
 - (b) reserve; and
 - (c) additional winter Constructional Plant.shall be as referred to in Annex WSP 5 of Appendix D.
- 3.18.19 Maintenance of Company's Winter Constructional Plant
- The Company shall be responsible for ensuring that its winter Constructional Plant shall be maintained in accordance with manufacturers' recommendations.
- 3.19 Salting and Other De-Icing Agents
- 3.19.1 General
- (i) The Company shall procure and provide salt and other de-icing materials necessary to comply with the Winter Service requirements.
 - (ii) The minimum stock level requirements for de-icing materials shall be as shown in Annex WSP 3 to Appendix D.
 - (iii) Salt for de-icing shall be 6.3 millimetres grading particle size complying with BS 3247:1991 or equivalent and shall be treated with anti-caking agent.
 - (iv) At loading points the method of salt storage shall ensure that the moisture content of the stored salt shall not exceed 4% equivalent.

Should the moisture content of salt exceed 4% the Company shall take all measures necessary to ensure compliance with the requirements of this Part is regained. Where moisture content is deliberately increased to deal with low humidity conditions the spread rate shall not be increased.
 - (v) Within 10 days of delivery salt shall be tested by the Company at loading points in accordance with BS 3247:1991 or equivalent and results recorded to ascertain:
 - (a) moisture content (1 test per 500 tonnes);
 - (b) particle size distribution (1 test per 500 tonnes);
 - (c) chloride content (1 test per 1500 tonnes); and
 - (d) soluble sulphate compounds (1 test per 1500 tonnes).
-

- (vi) Salt stocks shall be tested by the Company for salt moisture content at monthly intervals throughout each Winter Service Period and the results shall be recorded.
- (vii) An electronic data base shall be provided by the Company for the storage of materials test data.

3.19.2 Pre-wetted Salt

- (i) Salt for de-icing material as part of pre-wetted salt shall be 6.3 millimetres grading particle size complying with BS 3247:1991 or equivalent.
- (ii) Brine added to salt during spreading operations shall comprise 30% of the total spread material by weight, giving a 70% salt: 30% brine solution.
- (iii) Fully saturated brine solution with a minimum concentration of 23% dissolved sodium chloride shall be used as the pre-wetting agent. Where temperatures shall be forecast to fall below minus 15°C the fully saturated brine shall be diluted by the addition of 5%-10% water to prevent recrystallisation of the salt. The addition of water shall be undertaken in such a manner that shall ensure that the water and brine shall be thoroughly mixed to produce a consistent concentration of brine. As soon as temperatures rise above minus 15°C a fully saturated solution shall be used.
- (iv) The Company shall arrange as a minimum for sufficient brine to be stored at each depot to treat simultaneously at a maximum spread rate all precautionary treatment routes serviced from that depot with an additional quantity of 20% brine above that quantity held in reserve. The brine within the storage facilities shall be replenished within 2 hours of being depleted.
- (v) Sensors with digital read outs shall be fitted to the Company's storage facilities to measure automatically the salt concentration of the brine. Daily checks shall be carried out by the Company using a saturation meter and the results shall be stored electronically. Water supplies to saturator units shall be protected from freezing by appropriate measures.

3.19.3 Alternative De-icing Materials

- (i) In extreme conditions, such as when temperatures drop below levels at which sodium chloride is effective, the Company shall use alternative de-icing materials in accordance with guidance on use of such materials. Such alternative de-icing material shall be described in the Company's Winter Service Plan.
- (ii) The Company shall provide in its Winter Service Plan its proposals for using the alternative de-icer material in accordance with published guidance, including the UK Roads Board publication *Treatments for Extreme Cold*.
- (iii) The Company shall provide and store a minimum of 5,000 litres, or equivalent, of alternative de-icing material within the O&M Works Site to deliver the requirements of paragraph 3.19.3 (i).
- (iv) The Company shall replenish the original alternative de-icer stock when the quantity has reduced to a minimum of 2,000 litres.

3.19.4 Abrasive Aggregates

- (i) A single sized abrasive aggregate of particle size of 6 millimetres or 5 millimetres sharp sand having low fines content shall be added to the salt in a 50% salt and 50% grit or sand mixture in accordance with the requirements of this Part.

3.19.5 Material Storage

- (i) The Company shall satisfy itself that the arrangements for storage handling and loading de-icing materials at the loading points shall be adequate to achieve the specified response times.
- (ii) Materials shall be stored in such a manner as to ensure compliance with:
 - (a) paragraph 3.19.1(iv);
 - (b) paragraph 3.19.2(iv) to 3.19.2(v) inclusive; and
 - (c) Current planning and environmental Legislation and supplier's written instructions in the case of:
 - (i) additives;
 - (ii) potassium acetate; and
 - (iii) any other de-icing materials.

3.19.6 As salt de-icing material shall be removed from storage areas by the Company a positive slope shall be maintained to avoid danger to operatives and winter Constructional Plant from the collapse of faces of de-icing material stockpiles.

3.19.7 The Company shall be responsible for safeguarding and management of all de-icing material stock and storage facilities.

3.19.8 The Company shall ensure that the de-icing material stock does not become contaminated with matter likely to cause damage to winter Constructional Plant, cause the de-icing material to fail to comply with the requirements of this Part, or adversely affect road Users.

3.19.9 Materials shall be stored in a covered structure within the Company's depots to ensure compliance with the requirements of this Part and the supplier's written instructions in the case of additives, potassium acetate and any other de-icing materials.

4 Maintenance of Road Pavements

4.1 Assessment Types

4.1.1 There shall be four principal assessments to be considered by the Company in determining future maintenance needs:

- (i) Road condition using high speed surveys (Surface Condition Assessment of the National Network of Roads (SCANNER) system surveys), SCRIM, deflectograph and recognised visual condition surveys;
- (ii) Equipment, installations and information associated with the road, using the RMMF as specified in Section 2;
- (iii) Bridges and other Structures as specified in Section 5; and
- (iv) Road safety as specified in Part 3 of Schedule 8.

4.2 Road Condition

4.2.1 Three types of survey to assess the condition of the O&M Works Site in accordance with Section 3 to Volume 7 of the DMRB shall be used by the Company. The survey types required are:

- (i) High Speed Surveys as specified in Part 2 of Section 3 to Volume 7 of the DMRB which shall be carried out during spring and summer on a 2 year cycle;
- (ii) SCRIM surveys Category 1 equivalent as specified in Part 1 of Section 3 to Volume 7 of the DMRB which shall be carried out during summer on a 2 year cycle. Seasonal adjustment surveys shall be undertaken in spring and autumn; and
- (iii) Deflectograph surveys as specified in Part 2 of Section 3 to Volume 7 of the DMRB which shall be carried out during spring/summer on a 4 year cycle.

4.2.2 Survey contractors employed by the Scottish Ministers shall undertake road condition surveys and the Company's responsibilities in relation to such surveys shall be as stated in Section 15.8. of Part 1 of these O&M Works Requirements.

4.3 Programmes

4.3.1 The Company shall be responsible for analysing and interpreting the pavement management function data to identify structural pavement maintenance schemes and devise programmes of structural pavement maintenance as stated in Section 15.8. of Part 1 of these O&M Works Requirements.

4.4 Performance Criteria

4.4.1 The performance criteria for the road pavement which shall be maintained during the Services Period shall be as detailed on Tables 4/1 and 4/2 of this Section 4.

4.4.2 Unless stated otherwise in the relevant standard, investigatory levels and minimum performance levels shall apply to each 1 kilometre length of Lane measured from the node markers at the boundary of the O&M Works Site. Where the surface of the pavement changes or where traffic levels change by more than 25% within each kilometre, then data shall be provided for each representative length, subject to a practical minimum length of 100

metres.

- 4.4.3 Where the levels for skidding resistance are approaching or have reached the investigatory levels detailed in Table 4/1 the Company shall carry out the following:
- (i) place appropriate warning signs;
 - (ii) carry out additional investigations; and
 - (iii) prepare recommendations for maintenance and implement accordingly.
- 4.4.4 Where the pavement reaches the investigatory levels for rutting, cracking or residual life, the detailed assessment and interpretation procedure described in the HD30 of the DMRB shall be carried out.
- 4.4.5 Where the minimum performance levels are not achieved the Company shall rectify such defects within 90 days. In the event of such Defects increasing in severity or extent, such that there shall be a potential risk to the safety of Users, the Company shall place suitable warning signs and remedy such defects within 28 days.
- 4.5 Extent of Maintenance
- 4.5.1 The Company shall be responsible for the maintenance of all road pavements within the O&M Works Site in accordance with this Agreement.

Table 4/1 : Maintenance Assessment Surveys Surface Characteristics

	RELEVANT STANDARD		DATA PROCESSING METHOD	SURVEY FREQUENCY (YEARS)				INVESTIGATORY LEVELS				MINIMUM PERFORMANCE LEVELS DURING SERVICE PERIOD				MINIMUM PERFORMANCE LEVELS AT HANDBACK			
	REFERENCE	SURVEY CATEGORY		H/S	L.1	L.2-L.4	Slip Roads	H/S	L.1	L.2-L.4	Slip Roads	H/S	L.1	L.2-L.4	Slip Roads	H/S	L.1	L.2-L.4	Slip Roads
LANE SURVEY METHOD																			
SCRIM (SKIDDING RESISTANCE)	HD28 of the DMRB	CATEGORY 1 EQUIVALENT	SKID	REFER TO NOTE 3	2	2	2	TABLE 4.1 OF HD28 of the DMRB				NOT LESS THAN THE INVESTIGATORY LEVELS IN TABLE 3.1 OF HD28 of the DMRB				i) AVERAGE MSSC > INVESTIGATORY LEVEL+ 0.10 ii) MINIMUM LEVEL AS TABLE 3.1 OF HD28 of the DMRB			
HSS SCANNER (Ride Quality)	HD29 of the DMRB		GROUP 3	REFER TO NOTE 3	1	2			CATEGORY 3 TABLE 2.1)to HD29 of the DMRB			CATEGORY 2 TABLE 2.1to HD29 of the DMRB					i) AVERAGE CATEGORY 1 ii) MINIMUM CATEGORY 2		TABLE 2.1 to HD/29 of the DMRB
HSS SCANNER (Rutting)	HD29 of the DMRB		GROUP 3	REFER TO NOTE 3	1	2			> 5 %WITH 10mm OR MORE			NOT MORE THAN 10% WITH 10mm OR MORE					AVERAGE RUT DEPTH OF 5 mm AND NOT MORE THAN 5 % WITH 10 mm OR MORE		

NOTES:

1. Key to general terms : H/S – Hard shoulder ; L1, L2, L3 and L4 – Lane 1, Lane 2, Lane 3 and Lane 4
2. Seasonal factor to be agreed with the Contracting Authority.
3. Assessment to be carried out as required in accordance with Section 4.3.

Table 4/2 : Maintenance Assessment Surveys – Structural Performance

LANE SURVEY METHOD	RELEVANT STANDARD		DATA PROCESSING METHOD	ASSESSMENT FREQUENCY (YEARS)				INVESTIGATORY LEVELS				MINIMUM PERFORMANCE LEVELS DURING SERVICE PERIOD				MINIMUM PERFORMANCE LEVELS AT HANDBACK			
	REFERENCE	SURVEY CATEGORY		H/S	L.1	L.2-L.4	Slip Roads	H/S	L.1	L.2-L.4	Slip Roads	H/S	L.1	L.2-L.4	Slip Roads	H/S	L.1	L.2-L.4	Slip Roads
VISUAL CONDITION (Cracking/Spalling)	REFER TO NOTE 1 BELOW	BITUMINOUS SURFACING	—	REFER TO NOTE 2	4	8	4	LTRC > 5 %				LTRC not > 10 %				LTRC not > 5 %			
DEFLECTOGRAPH (Residual life of flexible pavement)	HD29 of the DMRB	CATEGORY 1A OR 1B	PANDEF VERSION 3 OR EQUIVALENT	REFER TO NOTE 2	4	8	4	RESIDUAL LIFE (YEARS)				RESIDUAL LIFE (YEARS)				Refer to Note 5 MINIMUM RESIDUAL LIFE FOR EACH LANE: (i) 100 metre: 85% with 10 YEARS or more ii) 1 km: - 9x100m lengths with 10 YEARS or more - 100m lengths all 1 YEAR or more			
								<4	<4	<8	<4	>0	>0	>0	>0				

NOTES:

- Key to Visual Condition terms : LTRC Major Area Cracking, Minor Area Cracking, Major Transverse Crack and Minor Transverse Crack as defined in DMRB 7.3.2.3 Table 3.1 - LTRC in ten percent of wheelpath length.
- Assessment to be carried out as required, as detailed in sub-Section 4.2.
- Key to Deflectograph terms : RESIDUAL LIFE – Residual life to investigatory conditions in years, based on 85% deflection levels within each 100m length and, as per PANDEF Version 3 (or equivalent), 50% probability of achieving the residual life.
- Key to general terms: H/S – Hardshoulder; L1, L2, L3 and L4 – Lane 1, Lane 2, Lane 3 and Lane 4.
- Based on 99% of individual readings within specific sections. Detailed requirements are described in Part 3 of these O&M Works Requirements.

5 Maintenance and Management of Structures

5.1 General

This Section 5 defines the requirements for the maintenance and management for Structures within the O&M Works Site for which the Company shall be responsible. Defined terms for Structures are contained in Part 1 of these O&M Works Requirements.

5.2 The Company shall appoint a Bridges Manager who shall be a member of the Company's core management team and who shall be responsible for management of the O&M Works in respect of Structures and for reviewing and approving how the Company shall propose complying with the O&M Works Requirements in respect of Structures, including movements of abnormal loads. The Bridges Manager shall fulfil the requirements in BD63 of the Supervising Engineer.

5.3 Maintenance Management

5.3.1 General

- (i) The structures management function of the Integrated Road Information System database shall be used to record the information and programmes relating to the management, monitoring and maintenance of existing and proposed Structures. The Company shall use and update the structures management function of the Integrated Roads Information System database in accordance with the procedures specified in the system user manual and the 'Transport Scotland Inspection Manual – Principal Inspections of Trunk Road Structures and Location System' as issued by the Scottish Ministers and as amended and re-issued by the Scottish Ministers from time to time. The structures management function of the Integrated Road Information System shall be kept up to date by the Company throughout the Contract Period.
- (ii) The Company shall update all data held in the structures management function of the Integrated Road Information System, as follows:
 - (a) within three Business Days of becoming aware of any new data or changes to existing data, particularly after any inspections of Structures have been undertaken, and
 - (b) when existing Structures including sign gantries have been: demolished or infilled; newly constructed; widened; maintained and subjected to remedial works; or strengthened and/or improved.

5.3.2 Maintenance and Operations Manuals and Health and Safety Files

- (i) Any maintenance and operations manuals and health and safety files for Structures shall be reviewed not less than once each year and updated by the Company when necessary to comply with current legislation, safe working practices and any changes to the maintenance requirements of the structure. The Company shall prepare a report setting out the findings and changes made as part of the annual review and submit a copy in writing to the Contracting Authority within 3 Business Days of completion of the review.

- (ii) The Bridges Manager shall oversee preparation and storage of the Structures maintenance files for each Structure for the Company. These shall be in paper and electronic copy and referenced by route name, the junctions between which they are located, and national ordnance survey grid coordinates.
- (iii) Maintenance files for Structures shall contain:
 - (a) copies of all inspections together with details of structural maintenance and repair;
 - (b) drawings and records showing:
 - (i) location and extent of maintenance Operations and Works;
 - (ii) materials employed;
 - (iii) date of implementation;
 - (iv) details of Works contractors and subcontractors employed; and
 - (v) costs of O&M Works.
 - (iv) The Company shall notify the Contracting Authority of missing maintenance and operations manuals and missing health and safety files for Structures which should be available and shall use reasonable endeavours to replace them.
 - (v) No later than 15 Business Days after completion of any works to new or existing Structures by the Company, the Company shall submit to the Contracting Authority new and amended as-built records, including maintenance and operations manuals and health and safety files required by the DMRB.

5.4 Inspection Requirements

5.4.1 General

- (i) The Company shall undertake:
 - (a) Structures Safety Inspections;
 - (b) General Inspections;
 - (c) Principal Inspections;
 - (d) Scour Inspections and Scour Assessments; and
 - (e) Special Inspections.

5.4.2 All inspections shall be undertaken in accordance with the standards and advice notes contained in the DMRB and Guidance including the following documents:

- (a) 'Transport Scotland Inspection Manual – Principal Inspections of Trunk Road Structures and Location System';
 - (b) 'Structures Management System user manual'; and
 - (c) Inspections Further Data Collection Requirements.
- (ii) Inspections on Structures that are accommodation bridges for private Users shall include the road surface on the Structure and for a further five metres beyond either end of the Structure, together with any provided surface water drainage. Vehicular

restraint systems, where provided, shall be inspected for a minimum of 30 metres from each terminal or anchorage at the parapet interface.

5.4.3 Structures Safety Inspections

- (i) Structures Safety Inspections shall be undertaken by the Company at the same time as other inspection and maintenance duties.
- (ii) Structures Safety Inspections shall be undertaken to identify any deficiencies which, if not rectified, represent or may result in:
 - (a) a danger to the public and which therefore require immediate or urgent action,
 - (b) accidents,
 - (c) deterioration or behaviours indicating a reduction in load carrying capacity, and
 - (d) high repair costs.
- (iii) The Company shall undertake two types of Structures Safety Inspections:
 - (a) random, and
 - (b) reactive.
- (iv) The Company shall undertake random Structures Safety Inspections during maintenance of Structures. When undertaking the random Structures Safety Inspection the Company shall:
 - (a) observe the Structure,
 - (b) record any signs of problems or deficiencies, and
 - (c) report them to the Bridges Manager.
- (v) The Company shall undertake reactive Structures Safety Inspections after a problem or deficiency has been observed or reported by:
 - (vi) any of the Company's staff, or
 - (vii) the Police or the public,
 - (viii) and report them to the Bridges Manager.
- (ix) The Company shall submit a monthly report to the Contracting Authority detailing the findings of all random and reactive Structures Safety Inspections.
- (x) The Company shall identify, classify and record Defects observed as either Category 1 or Category 2 Defects in accordance with the requirements of this Part. The Company shall take action appropriate to the category and severity of such Category 1 or Category 2 Defects.

5.4.4 General Inspections

- (i) The Company shall plan and implement a programme of General Inspections of Structures by competent personnel to take place at intervals of no more than two years after the last General Inspection or Principal Inspection. This shall exclude any

Structures on which a Principal Inspection has been carried out during the same Contract Year in which the General Inspection is due to be conducted.

- (ii) A General Inspection shall consist of a visual inspection of representative parts of the Structure in accordance with the documentation listed in paragraph 5.4.2.
- (iii) Inspections shall be programmed relative to the inspection cycle for a specific Structure (that is: Principal Inspection – 2 year interval – General Inspection – 2 year interval – General Inspection – 2 year interval – Principal Inspection).
- (iv) General Inspection's shall be recorded in accordance with the documentation listed in paragraph 5.4.2. in particular the proforma at Appendix B to BA63/94 of the DMRB.
- (v) The defect description and prioritisation ranking shall be in accordance with these documents. The Company shall review the outcomes of the inspections and incorporate the findings into future maintenance works accordingly.
- (vi) General Inspections shall be recorded on a proforma provided within the structures management function of the Integrated Roads Information System. For any Defects found, the Defect description and priority ranking used shall be in accordance with the requirements in 'The Inspection Manual for Highways Structures Volume 1 and the Transport Scotland Inspection Manual – Principal Inspections of Trunk Road Structures and Location System'.

5.4.5 Principal Inspections

- (i) The Company shall plan and implement a programme of Principal Inspections of Structures by competent personnel to take place at intervals of no more than six years after the last Principal Inspection.
- (ii) A Principal Inspection shall consist of a close examination, within touching distance, of all inspectable parts of a Structure in accordance with the documentation listed in paragraph 5.4.2.
- (iii) Principal Inspections shall be recorded in accordance with the documentation listed in paragraph 5.4.2.
- (iv) The defect description and prioritisation ranking shall be in accordance with these documents. The Company shall review the outcomes of the inspections and incorporate the findings into future maintenance works accordingly.
- (v) Unless requested otherwise by the Contracting Authority, the result of a Principal Inspection shall be recorded within the structures management function of the Integrated Roads Information System.
- (vi) All Principal Inspections of Structures with a span of greater than 10 metres shall be undertaken by a chartered civil or structural engineer.

5.4.6 Special Inspections

- (i) Special Inspections shall be undertaken by the Company to

investigate a Defect identified during a General Inspection or to investigate a particular concern.

- (ii) Details of Special Inspections together with examples of when these may be required are given in BD 63 of the DMRB.
- (iii) The requirement for Special Inspections shall be determined by the Company and the Company shall be responsible for implementing these.
- (iv) Special Inspections shall be recorded in accordance with the documentation listed in paragraph 5.4.2.
- (v) The defect description and prioritisation ranking shall be in accordance with these documents. The Company shall review the outcomes of the inspections and incorporate the findings into future maintenance works accordingly.
- (vi) Unless requested otherwise by the Contracting Authority, the result of a Special Inspection shall be recorded within the structures management function of the Integrated Roads Information System.

5.4.7 Scour Inspections and Scour Assessments

- (i) Scour Inspections and Scour Assessments shall be implemented for Structures where the foundations and parts of the Structure are below water level. The Company shall carry out Scour Inspections and Scour Assessments at the same time as carrying out Principal Inspections unless otherwise directed by the Contracting Authority.
- (ii) The Company shall carry out Scour Inspections in accordance with BD97 of the DMRB and include a report as part of the Principal Inspection report. The Company shall review the outcomes of the inspections and incorporate the findings into future maintenance works accordingly.
- (iii) Prior to carrying out a Scour Inspection, the Company shall review any previous Stage 1 and Stage 2 Scour Assessments undertaken in accordance with BA74 and/or BD97 of the DMRB so that any changes in conditions can be identified during the Scour Inspection.
- (iv) The Company shall assess the potential for scour and record any observations as part of Principal Inspections together with any observations related to the scour noted and recorded during General Inspections. Scour Inspection reports shall be included as a part of the Principal Inspection report.
- (v) The need for additional Scour Inspections to Structures after periods of heavy rainfall shall be assessed by the Company as a reactive Safety Inspection of this Part and where required a Special Inspection shall be undertaken.

5.4.8 Weather Resistant Steel Bridge Monitoring

- (i) The management and monitoring of weather resistant steel bridges shall be undertaken by the Company in accordance with BD7 of the DMRB and the requirements of this Section 5.
- (ii) The Company shall ensure that steel thickness measurement data

shall be recorded stored and presented in Principal Inspection reports in order that corrosion trends shall be apparent. The Company shall measure, record, store and present the results of the actual steel thicknesses at the critical locations in the Principal Inspection reports.

- (iii) The Company shall incorporate in its General Inspection procedures methods of obtaining, recording and reporting the required data detailed in BD97 of the DMRB.
- (iv) Weather resistant steel bridges that shall require to be monitored shall be listed within the structures maintenance function of the Integrated Roads Information System. The structures maintenance function of the Integrated Roads Information System shall show the year in which the next Principal Inspection shall be due and the year in which the steel thickness measurements have most recently been taken.

5.4.9 Structural Assessment

- (i) The requirement for structural assessments shall be determined by the Company and the Company shall be responsible for implementing these. Inspections for Assessment shall be undertaken concurrently with Principal Inspections where possible.
- (ii) Assessments shall be undertaken in accordance with BD 21 of the DMRB.

5.4.10 Identifying and Categorising Defects

- (i) Defects shall be identified and categorised as described in the documentation listed in paragraph 5.4.2. These are summarised generally as:

INSIGNIFICANT	1	No immediate concern:- leave for further examination at next PI. Defects not likely to deteriorate significantly within 6 years.
MINOR	2	No immediate concern, but Defects likely to get worse and significantly more expensive within 6 years.
UNACCEPTABLE	3	Should not be left for 6 years until the next PI. Deterioration of defects and escalation of repair cost inevitable if not repaired. Could become severe to affect integrity of Structure.
SEVERE – ACTION NEEDED	4	Currently affecting the integrity of the Structure. Essential to repair defects at an early date. Could become hazardous if left. Cost of repair/damage to Structure escalating rapidly.

- (ii) The Company shall be responsible for identifying, categorising and prioritising defects to Structures from inspections to facilitate a maintenance programme that ensures the successful operation and maintenance of the Structures to these O&M Works Requirements.

5.5 Cyclic Maintenance of Structures

- 5.5.1 Cyclic Maintenance shall comprise activities relating to the servicing of the Structure. The requirements and scope of Cyclic Maintenance shall be as detailed in Clauses 6110AR to 6118AR of Part 5 of the O&M Works Requirements.
- 5.5.2 The Company shall carry out Cyclic Maintenance to each relevant Structure at least twice each year or at pre-determined intervals in accordance with any operations manual, log book or maintenance schedule to meet as a minimum the requirements of this Agreement.
- 5.5.3 For each Structure a Cyclic Maintenance schedule shall be prepared by the Company which shall also include any specific requirements identified in the individual Structure maintenance manual. The schedule shall include the frequencies at which routine maintenance operations shall be carried out.
- 5.5.4 All graffiti shall be dealt with in accordance with the requirements of Section 2.

5.6 Structural Maintenance of Structures

- 5.6.1 Structural Maintenance of Structures as referred to hereafter shall cover the repair or renewal of structural elements or components that have become unserviceable due to general wear and tear or have deteriorated for other reasons. Such work shall be identified by the Company during inspections and assessments and included in the planned programmes of Structural Maintenance.
- 5.6.2 The Company shall be responsible for the Structural Maintenance of all Structures within the boundaries of the O&M Works Site. Structures shall be maintained in a safe and serviceable condition at all times and shall comply with the requirements of contemporary standards and codes of practice.
- 5.6.3 Where Structures have been identified as requiring Structural Maintenance, appropriate steps shall be taken by the Company to carry out the Structural Maintenance works as soon as possible.
- 5.6.4 Structural Maintenance shall comply with the standards referred to in these O&M Works Requirements as the same may be amended from time to time.
- 5.6.5 On an annual basis the Company shall be required to demonstrate to the Contracting Authority that any proposed maintenance to Structures provides the Contracting Authority with long term value for money.
- 5.6.6 Where Structural Maintenance of Structures requires the alteration of the appearance of a Structure this shall require the written approval of the Contracting Authority.
- 5.6.7 The Company shall be responsible for obtaining all statutory approvals for Structural Maintenance of Structures.
- 5.6.8 Where defects in the Structure which constitute an imminent hazard to Users are revealed by inspections, immediate steps shall be taken to provide suitable protection measures for the safety of the public and of the Structures and to alert the public to the hazard.
- 5.6.9 After measures have been taken to ensure safety, further steps shall be taken to:

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- (i) assess the serviceability of the Structure;
 - (ii) temporarily or permanently repair as soon as possible thereafter;
 - (iii) replace temporary repairs by permanent repairs as soon as possible; and
 - (iv) maintain suitable protection measures until temporary or permanent repairs have been carried out.
- 5.6.10 Where defects do not constitute an imminent hazard to Users they shall be categorised and prioritised by the Company by reviewing the defects in conjunction with all other information relating to the Structure and incorporated into the maintenance programme accordingly. The Company shall then be responsible for undertaking these works.
- 5.6.11 Where a Structure forms part of a private or accommodation works access the Company shall be responsible for all elements of the Structure. The Company shall be responsible for arranging access for the maintenance of these Structures with the interested party concerned.
- 5.7 Technical Appraisal and Certification
- 5.7.1 In all cases where structural integrity is affected, but excluding situations where emergency measures are required the procedure for the technical appraisal and certification of Structures shall be in accordance with BD 2 of the DMRB.
- 5.8 Structural Assessments
- 5.8.1 Structural assessments and subsequent actions are of crucial importance in ensuring that all Structures remain in a safe and serviceable state.
- 5.8.2 The Company shall be responsible for undertaking structural assessments as required. The Company shall be responsible for determining the requirement for structural assessments which shall include, but shall not be limited to assessments due to:
- (i) increases in vehicle loadings above those used for the Design of a Structure;
 - (ii) assessments of a Structure or part of a Structure that is noted in an inspection to have deteriorated, and whose design or assessed load carrying capacity may have been reduced; and
 - (iii) assessments of a Structure or part of a Structure as a result of accidental damage; and
 - (iv) assessments arising from Guidance and which are notified by the Contracting Authority.
- 5.8.3 Structural Assessment Process
- (i) The assessment levels applicable to Structures requiring an assessment shall be as specified in BD79 of the DMRB. Generally levels 1 to 3 inclusive shall be appropriate.
 - (ii) In exceptional circumstances, reliability-based methods of assessment may be required. Such levels of assessment shall be likely to require specialist knowledge and expertise. Where the requirement for a reliability-based method of assessment has been agreed with the Contracting Authority the Company shall be responsible for procuring this work by experienced assessing engineers.
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- (iii) Technical approval shall be required for structural assessments and the Company shall follow the requirements set out in Appendix F.

5.9 Management of Sub-standard Structures

5.9.1 General

- (i) The Company shall be responsible for identifying sub-standard Structures and recommending any necessary interim measures.
- (ii) The Company shall manage sub-standard Structures in accordance with the requirements of BD79 of the DMRB. This is necessary to maintain public safety and to enable sub-standard Structures to remain in service during the period when further assessments are carried out and/or until any replacement or strengthening if required can be completed.
- (iii) The Company shall be responsible for undertaking assessments as necessary to determine whether interim measures can be removed.
- (iv) Where a Structure is found to be sub-standard following all exhaustive assessment methods the Company shall be responsible for developing proposals for cost effective strengthening or replacement.

5.9.2 Interim Measures to Enable Sub-standard Structures to Remain in Service

- (i) The Company shall design, implement, maintain and monitor appropriate interim measures for each sub-standard Structure until it is re-assessed as adequate or strengthened or replaced. The Company shall submit proposals for any new interim measures or amendments to existing interim measures for the written consent of the Contracting Authority.
- (ii) All Structures that shall require to be monitored shall be as listed within the structures maintenance function of the Integrated Roads Information System.

5.9.3 Replacement and Strengthening

- (i) The Company shall determine the programme of strengthening and replacement of sub-standard Structures and shall be responsible for developing proposals for cost effective strengthening or replacement. These shall be developed to provide the Contracting Authority with long term value for money and the Company shall provide evidence of this to the Contracting Authority when requested in terms of a whole life cost analysis.
- (ii) In developing proposals for strengthening or replacement the Company shall be required to provide alternative options where relevant together with supporting information as required by the Contracting Authority. Supporting information shall include but shall not be limited to costs, durability, maintenance, health & safety and decommissioning.
- (iii) All proposals for replacement Structures shall require the written approval of the Contracting Authority.
- (iv) All proposals for strengthening of Structures which require the alteration of the appearance of a Structure shall require the written

Approval of the Contracting Authority.

- (v) The Company shall be responsible for obtaining all statutory approvals for strengthening or replacement of Structures.

5.9.4 Management of Sub-Standard Structures and Structures with Known Defects

- (i) The Company shall undertake the management of sub-standard Structures and the management of Structures with known defects in order to:
 - (a) maintain public safety, and to
 - (b) enable sub-standard Structures to remain in service whilst further assessments are carried out and until any replacement or strengthening is completed or the Structure shall be no longer deemed sub-standard.

These obligations may change during the Agreement and any additional obligations shall be notified by the Contracting Authority.

The Company shall manage sub-standard Structures in accordance with the requirements of the DMRB.

5.10 Access Systems

5.10.1 General

- (i) The Company shall employ a Gantry Manager to deliver the requirements of paragraph 5.10 of this Part who shall report directly to the Bridges Manager. The Gantry Manager shall supervise the use of all Access Systems and carry out the duties referred to in this section.
- (ii) Structures which have permanent bridge access gantries and or runway beams which are required to remain certified for use throughout the duration of the Agreement.
- (iii) The Company shall be responsible for the inspections, testing, maintenance and operation of any Access Systems. The Company shall ensure that prior to use, all Access Systems comply in all respects with current regulations and standards including:
 - (a) British Standard 6037: Code of practice for the planning, design, installation and use of permanently installed access equipment, or equivalent;
 - (b) British Standard 5974: Temporary installed suspended scaffolds and access equipment or equivalent;
 - (c) British Standard EN 1808: Safety requirements on suspended access equipment – design calculations, stability criteria, construction, or equivalent; and
 - (d) The Operation and Maintenance of Bridge Access Gantries and Runways. (Second Edition 2007) published by the Institution of Structural Engineers.
- (iv) The Company shall be responsible for and provide:
 - (a) method statements for inspections and testing;

- (b) certification; and
 - (c) provide and maintain bridge maintenance files and health and safety files;
- in relation to all Access systems.
- (v) Where relevant and available, the Contracting Authority shall provide the Company with operations and maintenance manuals and manufacturers' instructions in relation to existing Access Systems.
 - (vi) The Company shall make use of the Access Systems to allow Undertakers to inspect and maintain their plant and equipment where this is fixed to a Structure.
 - (vii) The Company shall liaise with, supervise and accompany all:
 - (a) Statutory Authorities;
 - (b) Undertakers;
 - (c) authorised contractors; and
 - (d) other interested third parties;who are using the Access Systems.
 - (viii) The Company shall ensure that routine inspection and testing and periodic electrical inspections and testing of the Access Systems are carried out in accordance with the operations and maintenance manuals. Certificates shall be held on the health and safety file for the work. The Company shall also ensure that the gantry operations and maintenance manual shall be kept up to date with the following:
 - (a) Design and Check Certificates for access gantries and runway beams, which shall be signed by a chartered engineer;
 - (b) an electrical installation completion certificate in relation to any electrical works that are undertaken on the gantry in accordance with British Standard 7671: 1992;
 - (c) periodic electrical inspections and testing shall be carried out on existing installations; and
 - (d) test certificates for all lifting devices and the system as a whole;

5.10.2 Construction Design and Management

- (i) The Construction Design and Management Coordinator appointed by the Company shall ensure that a Health and Safety Plan covering all Works or Operations relating to or requiring the use of all Access Systems shall be prepared.
- (ii) The Principal Contractor appointed by the Company for any Works or Operations utilising the Access System shall develop the Health and Safety Plan and prepare a full and detailed method statement to cover the specific site operations involved.
- (iii) Where a temporary access platform is installed, or equipment supported or attached to the permanent Structure, the Company shall satisfy itself regarding:

- (a) the competence of the Designer and Contractor for the design, installation and operation of the temporary Access System and equipment, and
 - (b) ensure that the existing Structure has been assessed and certified as adequate to support all loading conditions resulting from the installation and operation of the temporary Access Systems.
- (iv) Before any temporary Access System shall be used, the Company shall ensure that the:
- (a) design, installation and required certification for the temporary Access System, and
 - (b) the associated operations manual, incorporating all health and safety procedures,
- are up to date and in accordance with current regulations and standards.

5.10.3 General and Principal Inspections of Access Systems

- (i) General and Principal inspections shall be carried out on all Access Systems, whether they are gantries or suspended scaffold installations. The inspections shall be reported separately but in the same format to those undertaken on the Structure at two year and six year intervals.
- (ii) The Company shall maintain an inspection regime and register for suspended scaffolding installations. This shall be placed on the health and safety file for the work and in the Structures maintenance manual.
- (iii) For new temporary or permanent access installations, or for existing systems that are brought back into use, the Company shall provide the appropriate Design and Check Certificates which shall be placed on the health and safety file for the work. These shall be signed by a chartered civil or structural engineer where they relate to any suspended Access System installation.
- (iv) The Company shall ensure that its management procedures are in place and kept up to date for the operation and maintenance of any Access Systems which are required to be kept in service. Details of procedures and required staffing levels shall be included in the gantry operations and maintenance manual and this information shall be updated regularly throughout the duration of this Agreement.
- (v) The Company shall ensure that the Gantry Manager and gantry operators receive any training necessary for the management and operation of the existing Access Systems and for any new system that is commissioned. Records of training together with the assessment of the suitability of the selected personnel shall be retained by the Company. The Gantry Manager shall be responsible for the control of gantry operations and for ensuring that operations and maintenance manuals are reviewed at regular intervals and kept up to date.
- (vi) The Company shall ensure that in the event of emergencies or Access System breakdown, a safe means of exiting the Access

System is available. Each operational Access System shall include the appropriate safety and first aid equipment.

6 Maintenance of Traffic Scotland Maintained Equipment

6.1 General

6.1.1 The Company shall be responsible for maintenance of Traffic Scotland Passive Maintained Equipment as detailed in this Section 6 and Appendix I. Maintenance of Traffic Scotland Active Maintained Equipment shall be the responsibility of the Traffic Scotland Service Provider.

6.1.2 The Traffic Scotland Active Maintained Equipment that the Traffic Scotland Service Provider shall maintain includes existing Traffic Scotland Active Maintained Equipment within the Project Roads until its replacement with Transport Scotland Issued Equipment installed by the Company, comprising:

- (i) VMS; and
- (ii) TMUs.

Together with Traffic Scotland Maintained Equipment installed as part of the New Works, comprising:

- (i) VMS elements of Cantilever and Offset-T VMS;
- (ii) VMS Roadside Controllers;
- (iii) CCTV Cameras;
- (iv) Journey Time Cameras;
- (v) IP Switches;
- (vi) Voice Gateways;
- (vii) DSL Modems;
- (viii) MPC4s;
- (ix) TMUs;
- (x) CECs;
- (xi) UPS;
- (xii) WIM equipment excluding inductive loops; and
- (xiii) Data Service cabinet equipment.

6.1.3 The Company shall be responsible for the maintenance of the soft and hard landscaping at sites where Traffic Scotland Maintained Equipment is located. This activity shall ensure that any infrastructure intended to provide access to the Traffic Scotland Maintained Equipment provides a safe and unhindered method of working for the Traffic Scotland Service Provider. The activities in relation to Traffic Scotland Maintained Equipment shall include:

- (i) Grass cutting and clearing of a swathe one metre wide around all equipment and access paths and maintaining this clean swathe throughout the growing season;
- (ii) Removal of any undergrowth immediately adjacent to equipment;
- (iii) Clearing of all paths and slabbed areas of weeds and grass

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- cuttings;
 - (iv) Repair and maintenance of broken or otherwise damaged or uneven paving slabs;
 - (v) Repair and maintenance of broken or otherwise damaged or uneven access steps, stairs, handrails, gates, ladders, and the like;
 - (vi) Removal of litter, refuse and debris from around the equipment sites;
 - (vii) Maintenance of clear access to vehicle hardstanding areas; and
 - (viii) Removal of graffiti in accordance with Section 2.28 of this Part.
- 6.1.4 The Company shall be responsible for the maintenance of those items of infrastructure that support Traffic Scotland Active Maintained Equipment that are deemed to be a Structure. This activity shall ensure that the foundation, the post substructure and superstructure with sign enclosure are maintained in a safe and watertight condition. In this context “Structure” means:
- (i) Sign and signal gantries, including all associated cladding, that are Structures that display fixed or variable driver information over or adjacent to the O&M Roads;
 - (ii) Masts for supporting closed circuit television cameras;
 - (iii) service ducts that are Structures for Structures Management System purposes; and
 - (iv) retaining walls that are Structures constructed as a component of an O&M Road that retain heights of infill material or natural ground level greater than 1.5 metres (ground level to ground level).
- 6.1.5 The Company shall report faults and defects that are observed for which the Traffic Scotland Service Provider is responsible
- 6.1.6 Where access is required by any of the parties to an electrical equipment cabinet that provides electrical energy to both Company maintained equipment and equipment maintained by others, it shall be undertaken in accordance with the access procedure set out in Appendix N of this Part. The maintenance, inspection and testing regime for such electrical equipment cabinets is set out in Appendix N of this Part.
- 6.2 Inspection Requirements
- 6.2.1 The Company shall carry out Detailed Inspections on the Traffic Scotland Maintained Equipment in accordance with the requirements of this Schedule 4.
- 6.3 Maintenance Requirements
- 6.3.1 Any failure or damage to any of the Traffic Scotland Maintained Equipment which shall render it inoperable or unsafe shall be deemed to be an emergency and where such equipment is the responsibility of the Traffic Scotland Service Provider, the Company shall provide such assistance to the Traffic Scotland Service Provider as may be required, to including provision of Traffic Management.
- 6.3.2 Inspection and maintenance of the Traffic Scotland Maintained Equipment

by the Traffic Scotland Service Provider shall include the provision by the Company of all associated traffic management measures and required liaison by the Company with the appropriate Operational Partners, adjacent DBFO Companies, Traffic Scotland Service Provider and the Police.

- 6.3.3 The Company shall provide a team of service personnel to carry out the duties relating to Traffic Scotland Maintained Equipment inspection and maintenance as described in Section 6.4. The Company shall provide sufficient skilled staff numbers with appropriate facilities to maintain this equipment in good working order through Routine Maintenance.
- 6.3.4 A computer based Fault Management System (FMS) is integrated within the Traffic Scotland operating system. The FMS facilitates:
- (i) the reporting of faults (whether automatic or manual);
 - (ii) fault referencing numbering;
 - (iii) the classification of the faults;
 - (iv) fault report time;
 - (v) fault response time;
 - (vi) fault attendance details;
 - (vii) fault clearance time;
 - (viii) other details pertinent to the individual faults; and
 - (ix) inventory, asset evaluation and management of Traffic Scotland Maintained Equipment.
- 6.3.5 Where the Company reports a fault to the Traffic Scotland Service Provider, or the Traffic Scotland Service Provider reports a fault to the Company, the Company shall provide information as follows to allow population of the FMS:
- (i) fault report time;
 - (ii) fault response time;
 - (iii) fault attendance details;
 - (iv) fault clearance time; and
 - (v) other details pertinent to the individual faults.
- 6.3.6 Prior to the Full Services Commencement Date the Company shall only report to the Traffic Scotland Service Provider those faults that occur in relation to the variable message signs provided as part of the New Works where such faults are the responsibility of others. Faults shall be reported within 4 (four) hours of identification by the Company and shall be notified to the Transport Scotland Service Provider via e-mail and by copy to the Contracting Authority.
- 6.4 Traffic Scotland Maintenance Requirements
- 6.4.1 The provision and maintenance requirements of the Traffic Scotland Maintained Equipment under this Agreement are designed to enable the provision of a service to the Traffic Scotland Manager, Traffic Scotland Service Provider, the Police and the public in the most efficient manner possible to achieve high equipment performance and availability and to keep fault levels to a minimum.

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- 6.4.2 The Company shall ensure that the equipment performance criteria are complied with throughout the duration of the Agreement and shall replace any of the equipment for which it holds maintenance responsibility that has operationally degraded and no longer complies with the equipment performance and availability requirements.
- 6.4.3 The Company shall at all times maintain the Traffic Scotland Passive Maintained Equipment with the minimum of disturbance to Traffic Scotland Service and shall agree Traffic Scotland Maintained Equipment down-time in advance with the Traffic Scotland Service Provider and shall telephone the Traffic Scotland Service Provider prior to taking the Traffic Scotland Passive Maintained Equipment into a down-time state.
- 6.4.4 The Company shall have management responsibility for the servicing, repair and reinstatement of this Traffic Scotland Passive Maintained Equipment in order to keep all such Traffic Scotland Maintained Equipment fully operational under any conditions.
- 6.4.5 The Company shall supply details of personnel, backup facilities, training etc. as the Traffic Scotland Manager may require to demonstrate the Company's ability to comply with this Section 6.
- 6.4.6 Where the performance of the Traffic Scotland Maintained Equipment is partly or wholly affected by faults or other operational activities, the problems shall be resolved by the Company, unless provided otherwise under this Agreement, as quickly as possible thereby minimising the delay in restoring the Traffic Scotland Maintained Equipment.
- 6.4.7 The Company shall respond to faults within the response and repair times defined herein and shall maintain the Traffic Scotland Passive Maintained Equipment, including spares and Traffic Scotland test equipment, to the level of performance and availability required.
- 6.4.8 The Company shall ensure that power supplies to all Traffic Scotland Maintained Equipment on the O&M Works Site shall be isolated from any adjacent supplies and maintained, including payment for supply and use.
- 6.5 Personnel and Resources
- 6.5.1 The Company shall provide sufficient resources for the purpose of carrying out these O&M Works Requirements.
- 6.5.2 The Company shall ensure that the resources and any replacement staff are able to comply with these maintenance requirements and that staff are competent, appropriately trained, and experienced in working in these particular environs.
- 6.5.3 The Company shall be responsible for the day to day management of the resources and shall liaise with the Traffic Scotland Manager, Traffic Scotland Service Providers and any other Relevant Authorities, as necessary concerning the programme for maintenance of the Traffic Scotland Passive Maintained Equipment.
- 6.5.4 A member of the Company's staff shall be nominated as the maintenance representative, who shall liaise with the Contracting Authority and the Traffic Scotland Manager regarding the programme for maintenance.
- 6.5.5 Only fully trained team members shall deal with call-outs.
- 6.5.6 All personnel on fault callout duty shall have nominated backup reserves available to provide support in the case of multiple faults.
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- 6.5.7 The Company shall supply all resources, labour, transport, tools, replacement spares, Traffic Scotland test equipment and office and depot facilities necessary to carry out its duties.
- 6.5.8 Each member of the maintenance staff shall be supplied with appropriate information regarding the Traffic Scotland Maintained Equipment and shall have access to all workshop and information system facilities.
- 6.5.9 The Company shall advise the Traffic Scotland Manager of the arrangements for contacting each member of the maintenance team whilst they are working on the system and on callout duty.
- 6.6 Traffic Scotland Alterations
- 6.6.1 To facilitate development of Traffic Scotland Maintained Equipment, the Traffic Scotland Manager shall reserve the right to:
- (i) make any tests or adjustments considered appropriate for the network as a whole;
 - (ii) alter the configuration of the Traffic Scotland Maintained Equipment; and
 - (iii) add, remove or replace Traffic Scotland Maintained Equipment.
- 6.6.2 In the event of additional works being required the Contracting Authority shall issue a notice to the Company to that effect and shall be responsible for the Company's costs for instructed alterations to the Traffic Scotland Maintained equipment.
- 6.6.3 To enable the Company to comply with these O&M Works Requirements, the Company shall be entitled, subject to giving prior notice and with the written consent of the Contracting Authority and the Traffic Scotland Manager to:
- (i) make any test or adjustment considered necessary;
 - (ii) alter the configuration of the Traffic Scotland Maintained Equipment; and
 - (iii) add, remove or replace Traffic Scotland Maintained Equipment.
- 6.7 Fault Classification
- 6.7.1 The faults associated with Traffic Scotland Maintained Equipment shall be classified as follows:
- (i) Class 1 : High Priority;
 - (ii) Class 2 : Urgent;
 - (iii) Class 3 : Non-Urgent;
 - (iv) Class 4 : Deferred.
- 6.7.2 Class 1 High Priority faults shall include:
- (i) A failure any of the Traffic Scotland Maintained Equipment, field communication cabling or communications infrastructure that causes loss of service associated with any of the Traffic Scotland Service functionality over 3 kilometres or more of the O&M Roads.
 - (ii) Failure of any Traffic Scotland Maintained Equipment where it is deemed that the circumstances require a Class 1 Response and the Company is given an instruction to attend from the Traffic Scotland Service Provider.
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- 6.7.3 Class 2 Urgent faults shall include:
- (i) A failure of any of the Traffic Scotland Maintained Equipment, field communication cabling or communications infrastructure that causes loss of service associated with any of the Traffic Scotland functionality over less than 3 kilometres of the O&M Roads, for example loss of a single MPC at a Node Site where the MPC supports multiple devices; and
 - (ii) Failure of any Traffic Scotland Maintained Equipment where it is deemed that the circumstances require a Class 2 Response and the Company is given an instruction to attend from the Traffic Scotland Service Provider.
- 6.7.4 Class 3 Non-urgent shall include any fault not classified as Class 1 or Class 2 where it is deemed that the circumstances require a Class 3 Response and the Company is given an instruction to attend from the Traffic Scotland Service Provider.
- 6.7.5 Class 4 Deferred shall include all faults which can, with the consent of the Traffic Scotland Manager, be rectified during the next planned maintenance activities.
- 6.7.6 Where the fault repair time is outwith the direct control of the Company this may be promoted by the Company as a Contended Fault, subject to the agreement of the Contracting Authority. Contended Faults retain their original Fault Classification but can be removed from the Company's Key Performance Indicator calculations. Contended Faults could include, for example, third party service provider faults. This does not relieve the Company of its obligations to pursue the third party.
- 6.7.7 An Emergency Fault shall be a fault arising from an incident on or off a Traffic Scotland Maintained Equipment site (or part of the site) that: renders the site (or part of the site) unsafe and that shall require the Company to execute actions in accordance with this Schedule 4 Part 2; or renders any road or area unsafe and that shall require the Company to execute actions in accordance with this Schedule 4 Part 2.
- 6.8 Fault Notification and Callout
- 6.8.1 The Company shall be responsible for attending to faults 24 hours per day every day of the year.
- 6.8.2 The Company shall set up a Fault Reporting Centre, through which all activities pertaining to Traffic Scotland fault reporting and repair shall be co-ordinated. Fault reports made by telephone shall be to a single dedicated telephone number. All fault reports to the Company's Fault Reporting Centre shall be automatically timed and date stamped at the time of receipt. The dedicated fault reporting telephone number shall not be changed unless unavoidable, and in such circumstances the Company shall give the Contracting Authority and the Traffic Scotland Manager a minimum of 30 days notice of the intended change of telephone number for fault reporting.
- 6.8.3 The Fault Reporting Centre shall be manned continuously during normal working hours of 08:00 hours and 18:00 hours Monday to Friday, and between 08:30 hours and 12:30 hours on a Saturday, excluding public and statutory holidays. During normal working hours the dedicated fault telephone number shall be manned at all times: telephone automatic answering and recording systems are not permitted for the purpose of
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fault reporting.

- 6.8.4 No later than 4 weeks prior to the Full Services Commencement Date the Company shall submit in writing to the Contracting Authority for their approval a procedure for the reporting of Class 1 and Class 2 faults outwith normal working hours.
- 6.8.5 Fault notification shall be made in any one of the following ways:
- (i) By a telephone call from:
 - (a) The Traffic Scotland Control Centre;
 - (b) Police Control Rooms;
 - (c) Company's Staff;
 - (d) The Contracting Authority or his representatives;
 - (e) The Chief Constables or their representatives;
 - (f) Any of the Traffic Scotland Service Providers; and
 - (g) Any other party using verbal or electronic means.
 - (ii) By the Company's staff, who shall make daily contact with each Police Centre between 0800 hrs and 1000 hrs every day to ascertain if any faults exist.
- 6.8.6 The management of faults in respect of Traffic Scotland Maintained Equipment shall be monitored using the FMS. All faults shall be passed to the Traffic Scotland Service Provider for recording on the FMS including those that are reported automatically and those that originate manually.
- 6.8.7 The Company shall inform the Traffic Scotland Manager of any false call-out, within 7 days of it occurring, providing details in full as to why the Company considers a false call-out has occurred.
- 6.9 Performance Requirements for Fault Management
- 6.9.1 In response to a fault report, the Company shall arrange for an appropriately trained team member or sub-contract and, if appropriate, a representative from the Traffic Scotland Service Provider, to attend at the fault location to diagnose and repair the fault, or to make other arrangements for its repair as necessary. The Traffic Scotland Service Provider shall only be called where the fault relates to Traffic Scotland Active Maintained Equipment. The activities for diagnosing a fault, repairing a fault, or making arrangements for repair of a fault shall be subject to the following response and repair times:
- (i) the fault report time shall be the time that a fault is reported to the Company either by telephone or fax or logged by the FMS;
 - (ii) the fault attendance time shall be the time that a dedicated team member arrives on site at the location of the fault and notifies the Traffic Scotland Service Provider;
 - (iii) the response time shall be the period between the fault report time and the fault attendance time;
 - (iv) the fault clearance time shall be the time that the Traffic Scotland systems detects that the fault has been cleared, or in the case of a fault which has not been detected automatically by the Traffic Scotland system, it shall be the time that the repair is reported as being cleared by the team member or the Traffic Scotland Service

Provider to the FMS;

- (v) the repair time shall be the period between the fault attendance time and the fault clearance time.
- 6.9.2 For Class 1 high priority faults, the response time shall be less than 4 elapsed hours and the repair time shall be less than 4 elapsed hours – the combined response and repair time shall not be greater than 6 elapsed hours.
- 6.9.3 For Class 2 urgent faults, the response time shall be less than 4 working hours and the repair time shall be less than 4 working hours – the combined response and repair time shall not be greater than 6 working hours.
- 6.9.4 Where the Traffic Scotland Manager considers a Class 2 urgent fault merits an accelerated response outwith working hours, he may modify the fault classification.
- 6.9.5 For Class 3 non-urgent faults, the combined response and repair time shall not be greater than 10 working hours.
- 6.9.6 Where the Traffic Scotland Manager considers a Class 3 non-urgent fault merits an accelerated response outwith working hours, he may modify the fault classification.
- 6.9.7 For a Class 4 fault, the Company shall prepare and provide an acceptable programme to the Traffic Scotland Manager for the repair of the fault covering the period from the first reporting of the fault through to completion of the repair.
- 6.9.8 For an Emergency Fault the response time shall be considered to be the time taken from notification of the Emergency Fault to the Company up to the commencement of appropriate action at the site of the Emergency Fault. The response time for an Emergency Fault shall always be as short as can be safely achieved but shall not exceed a maximum of 1.5 hours.
- 6.9.9 Repeat faults may, at the discretion of the Contracting Authority, be classified as Class 1 and be subject to the response and repair times thereof. A repeat fault shall be deemed to be have been rectified when it has not reappeared for a period of no less than six weeks.
- 6.9.10 For faults caused by damage to Traffic Scotland Maintained Equipment by others, including accident damage, the faults shall be appropriately classified and be subject to the response and repair times for that class. Without prejudice, the Company shall endeavour to restore equipment functionality and bring such Traffic Scotland Maintained Equipment into normal operation by the end of the next Business Day.
- 6.10 Procedures
- 6.10.1 It is the responsibility of the Company to ensure that all faults are effectively and efficiently progressed with due diligence to meet the required response and repair times. The Company shall remain responsible for the satisfactory and timely restoration of the Traffic Scotland Maintained Equipment functionality, including where work on the fault is the responsibility of the Traffic Scotland Service Provider.
- 6.10.2 On arrival at the site of the Traffic Scotland Maintained Equipment to

attend to a fault, the Company shall: immediately record the time of arrival which shall be recorded as the fault attendance time within the Traffic Scotland FMS; and record any further details of the reported fault for passing to the Traffic Scotland Service Provider.

- 6.10.3 The Company shall obtain clearance from the Traffic Scotland Manager prior to commencing any work where it is necessary to temporarily interrupt or degrade the normal operation of Traffic Scotland Maintained Equipment in order to effect a repair.
- 6.10.4 Following investigation of a fault, if, in the opinion of the Company, the time required to repair the fault will exceed 2 hours, the Company shall update the Traffic Scotland Service Provider. This update shall include the nature of the confirmed fault and an estimate of the time required to effect a full repair. The Company shall update the Traffic Scotland Service Provider at two hourly intervals thereafter until such time as a full repair is effected or it has been determined that a further visit is required.
- 6.10.5 If the Company is unable to complete a full repair in a single visit or within the performance requirements, it shall immediately update the Traffic Scotland Service Provider accordingly and indicate a proposed route of action to restore the Traffic Scotland Maintained Equipment to full operation.
- 6.10.6 Having attended to a fault and restored the Traffic Scotland Maintained Equipment to normal operational use and before leaving the site, the Company shall: immediately inform the Traffic Scotland Service Provider and other relevant bodies; and update the Traffic Scotland Service Provider with details of a fault found and the action taken.
- 6.10.7 During attendance on site the Company shall record fault report details for entering into the FMS by the Traffic Scotland Service Provider in connection with reported faults. The fault report shall contain, as a minimum, the following information:
- (i) unique fault reference number;
 - (ii) brief description of reported fault;
 - (iii) time and date of fault report;
 - (iv) fault reporter;
 - (v) time and date of attendance on site;
 - (vi) name of personnel in attendance;
 - (vii) where a full repair is not achievable then a comprehensive report including proposed remedial action and timescales shall be added to the attendance details to be recorded in the FMS;
 - (viii) details of full repair;
 - (ix) time and date of full repair;
 - (x) name of repairer;
 - (xi) impact, if any, on Company's spares holding, such as parts used and delivery time to repair/replenish items; and
 - (xii) Usage of material taken from Traffic Scotland's spares holding, such as parts used and delivery time to repair/replenish items.

- 6.10.8 The requirements placed on the Company with respect to notification or other communication with the Traffic Scotland Service Provider or any other relevant party shall not in any way relieve the Company of any of its other obligations.
- 6.11 Fault Clearance Methodology
- 6.11.1 The Company shall record all visits to Police centre(s) in the logbook provided at these centres and comply with all other attendance requirements at these location(s).
- 6.11.2 The Company shall, when repairing a fault:
- (i) ensure faults are cleared, where practicable, by the replacement of components or equipment with components or equipment from the spares held;
 - (ii) ensure that each withdrawn component, sub-unit and item of equipment is repaired or replaced to prevent the level of spares held from falling below the minimum recommended level; and
 - (iii) maintain a log of the usage of withdrawn items, showing when each item was withdrawn and when it again became available for service. This log shall be made available to the Traffic Scotland Manager on request.
- 6.11.3 In the case of a cable fault, the Company shall adopt the following procedures:
- (i) Precisely identify the location of the fault;
 - (ii) Make all necessary arrangements to rapidly restore essential works over the defective section of cable by temporary means, if necessary; and
 - (iii) where it is not possible to rapidly restore normal operation by temporary or other means, the Company shall take the steps necessary to restore normal operation with minimum delay.
- 6.11.4 Where, in exceptional circumstances, any component part, sub-assembly or peripheral item of the Traffic Scotland Maintained Equipment needs to be removed, and no replacement item is available, the Company shall:
- (i) during normal working hours, seek permission from the Traffic Scotland Manager, before any such disconnection or removal is undertaken; and/or
 - (ii) outside normal working hours, the Company shall use its own judgement in deciding whether to make such a disconnection or removal. The Traffic Scotland Manager shall be informed without delay during the next working day by the Company of any such action or decision.
- 6.11.5 Any permission given by the Traffic Scotland Manager to the Company to remove, replace, modify or repair any component part, sub-assembly or peripheral item of the Traffic Scotland Maintained Equipment shall not relieve the Company of any responsibility to comply with these O&M Works Requirements.
- 6.11.6 The Company may, at its own discretion, undertake a temporary repair to the Traffic Scotland Maintained Equipment. In undertaking such a temporary repair, the Company shall meet the following requirements:

- (i) The temporary repair shall be safely implemented and be capable of safely providing normal operation for a minimum of 30 days without further attention. It shall be implemented in a workmanlike and safe manner consistent with the quality requirements of this Agreement;
 - (ii) the Company shall seek written approval of the Traffic Scotland Manager to change the fault classification to Class 4, with a 30 day repair time. The Company shall ensure that a full repair is made within this time; and
 - (iii) The Company shall advise the Traffic Scotland Service Provider of any temporary repair of Traffic Scotland Maintained Equipment as soon as is practical and provide details of its exact location.
- 6.11.7 Where the Company fails to undertake a permanent repair as detailed above, unless such failure is authorised by the Traffic Scotland Manager, the Contracting Authority shall undertake the permanent repair at the Company's cost.
- 6.11.8 Where accident damage has occurred and the Company is required to attend, the Company shall;
- (i) immediately make the site electrically safe;
 - (ii) inform the Traffic Scotland Manager regarding the extent of the damage, any required actions and the time for the expected resumption of normal operations; and
 - (iii) repair accident damage as if the accident damage had been reported as a fault.
- 6.11.9 Having attended to a fault and restored the Traffic Scotland Maintained Equipment to operational use, the Company shall immediately inform the Traffic Scotland Manager.
- 6.12 Damage by Others to Maintained Equipment
- 6.12.1 Where damage by others has occurred to Traffic Scotland Maintained Equipment including accident damage and the Company is required to attend such damage on site, the Company shall:
- (i) whenever it is safe to do so, and physically possible, make the site safe from dangerous electrical potentials and provide appropriate warning notices at the site and at the point of isolation. The Company may enter any cabinet to make the isolation without requiring the authority of the party responsible for the cabinet but shall, within 24 hours, provide written notice to that party;
 - (ii) if not already in attendance, immediately call out the responsible party(s) whose infrastructure has been damaged and advise the Contracting Authority and the Traffic Scotland Manager of the actions taken;
 - (iii) wherever possible obtain digital photographic evidence indicating the extent and, where possible, the cause of the damage and/or the party responsible for the damage. Where the damage is the result of a road traffic accident, it may not be appropriate to take photographic evidence. In these circumstances contemporaneously written evidence will be considered adequate;
 - (iv) undertake, when possible, immediate action to protect salvageable and undamaged Traffic Scotland Maintained Equipment from being

subjected to further defect; and

(v) if the Police are in attendance at such a site, then the Company shall comply with any instructions given by the Police.

6.12.2 The Company shall obtain verbal approval from the Contracting Authority before starting any repair works, as a result of damage by others, which may be required, except in the event that the repair works may reasonably be considered as a Class 1 or Class 2 fault.

6.12.3 If, in the opinion of the Company, the fault may reasonably be considered as urgent, the Company, with the approval of the Contracting Authority, shall supply resources and other facilities as necessary to expedite the reinstatement of the Traffic Scotland Maintained Equipment.

6.12.4 The Company shall collect any defective Traffic Scotland Maintained Equipment that is salvageable or contains salvageable items and retain for a reasonable period pending instructions on disposal from the Contracting Authority.

6.12.5 The Company shall provide a detailed report of the damage and works undertaken to rectify such damage to the Contracting Authority within 10 working days of completing the full repair. The report shall contain a written statement of the defect that has occurred, photographic and written evidence as required, a detailed breakdown of all costs associated with the defect, a copy of any Police Report and a completed TRDAM 2 form. The Company shall also provide an interim report when requested by the Contracting Authority, normally within 5 working days of such request.

6.13 Third Party and Other Works

6.13.1 The Company shall respond to calls and co-operate with third parties, where appropriate, including Undertakers, the Contracting Authority, the Traffic Scotland Manager and the Traffic Scotland Service Providers in providing technical assistance for the diagnosis and location of faults, tests and subsequent reinstatement of the Traffic Scotland Maintained Equipment.

6.13.2 The Company shall call out the Traffic Scotland Service Provider for any fault that the Company considers requires their attention. The Company shall then inform the Traffic Scotland Manager of the action they have taken.

6.13.3 Where the Company has called out the Traffic Scotland Service Provider, it shall confirm that service has been restored on the completion of the third party works.

6.13.4 Where the Company has difficulties with third parties, the Company shall inform the Contracting Authority and the Traffic Scotland Manager as soon as possible.

6.13.5 The Company shall be responsible for the reinstatement of all Traffic Scotland Maintained Equipment for which he is responsible under this Agreement, which has been damaged by a third party.

6.14 Testing

6.14.1 The Company may request the Traffic Scotland Manager to arrange the testing of equipment which has been repaired, replaced or modified, where it is essential to prove that a fault has been cleared.

6.14.2 Where tests are carried out which affect the operation of the Traffic

Scotland Maintained Equipment the Company shall inform the Traffic Scotland Manager and the Traffic Scotland Service Provider of the nature and expected duration of the tests. The Company shall inform the Traffic Scotland Manager when such tests are completed and when the Traffic Scotland Maintained Equipment is returned to normal operation. The Company shall postpone or interrupt the tests if requested to by the Traffic Scotland Manager or the Police.

6.14.3 Tests that require traffic restrictions and management shall not be carried out unless it is established with the Contracting Authority and the Traffic Scotland Manager that this is the only way to verify the clearance of a fault. These tests shall only be carried out in exceptional circumstances and only with the full approval of the Police and, where necessary, approved 'Sign under Test' signs shall be displayed to traffic in advance of the signal.

6.14.4 All relevant Traffic Scotland test equipment used for maintenance and repair shall be calibrated at the manufacturer's recommended periods. The date of the calibration and the calibration authority shall be clearly marked on the test equipment. Calibration certificates shall be made available for inspection at any time by the Contracting Authority and the Traffic Scotland Manager.

6.15 Records

6.15.1 Complete records (including serial numbers), shall be kept of all Traffic Scotland Maintained Equipment, whether in use, spare or under repair.

6.15.2 The Company shall keep detailed records of all activities associated with the maintenance of Traffic Scotland Maintained Equipment.

6.15.3 The Company shall maintain all appropriate system documentation and drawings.

6.15.4 The Company shall provide monthly written reports on the maintenance of the Traffic Scotland Maintained Equipment to the Contracting Authority and the Traffic Scotland Manager. These shall include an analysis of Traffic Scotland Maintained Equipment availability as defined in these O&M Works Requirements, and analysis and details of faults, and Traffic Scotland Maintained Equipment problems. Where possible, solutions and suggestions for improvement to the equipment shall be made.

6.15.5 Where the Company has called out the Traffic Scotland Service Provider, or has been called out by a third party, the Company shall, within 2 weeks, provide the Contracting Authority and the Traffic Scotland Manager with details of the work carried out.

6.15.6 The Company shall provide a list of fault codes and their associated fault category in their maintenance plan.

6.16 Spares

6.16.1 The Company shall provide, maintain and replenish, as necessary, sufficient spares for those items of Traffic Scotland Maintained Equipment for which it is responsible. These shall be held for first-line maintenance as part of the Company's maintenance plan. The spares to be provided shall be in accordance with the manufacturers' recommendations, and shall include consumable items and any specialised Traffic Scotland test equipment necessary for the proper maintenance of the equipment. All spares identified as being necessary shall be detailed on a list which,

together with such spares, shall be provided by the Company before the Expiry Date.

- 6.16.2 At the Expiry Date, the Company shall hand over to the Traffic Scotland Manager all Traffic Scotland Maintained Equipment spares as detailed in paragraph 6.16.1.

6.17 Training

- 6.17.1 Not less than 2 months before the Expiry Date, the Company shall undertake all training required to enable another party to take over the maintenance of the Traffic Scotland Maintained Equipment and the infrastructure associated with the Traffic Scotland Maintained Equipment.

7 Road Safety and Traffic Management

7.1. Compliance with Requirements

- 7.1.1. The Company shall ensure that all road safety and traffic management arrangements within the O&M Works Site comply with the requirements of this Section and with Appendix 1/17 to Part 5 of these O&M Works Requirements. The Company shall ensure that all O&M Works and works carried out by other contractors including undertakers within the O&M Works Site include the additional signing as defined in the Scottish Office Industry Department's Circulars 2/1992 and 1/1994 'Information Signs at Roadworks'.

7.2. Reduction of Traffic Delays at Roadworks

- 7.2.1. Where O&M Works shall be carried out on roads open to vehicles the Company shall ensure that due account is taken of the Code of Practice 'The Reduction of Traffic Delays at Roadworks' published by The Scottish Office and the County Surveyor's Society of Scotland in 1992.

7.3. Optimise Use of Traffic Management Measures

- 7.3.1. The Company shall ensure that optimum use shall be made of all traffic management measures for any O&M Works and works carried out by other contractors, including Undertakers, to minimise overall disruption to traffic.

7.4. Methods of Working

- 7.4.1. The Company shall ensure that methods of working within the O&M Works Site shall be such that wherever practicable all obstructions shall be removed from a carriageway and that traffic Lanes or hardshoulders shall be re-opened to vehicles within 30 minutes of a decision by the Contracting Authority or the Company to have the traffic management removed.

7.5. Mobile Lane Closures

- 7.5.1. The Company shall ensure that the procedure "Mobile Lane Closure Risk Assessment Check List" contained in Appendix G shall be followed wherever mobile Lane closures shall be proposed for use within the O&M Works Site. Copies of the completed "Mobile Lane Closure Risk Assessment Checklist" and the "For Use at Time of Mobile Lane Closure" checklist shall be held within the Company's local office and shall be available for inspection by the Contracting Authority at any time.

7.6. Traffic Safety and Control Officer (TSCO)

- 7.6.1. The Company shall nominate to the Contracting Authority and appoint a suitable person from its staff to act as the TSCO who shall make all arrangements necessary for traffic safety and control at temporary traffic management schemes including the provision and operation of breakdown recovery vehicles as required in Appendix 1/17 of Part 5 of these O&M Works Requirements. The Company shall also appoint a suitable deputy to cover periods when the nominated TSCO is not on the O&M Works Site. The responsibilities of the traffic safety and control officer shall include but shall not be limited to the following:
- (i) all necessary liaison with the Contracting Authority, the New Works Contractors, Undertakers, Network Operations Services Providers, adjacent Road Authorities, other companies and the Police in relation to temporary traffic management schemes but excluding matters related to journey time reliability;
 - (ii) receive and record details of all traffic management measures proposed for use by others on the road network within the O&M Works Site and monitor compliance with agreed measures;
 - (iii) co-ordinating all road safety and traffic management Operations within the O&M Works Site and ensuring compliance with the Code of Practice "The Reduction of Traffic Delays at Roadworks";
 - (iv) checking that where mobile Lane closure techniques shall be proposed that the procedures contained in "Mobile Lane Closure Risk Assessment Checklist" shall be adopted and that the technique shall not be used to close Lane 1 (left hand Lane) of the carriageway where the percentage of heavy goods vehicles exceeds 15%;
 - (v) ensuring that breakdown recovery vehicles shall be available on standby when appropriate;
 - (vi) keeping a written record as detailed in Appendix H of all traffic management measures proposed within the O&M Works Site and issuing the weekly programme of intent of Lane Occupations to the Contracting Authority before noon on the Thursday of the preceding week and keeping the Journey Time Reliability Coordinator referred to in Sections 31.4 and 31.5 of Part 1 of these O&M Works Requirements apprised of said weekly programme. Records of all traffic management carried out within the O&M Works Site shall be maintained and shall be available for inspection by the Contracting Authority at any time; and
 - (vii) Ensuring compliance with Clauses 113SR and 117SR and Appendix 1/17 of Part 5 of the O&M Works Requirements in all respects.
- 7.6.2. The Company shall include procedures in the O&M Works Quality Plan for effective communication between the TSCO, Incident Liaison Officer and the Journey Time Reliability Coordinator and co-ordination of their roles.

7.7. Traffic Regulation Orders

- 7.7.1. Notwithstanding other provisions of this Agreement, one Lane for use by all permitted classes of vehicles and one narrow Lane for the use of cars and other light vehicles shall be provided in each direction on the mainline carriageway of the O&M Roads during O&M Works, as a minimum requirement except as provided in paragraph 7.7.2.
- 7.7.2. In exceptional circumstances, the Company may apply to the Contracting

Authority for written approval to reduce the Lane provisions described in paragraph 7.7.1 to a minimum of one Lane in each direction on the mainline carriageway of a motorway in the O&M Works Site between the hours 2000 and 0600 Monday to Friday and all day Saturday and Sunday, during O&M Works. The Company shall demonstrate to the Contracting Authority that such applications are necessary in terms of either buildability or health and safety. Applications shall be made a minimum of 4 weeks in advance of any planned reduction to the provisions of paragraph 7.7.1 above during O&M Works.

- 7.7.3. Reduction to the provisions of paragraph 7.7.1 shall not be permitted during the following periods, except in the case of emergencies or Exceptional Adverse Weather Conditions such as very heavy snow:
- (i) Christmas and New Year holidays (24 December to 2 January inclusive);
 - (ii) Good Friday to Easter Monday inclusive;
 - (iii) Between Friday and Monday inclusive on any local bank holiday or public holiday weekend during May or September;
 - (iv) The weekends at the start and end of the Aberdeen Trades Fortnight; and
 - (v) As directed by the police.
- 7.7.4. On roads other than trunk roads reduction to the existing provision of Lanes shall be subject to the prior written approval of the Contracting Authority, a Relevant Authority or land owners or occupiers and a temporary replacement route or temporary diversion is in operation. The company shall provide Consultation Certificates in accordance with the Certification Procedure in respect of this requirement.
- 7.7.5. Any necessary Traffic Regulation Orders shall be promoted by the appropriate Relevant Authorities to allow one carriageway of a road to be closed provided that a contraflow shall be installed and the adjacent carriageway shall be used as the alternative route. The closure of only one Lane or hardshoulder shall not require a Traffic Regulation Order provided that the remainder of the carriageway or hardshoulder shall still be available for traffic.
- 7.7.6. Where a carriageway or slip road shall require to be closed and the diversion involves any road other the adjacent carriageway then a Temporary Traffic Regulation Order may be required. The Company shall confirm to the Contracting Authority during the planning of O&M Works whether a Temporary Traffic Regulation Order shall be required for the Operation being undertaken within the O&M Works Site. If a Temporary Traffic Regulation Order shall be required the Company shall undertake the necessary preparatory work and produce a draft Temporary Traffic Regulation Order and submit it to the Contracting Authority.
- 7.7.7. The Contracting Authority shall arrange with the appropriate Relevant Authority for the publication and making of all Temporary Traffic Regulation Orders. It shall be noted that the minimum notice required from receipt of the draft Traffic Regulation Order by the Contracting Authority to the making or amending of such Traffic Regulation Orders shall be eight weeks.
- 7.7.8. The Relevant Authority shall issue a Traffic Regulation Order for the use

of speed limits on certain occasions and the Company shall make due allowance for the fact that the necessary Traffic Regulation Orders shall take not less than eight weeks to effect. Blanket Traffic Regulation Orders for a range of speed limits (30, 40 and 50 mph) shall be promoted by the appropriate Relevant Authorities and these Traffic Regulation Orders may be utilised provided that they shall be associated with and required for roadworks. The Contracting Authority shall arrange with the appropriate Relevant Authority for the publication and making of all Temporary Traffic Regulation Orders. It shall be noted that the minimum notice required from receipt of the draft Traffic Regulation Order by the Contracting Authority to the making or amending of such Traffic Regulation Orders shall be eight weeks.

- 7.7.9. The Company shall consult with the Contracting Authority in the case of carriageway closures required as a result of an emergency.

7.8. Events Affecting the O&M Works Site

- 7.8.1. From time to time there may be events occurring which affect traffic flows on the O&M Works Site which shall prevent or constrain the use of traffic management for planned O&M Works although emergency operations will not be affected. Such impediments or constraints shall be notified in writing to the Company by the Contracting Authority as far in advance of the event as possible. The Company shall make any necessary alterations to traffic management measures or programmes to take account of such events.

7.9. Planning of Traffic Management Measures

- 7.9.1. The Company shall seek written consent by the Contracting Authority should the Company require to undertake O&M Works or works which are inconsistent with any constraints set out in Appendix 1/17 of Part 5 of these O&M Works Requirements.
- 7.9.2. The Company shall as far as is possible ensure that O&M Works are planned in such a way that traffic management measures can be removed at the end of a Business Day. The Company shall implement reasonable overtime working if that means an O&M Works Operation can be completed in one day or on a Friday to avoid the need for retaining traffic management measures overnight or through a weekend where O&M Works shall not be undertaken during the weekend.
- 7.9.3. The Company shall ensure that all signs erected for traffic management purposes which are no longer relevant to the situation shall be removed or covered as soon as they become no longer relevant.

7.10. Records

- 7.10.1. The traffic safety and control officer shall obtain a daily record by 09:30 hours on the following day of all traffic management installations. The form which shall be used for this purpose is the programme of intent form shown at Appendix H. The traffic safety and control officer shall supply to the Contracting Authority on a weekly basis a detailed summary of all traffic management which shall have been in use on the O&M Works Site.

8. Landscape Maintenance

8.1. General

8.1.1. Establishment and Growth Performance

All new planted areas shall be healthy at the end of the Establishment Period. All plants shall have demonstrably increased in height and spread. Plant numbers and proportions of species shall be as originally planted.

8.1.2. Appearance and Amenity

All planted areas within the O&M Works Site, including existing vegetation, shall be managed to encourage biological diversity, to consolidate the surrounding landscape character, to provide for the safety and enjoyment of Users and to comply with these O&M Works Requirements.

8.1.3. Road Safety

- (i) Visibility for Users and non motorised Users at junctions, accesses and bends and of road signage shall not be obstructed. The criterion shall be to maintain desirable minimum stopping distances and the full overtaking sight distance.
- (ii) Trees and shrubs, particularly those which shall have self-propagated or outgrown their positions, may also encroach upon the carriageway, restrict available road width or otherwise pose a potential hazard. Appropriate action shall be taken to eliminate hazards.

8.1.4. Nuisance

- (i) Weeds listed in the Weeds Act 1959 and in Part 2 of Schedule 9 of the Wildlife and Countryside Act 1981 and other pernicious weeds shall be controlled by uprooting, cutting or chemicals to prevent them becoming a nuisance.
- (ii) Inflammable plants and materials such as gorse, tall grasses or dead wood shall be cut back or otherwise controlled to ensure they do not become a fire risk or nuisance.
- (iii) Other plants may occasionally cause a nuisance and appropriate control shall be taken when necessary.

8.1.5. Chemical Weed Control

- (i) The use of herbicides shall be avoided where practicable and only the minimum amount of herbicides necessary to meet these O&M Works Requirements shall be used.
- (ii) Grass growth retarders shall not be permitted.
- (iii) Herbicides should not be used in close proximity to watercourses / wetland areas.
- (iv) Control in accordance with Clause 3002 of the Specification.

8.1.6. Invasive Species

- (i) Invasive species include:
 - (a) broad leafed dock;

- (b) curled dock;
 - (c) common ragwort;
 - (d) creeping thistle;
 - (e) spear thistle;
 - (f) Himalayan balsam;
 - (g) Japanese knotweed;
 - (h) giant hogweed;
 - (i) rhododendron ponticum;
 - (j) rosebay willow herb;
 - (k) horsetail;
 - (l) oil seed rape; and
 - (m) rabbits
- (ii) Detailed Inspections of all invasive species shall be carried out at intervals not exceeding 12 months and for plant based invasive species this shall be during their growing season.
 - (iii) During Detailed Inspections the accuracy of inventory areas, locations and attributes shall be checked and any necessary amendments made to the relevant inventory item in theRMMF.
 - (iv) Maintenance of plant based invasive species shall include weed control in accordance with Clause 3002 of the Specification.

8.1.7. Special Ecological Measures

- (i) Detailed Inspections of all special ecological measures such as fencing, tunnels, underpasses and all other provisions for wildlife shall be carried out at intervals not exceeding 24 months.
- (ii) During Detailed Inspections the accuracy of inventory areas, locations and attributes shall be checked and any necessary amendments made to the relevant inventory item in theRMMF.
- (iii) Maintenance of special ecological measures shall be in accordance with Clause 3012 of the Specification and at frequencies referred to inthe Specification.
- (iv) Maintenance of special ecological measures shall include weed control in accordance with Clause 3002 of the Specification.

8.1.8. Pests and Disease

Action to prevent and control the spread of serious pests and diseases shall be taken as soon as their presence is identified.

8.1.9. Browsing Animals and Vermin

- (i) All planting shall be adequately protected against browsing animals and vermin. If damage is identified action to prevent and control effects shall be taken as soon as possible.
- (ii) Control of browsing animals and vermin shall be in accordance with Clause 3003 ofthe Specification.

8.2. Grassed Areas

8.2.1. Introduction

- (i) Grassed areas include verges, central reserves, cuttings, embankments and other areas.
- (ii) The Company shall submit a grass cutting programme to the litter authority no later than 90 days prior to the start of each Contract Year and no later than one month prior to grass cutting Operations. The Company shall liaise with the litter authority to coordinate litter picking Operations prior to grass cutting Operations.
- (iii) The Company shall consult and comply with the requirements of the Relevant Authorities where any designated site of natural, cultural or historical interest or its curtilage is affected by the O&M Works.
- (iv) Grass planting shall be in accordance with Clauses 3005 of the Specification.

8.2.2. Inspection and Survey Requirements

- (i) Detailed Inspections of grassed areas shall be carried out seasonally during their growing period at intervals not exceeding 12 months.
- (ii) During Detailed Inspections, the accuracy of inventory areas, locations and attributes shall be checked and any necessary amendments made to the relevant inventory item in the RMMF.

8.2.3. Maintenance Requirements

- (i) Maintenance of grassed areas shall be carried out in accordance with clause 3007 of the Specification and at the frequencies stated in the Routine Maintenance Management System. Maintenance shall include cutting and edging. The Maintenance record entered in the Routine Maintenance Management System shall also include details of the main cut, strimming, the percentage of area not cut, reasons for incomplete cutting and any other problems encountered.
- (ii) Maintenance of grassed areas shall include weed control in accordance with Clause 3002 of the Specification.

8.3. Bulb and Wildflower Areas and Ornamental Planting

8.3.1. Introduction

- (i) Bulb and wildflower areas are areas of naturalised or planted flowers. Ornamental planting is formal planting for decorative purposes.
- (ii) All ornamental planting areas within the O&M Works Site shall be managed to provide visual amenity and the safety and enjoyment of users.
- (iii) The Company shall consult and comply with the requirements of the Relevant Authorities where any designated site of natural, cultural or historical interest or its curtilage is affected by the O&M Works.

8.3.2. Inspection and Survey Requirements

- (i) Detailed Inspections of bulb and wildflower areas shall be carried out during their flowering season at intervals not exceeding 12 months.
- (ii) Detailed Inspections of ornamental planting shall be carried out at

the frequencies referred to in the Specification.

- (iii) During Detailed Inspections, the accuracy of inventory areas, locations and attributes shall be checked and any necessary amendments made to the relevant inventory item in the RMMF.

8.3.3. Maintenance Requirements

- (i) Maintenance of bulb and wildflower areas and ornamental planting areas shall be carried out in accordance with clause 3007 of the Specification and at the frequencies referred to in the Specification.
- (ii) Maintenance of bulb and wildflower areas and ornamental planting shall include weed control in accordance with clause 3002 of the Specification.
- (iii) The Company shall coordinate routine litter picking as part of ornamental planting maintenance operations.

8.4. Scrub Areas, Shrub Areas and Hedges

8.4.1. Introduction

- (i) The following requirements apply to the maintenance and control of all tree, shrub and hedge planting within the O&M Works Site boundary. This includes 'Hedgerow H1', 'Hedgerow H2', 'Shrub Scrub S1', 'Shrub Scrub S2', 'Wet Woodland Scrub S3', 'Feathered Tree Planting', 'Heavy Standard Tree Planting', 'Semi Natural Woodland W1', 'Semi Natural Woodland W2', 'Screening Woodland W3', 'Wet Woodland W4' and 'Roundabout Tree Planting'. In addition the requirements will cover all existing trees and hedges within the O&M Works Site. These requirements shall also relate to trees, shrubs and hedges beyond the O&M Works Site where they shall create an actual or potential hazard, nuisance or obstruction to Users in which case the matter shall be reported to the Contracting Authority without delay. These requirements shall apply to maintenance of all such areas following the issue of the relevant Permit to Use.
- (ii) Trees, shrubs and hedges within the O&M Works Site shall be managed to encourage sustainable development and the conservation and promotion of biological diversity.
- (iii) The Company shall consult and comply with the requirements of the Relevant Authorities where any designated site of natural, cultural or historical interest or its curtilage is affected by the O&M Works.

8.4.2. Inspection and Survey Requirements

- (i) Detailed Inspections of scrub areas, shrub areas and hedges shall be carried out during the growing season at intervals not exceeding 12 months.
- (ii) During Detailed Inspections, the accuracy of inventory areas, locations and attributes shall be checked and any necessary amendments made to the relevant inventory item in the RMMF.

8.4.3. Maintenance Requirements

- (i) Maintenance of scrub areas, shrub areas and hedges shall be carried out in accordance with clause 3010 of the Specification.

- (ii) Maintenance of scrub areas, shrub areas and hedges shall include weed control in accordance with clause 3002 of the Specification.
- (iii) Maintenance of trees, shrubs and hedges shall include weed control in accordance with Clause 3002 of the Specification.

8.5. Wetland Areas

8.5.1. Introduction

- (i) The following requirements apply to the maintenance and control of all wetland areas including waterbodies such as lagoons, SUDS ponds, balancing ponds, attenuation structures and associated inlets, outlets, reed beds, open ditches, marginal plants and areas of 'wet flowering rough grassland' seeding within the O&M Works Site. These requirements shall also relate to wetlands beyond the O&M Works Site where they shall create an actual or potential hazard, nuisance or obstruction to Users in which case the matter shall be reported to the Contracting Authority without delay. These requirements shall apply to maintenance of all such areas following the issue of the relevant Permit to Use.
- (ii) Wetlands within the O&M Works Site shall be managed to encourage sustainable development and the conservation and promotion of biological diversity.
- (iii) The Company shall consult and comply with the requirements of the Relevant Authorities where any designated site of natural, cultural or historical interest or its curtilage is affected by the O&M Works.

8.5.2. Inspection and Survey Requirements

- (i) Detailed Inspections of wetland areas shall be carried out at intervals not exceeding 12 months.
- (ii) During Detailed Inspections, the accuracy of inventory areas, locations and attributes shall be checked and any necessary amendments made to the relevant inventory item in the RMMF.
- (iii) Detailed Inspections of 'wet flowering rough grassland' shall be carried out during their flowering season at intervals not exceeding 12 months.

8.5.3. Maintenance Requirements

All Wetland areas within the O&M Works Site shall be maintained following the issue of the relevant Permit to Use in accordance the Specification and areas of 'wet flowering rough grassland' shall be reseeded as necessary to ensure establishment of a full cover of plants. Maintenance of wetland areas shall be carried out in accordance with Clause 3011 of the Specification and at frequencies referred to in Part 5 of the O&M Works Requirements.

8.6. Woodland Areas and Trees

8.6.1. Introduction

- (i) The following requirements apply to the maintenance and control of all existing mature woodland within the O&M Works Site. These requirements also relate to existing mature woodland beyond the O&M Works Site where they shall create an actual or potential

hazard, nuisance or obstruction to Users in which case the matter shall be reported to the Contracting Authority without delay. These requirements shall apply to maintenance of all such areas following the issue of the relevant Permit to Use.

- (ii) Existing mature woodland within the O&M Works Site shall be managed to encourage sustainable development and the conservation and promotion of biological diversity.
- (iii) The Company shall consult and comply with the requirements of the Relevant Authorities where any designated site of natural, cultural or historical interest or its curtilage is affected by the O&M Works.

8.6.2. Inspection and Survey Requirements

- (i) Detailed Inspections of all woodland areas and trees shall be carried out at intervals not exceeding 12 months.
- (ii) During Detailed Inspections, the accuracy of inventory areas, locations and attributes shall be checked and any necessary amendments made to the relevant inventory item in the RMMF.
- (iii) Detailed Inspections of all mature woodland areas and trees shall be carried out by a qualified arboriculturalist, approved in writing by the Director, at intervals not exceeding five years. A report detailing the condition and any recommended actions shall be completed within 28 days of the inspections of each area or individual tree and shall be attached to the relevant RMMF inspection and inventory record.

8.6.3. Maintenance Requirements

- (i) Maintenance of woodland areas and trees shall be carried out in accordance with clause 3010 of the Specification and at the frequencies referred to in the Specification.
- (ii) Maintenance of woodland areas and trees shall include weed control in accordance with clause 3002 of the Specification.

8.7. Landscape Development Process

8.7.1. No later than 30 days after the start of the Restricted Services Commencement Date, the Contracting Authority will provide the Company with a copy of the current landscape management information including the:

- (i) landscape strategy,
- (ii) landscape inventory,
- (iii) landscape maintenance plan,
- (iv) Landscape Development Plan, and
- (v) annual landscape management report.

8.7.2. The Company's Landscape Architect shall be responsible for the preparation and delivery of:

- (i) the landscape strategy,
- (ii) the Landscape Development Plan, and
- (iii) the annual landscape management report.

8.7.3. The Company shall ensure the landscape inventory, including detailed inspection records and maintenance requirements, are complete and kept

up to date and shall continuously update the landscape inventory in the RMMF and ensure the landscape inventory is complete and accurate at all times.

- 8.7.4. The Company shall submit one hard copy and one electronic copy with drawings in portable document format (pdf) to the Contracting Authority of the:
- (i) landscape strategy,
 - (ii) Landscape Development Plan, and
 - (iii) annual landscape management report,
 - (iv) at the timescales detailed within this Part.
- 8.7.5. The Company's Landscape Architect shall attend all landscape and environmental progress meetings arranged with the Contracting Authority. The Landscape Architect shall also attend as necessary meetings with others, including the Contracting Authority's staff and any third party organisations or individuals, concerning landscaping issues related to the O&M Works Site.

8.8. Landscape Strategy

- 8.8.1. The Company shall prepare a detailed landscape strategy for the O&M Works Site which takes full account of the landscape strategy developed by the previous operating company. The detailed landscape strategy shall be submitted for the Contracting Authority's consent no later than 50 Working Days before the end of the Establishment Period..
- 8.8.2. The Company shall annually review and update the landscape strategy and submit this to the Contracting Authority's consent no later than 25 Working Days prior to the end of the first complete Contract Year.
- 8.8.3. The landscape strategy shall be produced on a route by route basis and shall identify and describe in detail the specific landscape character of the route. This shall include the relevant features and elements within and adjacent to each route.
- 8.8.4. The landscape strategy shall include:
- (i) clear cross-referencing to the landscape inventory,
 - (ii) Ordnance Survey based location plans clearly showing the routes and areas under review,
 - (iii) brief descriptions of the Routes and areas under review, highlighting the general character of the extent of the route, the appearance and value of the landscape, comments on the quality of the landscape and any ecological elements which may impact on, or be affected by, the maintenance and management of the Trunk Road soft estate,
 - (iv) a range of photographs depicting the various character zones,
 - (v) the perceived main issues relating to the continued management of the Trunk Road soft estate in this location, taking into account topics such as safety, visual aspects, general amenity and biodiversity. This may also require consideration of the interests and elements of land immediately adjacent to, but outwith, the Trunk Road boundary,

- (vi) consideration of any relevant, related studies, plans or strategies for the location, including route action plans and route accident reduction plans,
- (vii) general proposals for the future development of the environment related to the Trunk Road, and
- (viii) any other issues that may be relevant to the landscape strategy, including information and advice from third parties such as Scottish Natural Heritage and relevant National Parks Authority.

8.9. Landscape Development Plan

- 8.9.1. The Company shall take account of the landscape strategy in preparing the Landscape Development Plan. The Landscape Development Plan shall be developed to ensure compliance with the Specification and take account of the opportunities identified in the schedule of landscape opportunities referred to in this Part.
- 8.9.2. No later than 50 Working Days before the end of the Establishment Period the Company shall prepare and submit a Landscape Development Plan for the second Contract Year for the Contracting Authority's consent.
- 8.9.3. The Company shall review, revise and update the Landscape Development Plan during each subsequent Contract Year. The updated Landscape Development Plan shall be submitted for the Contracting Authority's consent no later than 25 Working Days prior to the end of the first complete Contract Year following end of the Establishment Period and each subsequent Contract Year.
- 8.9.4. When developing the Landscape Development Plan, the Company shall take account of the following guidance:
 - (i) the Scottish Executive's landscape design and management policy contained in Cost Effective Landscape: Learning From Nature,
 - (ii) the Scottish Executive's Inventory of Wildlife Mitigation Measures.
 - (iii) When developing the Landscape Development Plan, the Company shall take account of Transport Scotland's commitment to the protection and enhancement of biodiversity through all relevant legislation and documents including:
 - (iv) the Trunk Roads Biodiversity Action Plan, and
 - (v) the Scottish Government's biodiversity strategy Scotland's Biodiversity – It's in your hands.
- 8.9.5. The Landscape Development Plan shall include:
 - (i) recommendations in accordance with the landscape strategy,
 - (ii) recommendations resulting from the annual landscape management report, and
 - (iii) recommendations resulting from the Company's landscape opportunities inspections referred to in this Part.
- 8.9.6. For each potential landscape scheme and intervention identified in the schedule of landscape opportunities, the Landscape Development Plan shall include:
 - (i) route number,

- (ii) Scheme name,
- (iii) location reference,
- (iv) outline details of the proposed Operations,
- (v) justification for selection,
- (vi) cost estimate, and
- (vii) priority rating (high, medium and low) with relevant justification.

8.9.7. The Contracting Authority shall determine which of the proposed landscape Schemes shall be developed further and inform the Company.

8.10. Schedule of Landscape Opportunities

8.10.1. The Company's Landscape Architect shall prepare and maintain a schedule of landscape opportunities and use this in the preparation of the Landscape Development Plan. The schedule of landscape opportunities shall be informed by the results of the regular landscape opportunities inspections and by ad hoc inspections and visits to the network by the Landscape Architect.

8.10.2. The landscape opportunities inspections shall be undertaken by the Landscape Architect regularly at intervals not exceeding 12 months throughout the O&M Works Site to identify potential opportunities to improve the landscape associated with the Trunk Road network.

8.10.3. The schedule of landscape opportunities shall:

- (i) record potential landscape schemes and interventions, and
- (ii) identify landscape areas which could be improved by changing the maintenance requirements detailed in this Part.

8.10.4. The Company shall provide an estimate for all potential landscaping schemes and interventions as well as cost estimates for improvements to maintenance requirements.

8.10.5. Both of the categories identified in paragraph 8.10.3 of this Part shall also be considered and developed in terms of:

- (i) general amenity,
- (ii) more efficient and more appropriate maintenance,
- (iii) road safety and reliability,
- (iv) improved biodiversity and nature conservation,
- (v) sustainability and climate change, and
- (vi) any other issues identified as significant by the Landscape Architect.

8.10.6. When identified within the schedule of landscape opportunities, the Company shall submit to the Contracting Authority a report detailing the proposed changes to the maintenance requirements for landscape areas and a Company Notice of Change for the proposed changes. The report shall include a full description of the benefits of the proposed change and any cost savings or cost increases associated with undertaking the alternative maintenance activities. Subject to confirmation that the proposed changes are a Qualifying Variation, the Company shall implement the proposed changes to the maintenance requirements.

8.11. Landscape Scheme Implementation Information

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- 8.11.1. The Company shall prepare a Statement of Intent and Value for Money Assessment for all potential Schemes, interventions and alterations to maintenance Operations as identified in the schedule of landscape opportunities.
- 8.11.2. The Statement of Intent shall include the following information:
- (i) description of the proposal,
 - (ii) large scale plan showing the context of the area,
 - (iii) more detailed plans and drawings with supporting sketches or photographs illustrating the specific proposal,
 - (iv) written description of the relevant objectives,
 - (v) demonstration of the proposal's relationship to the landscape strategy for the relevant route or section of route,
 - (vi) detailed cost estimate,
 - (vii) details and justification of the priority rating given, and
 - (viii) Design and construction programme.
 - (ix) A Company Notice of Change
- 8.11.3. Subject to a potential Scheme being confirmed as a Qualifying Variation, the Company shall design and execute landscape Schemes and interventions.
- 8.11.4. The Company shall provide and maintain throughout each Contract Year, a detailed programme for all landscape Schemes and interventions that have been ordered. The detailed programme shall include the:
- (i) period of construction,
 - (ii) activities to be undertaken, and
 - (iii) estimated completion dates.
- 8.11.5. This programme shall be submitted to the Contracting Authority when requested.
- 8.12. Annual Landscape Management Report
- 8.12.1. No later than 25 Working Days prior to the end of each Contract Year, the Company shall submit an annual landscape management report to the Contracting Authority. The report shall provide a review of all landscaping Operations undertaken within the O&M Works Site during that Contract Year.
- 8.12.2. The annual landscape management report shall correspond to the various routes within the O&M Works Site as described in the RMMF.
- 8.12.3. The annual landscape management report shall record:
- (i) the general condition of the landscape areas within the O&M Works Site including a short statement for each route,
 - (ii) details of the effectiveness of maintenance Operations undertaken,
 - (iii) details of the effectiveness of the changes consented to by the Contracting Authority, that have been made to the maintenance Operations as stated in paragraph 8.10.6 of this Part,
 - (iv) a summary of all Operations undertaken as part of the Landscape
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- Development Plan including a statement on the progress of all approved schemes,
- (v) details of the additional landscape areas added into the Company's maintenance programme resulting from the completion of Schemes undertaken by others working on behalf of the Contracting Authority,
 - (vi) information on all newly created landscape areas within the O&M Works Site created by the Company (or any contractors working on its behalf) during the period covered by the report that are subject to establishment maintenance,
 - (vii) the performance of any contractors and sub-contractors responsible for landscape Operations within the O&M Works Site,
 - (viii) a statement advising the Contracting Authority on the progress on delivering the requirements of the landscape strategy,
 - (ix) the Company's achievement of the requirements of the pesticide plan referred to in this Part, specifying the general level of pesticide use throughout the O&M Works Site and noting locations subjected to significant applications. If requested by the Contracting Authority, pesticide record forms that are produced by the Company in accordance with the landscape specification shall be included as an annex to the annual landscape management report,
 - (x) details of the Operations undertaken in support of enhancing biodiversity and nature conservation, including works associated with creating, repairing or improving any wildlife mitigation measures within the O&M Works Site,
 - (xi) a statement from the Company detailing any problems or specific unforeseen issues that have affected the delivery of the landscaping requirements which may have arisen during the period covered by the annual report and recommendations for action required,
 - (xii) details of any significant amendments made by the Company to the landscape inventory in the RMMF,
 - (xiii) a grassland report to include the activities identified in Appendix O/1 of this Part, setting out the Company's achievements and any concerns and opportunities for the grassed areas in each section of route identified within the landscape strategy,
 - (xiv) an injurious species report referring to the approved injurious species management plan required by this Part, detailing the location, nature and extent of the injurious species infestations that can be found within the O&M Works Site and the success or otherwise of the measures taken by the Company to reduce the area and extent of the known infestations, and
 - (xv) a summary report of road kill records within the O&M Works Site recorded in the RMMF and details of the impact of the species identified within the report.
 - (xvi) As part of its annual landscape management report, the Company shall prepare and submit a pesticide plan including targets for the potential reduction of pesticide usage through the use of alternative, but equally effective, proposals. The pesticide plan shall take account of the relevant requirements contained within the Specification.

- (xvii) As part of its annual landscape management report, the Company shall prepare and submit an injurious species management plan. The injurious species management plan shall include:
 - (xviii) details contained within the injurious species report of infestations within O&M Works Site,
 - (xix) proposals for achieving a reduction in infestation during the next Contract Year, and
 - (xx) proposed targets for reducing infestations during the next Contract Year.
- 8.12.4. The Contracting Authority shall consider the report and confirm the Company's targets for reducing infestations during the next Contract Year. All areas of infestation shall be recorded within RMMF and updated annually before the end of each Contract Year.
- 8.12.5. As part of its annual landscape management report, the Company shall prepare and submit a deer management plan including the activities identified in Appendix O/2 of this Part, setting out the Company's achievements in respect of deer management and its strategy and future proposals for the next Contract Year.

Appendix A

Detailed Inventory and Inspection Procedures

Appendix A

Detailed Inventory and Inspection Procedures

This Appendix A details the inventory and Inspection procedures which the Company shall follow for the operation of the RMMF and describes various conventions which shall be adopted by the Company when undertaking surveys in order to ensure consistency in the database record.

1 General Survey Rules (Inventory and Inspection)

1.1. All of the attributes of inventory items recorded in the RMMF shall as a minimum be as defined in the Transport Scotland 'Inventory Collection Manual'. In the event of a conflict between the other requirements of this Appendix A and the Transport Scotland 'Inventory Collection Manual' the Transport Scotland 'Inventory Collection Manual' shall take precedence.

1.2. Network Node Points

1.2.1. Each network node point represents a fixed definable point on the road surface to which chainage can be related. In the RMMF database, the start and end nodes define the direction of survey.

The Company shall use the following conventions:

- (i) For dual carriageways the start and end of a section shall be specified in the direction of traffic flow;
- (ii) On single carriageway roads the normal survey direction shall be that of increasing section numbers; and
- (iii) Inventory items or defects lying outside the node positions shall be recorded at the chainage of the node, e.g. at approaches to roundabouts.

1.3. Cross-Sectional Position

1.3.1. The position of an inventory item or defect within a section shall be recorded by chainage and cross-sectional position. The longitudinal distance measured to the nearest metre along the left-hand edge of the carriageway forms the chainage and the cross-sectional position shall be defined using a single character code which shall be entered by the Company's survey team at the time of data collection.

The following list of codes shall be used:

KEY	POSITION
1	Left Outside Verge (including side slopes)
2	Left Footway
3	Left Verge
4	Lane 1 (hard shoulder on Motorway)
5	Lane 2 (left Lane on Motorway)
6	Lane 3 (middle Lane on Motorway)
7	Lane 4 (right Lane on Motorway)
8	Right Verge
9	Right Footway
0	Right Outside Verge (including side slopes)
Q	Acceleration splay
W	Lane for left turning traffic*
E	Lane for right turning traffic*, or Lane 5 on Motorway
R	Bus Lane – other traffic prohibited at all times*, or Lane 6 on
T	Crawler Lane*
Y	Other*

* To be used where extra width shall be created and not where existing Lane use shall be redesignated.

1.3.2. An optional overlay for fitting over the keyboard of some data capture devices shall be available to assist in the recording of the cross-sectional positions. The details of which keys are applicable to various road types are shown in the table below.

Road Type	KEY										
	1	2	3	4	5	6	7	8	9	0	Others
Motorway 3 Lane			Verge	Lane 1	Lane 2	Lane 3	Lane 4	Central Reserve			Qwerty
Dual C/way	O/S Verge	Footway	Verge	Lane 1	Lane 2	Lane 3		Central Reserve			Qwerty
Single 3 Lane	O/S Verge	Footway	Verge	Lane 1	Lane 2	Lane 3		Verge	Footway	O/S Verge	Qwerty
Single 2 Lane	O/S Verge	Footway	Verge	Lane 1	Lane 2			Verge	Footway	O/S Verge	Qwerty
Single 1 Lane	O/S Verge	Footway	Verge	Lane 1				Verge	Footway	O/S Verge	Qwerty

1.3.3. The Company shall take particular care when recording the cross-sectional positions of inventory items and defects at complex junctions and roundabouts.

1.4. Survey Procedure

- 1.4.1. The Company shall apply the following rules and conditions when conducting surveys:
- (i) It shall be required where possible that sections are surveyed in the direction of traffic flow but surveys in the reverse direction shall be supported by the system and may be used (e.g. for safety reasons). If a survey shall be carried out in the reverse direction to that specified by the start and end nodes in the RMMF database such as against the traffic on dual carriageways and in the reverse direction on single lane roads, the cross-sectional positions must be entered facing the position at which the survey started (looking backwards);
 - (ii) The Company's inspection team shall be informed of the survey direction indicated by the RMMF database before starting its measurements;
 - (iii) In general, all chainage measurements shall be made along the left-hand edge of the carriageway (hard shoulder on Motorways) from start node to end node as referred to in the RMMF database, in the direction of the traffic flow;
 - (iv) An item or defect along the left-hand edge of the carriageway such as a kerb, channel block, gully or edge road marking shall be recorded in the left-hand cross-sectional position 3. If these items occur along the right-hand edge of the carriageway they shall be recorded in cross-sectional position 7 for up to 4 Lanes and 'E' or 'R' for 5 and 6 Lanes respectively;
 - (v) If an inventory item or a defect occurs at the boundary of two cross-sectional positions, it shall be recorded in the cross-sectional key position to its left (the left-hand rule);
 - (vi) An item or defect on the left road boundary shall be recorded in the cross-sectional position immediately to its right (That shall be cross-sectional position 1);

An item or defect which occurs in the central reserve of a dual carriageway or Motorway and which shall be common to both sections shall only be recorded in the nominated section. Examples include, but shall not be limited to:

Examples:

- | | |
|----------------------------|-------------------------------|
| Double guardrail | - record in nominated section |
| Double bracket lamp column | - record in nominated section |
| Single guardrail | - record in relevant section |
| Single bracket lamp column | - record in relevant section |
| Uni-directional sign | - record in relevant section |
| Bridges | - record in nominated section |
- (vii) For items which require an identity code, an asterisk (*) shall be entered if the identity code shall be not present or shall be unreadable;
 - (viii) A large roundabout but not a mini-roundabout shall be designated as a separate section and its start/end point shall be identified. Measurements of chainage shall be made around the outside of the roundabout in the direction of the traffic flow. An item or defect occurring on the central island shall be recorded in cross-sectional position 8;

- (ix) Roundabouts shall be defined as separate sections. Service roads, remote cycle tracks, remote footpaths and some redundant road lay-bys may need to be treated as separate sections;
- (x) Any item outside the road boundary, but adversely affecting the carriageway (e.g. overhanging trees) shall be recorded under cross-sectional position 1 if on the left and cross-sectional position 0 if on the right;
- (xi) It shall be not possible to have two identical continuous items running in the same cross-sectional position. Position Y shall be used for one of them. In the case of point items, it shall be necessary to 'move' one item by 1 metre when recording chainage;
- (xii) On all but obvious 'constant cross section' roads such as Motorways, widths shall be checked at least every 100 metres and changes recorded. At 10 metre intervals the Company's inspector shall ensure that all 'clocked-on' items are still running, no new ones are present and unrecorded. The Company's inspector shall also record any changes of width at not more than 20 metre intervals;
- (xiii) All measurements of area calculated within RMMF are calculated as rectangles. Therefore, where the width of an area changes, an average measurement of width shall be taken and entered at the start of the change;
- (xiv) Some inventory items shall have an off-site entry to denote ownership. This entry may be either the Contracting Authority, relevant local authority or others.

1.5. Standard Procedures and Consistency

1.5.1. The Company shall record all inventory items in a consistent way and to do this the personnel carrying out the survey shall be instructed clearly about the following:

- (i) the start and end of the section;
- (ii) reverse direction;
- (iii) working systematically from left to right;
- (iv) following the inventory rules exactly; and
- (v) the maintenance requirements.

1.5.2. The following points shall be considered when an Inspection survey shall be undertaken:

- (i) identify the activity first and then select the appropriate defect code;
- (ii) record the defect as seen, not the cause;
- (iii) when categorising a defect as either a Category 1 Defect or a Category 2 Defect, the Company shall consider cyclists, pedestrians and local circumstances; and
- (iv) record sufficient information for the repair to be carried out.

1.6. Data Capture Device and Data Collection Software

1.6.1. A range of data capture devices and data collection software are commercially available. Any device shall be acceptable to the Contracting Authority if it shall be suitably adapted to comply with all the requirements of this Appendix. The Company shall be required to demonstrate to the

Contracting Authority prior to the Restricted Services Commencement Date that the data capture hardware and software he intends to utilise during the Agreement complies with this Appendix.

Inventory Collection

1.7. Schedule of Inventory Items to be Collected by the Company

<u>ITEM</u>	<u>MNEMONIC</u>	<u>TYPE</u>
ANCILLIARY EQUIPMENT	AI	P
ARRESTER BED	AB	P
BALANCING POND	BP	P
BOLLARDS (safety)	SB	P
BULB	BB	C
CARRIAGEWAY	CW	C
CATCHPIT	CP	P
CCTV AND SPEED CAMERAS	TV	P
CENTRAL ISLAND	CI	C
CENTRAL RESERVE	CR	C
CHANNEL	CH	C
COMMUNICATON CABINET	CC	P
COUNTERFORT DRAIN	CD	C
CROSSOVER	XO	P
CYCLE FACILITY	CT	C
CULVERT	CV	C
DITCH	DI	C
EMBANKMENTS AND CUTTINGS	EC	C
EMERGENCY TELEPHONE BOX	TB	P
FENCES AND BARRIERS	FB	C
FOOTWAY	FW	C
FILTER DRAIN	FD	C
GRASSED AREAS	GA	C
GRIP	GP	P
GULLY	GY	P

<u>ITEM</u>	<u>MNEMONIC</u>	<u>TYPE</u>
HARD SHOULDER	HS	C
HEDGE	HG	C
WEATHER STATION	IS	P
INTERCEPTOR	IN	P
KERB	KB	C
LAYBY	LB	C
MANHOLE	MH	P
OUTFALL, HEADWALL OR APRON	OF	P
OVERBRIDGE	BO	C
PEDESTRIAN CROSSING	PX	P
PEDESTRIAN GUARDRAIL	PR	C
PIPED DRAINAGE	PD	C
PIPED GRIP	PG	P
REFERENCE MARKER POINT	RF	P
RETAINING WALL	RW	C
ROAD LIGHTING POINT	LP	P
ROAD MARKINGS (hatched)	LH	C
ROAD MARKINGS (longitudinal)	LL	C
ROAD MARKINGS (transverse and special)	RM	P
ROAD STUDS	RS	C
ROAD TRAFFIC SIGNS	TS	P
SAFETY FENCE	SF	C
SCRUB	SC	C
SHRUB	SH	C
SIGNS	SG	P
SLUICES AND VALVES	SV	P
SNOW POLES	SP	P
TRAFFIC CONTROL BARRIER	CB	P
TREE	TR	P

<u>ITEM</u>	<u>MNEMONIC</u>	<u>TYPE</u>
UNDERBRIDGE	BU	C
VERGE	VG	C
WETLAND	WT	C
WOODLAND	WD	C

Notes:

All inventory items shall be categorised as either 'point' (P) or 'continuous' (C):

- 1.7.1. Point items are those that occur at a specific location along the section and have virtually the same start and end chainage; and
- 1.7.2. Continuous items are those that occur over a particular length and have a start and end chainage.

1.8. Notebook Facility

- 1.8.1. The notebook facility (NT) shall be not an inventory item but shall be provided to enable the Company's inspector to record notes directly on the data capture device, particularly inventory errors and extra inventory codes not defined in the RMMF. The notebook facility shall be used to describe in more detail an inventory item. For example, gabions shall be recorded as 'Retaining Wall – Other', and the text 'Gabion' shall then be entered into the notebook.

1.9. Sign Dimensions

- 1.9.1. To simplify the entry of sign sizes a set of default dimensions, such as width and height, have been specified for triangular, rectangular and circular signs. Sign dimensions shall be recorded to the nearest 0.1m. The width and heights listed cover a range of plus or minus 0.05 metres from the value stated. If a size does not conform to the default values the width and height shall be entered directly into the data capture device. The mounting height of a sign shall be defined as the height from the bottom of the sign to the ground level.

1.10. Item Length

- 1.10.1. The inventory items in this section are categorised a either 'Point' or 'Continuous'.
 - (i) Point items are those that occur at a specific location along the section and have virtually the same start and end change. A point item shall be located by its cross-sectional position, with its chainage measured from the start of the section and its section identifier.
 - (ii) Continuous items are those that occur over a particular length and have a start and end chainage. A continuous item shall be located by its start and end chainage, section identifier and usually cross-sectional position (except where the cross-sectional position shall be not required e.g. transverse culverts, carriageways, bridges).

1.11. Double Counting

- 1.11.1. In general when collecting inventory data, only the position of the end node shall be recorded in the data capture device to avoid double

counting. However, it may be necessary to record the position of the start node if it would not otherwise be recorded (e.g. at the O&M Works Site boundary or on the exits from roundabouts).

- 1.11.2. Care shall be taken to avoid double counting of other inventory items at start and end sections (e.g. carriageway, lighting points, signs).

1.12. Intermediate

- 1.12.1. The intermediate feature shall be used to amend the details of a particular continuous inventory item whilst the item remains running. For example, where the carriageway surface type changes but the carriageway continues.

Inventory Items in Detail

1.13. Introduction

- 1.13.1. This section of Appendix A describes in detail those items on the O&M Works Site network which shall be recorded as inventory items within the RMMF database and subsequently inspected in accordance with the requirements laid out in this Part of these O&M Works Requirements. Items identified during the inventory survey shall be entered into the data capture device and then downloaded on to the RMMF database.
- 1.13.2. A detailed description of each inventory item follows together with the information on each item which the Company shall be required to observe and record:
 - (i) A definition or description of each item;
 - (ii) A schedule of details to be entered into the data capture device, including, but not limited to, details of units of measurement and ranges for data input;
 - (iii) Details of conventions which shall be adopted in defining the item; and
 - (iv) Rules which shall be adhered to in defining the item.
- 1.13.3. Some attributes have been added or had the codes changed in the records for the existing network. The Company shall review and update the inventory during the first annual period to ensure that all attributes are populated and recorded in accordance with the details in sections 1.13 to 1.37 of this Appendix A.

1.14. **CW** - Carriageway

That part of the road constructed for use by vehicular traffic but excluding hard shoulders, lay-bys and crossovers.

1.14.1. Input Details

- (i) Site Entries:

Item Code	{CW}	
Geographical Information System	Linear Shape	Recorded along left edge
Chainage	{----	(To nearest metre)
Surface	{--}	1 = Hot Rolled Asphalt

2 = Bituminous Macadam

3 = Concrete

4 = Surface Dressed

5 = Grass

6 = Gravel

7 = Concrete Flags

8 = Block Paving

9 = SMA

10 = Other

11 = High Skid Resistant
Surfacing

12 = Coloured Surfacing

Width	{----}	(To nearest 0.1 metre between 0.0 and 99.9)[0.0 < W < 99.9]
--------------	--------	--

1.14.2. Convention

- (i) A carriageway shall be defined as a continuous item with no cross-sectional position.

1.14.3. Rules

- (i) Intermediate – use this entry when surface type or width changes but the carriageway continues.
- (ii) Widths shall be recorded where changes occur.
- (iii) Slip roads entering the main carriageway section are separate sections. Their presence shall be indicated by the crossover (XO) item. The width of the crossover shall be measured from the intersection of the slip road at right angle across its Lane.

1.15. **HS** - Hard Shoulder

A surfaced strip, usually of one traffic Lane width, adjacent to and abutting a carriageway. Intended for use by vehicles in the event of difficulty or during obstruction of the carriageway.

1.15.1. Input Details

- (i) Site Entries
- | | | |
|--|-----------------|---|
| Item Code | {HS} | |
| Geographical Information System | Linear
Shape | Recorded along fight edge |
| Cross-Sectional Position | {-
}Position | See Section 1.2 of this Appendix A
Functional Keys |
| Chainage | {----} | (To nearest metre) |
| Surface | {--} | 1 = Hot Rolled Asphalt
2 = Bitumen Macadam |

- 3 = Concrete
 - 4 = Surface Dressed
 - 5 = Grass
 - 6 = Gravel
 - 7 = Concrete Flags
 - 8 = Block Paving
 - 9 = SMA
 - 10 = Other
 - 11 = High Skid Resistant Surfacing
 - 12 = Coloured Surfacing
- Width** {----} (To nearest 0.1 metre between 0.0 and 99.9) [0.0 < W < 99.9])

1.15.2. Convention

- (i) A hard shoulder shall be defined as a continuous item.

1.15.3. Rules

- (i) A hard shoulder shall usually be recorded in cross-sectional position 4.
- (ii) Intermediate – use this entry when surface type or width changes but the hard shoulder continues.

1.16. **LB** - Lay-by

A part of the road set aside for vehicles to draw out of the traffic Lanes and wait for short periods.

1.16.1. Input Details

- (i) Site Entries

Item Code	{LB}	
Geographical Information System	Linear Shape	Recorded along left edge
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Surface	{--}	1 – Hot Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete 4 = Surface Dressed 5 = Grass 6 = Gravel

7 = Concrete Flags

8 = Block Paving

9 = SMA

10 = Other

11 = High Skid Resistant
Surfacing**Width**

{----

(To nearest 0.1 metres between
0.0 and 99.9)[0.5 < W < 10.0])

1.16.2. Convention

- (i) A lay-by shall be defined as a continuous item.

1.16.3. Rules

- (i) A lay-by on the left shall be recorded in the cross-sectional position of the verge, i.e. 3. A lay-by on the right shall be recorded in cross-sectional position 7 for up to 4 Lanes.
- (ii) Intermediate – use this entry when surface type or width of the lay-by changes but the lay-by continues.
- (iii) If the verge or footway terminates over the length of the lay-by, these items shall be 'clocked off' and re-started on the other side of the lay-by if they are present.

1.17. **XO** - Crossover

A pedestrian or vehicular crossing of a footway, verge or central reserve. Includes minor junctions, driveways, field entrances and central reserve crossovers.

1.17.1. Input Details

(i) Site Entries

Item Code	{XO}	
Geographical Information System	Linear Shape	Recorded along left edge
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Surface	{--}	1 = Hot Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete 4 = Surface Dressed 5 = Grass 6 = Gravel 7 = Concrete Flags 8 = Block Paving 9 = SMA 10 = Other 11 = High Skid Resistant Surfacing 12 = Coloured Surfacing
Width	{----}	(To nearest 0.1 metre between 0.0 and 99.9)[0.1 < W < 99.9])
Text	{-----}	(20 characters maximum)
Sweeping Method	{-}	1 = Machine 2 = Hand 3 = No Sweeping

1.17.2. Convention

- (i) A crossover shall be defined as a point item.

1.17.3. Rules

- (i) A crossover occurs when the surface type shall be different to the surface of the item crossed.
- (ii) A crossover shall be recorded in the cross-sectional position that shall be actually crossed, such as the verge, footway or central reserve.
- (iii) Continuous items which are crossed shall NOT be 'clocked off' by the inventory program.

- (iv) A text entry (maximum 20 characters) to describe the crossover shall be required (e.g. factory entrance, field entrance).
- (v) Central reserve crossovers shall be recorded even when barriers are present to prevent the passage of vehicles.
- (vi) A crossover shall be used to indicate slip roads abutting the carriageway.

1.18. **CI** - Central Island

An obstruction in the road to split traffic into Lanes and/or to provide a pedestrian refuge.

1.18.1. Input Details

- (i) Site Entries

Item Code	{CI}	
Geographical Information System	Point	OSGR coordinate of island centre
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Surface	{--}	1 = Hot Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete 4 = Surface Dressed 5 = Grass 6 = Gravel 7 = Concrete Flags 8 = Block Paving 9 = SMA 10 = Other 11 = High Skid Resistant Surfacing 12 = Coloured Surfacing
Width	{----}	(To nearest 0.1 metre between 0.0 and 99.9)[0.1 < W < 99.9]

1.18.2. Convention

- (i) A central island shall be defined as a continuous item.

1.18.3. Rules

- (i) Intermediate – use this entry only when either the surface type or width of the island changes but the island continues.
- (ii) A central island shall be recorded in the cross-sectional key position of the Lane immediately adjacent on its left-hand side.
- (iii) The width of a central island shall be the ‘average’ width. If distant

changes in width occur intermediate measurements shall be recorded.

- (iv) Other inventory items situated on a central island shall be allocated the same cross-sectional position as the island. On single Lane roads the right-hand kerb of the island shall be recorded with cross-sectional position Y if a right-hand carriageway kerb exists. Hatched road markings associated with a central island are a separate inventory item.
- (v) Central islands constructed in two parts with a pedestrian refuge shall be treated as a single inventory item. If information about the pedestrian refuge (e.g. surface type) shall be required, use crossover (XO) to record the details.
- (vi) A roundabout, including a mini roundabout, with a raised centre, and not defined as a separate section shall be treated as a central island having a width equal to its diameter. However, a mini roundabout without a raised centre shall be regarded as transverse and special road markings.
- (vii) The maintainable grass width of a central island (if required) can be recorded using the verge item (VG).

1.19. CR - Central Reserve

An area that separates the carriageways of a dual carriageway road.

1.19.1. Input Details

- (i) Site Entries

Item Code	{CR}	
Geographical Information System	Linear Shape	Recorded along centre
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Surface	{--}	1 = Hot Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete 4 = Surface Dressed 5 = Grass 6 = Gravel 7 = Concrete Flags 9 = SMA 10 = Other 11 = High Skid Resistant surfacing 12 = Coloured Surfacing
Width	{----}	(To nearest 0.1 metre between 0.0 and 99.9)[0.0 < W < 99.9]

1.19.2. Convention

- (i) A central reserve shall be defined as a continuous item.

1.19.3. Rules

- (i) A central reserve shall be recorded in cross-sectional position 8 and in the nominated section.
- (ii) Intermediate – use this entry when either the surface type or width of the central reserve changes but the reserve continues.
- (iii) The width of a central reserve shall be the ‘average’ width. If distinct changes in width occur, intermediate measurements shall be recorded.
- (iv) Other inventory items situated on a central reserve shall be allocated the same cross-sectional position as the reserve.
- (v) An item which occurs in the central reserve of dual carriageways and Motorways and which shall be common to both sections shall be recorded in the nominated section ONLY, for example safety fence with a shared post. An item distinctly associated with both directions (e.g. single safety fences with separate posts) shall be recorded in the section to which it applies.
- (vi) Hatched road markings associated with a central reserve are a separate inventory item.
- (vii) When the central reserve shall be crossed by a crossover it shall be allowed to continue and not ‘clocked off’ by the inventory program. Thus crossover shall be used to record a change of surface which avoids termination and re-commencement of the central reserve.
- (viii) The maintainable grass width of a central reserve (if required) can be recorded using the verge item (VG).

1.20. **FW** - Footway

1.20.1. Input Details

- (i) Site Entries

Item Code	{FW}	
Geographical Information System	Linear Shape	Recorded along right edge
Cross-Sectional Position	{-}Position	See Section 1.2 of this Appendix A Functional
Chainage	{----}	(To nearest metre)
Surface	{--}	1 = Hot Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete 4 = Surface Dressed 5 = Grass 6 = Gravel 7 = Concrete Flags

- 8 = Block Paving
- 9 = SMA
- 10 = Other
- 11 = High Skid Resistant surfacing
- 12 = Coloured Surfacing

Width	{----}	(To nearest 0.1 metre between 0.0 and 99.9)
Footway Category	{-}	(0.5 < W < 99.9) 1,2 or 3 as defined

1.20.2. Convention

- (i) A footway shall be defined as a continuous item.

1.20.3. Rules

- (i) A footway shall be usually recorded in cross-sectional position 2 when on the left and position 9 when on the right of the carriageway.
- (ii) Intermediate – use this entry when surface type width or the sweeping type changes but the footway continues.
- (iii) When a footway shall be crossed by a crossover (XO) it shall be allowed to continue and not ‘clocked off’ by the inventory program. Thus crossover shall be used to record a change of surface which avoids termination and re-commencement of the footway.
- (iv) When a footway and cycle facility occur together, the item which has the principal use takes priority, and no entry shall be required for the other item. If in doubt, the entry for FW takes priority.

1.21. **CT** - Cycle Facility

A part of the road, normally within the road boundary, reserved specifically for the use of pedal cycles.

1.21.1. Input Details

- (i) Site Entries

Item Code	{CT}	
Geographical Information System	Linear Shape	Recorded along right edge
Cross-Sectional Position	Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Surface	{-}	1 = Hot Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete 4 = Surface Dressed 5 = Grass

- 6 = Gravel
 - 7 = Concrete Flags
 - 8 = Block Paving
 - 9 = SMA
 - 10 = Other
 - 11 = High Skid Resistant Surfacing
 - 12 = Coloured Surfacing
- (To nearest 0.1 metre between 0.0 and 99.9)[1.0 < W < 10.0])

Width {----

1.21.2. Convention

- (i) A cycle facility shall be defined as a continuous item.

1.21.3. Rules

- (i) A cycle facility shall be either recorded in the cross-sectional position of the footway or as part of a road Lane.
- (ii) Intermediate – use this entry when surface or width changes but the cycle facility continues.
- (iii) When a cycle facility shall be crossed by a crossover (XO) it shall be allowed to continue and not ‘clocked off’ by the inventory program. Thus crossover shall be used to record a change of surface which avoids termination and re-commencement of the cycle facility.
- (iv) When a cycle facility and footway occur together, the item which has the principal use takes priority, and no entry shall be required for the other item. If in doubt, the entry for FW takes priority.

1.22. **KB** - Kerb

A border, usually upstanding, of natural or man-made material at the edge of a carriageway or hard shoulder.

1.22.1. Input Details

- (i) Site Entries

Item Code	{KB}	
Geographical Information System	Linear Shape	Recorded along kerb
Cross-Sectional Position	{-}Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----	(To nearest metre)
Material	{--}	1 = Concrete 2 = Natural Stone

Type	{-}	3 = Extruded Asphalt 4 = Other 1 = Normal 2 = Safety Kerb 3 = Other 10 = Half Battered 11 = Bull Nosed 12 = Splayed 13 = Offlet 14 = Safety (High Deflection) 15 = Heel 16 = Transition
-------------	-----	--

1.22.2. Convention

- (i) A kerb shall be defined as a continuous item.

1.22.3. Rules

- (i) Kerbs located on the left-hand side of the carriageway are recorded in cross-sectional position 3. Those on the right-hand edge of the carriageway shall be recorded in position 7 for up to 4 Lanes and position E or R for 5 and 6 Lanes respectively.
- (ii) Intermediate – use this entry when surface type or width changes but the hard shoulder continues.
- (iii) When a kerb shall be crossed by a crossover (XO) it shall be allowed to continue and not 'clocked off' by the inventory program.
- (iv) A combined kerb and drainage unit shall NOT be recorded under this item. It shall be recorded under the inventory item Channel (CH).

1.23. CH - Channel

A narrow longitudinal strip, generally near the edge of the carriageway, constructed to carry and lead away surface water.

1.23.1. Input Details

- (i) Site Entries

Item Code	{CH}	
Geographical Information System	Linear Shape	Recorded along centre
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Block Type	{-}	1 = Continuous Concrete Preformed Concrete Blocks 3 = Natural Stone

- 4 = Metal Grating
- Combined Kerb & Channel
- 6 = Other

1.23.2. Convention

- (i) A channel shall be defined as a continuous item.

1.23.3. Rules

- (i) Channels shall always be recorded in cross-sectional position 3 if they are along the left-hand edge of the carriageway and cross-sectional position 7 if they are on the right for up to 4 Lanes. Cross-sectional positions E or R are used for 5 and 6 Lanes respectively.
- (ii) Intermediate – use this entry when the channel type changes but the channel continues.
- (iii) A lined channel not running parallel to the carriageway shall be recorded under the inventory item grip (GP).

1.24. **GY** - Gully

A chamber at the side of the road connected to a drainage system to receive surface water and to trap debris. The chamber shall be usually surmounted by a grating.

1.24.1. Input Details

- (i) Site Entries

Item Code	{GY}	
Geographical Information System Cross-Sectional Position Chainage	Point	OSGR Coordinate
Type	{-}	See Section 1.2 of this Appendix A Functional Keys (To nearest metre)
	{-}	1 = Top Entry
		2 = Side Entry
		3 = Other

1.24.2. Convention

- (i) A gully shall be defined as a point item.

1.24.3. Rules

- (i) Gullies located on the left-hand edge of the carriageway shall be recorded in position 3. Those on the right-hand edge of the carriageway shall be recorded in position 7 for up to 4 Lanes and position E or R for 5 Lanes and 6 Lanes respectively.
- (ii) A gully which occurs in a central reserve and collects water from both carriageways (e.g. at a crossover), shall be recorded in cross-sectional position 8 but ONLY in the nominated section.
- (iii) A gully shall be a chamber which requires to be emptied periodically and shall be usually surmounted by a grating. A grating and other ironwork which shall be not associated with a gully (i.e. which will not require to be emptied) shall NOT be recorded.
- (iv) Footway gullies are included in this inventory item and shall be

recorded in the cross-sectional position of the footway.

- (v) Gullies shall be recorded in the cross-sectional position of the grating or entry point even though the gully pot may be located in a different cross-sectional position (e.g. side entry gullies in a central reserve).

1.25. **IN** - Interceptor

A structure similar to a catchpit at the point where the surface water enters a drainage system and designed to prevent unwanted material entering the system.

1.25.1. Input Details

- (i) Site Entries

Item Code	{IN}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)

1.25.2. Convention

- (i) An interceptor shall be defined as a point item.

1.25.3. Rules

- (i) It may not always be possible to identify an interceptor without prior knowledge. The presence of an interceptor shall be verified before this inventory item shall be recorded.

1.26. **CP** - Catchpit

A pit provided in a drainage system to collect silt or solid material and prevent it from blocking inaccessible parts of the drains.

1.26.1. Input Details

- (i) Site Entries

Item Code	{CP}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{-}Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)

1.26.2. Convention

- (i) A catchpit shall be defined as a point item.

1.26.3. Rules

- (i) Unless it shall be clear that a catchpit exists below a manhole cover, the chamber shall be recorded under the inventory item manhole (MH). However, if a catchpit shall be definitely present, the chamber shall be recorded as a catchpit and the cover shall NOT be recorded

separately.

1.27. MH - Manhole

1.27.1. Input Details

(i) Site Entries

Item Code	{MH}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Type	{-}	1 = Top Entry 2 = Side Entry 3 = Other

(ii) Off Site Entries

See Rules (a)

1.27.2. Convention

(i) A manhole shall be defined as a point item.

1.27.3. Rules

- (i) A manhole shall only be recorded if it does not occur with a catchpit or interceptor or if it shall be not known what shall be beneath. If in doubt, a note of link identifier, section, chainage and cross-sectional position shall be made. This will include all road manholes plus other indistinguishable sewer authority manholes, but NOT BT or other Undertakers' Apparatus.
- (ii) Manholes which occur in the central reserve of dual carriageways and Motorways and which are common to both sections must be recorded in the nominated section ONLY.

1.28. PG - Piped Grip

A piped grip conduit across the verge of a road to lead surface water away from the carriageway.

1.28.1. Input Details

(i) Site Entries

Item Code	{PG}	
Geographical Information System	Point	OSGR coordinate at piped grip entrance
Cross-Sectional Position	Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Length	{---}	(To nearest metre between 1 and 30 inclusive)

1.28.2. Convention

- (i) A piped grip shall be defined as a point item.

1.28.3. Rules

- (i) A piped grip shall be recorded in the cross-sectional position of the offset. Where the offset shall be located in the kerb, it shall be recorded in the cross-sectional position of the kerb.
- (ii) Ironwork associated with a piped grip (including gratings not surmounting a gully) shall NOT be recorded as a separate inventory item.
- (iii) A kerb offset (weir) associated with a piped grip shall be NOT a separate inventory item (i.e. gully inlet with no pot).

1.29. PD - Piped Drainage

A piped conduit to carry surface water, usually connected to manholes, interceptors, gullies or otherwise

1.29.1. Input Details

- (i) Site Entries

Item Code	{PD}	
Geographical Information System	Linear Shape	Recorded along centre of pipe. As a minimum, this shall be a straight line between the two end points of the pipe
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----	(To nearest metre)
Diameter	{----	(To nearest 0.1 metre between 0.1 and 9.99)
Length	{----	(To nearest metre between 1 and 30 inclusive)
Material	{-}	1 = Clay 2 = Concrete 3 = Plastic 4 = Ceramic 5 = Steel 10 = Other

1.29.2. Convention

- (i) A piped drainage shall be defined as a linear item.

1.30. GP - Grip

A shallow trench across the verge of a road to lead surface water away from the carriageway.

1.30.1. Input Details

(i) Site Entries

Item Code	{GP}	
Geographical Information System	Point	OSGR coordinate of grip entrance
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----	(To nearest metre)
Width	{----	(To nearest 0.1 metre between 0.1 and 5.0)
Length	{----	(To nearest 0.1 metre 0.1 and 9.9)
Type	{-}	1 = Lined 2 = Unlined

1.30.2. Convention

- (i) A grip shall be defined as a point item.

1.30.3. Rules

- (i) A grip shall be recorded over each cross-sectional position it crosses.
- (ii) Both hand-cut grips (unlined) and pre-formed concrete (lined) types shall be recorded.

1.31. DI - Ditch

A trench adjacent to a carriageway for drainage, generally running parallel to the carriageway.

1.31.1. Input Details

(i) Site Entries

Item Code	{DI}	
Geographical Information System	Linear Shape	Recorded along centre of ditch
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----	(To nearest metre)
Type	{-}	1 = Lined 2 = Unlined

1.31.2. Convention

- (i) A ditch shall be defined as a continuous item.

1.31.3. Rules

- (i) A ditch on the left road boundary line shall be recorded in cross-sectional position 1 and if on the right road boundary line in position 0.

- (ii) When a ditch shall be crossed by a crossover (XO) it shall be allowed to continue and not 'clocked off' by the inventory program.

1.32. FD - Filter Drain

A field drain, usually adjacent and running parallel to a carriageway surrounded by granular material such as gravel, within which may be laid a porous or perforated pipe.

1.32.1. Input Details

- (i) Site Entries

Item Code	{FD}	
Geographical Information System	Linear Shape	Recorded along centre of filter drain
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)

1.32.2. Convention

- (i) A filter drain shall be defined as a continuous item.

1.32.3. Rules

- (i) Filter drains which occur in the central reserve of dual carriageways and Motorways and which are not common to both sections shall be recorded in the nominated section only.
- (ii) When a filter drain shall be crossed by a crossover (XO) it shall be allowed to continue and not 'clocked off' by the inventory program.
- (iii) Counterfort drains are recorded as a separate item.

1.33. CD - Counterfort Drain

A field drain other than a filter drain running parallel to a carriageway surrounded by granular material such as gravel including herringbone and intercepting drains

1.33.1. Input Details

- (i) Site Entries

Item Code	{CD}	
Geographical Information System	Linear Shape	Recorded along centre of counterfort drain
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)

1.33.2. Convention

- (i) A counterfort drain shall be defined as a continuous item.

1.33.3. Rules

- (i) The start chainage of a counterfort drain occurs when the measuring wheel shall be level with the point at which the drain shall be first

encountered.

- (ii) The end chainage occurs when the measuring wheel shall be level with the point at which the drain shall be last encountered.

1.34. CV - Culvert

An enclosed channel or large pipe for conveying water below ground, usually under a road.

1.34.1. Input Details

- (i) Site Entries

Item Code	{CV}	
Geographical Information System	Linear Shape	Recorded along centre of culvert. As a minimum this shall be a straight line between the two end points of the culvert
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)

- (ii) Off site Entries

Length	{----}	(To nearest 0.5 metre)
Diameter	{----}	(To nearest 0.1 metre)

1.34.2. Convention

- (i) A culvert shall be defined as a point item, but with no cross-sectional position.

1.34.3. Rules

- (i) Culverts parallel to the carriageway shall be recorded at their mid-point (a written note of their length and diameter shall be taken).
- (ii) Culverts which occur in the central reserve of dual carriageways and Motorways and which are common to both sections must be recorded in the nominated section ONLY.

1.35. BP – Balancing Pond

A catchment area adjacent to a carriageway to collect surface run-off following heavy rain and then discharge it into a road drainage system.

1.35.1. Input Details

- (i) Site Entries

Item Code	{BP}	
Geographical Information System	Point	OSGR coordinate of balancing pond centre
Cross-Sectional	Functional	See Section 1.2 of this

Position	Keys{-}	Appendix A
Chainage	{----	(To nearest metre)
Distance From Carriageway	{----	(To nearest metre between 1 and 9999)

(ii) Off-Site Entries

Outflow Control	1 = No Outflow Control
	2 = Outfall Flow Regulating Device

1.35.2. Convention

(i) A balancing pond shall be defined as a point item

1.35.3. Rules

- (i) Balancing ponds do not necessarily occur within the road boundary and may be located some distance from the carriageway.
- (ii) Where a balancing pond occurs outside the road boundary it shall be recorded as cross-sectional position 1 if it shall be on the left and cross-sectional position 0 if it shall be on the right.

1.36. **OF** – Outfall, Headwall or Apron

Outfall, headwall or apron associated with road drainage or culverts.

1.36.1. Input Details

(i) Site Entries

Item Code	{OF}	
Geographical Information System	Point	OSGR coordinate at outfall centre
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----	(To nearest metre)

1.36.2. Convention

(i) An outfall, headwall or apron are defined as a point item

1.36.3. Rules

- (i) Outfalls, headwalls or aprons do not necessarily occur within the road boundary and may be located some distance from the carriageway.
- (ii) Where an outfall, headwall or apron occurs outside the road boundary it shall be recorded as cross-sectional position 1 if it shall be on the left and cross-sectional position 0 if it shall be on the right.

1.37. **SV** – Sluices and Valves

Sluices, tidal flaps, penstocks and valves associated with road drainage, culverts or water courses.

1.37.1. Input Details

(i) Site Entries

Item Code	{SV}	
Geographical Information System	Point	OSGR coordinate of sluice and valve centre
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)

1.37.2. Convention

- (i) Sluices and valves are defined as a point item

1.37.3. Rules

- (i) Sluices and valves do not necessarily occur within the road boundary and may be located some distance from the carriageway.
- (ii) Where sluices and valves occur outside the road boundary it shall be recorded as cross-sectional position 1 if it shall be on the left and cross-sectional position 0 if it shall be on the right.

1.38. AI – Ancillary Equipment

Ancillary equipment, including pumps, associated with road drainage.

1.38.1. Input Details

(i) Site Entries

Item Code	{AI}	
Geographical Information System	Point	OSGR coordinate of ancillary equipment centre
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)

1.38.2. Convention

- (i) Ancillary equipment shall be defined as a point item

1.38.3. Rules

- (i) Ancillary equipment does not necessarily occur within the road boundary and may be located some distance from the carriageway.
- (ii) Where ancillary equipment occurs outside the road boundary it shall be recorded as cross-sectional position 1 if it shall be on the left and cross-sectional position 0 if it shall be on the right.

1.39. CC - Communication Cabinet

A cabinet containing electronic equipment associated with communication installations, traffic signals and other road features.

1.39.1. Input Details

- (i) Site Entries

Item Code	{CC}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Identity Code	{-----}	(Optional)
Type code	{----}	(Optional)

1.39.2. Convention

- (i) A communication cabinet shall be defined as a point item.

1.39.3. Rules

- (i) When the cabinet identity code shall be either not present or unreadable, an asterisk (*) shall be entered.
- (ii) Fog detectors and weather stations shall also be recorded under this item. Type codes can be utilised if desired.

1.40. TB - Emergency Telephone Box

A telephone located adjacent to the carriageway, solely for use in an Emergency.

1.40.1. Input Details

- (i) Site Entries

Item Code	{TB}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Identity Code	{-----}	Optional

1.40.2. Convention

- (i) An emergency telephone box shall be defined as a point item.

1.40.3. Rules

- (i) In an identity code shall be not present or unreadable, an asterisk (*) shall be used.
- (ii) Only emergency telephone boxes which are the sole responsibility of the Roads Authorities shall be recorded.

1.41. **TV** – CCTV and Speed cameras

A Closed Circuit Television camera or speed camera. Closed circuit television cameras and speed cameras have previously been collected under CC – Communications Camera inventory item. The Company shall extract all CCTV or speed camera inventory from the Communications Cabinet inventory during the first annual period

1.41.1. Input Details

- (i) Site Entries

Item Code	{TB}		
Geographical Information System	Point	OSGR Coordinate	
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A	
Chainage	{----	(To nearest metre)	
Identity Code	{-----}	Optional	

1.41.2. Convention

- (i) A Closed Circuit Television or speed camera shall be defined as a point item.

1.41.3. Rules

- (i) In an identity code shall be not present or unreadable, an asterisk (*) shall be used.
- (ii) Only emergency telephone boxes which are the sole responsibility of the Roads Authorities shall be recorded.

1.42. **EC - Embankments** and Cuttings

An embankment shall be an area where the carriageway has been raised above existing ground level usually using earth or rock construction. A cutting shall be an area where the carriageway shall be below existing ground level within an excavation.

1.42.1. Input Details

- (i) Site Entries

Item Code	{EC}		
Geographical	Polygon	Polygon around boundary of	

Information System		embankment or cutting
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Angle	{--}	(To nearest 5 degrees between minus 90 and plus 90)
Height	{---}	(To nearest 5 metres between 0 and 100)

1.42.2. Convention

- (i) An embankment or cutting shall be defined as a continuous item.

1.42.3. Rules

- (i) Intermediate – use this entry when either the angle or height of the embankment/cutting changes but the embankment/cutting continues.
- (ii) When an embankment/cutting shall be crossed by a crossover (XO) it shall be allowed to continue and not 'clocked off' by the inventory program.
- (iii) To distinguish between an embankment and a cutting, the angle shall be recorded as positive for an embankment (e.g. +30) and negative for a cutting (e.g. -30). The actual angle shall be recorded to the nearest 5 degrees, where possible.
- (iv) Minor occurrences, less than 3 metres in height, shall be ignored.
- (v) Record side slopes between slip road and main carriageway as part of and relative to the main carriageway.
- (vi) A central reserve slope shall be recorded as part of and relative to the nominated section except where it comprises two slopes, in which case each shall be recorded with adjacent carriageway sections.
- (vii) If required, the maintainable grass width of an embankment/cutting shall be recorded using the verge item (VG).

1.43. Landscape Areas

1.44. **VG** - Verge

The part of the road outside the carriageway and generally at substantially the same level.

1.44.1. Input Details

- (i) Site Entries

Item Code	{VG}	
Geographical Information System	Linear Shape	Recorded along carriageway edge of verge
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)

Actual Width	{----	(To nearest 0.1 metre between 0.0 and 99.9)
Maintained Width	{----	(To nearest 0.1 metre [between 0.0 and 99.9)
Angle	{-}	1 = Level 2 = Inclined 3 = Steep

1.44.2. Convention

- (i) A verge shall be defined as a continuous item.

1.44.3. Rules

- (i) The maintained verge width shall be the 'maintainable' width including visibility splays and if in doubt shall be regarded as a single swathe width.
- (ii) Intermediate – use this entry when the width or angle changes but the verge continues.
- (iii) When a verge shall be crossed by a crossover (XO) it shall be allowed to continue and not 'clocked off' by the inventory program.
- (iv) Left or right verges and left or right outside verges shall be recorded separately so that obstacles to mowing can be counted.

1.45. **GA** – Grassed Areas

1.45.1. Input Details

- (i) Site Entries

Item Code	{GA}	
Geographical Information System	Polygon	Polygon denoting the outside of the grassed area
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----	(To nearest metre)
Cut Frequency	{-}	1 – High Frequency 2 – Medium Frequency 3 – Low Frequency 4 – Minimum Frequency
Plot Number	{----	Landscape Action Plan plot number
Boundary	{----	Relevant information on surrounding borders
Gradient	{----	Note of any particular slopes
Special Considerations	{----	e.g. obstacles to mowing

1.45.2. Convention

- (i) A grassed area shall be defined as an area item
- (ii) Different areas are defined for each cut frequency

- (iii) High frequency cut areas are high amenity areas within specified cities, towns and villages where grass areas are to neatly and close mown all year round
- (iv) Medium frequency cut areas are amenity areas within all cities, towns and villages not subject to the high amenity threshold, urban roundabouts, areas where a speed restriction of 40mph or less shall be imposed and adjacent to lay-bys including 50 metres from end and of merge and diverge sections
- (v) Low frequency cut areas are general road verges (predominantly 1.2meters swathe), central reserves and visibility swathes
- (vi) Minimum frequency cut areas are generally embankments, cuttings, ditches and wild flower areas

1.45.3. Rules

- (i) Each grassed area shall be recorded in the cross sectional position in which it occurs
- (ii) Grassed areas that occur in the central reserve of dual carriageways and motorways and are common to both sections shall be recorded in the nominated section only
- (iii) When a grassed area shall be crossed by a crossover (XO) it shall be allowed to continue and not “clocked off” by the inventory program
- (iv) If there shall be any doubt as to the ownership of a grassed area, then it shall be recorded within the Works site network inventory

1.46. HG - Hedge

Distinct linear planting strips within the road corridor (usually marking boundary lines) which are intended to be formally shaped and maintained

1.46.1. Input Details

- (i) Site Entries

Item Code	{HG}	
Geographical Information System	Linear Shape	Recorded along centre of hedge
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----	(To nearest metre)
Plot Number	{----	Landscape Action Plan plot number
Support	{----	e.g. fence, wall etc.

Species	{----	Text description of species content
Purpose	{----	Text description of form and purpose of planting
Date of Planting	{----	Date of Planting

1.46.2. Convention

- (i) A hedge shall be defined as a continuous item.

1.46.3. Rules

- (i) A hedge shall be recorded in the cross-sectional position in which it occurs.
- (ii) Hedges which have been laid to provide stockproof barriers and are the responsibility of the Roads Authorities shall be recorded.
- (iii) Only hedges which front on to the road and which are the responsibility of the Roads Authorities or which, although the responsibility of others may cause nuisance or obstruction to the road, are to be recorded in this inventory item.
- (iv) Hedges which occur in the central reserve of dual carriageways and Motorways and which are common to both sections must be recorded in nominated section ONLY.
- (v) When a hedge shall be crossed by a crossover (XO) it shall be allowed to continue and not 'clocked off' by the inventory program.
- (vi) If there shall be any doubt as to the ownership of the hedge, then it shall be recorded.

1.47. TR - Tree

A perennial plant with a single woody, self-supported trunk and branches including:

- (a) Lone trees, or where there shall be no interlocking canopy with the nearest neighbour
- (b) Sporadic trees where there shall be a loose arrangement of established trees with occasional interlocking canopies

1.47.1. Input Details

- (i) Site Entries

Item Code	{TR}	
Geographical Information System	Point	Point denoting the centre of the tree
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Plot number	{----	Landscape Action Plan plot number
Species	{----	Text description of species content
Purpose	{----	Text description of form and purpose of planting

Date of Planting {----} **Date of Planting**

1.47.2. Convention

- (i) A tree shall be defined as a point item.

1.47.3. Rules

- (i) Only trees with a diameter and height greater than 0.2 metre and 1 metre respectively shall be recorded.
- (ii) Each individual lone tree where there shall be no interlocking canopy with the nearest neighbour shall be recorded
- (iii) Each individual sporadic tree where there shall be a loose arrangement of established trees with occasional interlocking canopies shall be recorded
- (iv) Only trees which are the responsibility of the Roads Authorities or which, although the responsibility of others may cause nuisance or obstruction to the road, shall be recorded. If there shall be doubt as to the ownership, then the presence of trees shall be recorded

1.48. SR - Shrub

An ornamental or woodland planted area

1.48.1. Input Details

- (i) Site Entries

Item Code	{SH}	
Geographical Information System	Polygon	Polygon denoting the outside of the shrub area
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)
Plot number	{----}	Landscape Action Plan plot number
Boundary	{----}	Relevant information on surrounding borders
Species	{----}	Text description of species content
Purpose	{----}	Text description of form and purpose of planting
Date of Planting	{----}	Date of Planting

1.48.2. Convention

- (i) A shrub area shall be defined as an area item
- (ii) Different areas shall be defined for each type of shrub area
- (iii) Ornamental shrub areas are normally planted as a visual element of

the road corridor usually associated with settlements and cities, towns and villages and urban roundabouts

- (iv) Woodland scrub areas are generally native major and minor shrub species (excluding gorse and broom) informally planted or developing along road corridors up to a height of approximately 3.5 metres

1.48.3. Rules

- (i) A shrub area shall be recorded in the cross sectional position in which it occurs
- (ii) Shrub areas that occur in the central reserve areas of dual carriageways and motorways and which are common to both sections shall be recorded in the nominated section only
- (iii) When a shrub area shall be crossed by a crossover (XO) it shall be allowed to continue and shall be not "clocked of" by the inventory program
- (iv) If there shall be any doubt as to the ownership of the shrub area then it shall be recorded

1.49. **WD** - Woodland

A collection of trees

1.49.1. Input Details

- (i) Site Entries

Item Code	{WD}	
Geographical Information System	Polygon	Polygon denoting the outside of the woodland area
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)
Type	{-}	1 = New Woodland 2 = Established Woodland 3 = Maturing Woodland
Plot number	{----}	Landscape Action Plan plot number
Boundary	{----}	Relevant information on surrounding borders
Species	{----}	Text description of species content
Purpose	{----}	Text description of form and purpose of planting
Date of Planting	{----}	Date of Planting

1.49.2. Convention

- (i) A woodland area shall be defined as an area item

- (ii) Different areas shall be defined for each type of woodland
- (iii) New woodland (under 5 years old) shall be newly planted or seeded areas of predominantly tree species with the potential of maturing into a mature wooded area
- (iv) Established woodland (5-10 years old) shall be areas of tree species, with or without woodland shrubs, and with the potential of developing into a mature wooded area
- (v) Maturing woodland (over 10 years old) shall be areas of dense tree cover, whether single or mixed species or varieties, and with or without a woodland shrub layer

1.49.3. Rules

- (i) A woodland area shall be recorded in the cross sectional position in which it occurs
- (ii) When a woodland area shall be crossed by a crossover (XO) it shall be allowed to continue and shall be not “clocked of” by the inventory program
- (iii) If there shall be any doubt as to the ownership of the woodland area then it shall be recorded

1.50. SC - Scrub

An area of undesired, self seeded vegetation predominantly but not exclusively gorse, broom, birch and/or bramble up to a height of 2.5 metres

1.50.1. Input Details

- (i) Site Entries

Item Code	{SC}	
Geographical Information System	Polygon	Polygon denoting the outside of the scrub area
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----	(To nearest metre)
Plot number	{----	Landscape Action Plan plot number
Boundary	{----	Relevant information on surrounding borders
Species	{----	Text description of species content
Impact	{----	Text description of impact or effect on surrounding environment

1.50.2. Convention

- (i) A scrub area shall be defined as an area item

1.50.3. Rules

- (i) A scrub area shall be recorded in the cross sectional position in

which it occurs

- (ii) Scrub areas that occur in the central reserve areas of dual carriageways and motorways and which are common to both sections shall be recorded in the nominated section only
- (iii) When a scrub area shall be crossed by a crossover (XO) it shall be allowed to continue and shall be not “clocked of” by the inventory program
- (iv) If there shall be any doubt as to the ownership of the scrub area then it shall be recorded

1.51. **BB** - Bulb

An area of naturalised or planted bulbs

1.51.1. Input Details

- (i) Site Entries

Item Code	{BB}	
Geographical Information System	Polygon	Polygon denoting the outside of the scrub area
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----	(To nearest metre)
Plot number	{----	Landscape Action Plan plot number
Species	{----	Text description of species content

1.51.2. Convention

- (i) A bulb area shall be defined as an area item

1.51.3. Rules

- (i) A bulb area shall be recorded in the cross sectional position in which it occurs
- (ii) Bulb areas that occur in the central reserve areas of dual carriageways and motorways and which are common to both sections shall be recorded in the nominated section only
- (iii) When a woodland area shall be crossed by a crossover (XO) it shall be allowed to continue and shall be not “clocked of” by the inventory program

1.52. **WT** - Wetland

An area associated with permanent or semi-permanent water from open water bodies to areas of boggy ground

1.52.1. Input Details

- (i) Site Entries

Item Code	{WT}	
Geographical Information System	Polygon	Polygon denoting the outside of the scrub area
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)
Plot number	{----}	Landscape Action Plan plot number
Boundary	{----}	Relevant information on surrounding borders
Description	{----}	Text description of feature

1.52.2. Convention

- (i) A wetland area shall be defined as an area item

1.52.3. Rules

- (i) A wetland area shall be recorded in the cross sectional position in which it occurs
- (ii) When a wetland area shall be crossed by a crossover (XO) it shall be allowed to continue and shall be not "clocked of" by the inventory program

1.53. SF – Safety Fence

A vehicle restraint system in the form of a continuous barrier erected alongside a carriageway, including safety barriers on bridges.

1.53.1. Input Details

- (i) Site Entries

Item Code	{SF}	
Geographical Information system	Linear Shape	Recorded along centre of safety fence
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Type	{-}	1 = Tensioned 2 = Untensioned 3 = Concrete 4 = Wire
Shape	{-}	1 = Single Sided 2 = Double Sided
Post	{-}	1 = Wood 2 = Metal

Beam Profile	{-}	3 = Other
		1 = Corrugated
		2 = Box Beam
		3 = Other

1.53.2. Convention

- (i) A safety fence shall be defined as a continuous item.

1.53.3. Rules

- (i) Intermediate – use this entry when the type, shape or post type of the fence changes but the fence continues.
- (ii) Safety fences which occur in the central reserve of dual carriageways and Motorways and which are common to both sections shall be recorded in the nominated section ONLY.
- (iii) A safety fence with separate posts shall be recorded in the section to which it applies.

1.54. **PR** – Pedestrian Guardrail

A protective fence, usually on the edge of a footway intended to restrain pedestrians from stepping on to the carriageway or other area likely to be hazardous.

1.54.1. Input Details

- (i) Site Entries

Item Code	{PR}	
Geographical Information system	Linear Shape	Recorded along centre of safety fence
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Material	{-}	1 = Steel 2 = Alloy 3 = Timber 4 = Other

1.54.2. Convention

- (i) A pedestrian guardrail shall be defined as a continuous item.

1.54.3. Rules

- (i) A pedestrian guardrail associated with a footway shall be recorded on the cross-sectional position of the footway (left or right).
- (ii) Intermediate – use this entry when the material from which the guardrail shall be made changes, but the guardrail continues.

1.55. **FB** - Fences and Barriers

A boundary fence, wall or barrier for screening noise, headlight glare or to prevent access

1.55.1. Input Details

(i) Site Entries

Item Code	{FB}	
Geographical Information system	Linear Shape	Recorded along centre of fence or barrier
Cross-Sectional Position	{-}Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Function	{-}	1 = Anti-glare 2 = Noise 3 = Boundary 4 = Other
Material	{-}	1 = Timber 2 = Timber Post and Wire 3 = Metal Post and Wire 4 = Mesh 5 = Vane 6 = Other 7 = Brick 8 = Stone

1.55.2. Convention

- (i) A fence or barrier shall be defined as a continuous item.

1.55.3. Rules

- (i) A fence along the left-hand road boundary shall be recorded in cross-sectional position 1 (i.e. to its right) and in cross-sectional position 0 if it shall be on the right-hand road boundary.
- (ii) Intermediate – use this entry when the type of fence or barrier changes but the fence or barrier continue
- (iii) All fences and barriers for which the Relevant Authorities are responsible shall be recorded (not private). If there shall be any doubt of their ownership, they shall be included.
- (iv) Safety barriers are recorded under the inventory item of Safety Fence (SF).
- (v) When a fence or barrier shall be crossed by a crossover (XO) it shall be allowed to continue and not 'clocked off' by the inventory program.
- (vi) Fences and barriers which occur in the central reserve of dual

carriageways and Motorways and which are common to both sections shall be recorded in the nominated section ONLY.

1.56. **RW - Retaining Wall**

A Structure constructed to resist lateral pressure from the adjoining ground, or to maintain a mass of earth in position.

1.56.1. Input Details

(i) Site Entries

Item Code	{RW}	
Geographical Information system	Linear Shape	Recorded along centre of fence or barrier
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----}	(To nearest metre)
Type	{-}	1 = Mass Concrete 2 = Reinforced Concrete 3 = Reinforced Earth 4 = Stone 5 = Brick 6 = Gabion 7 = Sheet Piles 8 = Other
Height	{----}	(To nearest 0.1 metre between 0.0 and 99.9)
Position	{-}	1 = Above Road Level 2 = Below Road Level

1.56.2. Convention

- (i) A retaining wall shall be defined as a continuous item.

1.56.3. Rules

- (i) Intermediate – use this entry when the height of a wall changes but the wall continues.
- (ii) A wall along the left-hand road boundary shall be recorded in cross-sectional position 1 and in cross-sectional position 0 if it shall be on the right-hand road boundary.

1.57. **CB - Traffic Control Barrier**

A moveable barrier or gate which controls the flow of traffic or which shall be used to close sections of the road in Severe Weather conditions.

1.57.1. Input Details

(i) Site Entries

Item Code	{CB}	
Geographical Information system	Linear Shape	Recorded along centre of fence or barrier
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)
Location	{-}	1 = Rail Crossing 2 = Canal Crossing 3 = Toll Barrier 4 = Snow Gate 5 = Other
Type	{-}	1 = Barrier 2 = Gate 3 = Other
Arrangement	{-}	1 = Full Width/Single 2 = full Width/Double 3 = Half Width 4 = Other
Control	{-}	1 = Automatic/Local 2 = Automatic/Remote 3 = Manual/Attended 4 = Manual/User Operated 5 = Other

1.57.2. Convention

- (i) A traffic control barrier shall be defined as a point item.

1.57.3. Rules

- (i) Traffic signals (wig wags) and road markings at a traffic control barrier are separate inventory items.
- (ii) Only one barrier shall be recorded at a particular chainage regardless of whether it shall be in two parts or more.

1.58. **RS** - Road Studs

A stud placed in the carriageway to guide traffic.

1.58.1. Input Details

- (i) Site Entries

Item Code	{RS}	
Geographical Information system	Linear Shape	OSGR coordinate
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage Type	{----}	(To nearest metre)
	{-}	1 = Reflective ('Catseye') 2 = Stick on/Single Sided 3 = Stick on/Double Sided 4 = Non-reflective 5 = Other
Class	{-}	1 = Prohibitory 2 = Warning/Informatory 3 = Other
Spacing	{----}	(To nearest 0.1 metre between 0.1 and 25.0)
Colour	{-}	1 = White 3 = Red 4 = Amber 5 = Green 6 = Other

1.58.2. Convention

- (i) Road studs are defined as a continuous item.

1.58.3. Rules

- (i) This item shall be for longitudinal road studs only.
- (ii) For the purposes of this inventory item, all depressible road studs shall be recorded as reflective.
- (iii) Road studs occurring at the boundary between Lanes shall be recorded in the cross-sectional position of the Lane to their left.
- (iv) Intermediate – use this entry when the type, class, spacing or colour of the road studs change but the studs continue.
- (v) Transverse road studs associated with a pedestrian crossing are NOT recorded. These studs are incorporated in the inventory item pedestrian crossing (PX).
- (vi) Road studs along the right-hand edge of hatched road markings shall be recorded with a cross-sectional position of Y.
- (vii) Use 1 = PROHIBITORY (usually red or amber) for studs which occur in continuous single or double lines and 2 = WARNING/INFORMATORY (usually white or green) for studs which occur in dotted lines and where road markings are non-prohibitory or advisory.
- (viii) White studs may also be prohibitory when employed in a double

white line system.

1.59. LH - Road Markings (Hatched)

Road markings on the carriageway with a distinctive hatched design.

1.59.1. Input Details

(i) Site Entries

Item Code	{LH}	
Geographical Information system	Linear Shape	Recorded along centre
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)
Width	{----}	(To nearest 0.1 metre between 0.1 and 99.9s [0.1<W<99.9])
Material	{-}	1 = Thermoplastic Spray 2 = Thermoplastic Screed 3 = Thermoplastic Extrusion 4 = Other
Pattern	{-}	1 = Diagonal 2 = Chevron 3 = Cross 4 = Solid 5 = Bars 6 = Other
Type of Edge Line	{-}	1 = Prohibitory 2 = Warning/Informatory 3 = None

(ii) Off-Site Entries:

Diagram Number	{-----}	Alphanumeric (Optional)
-----------------------	---------	-------------------------

1.59.2. Convention

- (i) Hatched road markings are defined as a continuous item.

1.59.3. Rules

- (i) Intermediate – use this entry when the width, material or pattern changes but the markings continue.
- (ii) The cross-sectional position OTHER shall be used to indicate that bars (transverse yellow bar markings) or cross hatching (e.g. box junctions) extend across the whole of the carriageway.
- (iii) Lines around the edge of hatched road markings shall be included

as part of the hatching and NOT recorded as a separate inventory item.

- (iv) The width of an area of hatched markings shall be the 'average' width. In the case of a tapered marking this will occur roughly half way along its length.
- (v) Diagonally hatched road markings can occur in a variety of situations. In the following cases they shall be allocated to the cross-sectional position indicated:
 - (a) As an extension to a central reserve at the end of a dual carriageway and in the same section. Record in cross-sectional position 8 in the nominated section;
 - (b) as an extension to a central reserve at the end of a dual carriageway and in a different section. Record in the cross-sectional position of the Lane immediately adjacent on the left-hand side; and
 - (c) where hatching occurs between two Lanes, record it in the cross-sectional position of the Lane immediately adjacent on the left-hand side.
- (vi) Road studs associated with road markings are recorded as a separate inventory item.
- (vii) If road markings occur at the boundary of two cross-sectional positions, they shall be recorded in the cross-sectional position to their left.
- (viii) For details of the Diagram Number (optional off-site entry) refer to the Traffic Signs Regulations and General Directions.

1.60. LL - Road Markings (Longitudinal)

Road markings which lie along the carriageway or along the edge of the carriageway.

1.60.1. Input Details

(i) Site Entries

Item Code	{LL}	
Geographical Information system	Linear Shape	Recorded along centre
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----	(To nearest metre)
Diagram Number	{-----}	Alphanumeric
Class	{-}	1 = Double 2 = Single 3 = Hazard 4 = Other

Colour	{-}	1 = White 2 = Yellow 3 = Red 7 = Conservation Yellow
Type	{-}	1 = Broken 2 = Unbroken 3 = Broken and Unbroken 4 = Zig Zag 5 = Other
Material	{-}	1 = Thermoplastic Spray 2 = Thermoplastic Screed 3 = Thermoplastic Extrusion 4 = Other 7 = Raised Edge Rib
Length	{----}	(To nearest 0.1 metre between 0.0 and 10.0)
Gap	{----}	(To nearest 0.1 metre between 0.0 and 25.0 [0.0 < G < 25.0])
Width	{----}	(To nearest 0.1 metre between 0.0 and 9.99 [0.0 < W < 9.99])

(ii) Off-Site Entries

Diagram Number	{----}	Alphanumeric (Optional)
-----------------------	--------	-------------------------

1.60.2. Convention

- (i) A longitudinal road marking shall be defined as a continuous item.

1.60.3. Rules

- (i) The length and gap entries only apply to broken lines and shall be entered as 0 for other types.
- (ii) Intermediate – use this entry when the class, colour, type, material, length or gap change but the markings continue.
- (iii) For the 'broken' and 'broken and unbroken' type options the length and gap of the broken line shall be recorded.
- (iv) The zigzag lines at zebra crossings are an integral part of the crossing and shall NOT be recorded separately.
- (v) Where a road marking lies on the boundary between two Lanes, it shall be recorded in the left-hand Lane position.
- (vi) A left-hand edge line shall be recorded in cross-sectional position 3. A right-hand edge line shall be recorded in position 7 for up to 4 Lanes and position E or R for 5 Lanes and 6 Lanes respectively.
- (vii) Single or double yellow edge markings shall be recorded as single or double, yellow and in the appropriate cross-sectional position.

- (viii) A longitudinal solid white line lying one metre from the left-hand edge of the carriageway shall be recorded in cross-sectional position 3. If it shall be on the right-hand side it shall be recorded in position 7 for up to 4 Lanes and position E or R for 5 and 6 Lanes respectively.
- (ix) For details of the Diagram Number (optional Off-Site Entry) refer to the Traffic Signs Regulations and General Directions.

1.61. RM - Road Markings (Transverse and Special)

Road markings which lie across the carriageway, on the kerb, at the edge of the carriageway or are special markings.

1.61.1. Input Details

(i) Site Entries

Item Code	{RM}	
Geographical Information System	Point	OSGR coordinate
Cross-Sectional position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)
Diagram Number	{-----}	Alphanumeric
Class	{-}	1 = Stop 2 = Give-way 3 = Words 4 = Roundabout 5 = Arrow 6 = Loading 7 = Other
Colour	{-}	1 = White 2 = Yellow 3 = Red 4 = Conservation Yellow
Material	{-}	1 = Thermoplastic Spray 2 = Thermoplastic Screed 4 = Other 7 = Raised Edge Rib
Width	{----}	(To nearest 0.1 metre between 0.0 and 9.9[0.1<W<99.9])
Length	{----}	To nearest metre between 0.0 and 10.0

Gap {----} To nearest metre between 0.0 and 25.0

- (ii) Off-Site Entries

Diagram Number {-----} Alphanumeric (Optional)

1.61.2. Notes

- '1 = STOP' shall be a continuous line.
- '2 = GIVE WAY' shall be a broken line.
- '3 = WORDS' – e.g. BUS STOP, STOP SLOW, TURN LEFT.

1.61.3. Convention

- (i) Transverse and special road markings are defined as POINT items.

1.61.4. Rules

- (i) If a road marking occurs at the boundary between Lanes it shall be recorded in the cross-sectional positional position to its left
- (ii) Road markings are to be recorded for each cross-sectional position in which they occur.
- (iii) Lines and symbols associated with 3 = WORDS e.g. the solid line associated with the word STOP, shall be recorded separately except in the case of a bus bay within the carriageway whereby the lines defining the bay and the words BUS STOP shall be recorded as one item. The triangle associated with a give-way line shall be recorded as 2 = GIVE WAY.
- (iv) Two or more words which are connected shall be recorded as one entry, e.g. BUS STOP.
- (v) Double or triple road markings on the kerb are to be recorded as one entry for each occurrence.
- (vi) The chainage of a transverse road marking shall be recorded at the point which shall be first encountered.
- (vii) A mini roundabout with a raised centre shall NOT be recorded. It shall be recorded as a central island.
- (viii) VASCAR and other speed enforcement road markings shall be recorded under this inventory item as class = OTHER.
- (ix) Width shall be measured transversely across the carriageway.
- (x) For details of the diagram number (optional Off-Site Entry) refer to the Traffic Signs Regulations and General Directions.

1.62. **SG** - Signs

A sign, signal or other device for the purpose of regulating, warning, guiding or informing Traffic.

1.62.1. Input Details

- (i) Site Entries:

Item Code {SG}

Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)
Diagram Number	{-----}	Alphanumeric
Identify Code	{-----}	(Alphanumeric)
Category	{-}	1 = Warning 2 = Regulatory 3 = Informatory 4 = Bus, Tram and Cycle 5 = Hazard Warning 6 = Matrix 7 = VMS 8 = Hidden Message 9 = Other
Illuminated	{-}	1 = No 2 = Internal 3 = External 4 = Remote 5 = Reflectorised
Diagram Number	{-----}	
Mounting Height	{----}	(To nearest 0.5 metres between 0.1 and 25.0)
Mounting Method	{-}	1 = Post 2 = Bridge 3 = Gantry 4 = Wall 5 = Lamp Post 6 = Traffic Signal 7 = Other
Standard Size Code	{--}	Options T1 T2 T3 T4 R1 R2 R3C4 C1(see Section C3) C2 C4

Or enter ACTUAL width and height

Width	{----	(To nearest 0.1 metres between 0.1 and 200.0
Height	{----	(To nearest 0.1 metres between 0.1 and 10.0
Ownership	{-}	1 = Scottish Ministers 2 = Local Authority

(ii) Off-Site Entries:

Photograph Number	{-----}	(Alphanumeric)
Installation Date	{DD/MM/YY}	
Regional Electricity Company	{-}	1 = Scottish Power 2 = Scottish and Southern
Electricity Billing Company	{-}	1 = Scottish Power 2 = Scottish and Southern Energy
Operating Hours	{-}	1 = Continuous 2 = Dusk to Dawn 5 = Other

1.62.2. Convention

(i) A sign shall be defined as a point item.

1.62.3. Rules

- (i) Only permanent signs shall be recorded.
- (ii) If an identity code shall be not present or unreadable, an asterisk (*) shall be used.
- (iii) For details of the diagram number refer to the Traffic Signs Regulations and General Directions.

1.62.4. Categories

- 1 = Warning (usually triangular diagram numbers 501 to 580)
- 2 = Regulatory (usually circular diagram numbers 601 to 662)
- 3 = Informatory (usually rectangular diagram numbers 701 to 925)

1.62.5. Care shall be taken when selecting a diagram number. If the inspector shall be unsure, or an exact match cannot be made, an asterisk (*) shall be entered, and an off-site entry made by the Company.

1.62.6. The mounting height shall be the distance from the lower edge of the sign to the road surface.

1.62.7. If two identical signs occur on the same post they must be recorded as two signs occurring one metre apart.

1.62.8. Electrical signs and hidden message signs are included under this inventory item. A simple description shall be entered in place of the diagram number (maximum 6 characters) for example:

- (i) HAZARD – hazard warning light
 - (ii) MATRIX – matrix sign
 - (iii) CLOSE – ‘Following too close’ message
 - (iv) HEIGHT – low bridge warning sign
- 1.62.9. Where signs share a common lighting arrangement the offsite lighting details shall only be recorded against one of the signs. Both signs shall be recorded as lit.
- 1.62.10. The control box (even when not integral) shall be assumed to be included with the sign.
- 1.62.11. If the sign dimensions do not conform to the pre-defined ‘standard’ values, enter the width and height directly.
- 1.62.12. Signs which occur in the central reserve of dual carriageways and Motorways and which are common to both sections must be recorded in the nominated section ONLY. However, uni-directional signs shall be recorded in the section to which they apply.
- 1.62.13. Signs on a gantry shall be recorded in the cross-sectional position to which they apply.
- 1.62.14. Black and white edge of carriageway marker posts shall be recorded as a sign with mounting height = 1.0 metres and Diagram No. = 560 if the reflector shall be circular or 561 if the reflector shall be rectangular. If two identical reflectors are present then the rule at 1.29.5 will apply.
- 1.62.15. Standard Sign Dimensions Codes

	Horizontal Width (metres)	Vertical Height (metres)	Diameter (metres)
Triangular Signs T1		0.6	
T2		0.75	
T3		0.9	
T4		1.2	
Rectangular Signs R1	0.5	0.5	
R2	0.7	1.2	
R3	1.5	0.7	
Circular Signs C1			0.45
C2			0.6
C3			0.75
C4			0.9

Since sign dimensions are recorded to the nearest 0.1m, the width and heights above cover a range of $\pm 0.05\text{m}$ from the value stated. If a size does not conform to the above values enter the width and height directly.

1.63. SB - Bollards (Safety)

A device placed on a refuge or traffic island to warn drivers of those obstructions, or to prevent the passage of vehicles.

1.63.1. Input details

(i) Site Entries:

Item Code	{SB}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage Diagram	{----}	(Alphanumeric)
	{-----}	(Alphanumeric)
		2 = Internal
		1 = No
		4 = Other
		3 = Reflectorised
		4 = Other
Type	{----}	(Alphanumeric – See Rule (vi)) HALD = Haldo MORR = Morrison CLAU = GEC/Claudgen BERG = Bergo FORC = Forest City FRAN = Franco HALE = Hale and Hale PGOW = Pearce Gowshall CONC = Concrete METL = Metal WOOD = Wood PLAS = Plastic OTHR = Other
Sign Diagram Number	{-----}	(Alphanumeric)

(ii) Off-Site Entries:

Installation Date	{DD/MM/YY}	
Regional Electricity Company	{-}	1 = Scottish Power 2 = Scottish and Southern Energy

Electricity Billing Company	{-}	1 = Scottish Power 2 = Scottish and Southern Energy
Operating Hours	{-}	1 = Continuous 2 = Dusk to Dawn 5 = Other

1.63.2. Convention

- (i) A bollard shall be defined as a point item.

1.63.3. Rules

- (i) Bollards usually occur in conjunction with a central island or central reserve and care shall be taken to ensure they are given the same cross-sectional position.
- (ii) When an identify code shall be not present or unreadable an asterisk (*) shall be entered.
- (iii) Where no sign shall be present or not sign diagram number can be determined, an asterisk (*) shall be entered.
- (iv) Where a bollard occurs with no island, it shall be allocated to the Lane immediately adjacent on the left-hand side.
- (v) For details of the diagram number refer to the Traffic Signs Regulations and General Directions.
- (vi) The type of bollard shall be recorded by entering a 4 character code.
- (vii) Where a bollard shall be placed to warn drivers of an obstruction, the type of bollard shall be selected from the following codes:

Type	Code
Haldo	HALD
Morrison	MORR
GEC/Claudgen	CLAU
Bergo	BERG
Forest City	FORC
Franco	FRAN
Hale and Hale	HALE
Pearce Gowshall	PGOW
Other	OTHR

- (viii) Where bollards are installed to prevent the passage of vehicles or for any other reason, the type shall be selected from the following codes:

Type	Code
Concrete	CONC
Metal	METL
Wooden	WOOD

Plastic PLAS
Other OTHR

Either list of codes may be extended by the Company as required.

- (ix) Plastic bollards permanently installed on Emergency crossover points shall be recorded under this item using type ECP and Diagram No.578.
- (x) Reference shall be made to the paragraph “2 Electrical Inventory Requirements” in this Appendix A for additional electrical inventory requirements.

1.64. RF - Reference Marker Point

An item specifically placed to indicate the position within the road network.

1.64.1. Input Details

- (i) Site Entries:

Item Code	{RF}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position Chainage	{- }Position {---}	See Section 1.2 of this Annex A Function Keys (To nearest metre)
Type	{-}	1 = Marker Post 2 = Metal Studs (2 nodes) 3 = Metal Studs (3 nodes) 4 = Thermoplastic Cores (2 5 = Thermoplastic Cores (3 6 = Bar Code 7 = Other
Identify Code	{-----}	(Alphanumeric)

1.64.2. Convention

- (i) A marker point shall be defined as a point item

1.64.3. Rules

- (i) Only marker points which refer to the O&M Works Site network shall be recorded.
- (ii) If an identity code shall be not present or shall be unreadable, an asterisk (*) shall be entered.
- (iii) In general when collecting inventory data, only the position of the end node shall be recorded in the data capture device to avoid double counting. However, it may be necessary to record the position of the start node if it would not otherwise be recorded (e.g. at the O&M Works Site boundary or on the exits from roundabouts).

1.65. TS – Road Traffic Signals

A system of different coloured lights, including arrow-shaped lights, for stopping streams of traffic and permitting them to move.

1.65.1. Input Details

(i) Site Entries:

Item Code	{TS}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)
Remotely Monitored	{--}	Yes No
Ownership	{-}	1 = Scottish Ministers 2 = Local Authority
Identify Code	{-----}	(Alphanumeric)
Manufacturer	{-}	1 = Plessey 2 = GEC 3 = Other
Number of Lamp Units	{--}	Whole number between 1 and 25
Mounting Method	{-}	1 = Post 2 = Arm 3 = Wall 4 = Other
Type	{-}	Traffic Controlled Junction 2 = Pelican 7 = Other

(ii) Off-Site Entries:

Installation Date		{DD/MM/YY}
Layout	{--}	(See Figures 1 and 2 below)
Regional Electricity Company	{-}	1 = Scottish Power 2 = Scottish and Southern Energy
Electricity Billing Company	{-}	1 = Scottish Power 2 = Scottish and Southern Energy
Operating Hours	{-}	1 = Continuous

2 = Part Time

5 = Other

1.65.2. Convention

- (i) A traffic signal shall be defined as point item.

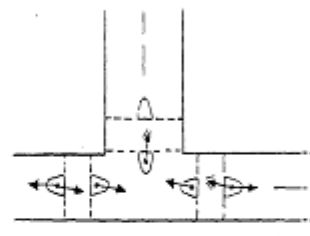
1.65.3. Rules

- (i) Each post supporting a set of traffic signals must be included as a separate inventory item. When there shall be doubt as to which section a post shall be in, it shall be recorded in the section which contains the control box.
- (ii) A lamp unit shall be an individual light, i.e. a set of red/amber/green counts as 3 lamp units. The red and green figures and all lamps within a push button box at a pedestrian operation pelican crossing shall also be counted.
- (iii) If an identity code shall be not present or shall be unreadable, an asterisk (*) shall be used.
- (iv) Wattage shall be recorded as total wattage for all lamps in the traffic signal.
- (v) Approved traffic signal layouts are provided below for guidance
- (vi) Control cabinets associated with a set of traffic signals are a separate inventory item. They shall be recorded as a communication cabinet (CC).
- (vii) Detector loops associated with a set of traffic signals shall be a separate inventory item. They shall be recorded as a detector loop (DL).
- (viii) Lights associated with a pelican crossing shall be recorded under this inventory item
- (ix) Reference shall be made to the paragraph "2 Electrical Inventory Requirements" in this Appendix A for additional electrical inventory requirements.

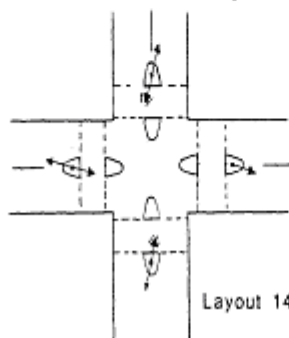
Traffic Signal Layout Diagrams



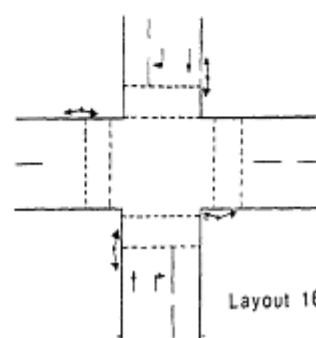
Layout 100



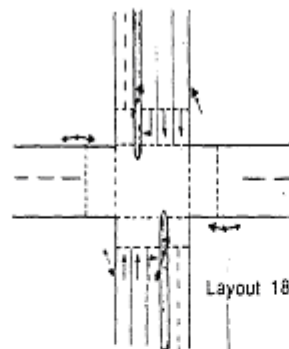
Layout 120



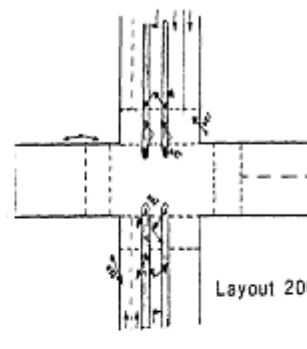
Layout 140



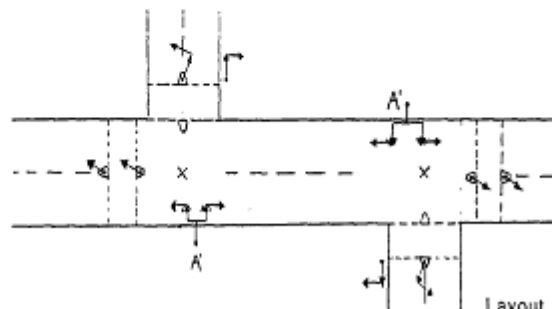
Layout 160



Layout 180

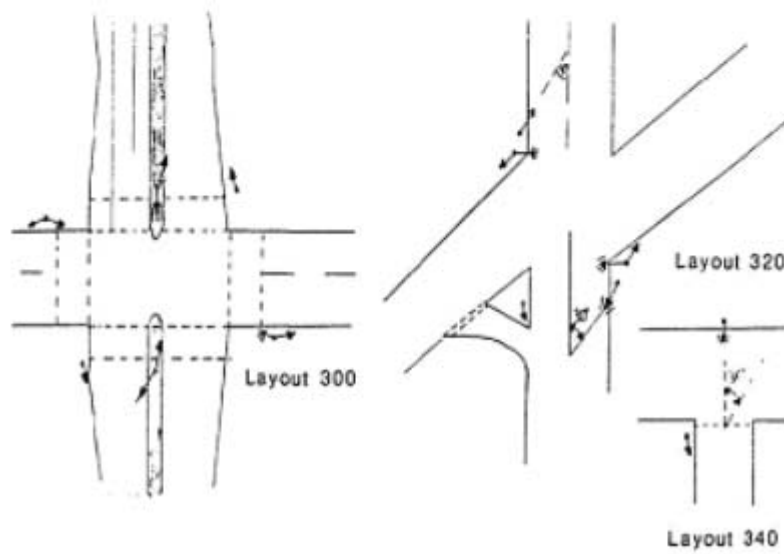
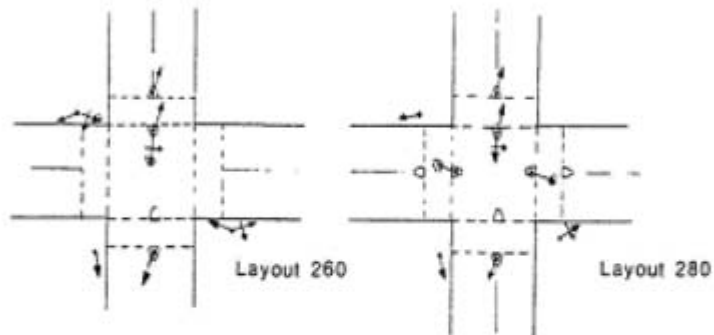
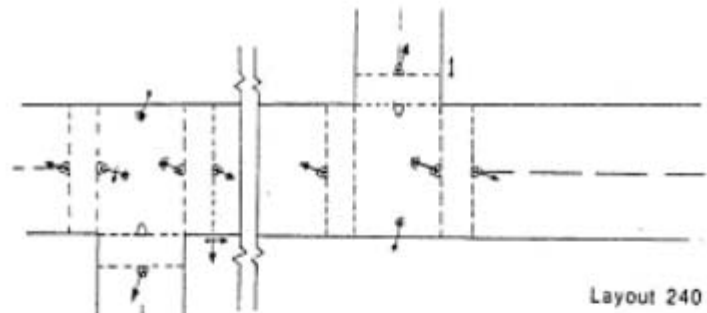


Layout 200



Layout 220

Traffic Signal Layout Diagrams



1.66. **PX** - Pedestrian Crossing

A transverse strip of carriageway marked to indicate where pedestrians have priority to cross the road.

1.66.1. Input Details

(i) Site Entries:

Item Code	{PX}	
Geographical Information System	Point	OSGR Coordinate
Chainage	{----	(To nearest metre)
Type	{-}	1 = Pelican 2 = Zebra 3 = Other
Material	{-}	1 = Thermoplastic Spray 2 = Thermoplastic Screed 4 = Sheet 5 = Studs Only 6 = Other

1.66.2. Convention

- (i) A pedestrian crossing shall be defined as point item.

1.66.3. Rules

- (i) Each individual lighting post associated with a pedestrian crossing shall be a separate inventory item and shall be recorded separately under Traffic Signals (TS).
- (ii) All road markings and studs associated with a pedestrian crossing are an integral part of the crossing and shall NOT be recorded separately.
- (iii) Beacons associated with a pedestrian crossing (Zebra) must be recorded separately under lighting point (LP), with identity code = ZEBRA.
- (iv) Any associated control boxes shall be recorded separately under communications cabinet (CC).
- (v) Reference shall be made to the paragraph “2 Electrical Inventory Requirements” in this Appendix A for additional electrical inventory requirements.

1.67. **DL** – Detector Loops

Detector loops are normally associated with traffic signals or automatic traffic counters.

1.67.1. Input Details

(i) Site Entries:

Item Code	{DL}	
Geographical Information System	Point	OSGR Coordinate
Chainage	{----}	(To nearest metre)
Type	{-}	1 = Traffic Signal 2 = Traffic Counters 3 == NADICS 4 = Other

1.67.2. Convention

- (i) A detector loop shall be defined as point item.

1.67.3. Rules

- (i) An item shall be recorded for each lane in which a detector loop shall be present.

1.68. LP – Road Lighting Point

A lighting installation usually consisting of a column, lantern housing and lamp.

1.68.1. Input Details

(i) Site Entries:

Item Code	{LP}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Function
Chainage	{----}	(To nearest metre)
Identify Code	{-----}	(Alphanumeric)
Column Type	{-}	1 = Concrete 2 = Steel 3 = Aluminium 4 = None 5 = High Mast 6 = Other
Height	{----}	(to nearest 0.1 metres between 0.0 and 50.0)
Mounting Bracket		1 = Single 2 = Double 3 = Triple 4 = Catenary

		5 = Post Top
		6 = Wall Mounted
		7 = Other
Supply Type	{-}	1 = Underground
		2 = Overhead
Position of Column	{-}	1 = On Kerb
		2 = Set Back
Installation Type	{-}	1 = Staggered
		2 = Single Sided
		3 = Opposite
		4 = Central
		5 = Opposite plus Central
		6 = Roundabout
		7 = Other

1.68.2. Off-Site Entries:

Installation Date		{DD/MM/YY}
Regional Electricity Company	{-}	1 = Scottish Power
		2 = Scottish and Southern Energy
Electricity Billing Company	{-}	1 = Scottish Power
		2 = Scottish and Southern Energy
Operating Hours	{-}	1 = Continuous
		2 = Dusk to Dawn
		5 = Other

1.68.3. Convention

- (i) A lighting point shall be defined as a point item.

1.68.4. Rules

- (i) If an identify code shall be not present or shall be unreadable, an asterisk (*) shall be entered.
- (ii) Posts made of more than one material shall be entered as type 6 = OTHER
- (iii) Where Catenary lighting shall be present it shall be recorded as follows:
- (a) The first lamp unit after a column shall be recorded in conjunction with the column using LP;
- (b) The next lamp unit shall be recorded with column type 4 = NONE using LP;

- (c) The remaining lamp units to the next column shall be recorded using the lighting point repeat facility (LR);
- (d) The last lamp unit and the last column at the end of the catenary lighting shall be recorded together using LP.
- (iv) A lighting point with double bracket or post top and a shared column which occurs in the central reserve of a dual carriageway or Motorway and which shall be common to both sections must be recorded in the nominated section ONLY.
- (v) A lighting point with a single bracket on a separate column shall be recorded in the section to which it applies.
- (vi) Beacons associated with a pedestrian crossing (Zebra) must be recorded separately under this item, lighting point, with identity code ZEBRA.
- (vii) Reference shall be made to the paragraph "2 Electrical Inventory Requirements" in this Appendix A for additional electrical inventory requirements.

1.69. BO - Overbridge

A Structure which spans the road being surveyed and which carries another road, railway, pedestrians or other feature.

1.69.1. Input Details

- (i) Site Entries:

Item Code	{BO}	
Geographical Information System	Point	OSGR Coordinate
Chainage	{----	(Alphanumeric)
Identity Code	{-----}	(Alphanumeric)
Type	{-}	1 = Road 2 = Rail 3 = River 4 = Canal 5 = Footway 6 = Gantry 7 = Tunnel 8 = Other

Convention

- (ii) An overbridge shall be defined as a continuous item.

1.69.2. Rules

- (i) When the bridge identity code shall be either not present or unreadable, an asterisk (*) shall be entered.
- (ii) The start chainage of an overbridge occurs when the measuring

wheel shall be level with the start of the Structure. The end chainage occurs when the measuring wheel shall be level with the end of the Structure. Hence, an overbridge passing diagonally over the road being surveyed will have a total recorded width greater than its nominal width.

- (iii) On dual carriageways, an overbridge shall only be recorded in the nominated section but the start and end chainage shall be assessed in respect of the total length spanning both carriageways.
- (iv) If the Bridge type shall be not included in the option menu, up to 8 characters may be used as the identity code (if one does not exist) to describe it.
- (v) Tunnels, footbridges and gantries are recorded under this inventory item.

1.70. **BU** - Underbridge

A Structure carrying the road being surveyed over another road, railway, river, ravine or other feature.

1.70.1. Input Details

- (i) Site Entries:

Item Code	{BU}	
Geographical Information System	Point	OSGR Coordinate
Chainage	{----	(Alphanumeric)
Identity Code	{-----}	(Alphanumeric)
Type	{-}	1 = Road 2 = Rail 3 = River 4 = Canal 5 = Footway 6 = Gantry 7 = Ravine 8 = Other

1.70.2. Convention

- (i) An underbridge shall be defined as a continuous item starting and finishing on some convenient feature such as the expansion joints or the ends of the parapets. It has no cross-sectional position.

1.70.3. Rules

- (i) When the bridge identity code shall be either not present or unreadable, an asterisk (*) shall be entered.

- (ii) Whereas parapets are part of the bridge and need not be recorded separately, a safety fence over a bridge shall be recorded under its own inventory item.
- (iii) The start and end of an underbridge occurs when the measuring wheel shall be level with some feature of the underbridge such as an expansion joint or the end of a parapet.
- (iv) On dual carriageways and underbridge shall only be recorded in the nominated section but shall be assessed in respect of the total length spanning both carriageways.
- (v) If the Bridge type shall be not included in the option menu, up to 8 characters may be used as the identity code (if one does not exist) to describe it.

1.71. **WS** – Weather Station

A remote electronic monitoring device to detect road surface and atmospheric conditions to give early warning of ice and frost.

1.71.1. Input Details

- (i) Site Entries:

Item Code	{WS}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	To nearest metre
Identity Code	{-----}	Alphanumeric
Site Name	{----}	Alphanumeric
Site Type	{-}	1 = Mark 5 2 = Mark 6 3 = ROSA 6 = Other
Manufacturer	{-}	1 = Findlay Irvine 2 = Vaisala 3 = Other
Model	{-----}	Alphanumeric (optional)
Power Source	{-}	1 = Mains Electricity 2 = Solar
Number of Road Surface Sensors	{-}	1 = Sensor 2 = 2 Sensors 3 = 3 Sensors 4 = Other
Deep Sensor	{-}	Y = Yes N = No
Air Sensor	{-}	Y = Yes N = No

Dew/RH Sensor	{-}	Y = Yes	N = No
Wind Sensor	{-}	Y = Yes	N = No
Precipitation Sensor	{-}	T = Yes	N = No
Year Installed	{----}		

1.71.2. Convention

- (i) An weather station shall be defined as a point item.

1.71.3. Rules

- (i) If an identity code shall be not present or unreadable, an asterisk (*) shall be used.
- (ii) The cross-sectional position relates only to the cabinet/pole, not the sensors.
- (iii) Reference shall be made to the paragraph “2 Electrical Inventory Requirements” in this Appendix A for additional electrical inventory requirements.

1.72. **SP** - Snow Poles

Poles Mounted at the side of the road to aid snow clearing operations.

1.72.1. Input Details

- (i) Site Entries:

Item Code	{SP}	
Geographical Information System	Point	OSGR Coordinate
Cross Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)
Material	{-}	1 = Plastic 2 = Metal 3 = Other

1.72.2. Convention

- (i) Snow Pole shall be defined as a point Item.

1.73. **AB** – Arrester Bed

Normally a bed of loose gravel to stop vehicles.

1.73.1. Input Details

- (i) Site Entries:

Item Code	{AB}	
Geographical Information System	Point	OSGR Coordinate
Cross Sectional Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----}	(To nearest metre)
Length	{----}	To the nearest 0.1 metre between 0.1 and 100.0
Width	{----}	To the nearest 0.1 metre between 0.1 and 20.0

1.73.2. Convention

- (i) An Arrester Bed shall be defined as a point Item.

2 Electrical Inventory Requirements

2.1 Additional attributes listed in Annex E Tables 10 and 11 of TD23 or equivalent shall be held in the Routine Maintenance and Quality System database or the separate street lighting management system if approved by the Contracting Authority for those inventory items with electrical details such as:

- (i) SB - Bollard (Safety);
- (ii) LP - Lighting Point;
- (iii) SG - Sign; and
- (iv) TS - Traffic Signal

Additional attributes listed in TD23, Annex E, Tables 10 and 11 of the DMRB shall be held in the RMMF database, or the separate street lighting management system if approved by the Contracting Authority.

2.2 The Company shall also ensure that all relevant data required to be collected for operating competitive electrical supply agreements shall be held in the database.

3 Inspection Details

3.1 Introduction

3.1.1 General

- (i) The Contracting Authority requirements for routine maintenance of the O&M Works Site are incorporated in this Part of these O&M Works Requirements. These requirements call for inspections to be carried out on a regular basis and set out the frequencies of inspections to determine what routine maintenance tasks are required.
- (ii) The following describes in detail the defects which may be identified when the Company shall be conducting these inspection surveys and the procedures for recording the defects on the RMMF database.
- (iii) For both detailed Safety Inspections and Safety Patrols the Company shall record details of defects together with sufficient information about their location, the date and time they were inspected, and what action will be required in order to rectify them. All this information shall be entered onto the RMMF database in a systematic format via electronic data capture devices and the use of inspection codes and defect codes. 3.1.3 to 3.1.7 inclusive and 3.2 of this Appendix contains a schedule of the information required when the Company shall undertake detailed and Safety Inspections.
- (iv) This section includes general information on the recording of inspection surveys. Paragraph 3.3 below summarises, in tabular format, the inspection intervals / frequencies to be set in the RMMF database.
- (v) Paragraphs 3.4 to 3.32 inclusive of this Appendix contain for each maintenance activity the relevant details required by the Company's inspector to undertake and record an inspection survey. This information includes:
 - (a) A list of the various inspection codes relating to an activity and a schedule of the inventory items to which they apply;
 - (b) A definition of each activity;
 - (c) A schedule of defect codes specific to the activity, divided into specialist and non-specialist defects. This schedule includes the defect attribute, unit of measurement, and minimum and maximum values;
 - (d) Notes on specific individual defects. (where applicable); and
 - (e) General notes on defects. (where applicable).

3.1.2 Treatment Category Codes

- (i) The Company shall develop its own list of treatment codes for each defect to record a standard treatment to rectify a defect. The treatment codes provide a uniform shorthand method for the inspector to record a standard treatment to rectify a defect. Appropriate text fields shall then only be used to provide additional information to enable the repair to be carried out. The combination of the treatment codes (if applicable) and the text shall be sufficient

to initiate the repairs.

3.2 Entries to be made during Inspections

3.2.1 Detailed Inspections

(i) Section Header

Link Identifier:	(Up to 10 alphanumeric characters)
Section Number:	(Numeric between 0 and 99)
Reverse Direction:	(Y or N)
Inspector:	(Up to 3 alphanumeric characters)
Type:	(detailed)
Initiation:	(NRM = Normal Routine Maintenance)
Weather:	(FINE, RAIN, SNOW or FOG)
Road Condition:	(DRY, WET, SNOW or ICE)
Start of Section:	(Y or N)
New Activity Code List	(Y or N)

(This stage allows the entry of a new set of activities which are going to be inspected within the section if starting a survey, or of they are different from the activities that were inspected in the previous section.)

(ii) Activities

Activity Code:	(2 alphanumeric characters)
Inventory Code:	(2 Alphanumeric characters)
Cross Sectional Position:	(any digit and Q, W, E, R, T, Y)
Chainage:	(Numeric between 0 and 9999)
Location (Optional):	(Up to 40 alphanumeric characters)
Identity Code:	(Up to 8 alphanumeric characters)

(iii) Road Traffic Signs, Road Lighting and Traffic Scotland Maintained Equipment

Diagram Number:	(Up to 6 alphanumeric characters)
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(iv) Road Studs

Road Studs Class:	(1,2 or 3)
-------------------	------------

(v) Defects

Defect Code:	(4 alphanumeric characters)
Attribute: (if	(Numeric between 0 and 999)

(e.g. area / length / number)

(vi) Decisions

Depending upon the nature of the defect, one or more of the following shall be recorded.

- Does the Defect (Y/N)
 - require 24 hour action
 - Action 1 = Immediate (1, 2 or 3)
 - 2 = Temporary
 - 3 = Permanent
 - Action 1 = Temporary (1 or 2)
 - 2 = Permanent
 - Action 1 = Immediate (1 or 2)
 - 2 = Permanent
 - 1 = High Priority (1, 2 or 3)
 - 2 = Medium Priority (Permanent Action)
 - 3 = Low Priority
- Is temporary repair (Y or N)
 - being undertaken at
 - time of survey?
- Is permanent repair (Y or N)
 - being undertaken at
 - time of survey?

(vii) Action

The appropriate actions shall be recorded as follows:

- Record Immediate Action Taken
- Record Temporary Action Taken
- Record Permanent Action Taken
- Record Recommended
- Record Recommended
- Treat Code (Optional): (/followed by 3 alphanumeric
- Record Action (Up to 40 alphanumeric characters)
- DATE and TIME shall be automatically recorded from the data capture device's calendar / clock for actions taken at the time of inspection.

3.2.2 Safety Inspections

-
- (i) Section Header
- Reverse Direction: (Y or N)
- Inspector: (Up to 3 alphanumeric characters)
- Initiation: (NRM, PAT, POL, PBL, DUM,OTH) (Normal Routine Maintenance, patrol, Police, Public Complaint, Other)
- Weather: (FINE, RAIN, SNOW or ICE)
- Road Condition: (DRY, WET, SNOW or ICE)
- Start of Section (Y or N)
- Full: (F) (Full activity code list)
- Link Identifier: (Up to 10 alphanumeric characters)
- Section Number: (Numeric between 0 and 99)
- (ii) Activities
- Activity Code: (2 alphanumeric from list provided)
- Inventory Code: (2 Alphanumeric from list provided)
- Cross Sectional Position: (Any digit and Q, W, E, R, T, Y)
- Chainage: (Numeric between 9 and 9999)
- Location (Optional) (Up to 40 alphanumeric characters)
- Identity Code: (Up to 40 alphanumeric characters)
- (iii) Road Traffic Signs, Road Lighting and Traffic Scotland Maintained Equipment
- Diagram Number: (Up to 6 alphanumeric characters)

(iv) Road Studs

Road Studs Class: (1, 2 or 3)

(v) Defects

Defect Code (4 alphanumeric characters)

Attribute (if appropriate): (Numeric between 0 and 999)

(e.g. area / length / number)

(vi) Decisions

Depending upon the nature of the defect, one or more of the following shall be recorded.

Action 1= Immediate (1, 2 or 3)

2= Temporary

3= Permanent

Action 1= Temporary (1 or 2)

2= Permanent

Action 1= Immediate (1 or 2)

2= Permanent

Is temporary repair being (Y or N)

undertaken at time of survey?

Is permanent repair being (Y or N)

undertaken at time of survey?

(vii) Action

The appropriate actions shall be recorded as follows:

Record Immediate Action Taken

Record Temporary Action Taken

Record Permanent Action Taken

Record recommended Temporary Action

Record Recommended Permanent Action

Treat Code (Optional): (/ followed by 3 alphanumeric characters)

Record Action: (Up to 40 alphanumeric characters)

3.3 Intervals and Frequencies

3.3.1 General

- (i) The following Tables 3.3.1 (a) to 3.3.1 (c) are a summary of the inspection intervals and frequencies that shall be set in the RMMF database.
- (ii) In a number of instances, the RMMF database shall define only a single inspection interval / frequency (e.g. 6 months for retention ponds) although two or more possible inspection frequencies may be given for that activity in the requirements, depending upon the specific circumstances. In these cases, the more onerous frequency shall be set within the RMMF.

Table 3.3.1(a) – Non Specialist Inspections

Activity Code	Text	Int or Freq	Inspection Interval/ Frequency	Local Variation Allowed	Cat 1 – Repair Time Allowed	
					Temp	Perm
MC	Minor carriageway repairs	Int	12 months		24 hrs	28 days
DM	Concrete minor c/way repairs	Int	12 months		24 hrs	28 days
FC	Pedestrian and cycle facilities	Int	12 months		24 hrs	28 days
CG	Covers and gratings	Int	12 months		24 hrs	28 days
KC	Kerb & channel	Int	12 months		24 hrs	28 days
PD	Piped drain	Int	12 months		24 hrs	28 days
GC	Gully/catchpit/interceptor	Int	12 months		24 hrs	28 days
PG	Piped Grip	Int	12 months		24 hrs	28 days
GP	Grip	Int	12 months	Y	24 hrs	28 days
DI	Ditch	Int	5 years	Y	24 hrs	28 days
FD	Filter / counterfort drain	Int	12 months		24 hrs	28 days
CV	Culvert	Int	6 months		24 hrs	28 days
RP	Retention ponds	Int	6 months		24 hrs	28 days
AI	Headwall / aprons etc.	Int	1 or 2 years		24 hrs	28 days
AS	Sluices / tidal flaps etc.	Int	6 months		24 hrs	28 days
AP	Pumps / special equipment	Int	As specified		24 hrs	28 days
FL	Flooding	Int	12 Months		N/A	N/A
FB	Road Restraint Systems metal / concrete	Int	2 years		24 hrs	28 days

Table 3.3.1(a) – Non Specialist Inspections

Activity Code	Text	Int or Freq	Inspection Interval/ Frequency	Local Variation Allowed	Cat 1 – Repair Time Allowed	
					Temp	Perm
BF	Barriers & fencing metal / conc	Int	2 years		24 hrs	28 days
BT	Barriers and fencing timber	Int	2 years		24 hrs	28 days
FN	Road Restraint Systems steel – tension	Int	2 years		24 hrs	28 days
SN	Snow gates	Int	12 months		N/A	N/A
GA	Grassed Areas	Int	12 Months		N/A	N/A
HT	Hedges & trees (Roads Auth)	Int	18 months		24 hrs	28 days
HN	Hedges & trees(Non Roads Auth)	Int	18 months		24 hrs	28 days
HX	Hedges & trees (soundness)	Int	18 months		24 hrs	28 days
RS	Road studs	Int	12 months		24 hrs	28 days
RC	Road studs conspicuity	Int	6 months		24 hrs	28 days
RM	Road Markings	Int	2 years		24 hrs	28 days
SG	Sign face / struct / fixing	Int	12 months		24 hrs	28 days
TS	Traffic signals	Int	6 months		24 hrs	28 days
LP	Lamp Columns	Int	12 months		24 hrs	28 days
LE	Road lighting (Electrical)	Int	12 months		24 hrs	28 days
SL	Road lighting (Lamps)	Int	12 months		24 hrs	14 days
CI	Motorway Communications Installations	Int	12 months		24 hrs	14 days
CX	Comms Equip. (Emgncy phones)	Int	14 days		N/A	N/A
CB	Comms Equip (Cable ducts)	Int	N/A		N/A	N/A

Table 3.3.1(a) – Non Specialist Inspections

Activity Code	Text	Int or Freq	Inspection Interval/ Frequency	Local Variation Allowed	Cat 1 – Repair Time Allowed	
					Temp	Perm
CS	Comms Equip (Matrix & signals)	Int	3 months		N/A	N/A
CF	Comms Equip (Bolts & hinges)	Int	12 months		N/A	N/A
CY	Comms Equip (M/way warning)	Int	12 months		N/A	N/A
CA	Comms Equip (Alignment)	Int	12 months		N/A	N/A
CE	Comms Equip (Electrical)	Int	N/A		N/A	N/A
CO	Comms Equip (Operations)	Int	N/A		N/A	N/A
EC	Embankments and cuttings	Int	12 months		24 hours	N/A
IS	Weather Stations	Int	6 months		N/A	N/A

Table 3.3.1(b) – Specialist Inspections

Activity Code	Text	Int or Freq	Inspection Interval/ Frequency	Local Variation Allowed	Cat 1 – Repair Time Allowed	
					Temp	Perm
RP	Retention Ponds – no outflow control		2 years	Y	24 hours	28 days
RP	Retention Ponds – outflow control		6 months	Y	24 hours	28 days
AS	Sluices / tidal flaps etc.		6 months		24 hours	28 days
AP	Pumps / special equipment		As recommended		24 hours	28 days
FN	Tension of safety fences		2 years		24 hours	28 days
HX	SE Hedges and trees: soundness		18 Months		24 hours	28 days
HN	Non SE Hedges and trees: soundness		18 Months		24 hours	28 days
RC	RS conspicuity (prohibitory)		2 Weeks or Monthly		24 hours	28 days
RC	RS conspicuity (warn & advisory)		2 Weeks or Monthly		24 hours	28 days
SR	Road markings skid resistance		2 years		24 hours	28 days
RR	Road markings retro-reflectivity		2 years		24 hours	28 days
SM	Signs : moving parts		12 months		24 hours	28 days
SE	Signs: electrics		12 months		24 hours	28 days
SV	Signs: visibility		12 months		24 hours	28 days
TM	TS: electro mechanical parts		6 months		24 hours	28 days
TE	TS: electrical		12 months		24 hours	28 days

Table 3.3.1(b) – Specialist Inspections

Activity Code	Text	Int or Freq	Inspection Interval/ Frequency	Local Variation Allowed	Cat 1 – Repair Time Allowed	
					Temp	Perm
LE	Lamp columns: electrical		12 months		24 hours	28 days
CB	Comms cabinet: electrical		N/A		N/A	N/A
CE	Comms cabinet: electrical		N/A		N/A	N/A
ES	Embankment / cutting condition		12 months		24 hours	28 days

Table 3.3.1(c) – Lamp Scout Inspections

Activity Code	Text	Int or Freq	Inspection Interval/ Frequency	Local Variation Allowed	Cat 1 – Repair Time Allowed	
					Temp	Perm
SS	Signs – lamp failure		14 days		2 hours	24 hours
SL	Lighting Column – lamp failure	Oct to Mar	14 days		2 hours	24 hours
		Apr to Sept	28 Days		2 hours	24 hours

3.4 Minor Carriageway Repairs – Flexible

3.4.1 The following inspection code relation to this activity:

Minor Carriageway Repairs MC

3.4.2 The following inventory items are applicable to this inspection activity:

Central Island CI
 Hard Shoulder HS
 Central Reserve CR
 Lay-by LB
 Carriageway CW

Crossover

XO

Note

3.4.3 Minor carriageway repairs do NOT relate to larger scale work needed to strengthen the carriageway or to work linked with structural maintenance, including surface dressing.

3.4.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Localised cracking Cracking confined to a discrete area of the Carriageway and not associated with structural maintenance activities	LOCK	area	m ²	1	200
Localised edge deterioration Cracking confined to a discrete area of the Carriageway and not associated with structural maintenance activities	LODT	Length	Metres	1	50
Surfacing joints Open or excessive joints	SRJT	Length	Metres	1	50
Cracking around ironwork	CKIR	Area	m ²	1	200
Patch – adjacent cracking	PACK	Area	m ²	1	200
Patch – loss of material (fretting)	PLMT	Area	m ²	1	200
Patch – difference in level Difference in level of a patch with the surrounding carriageway	PDLV	Area	m ²	1	200
Trench RI – adjacent cracking Cracking around reinstated trench	TACK	Area	m ²	1	200
Trench RI – loss of material Loss of material (fretting) from a reinstated trench	TLMT	Area	m ²	1	200
Trench RI – difference in level Difference in level between a reinstated trench and the surrounding carriageway	TDLV	Area	m ²	1	200
Pothole	POTH	Area	m ²	1	50
Single crack	CRCK	Area	m ²	1	50
Patch – material cracking Cracking of the material used for patching	PMCK	area	m ²	1	200
Trench R1 – material cracking Cracking of the material used to reinstate the trench	TMCK	Area	m ²	1	200
Blacktop fretting Loss of material from the carriageway surface	BFRT	Area	m ²	1	200

Description	Code	Attribute	Units	Min	Max
Other	OTHR				
None	NONE				

3.4.5 General Notes

- (i) Detailed Inspections shall only record those types of defect likely to require routine maintenance rather than to establish general structural condition.
- (ii) Some defects recorded may be repaired within structural maintenance work due to be carried out within the timescale of the Detailed Inspection frequencies.
- (iii) Where a large number of cracks occur within an area of the carriageway, a single entry provided a reasonable estimate of the length of cracking within that area shall be recorded.
- (iv) The Company shall pay particular attention to potholes and other localised carriageway defects since these often constitute an immediate or imminent hazard.
- (v) Where there shall be more than one inspection interval defined for this inspection activity in this Part of the O&M Works Requirements, the most onerous interval shall be set within the RMMF database and the Company shall ensure that the appropriate intervals for the individual items are established.

3.5 Minor Carriageway Repairs – Concrete

3.5.1 The following inspection code relates to this activity

Minor carriageway repairs – Concrete CM

3.5.2 The following inventory items are applicable to this inspection activity:

Central Island CI
 Hard Shoulder HS
 Central Reserve CR
 Lay-by LB
 Carriageway CW
 Crossover XO

3.5.3 Convention

- (i) Minor carriageway repairs do NOT relate to larger scale work needed to strengthen the carriageway or to work linked with structural maintenance including surface dressing.

3.5.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Joint seals	JTSL				
Shallow spalling at joints / cracks	SSPL				

Description	Code	Attribute	Units	Min	Max
Deep spalling at joints	DSPL				
Opening of Longitudinal joint	OLJT	Length	metres	1	100
Stepping at joint / crack	STEP				
Vertical movement under traffic	VMVT				
Evidence of pumping	EPMP				
Settlement / ponding	SETT	Area	m ²	1	250
Cracking	CRCK	Area	m ²	1	250
Failed overbanding / sealed cracks	OVSD				
Surface crazing	SRCZ	Area	m ²	1	100
Scaling	SCAL	Area	m ²	1	100
Miscellaneous surface Defects	MSRF	Area	m ²	1	100
Surface texture work	SRTX	Area	m ²	1	250
Initiate skid test	SKID	length	metres ²	1	30
Failed repair	RFAL				
Other	OTHR				
None	NONE				

3.5.5 General Notes (see also 5.3.1)

- (i) Detailed Inspections shall only record those types of defect likely to require routine maintenance rather than to establish general structural condition.
- (ii) Some defects recorded may be repaired within structural maintenance work due to be carried out within the timescale of the Detailed Inspection frequencies.
- (iii) Where there shall be more than one inspection interval defined for this inspection activity in this Part of these O&M Works Requirements. The most onerous interval shall be set within the RMMF database and it shall be intended that the available facility shall be utilised to ensure that the appropriate intervals for the individual items are established.

3.6 Pedestrian and Cycle facilities

3.6.1 The following inspection code relates to this activity:

Pedestrian and Cycle Facilities FC

3.6.2 The following inventory items are applicable to this inspection activity:

Footway FW

Cycle Facilities CT

3.6.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
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Description	Code	Attribute	Units	Min	Max
Standing Water	STWT	Length	metres	1	50
Slab profile – uneven/trips/gap>20mm	SLPF	Area	m ²	1	200
Slab cracking	SLCK	Area	m ²	1	200
Slab rocking	SROK	Area	m ²	1	200
Block profile	BKPF	Area	m ²	1	200
Black top – potholes>25mm	BPOT	Area	m ²	1	200
Black top – local cracking. Cracking confined to a discrete area of the footway / cycle track	BLCK	Area	m ²	1	200
Black top – extensive cracking. Cracking affecting the major part of a footway / cycle facility	BECK	Area	m ²	1	500
Black top – fretting Loss of material from the footway / cycle facility surface	BFRT	Area	m ²	1	200
Failed patch – adjacent cracking	FPCK	Area	m ²	1	200
Failed patch – loss of material Loss of material (fretting) from an existing area of patching	FLMT	Area	m ²	1	200
Failed patch – difference in level	FDLV	Area	m ²	1	200
Overgrown by vegetation	OVGV	Length	metres	1	100
Trench RI – adjacent cracking Cracking around a reinstated trench	RACK	Area	m ²	1	200
Trench RI – loss of material Loss of material (fretting) from a reinstated trench	RLMT	Area	m ²	1	200
Trench RI – difference in level	RDLV	Area	m ²	1	200
Other	OTHR				
None	NONE				

3.6.4 Notes on Defects

- i) BKPF Includes ridges, projections, sharp edges (trips), cracks and gaps which are greater than 20 millimetres.
- ii) DPOT Includes potholes and small area depressions greater than 25 millimetres in depth which are creating a hazard.
- iii) FDLV Includes ridges, projections, sharp edges (trips), cracks and gaps which are greater than 20 millimetres and also depressions greater than 25 millimetres in depth which are creating a hazard.

- iv) SLCK Cracked slabs shall not be replaced as a routine maintenance operation unless there shall be a need to reset the slab because of some other defect.
- v) RDLV Applies when a trench has subsided or has been left proud following reinstatement and includes ridges, projections, sharp edges (trips), cracks and gaps which are greater than 20 millimetres and also depressions greater than 25 millimetres in depth which are creating a hazard.

3.6.5 General Notes

- (i) When interpreting defects recorded during an inspection survey, the Company shall differentiate between those relating to routine maintenance and those applicable to structural maintenance.
- (ii) Correction of defects arising from the activities of Undertakers shall not be charged to the owner if they are still within the timescale of the 1991 Act.
- (iii) The Company shall pay particular consideration to defects, such as trips, which may constitute an immediate danger to non motorised Users.
- (iv) Where there shall be more than one inspection interval defined for this inspection activity in this Part of these O&M Works Requirements, the most onerous interval shall be set within the RMMF database and the Company shall ensure that the appropriate intervals for the individual items are established.

3.7 Covers, Gratings, Frames and Boxes

3.7.1 The following inspection code relates to this activity:

Covers, Gratings, Frames and Boxes CG

3.7.2 The following inventory items are applicable to this inspection activity:

Catchpit	CP
Manhole	MH
Gully	GY
Piped Grip	PG
Interceptor	IN

3.7.3 Definition

This section relates to the repairs to and replacement of (where necessary) all types of covers, gratings, frames and boxes which are the responsibility of the Relevant Authorities.

3.7.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Difference in level with road. Differential levels between items and abutting carriageway, footway or cycle track surface exceeding 20 millimetres.	IDLV				

Description	Code	Attribute	Units	Min	Max
Difference in components levels. Differential levels between different components exceeding 20 millimetres.	ICLV				
Rocking under load	IRLD				
Cracked or broken	IBCK				
Missing	MISS				
Parallel gratings	PARL				
Smooth surface	SMTH				
Blockage. Applies to surface water catchment items.	BLOK	Percentage	Per cent	1	100
Seized	SIEZ	Percentage	Per cent	1	100
Other	OTHR				
None	NONE				

3.7.5 Notes on Defects

- i) MISS Attention shall be paid to missing items, which are likely to constitute a hazard.
- ii) PARL Gullies and other gratings in carriageways and cycle tracks which have gaps more than 20 millimetres wide parallel to the normal line of movement of pedal and motor cycles shall be classed as defects.
- iii) SMTH Worn covers which may cause pedal motor cycle Users to skid in wet conditions shall generally be considered to constitute an immediate hazard.

3.7.6 General Notes

- (i) The Company shall not ignore covers situated in verges which are not traversed by pedestrians.
- (ii) The majority of covers in carriageways, footways and cycle tracks are the responsibility of the public utilities and other parties. Hazardous defects shall be coned and /or temporarily repaired and the owners notified. If permanent repairs are not then carried out in the appropriate time by the owners, the Company shall carry them out and recover the costs from the owners.

3.8 Kerbs, Edgings and Pre-formed Channels

3.8.1 The following inspection code relates to this activity:

Kerbs, Edgings and Pre-formed Channels: KC

3.8.2 The following inventory items are applicable to this inspection activity:

Channel CH

Kerb KC

3.8.3 Definition

This section relates to the repairs to and replacement of (where necessary) all types of covers, gratings, frames and boxes which are the responsibility of the Contracting Authority.

3.8.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Vertical projection > 20 millimetres Vertical projections greater than 20mm.	EVPJ	Length	metres	1	50
Horizontal projection > 50 millimetres Horizontal projections greater than 50mm	EHPJ	Length	metres	1	50
Loose / rocking	ELRK	Length	metres	1	50
Damaged	DAMG	Length	metres	1	50
Channel block alignment	CHAL	Length	metres	1	50
Missing	MISS	Length	metres	1	50
Impeded water flow (detritus).	IMWF	Length	metres	1	50
Weed growth	WEED	Length	metres	1	100
Other	OTHR				
None	NONE				

3.8.5 Notes on Defects

- a) ELRK Loose or rocking items which are creating or are likely to create a hazard
- b) DAMG Damaged or shattered items which are creating or are likely to create a hazard or led to loss of support or protection.
- c) CHAL Poor local alignment of pre-formed channels which could give rise to danger or nuisance from standing water or damage to the road structure caused by water penetration.
- d) IMWF Detritus at the edge of the carriageway preventing over edge run-off and / or flow along the channel which could give rise to danger or nuisance from standing water or damage to the road structure by water penetration.
- e) WEED Vegetation growth at the edge of the carriageway preventing over-edge run-off and/or flow along the channel which could give rise to danger or nuisance from standing water or damage to the road structure by water penetration.

3.8.6 General Notes

- (i) Where there shall be more than one inspection interval defined for this inspection activity in this Part of these O&M Works

Requirements, the most onerous interval shall be set within the RMMF database and the Company shall ensure that the appropriate intervals for the individual items are established.

3.9 Piped Drainage Systems

3.9.1 The following inspection code relates to this activity:

Piped Drainage Systems PD

3.9.2 The following inventory items are applicable to this inspection activity;

Counterfort Drain CD

Gully GY

Filter Drain FD

Piped Grip PG

3.9.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Blockage	BLOK	Length	metres	1	100
Other malfunction	OMAL				
Flooding	FLOD	Area	m ²	1	500
Drainage damage to road / verge	DRRD	Length	metres	1	100
Flood nuisance to properties	NPRP				
Flood nuisance to services	NSER				
Silted	SILT	Length	metres	1	100
Roots present	ROOT				
Cracking	CRCK	Area	m ²	1	200
Deformation	DEFM	Percentage	Per cent	1	100
Collapsed	COLP				
Alignment irregular	LINE				
Standing water	STWT	Length	metres	1	100
Scour	SCOR				
Other	OTHR				
None	NONE				

3.9.4 General Notes

- (i) The Company shall make maximum use of emptying and cleansing operations to check that piped drainage systems are operating satisfactorily.
- (ii) Symptoms of blockage or fault which shall normally prompt a Detailed Inspection are, backing up and flooding at the entry points to the system, dry outfalls, wet areas and the presence of lush vegetation.

- (iii) The Company shall determine the ownership of the drainage system before any work shall be carried out.

3.10 Gullies, Catchpits and Interceptors

- 3.10.1 The following inspection code relates to this activity:

Gullies, Catchpits and Interceptors GC

- 3.10.2 The following inventory items are applicable to this inspection activity:

Catchpit CP

Interceptor IN

Gully GY

- 3.10.3 Definition

This section relates to the removal of detritus and other substances from all traps of all types of road gullies, catchpits and interceptors and the inspection of them and their operation.

- 3.10.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Damaged	DAMG				
Collapsed	COLP				
Silted	SILT	Length	metres	1	100
Blockage	BLOK	Percentage	Per cent	1	100
Shaft defective	SHFT				
Chamber / benching / pot defective	CHAM				
Invert / sump defective	INVT				
Ancillaries defective	ANCS				
Other	OTHR				
None	NONE				

- 3.10.5 General Notes

- (i) This section does NOT relate to ironwork associated with gullies, catchpits and interceptors. Ironwork shall be considered in Section 5.6 of this Appendix (Covers, Gratings, Frames and Boxes).

3.11 Piped grips

- 3.11.1 The following inspection code relates to this activity:

Piped Grips PG

- 3.11.2 The following inventory item shall be applicable to this inspection activity:

Piped Grip PG

- 3.11.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Blockage	BLOK	Percentage	Per cent	1	100
Detritus / Refuse. Presence of detritus likely to impede the function of the piped grip	DETR				
Broken	BROK				
Other	OTHR				
None	NONE				

3.11.4 General Notes

- (i) Gratings where fitted shall be dealt with under Section 5.6 of this Appendix (Covers, Gratings, Frames and Boxes.)

3.12 Grips

3.12.1 The following inspection code relates to this activity:

Grips GP

3.12.2 The following inventory item shall be applicable to this inspection activity:

Grip GP

3.12.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Weed growth	WEED	Length	metres	1	100
Detritus / Refuse. Presence of detritus within a grip	DETR				
Blockage	BLOK	Percentage	Per cent	1	100
Flooding	FLOD	Area	m ²	1	500
Other	OTHR				
None	NONE				

3.13 Ditches

3.13.1 The following inspection code relates to this activity:

Ditches DI

3.13.2 The following inventory item shall be applicable to this inspection activity:

Ditch DI

3.13.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Weed growth	WEED	Length	metres	1	100
Collapsed bank	CLBK	Length	metres	1	100

Culvert

CV

3.15.3 Definition

This section relates only to the maintenance of free flow of water through culverts and small span bridges with spans or diameters between 2 and 3 metres inclusive, multi-cell culverts where the cumulative span or diameter shall be less than 5 metres and corrugated metal structures 0.9 metres or more on span not falling within the scope of BD63 of the DMRB.

3.15.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Scour	SCOR				
Free flow impeded. Inadequate flow of water through the culvert.	FRFL				
Silted	SILT	Length	metres	1	100
Roots present	ROOT				
Cracking	CRCK	Area	m ²	1	200
Deformation	DEFM	Percentage	Per cent	1	100
Collapsed	COLP				
Alignment irregular	LINE				
Standing water	STWT	Length	metres	1	100
Other	OTHR				
None	NONE				

3.15.5 General Notes

- (i) Smaller culverts are generally short lengths of pipe which are treated as piped drainage systems.
- (ii) Larger culverts shall be maintained as Structures and are outside the scope of the RMMF. See paragraph 2.5.8 to Part 2 of these O&M Works Requirements.

3.16 Settlement, Attenuation and Storage Ponds and Otherwise

3.16.1 The following inspection code relates to this activity:

Settlement, Attenuation and Storage Ponds
and Otherwise BP (specialist)

3.16.2 The following inventory item shall be applicable to this inspection activity:

Settlement, Attenuation and Storage Ponds and Otherwise
BP

3.16.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Function outfall regulating device. Damage or obstruction to the pond	OUTF				

outlet which will affect the controlled rate of discharge.					
Blockage of inlet Blockage of feeder pipe or ditch.	INLT				
Blockage of outlet Blockage of outlet pipe or ditch	OUTL				
Silted Silt in the pond causing a loss of storage capacity.	SILT	Length	metres	1	100
Erosion of banks / walls / bunds. Damage or erosion to the pond banks, walls, bunds.	ERSN				
Surcharge Excess water overflowing from the settlement, attenuation and storage ponds and otherwise	SURC				
Other	OTHR				
None	NONE				

3.16.4 General Notes

- (i) Settlement, attenuation and storage ponds and otherwise may sometimes be situated some distance from the road.
- (ii) Where there shall be more than one inspection interval defined for this inspection activity in this Part of these O&M Works Requirements, the most onerous interval shall be set within the RMMF database and the Company shall ensure that the appropriate intervals for the individual items are established.

3.17 Ancillary Items

3.17.1 The following inspection codes relate to this activity:

Headwalls and Aprons	AI
Sluices and Tidal Flaps	AS (Specialist)
Pumps and Specialised Equipment	AP (Specialist)

3.17.2 There are no inventory items applicable to this inspection activity:

Settlement, Attenuation and Storage Ponds and Otherwise - BP

3.17.3 Definition

This section includes headwalls, aprons, sluices, tidal flaps and pumps.

3.17.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Pump malfunction	PUMP				
Sluice malfunction	SLUI				

Tidal flap malfunction	TIDL				
Headwall / apron condition	HAFL				
Trash screen blocked	TRSH				
Penstock malfunction	PSTK				
Other	OTHR				
None	NONE				

3.17.5 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Pump malfunction	PUMP				
Sluice malfunction	SLUI				
Penstock malfunction	PSTK				
Other	OTHR				
None	NONE				

3.17.6 General Notes

- (i) The Company shall maintain a schedule of ancillary items, including all sluices, tidal flaps and pumps.

3.18 Flooding

3.18.1 The following inspection codes relates to this activity:

Flooding FL

3.18.2 The following inventory items are applicable to this inspection activity:

Settlement, Attenuation and Storage Ponds and Otherwise BP

Filter Drain FD

Counterfort Drain CD

Grip GP

Channel CH

Gully GY

Catchpit CP

Interceptor IN

Culvert CV

Manhole MH

Ditch DI

Piped Grip PG

3.18.3 Definition

Flooding of the Project Roads caused by the inadequate provision or operation of the road drainage facilities.

3.18.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Flooding	FLOD	Area	m ²	1	500
		Cause	Characters	1	40
Other	OTHR				

None	NONE				
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3.18.5 General Notes

- (i) The cause of flooding shall be ascertained by the Company and if necessary proposals for action submitted to the Contracting Authority.
- (ii) Particular attention shall be paid to areas where excessive water shall be standing on the carriageway or where water shall be discharging onto and / or flowing across the Project Roads, causing an immediate or imminent hazard.

3.19 Traffic Scotland and Miscellaneous Equipment

3.19.1 The following inspection codes relates to the activity Traffic Scotland and miscellaneous equipment:

Hardware	CI [CC,SG,TB]
Emergency phones	CX [CC,TB]
Alignment	CA[CC]
Transmission Stations	CZ[CC]
Cable Ducts CB (Specialist)	CC,[TB,SG]
Electrical CE (Specialist)	CC,[TB,SG]
Bolts & Hinges	CF [CC,TB,SG]
Operations	CO [CC,TB,SG]
Matrix Signs	CS [SG]
M/way Warning O&M Works Site	CY [SG]

3.19.2 The following inventory items are applicable to this inspection activity:

Traffic Scotland Cabinet	CC
Emergency Telephone Box	TB
Signs	SG

3.19.3 Definition

This section includes telephones, matrix signals, loop detectors, surveillance equipment, cabinets, power distribution equipment, cables and ancillary equipment. It does NOT include specialised electrical / electronic plant.

3.19.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Not watertight Housing or surroundings are not watertight.	WTGT				
Damaged	DAMG				
Difficult access to cabinet / security	ACES				

impaired.					
Physical condition of cabinet	PHCD				
Breakdown / poor communications.	BCOM				
Illegibility of Identity numbers	VISN				
Impaired visibility	VISA				
Inadequately drained	INDR				
Other	OTHR				
None	NONE				

3.19.5 General Notes

- (i) The Company shall categorise defective Traffic Scotland Maintained Equipment which shall be either by its condition or lack of operation constitutes an immediate or imminent hazard as a Category 1 Defect.

3.20 Embankments and Cuttings

3.20.1 The following inspection codes relates to this activity:

Embankments and Cuttings: EC

Embankments and Cuttings: ES (Specialist)

3.20.2 The following inventory item shall be applicable to this inspection activity:

Embankments and Cuttings: EC

3.20.3 Definition

This section relates to the slippage of the material within an embankment or cutting or surface sliding of material down an embankment or cutting.

3.20.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Slip (non-rock) Deep seated slippage of the material within an embankment or cutting as typified by the "classic" slip circle..	SLIP	Length	metres	1	50
Slide (non-rock) Surface sliding of material down an embankment or cutting.	SLID	Length	metres	1	50
Rock slide	RSLI	Length	metres	1	50
Seepage	SEEP	Length	metres	1	50
Inadequately drained	INDR	Length	metres	1	50
Foundation failure	FOUN	Length	metres	1	50
Other	OTHR				
None	NONE				

3.21 Grassed Areas

3.21.1 The following inspection code relates to this activity

Grassed Areas: GA

3.21.2 The following inventory items are applicable to this inspection activity:

Central Island CI

Embankment and Cuttings EC

Central Reserve CR

Verge VG

3.21.3 Definition

This section relates to the maintenance of grassed verges, central reserves, roundabout islands and cutting and embankment slopes.

3.21.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Inadequate visibility	IVIS	Length	metres	1	200
		Area	m ²	1	500
Risk to pedestrians	RPED	Length	metres	1	50
Overgrown footway / carriageway	OVER	Length	metres	1	50
Injurious weeds	IWED	Area	m ²	1	50
Other	OTHR				
None	NONE				

3.22 Hedges and Trees

3.22.1 The following inspection codes relates to this activity:

General HT [HG,TR]

(O&M Works Site): Soundness HN (Specialist) [HG,TR]

(Non-O&M Works Site): Soundness HX (Specialist [HG,TR]

3.22.2 The following inventory item shall be applicable to this inspection activity:

Hedge HG

Tree TR

3.22.3 Definition

This section relates to the maintenance of hedges and trees which are the responsibility of the Relevant Authorities or which, although the responsibility of others are causing nuisance or obstruction to the Project Roads.

3.22.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Unstable	UNST				

Accidental or other damage results in an unstable tree / branch					
Dead tree	DTRE	Height	metres	1	25
Dying / diseased tree Any sign of wilting or die-back	DYTR	Height	metres	1	25
Dying / dead branch	DBRA	Length	metres	1	25
		Height	metres	1	25
Obstructed sightline	OBSL				
Obstructed sign / lighting point etc.	OBSN				
Hedges not stockproof	HNST	Length	metres	1	50
Initiate specialist inspection	INSI				
Overhanging / overgrown Branches / trees overgrown or overgrowing onto the carriageway	OVER	Length	metres	1	25
		Height	metres	1	25
Other	OTHR				
None	NONE				

3.22.5 Notes on Defects

- (i) INSI Specialist inspection of hedges and trees shall normally be carried out during a normal Detailed Inspection, but shall meet the requirements of paragraph 2.8 to Part 2 of these O&M Works Requirements.

3.22.6 General Notes

- (i) Any defects associated with dead or dying trees / branches or diseased trees shall be referred by the Company to a qualified landscape architect or other competent person.
- (ii) The Company shall pay particular attention to trees, shrubs and hedge, which by virtue of their position or condition constitute a hazard to road Users.

3.23 Sweeping and Cleansing

3.23.1 The following inspection code relates to this activity:

Sweeping and Cleansing SC

3.23.2 The following inventory items are applicable to this inspection activity:

Channel CH
Footway FW
Central Island CI
Hard Shoulder HS
Central Reserve CR
Lay-By LB
Cycle Track CT

Verge	VG
Carriageway	CW
Crossover	XO
Embankments and Cuttings	EC
Kerb	KB

3.23.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Litter Grade C	LITC	Area	m ²	1	500
Litter Grade D	LITD	Area	m ²	1	500
Excessive muck Need for sweeping / cleansing in Road channels, Motorway hard shoulders, traffic Lanes, central reserves, footways and cycle facilities.	MUCK	Length	metres	0	500
		Area	m ²	1	500
Need for herbicide Growth of grass or other vegetation between the channel and kerb which shall be likely to obstruct the flow of water or cause structural deterioration	HERB	Length	metres	0	200
		Area	m ²	1	200
Debris in traffic Lane	DBTL	Length	metres	0	200
		Area	m ²	1	500
Debris in hard shoulder	DBHS	Length	metres	0	200
		Area	m ²	1	500
Other	OTHR				
None	NONE				

3.23.4 General Notes

- (i) The Company shall not carry out Detailed Inspections but shall report on the basis of regular Safety Inspections

3.23.5 The four levels of cleanliness are detailed below:

- (i) Grade A: no litter or refuse
- (ii) Grade B: area predominately free, apart from small items such as cigarette ends and ring pulls.
- (iii) Grade C: widespread distribution of small items (as Grade B) and larger items including beverage containers, fast food packs, animal faeces etc
- (iv) Grade D: heavily littered with small and large items, with accumulations along edges

On the O&M Works Site the Company shall achieve, after cleaning, the following levels of cleanliness, Grade A (paved areas) and Grade B

(verges).

3.24 Road Restraint Systems, Fencing and Other Barriers

3.24.1 The following inspection codes relate to the activity road restraint systems, fencing and other barriers:

Boundary Fences: Metal / Concrete	BF [FB, PR, RW]
Boundary Fences: Timber	BT [FB, PR, RW]
Road Restraint Systems: Metal Concrete	FB [SF, PR, RW]
Road Restraint Systems: Steel – Tension	FN (Specialist) [SF]
Snow Gates:	SN

3.24.2 The following inventory items are applicable to this inspection activity:

Fences and Barriers	FB
Retaining Wall	RW
Road Restraint Systems (Pedestrian)	PR
Road Restraint System (Vehicular)	SF
Traffic Control Barrier	CB

3.24.3 Definition

All types of boundary fences and walls, anti-glare screen fences, noise barriers, snow gates, road restraint systems (vehicular and pedestrian) and other barriers. Does NOT include parapets and guard rails on bridges and other Structures or the structural elements of noise barriers.

3.24.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Rotten – wood fence	RWDF	Length	metres	1	50
Rotten – wood post (fence / barrier)	RWDP				
Corroded – metal (fence / barrier)	CMTF	Length	metres	1	50
Corroded - metal post (fence / barrier)	CMTF				
Corroded – concrete fence	CCTF	Length	metres	1	50
Corroded – concrete post	CCTP				
Missing – section of fence / barrier	MISS	Length	metres	1	50
Accident damage	ACCD	Length	metres	1	100
		Height	metres	1	25
Damaged / deformed – fence / barrier	DAMM	Length	metres	1	50
Loose panel	LOSP	Number			
Loose anchor	LOSA	Number			
Loose bolt	LOSB	Number			
Loose tension bolt	CORT	Length	metres	1	50
Incorrect or no tension(metal fence)	NTEN	Length	metres	1	50
No stockproof	NSTK	Length	metres	1	50

Road restraint system (vehicular) – too high	SBTH	Length	metres	1	999
		Height	metres	0	
Road restraint system (vehicular) – too low	SBTL	Length	metres	1	999
		Height	millimetres	0	
Snow Gate – mechanical fault	SNGA				
Other	OTHR				
None	NONE				

3.24.5 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Loose tension bolts	LTEN				
Incorrect tension	CORT				
Other	OTHR				
None	NONE				

3.24.6 General Notes

- (i) Whilst undertaking the specialist inspection activity FN, the Company shall reset the tension of all loose bolts.

3.25 Fences, Walls, Screens and Environmental Barriers

- 3.25.1 All types of boundary fences and walls, anti-glare screen fences, noise barriers, etc. are included under paragraph 3.24 of this Appendix (Road Restraint Systems, Fencing and Other Barriers).

3.26 Road Studs

- 3.26.1 The following inspection codes relate to this activity:

General	RS
Conspicuity	RS (Specialist)

- 3.26.2 The following inventory items are applicable to this inspection activity:

Road stud	RS
-----------	----

3.26.3 Definition

This section relates to reflective and non-reflective road studs of all types and colours including depressible road studs

3.26.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Loose “catseye” casing	LCAS	Number		1	50
Loose “catseye”rubber	LCAR	Number		1	50
Loose studs	LSTD	Number		1	50

Initiate conspicuity test – “catseye”	REFC				
Initiate conspicuity test – stud	REFS				
Damages “catseye”	DAMC	Number		1	50
Damaged stud	DAMS	Number		1	50
Missing “catseye”	MISC	Number		1	50
Missing stud	MISS	Number		1	50
Perished rubber	PRUB	Number		1	50
Missing reflector	MISR	Number		1	50
Other	OTHR				
None	NONE				

3.26.5 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Conspicuity “catseye” test failure	REFF	Number		0	50
Conspicuity stud test failure	REFT	Number		0	50
Other	OTHR				
None	NONE				

3.26.6 Notes on Defects

- (i) REFC and REFS - Measurement of road stud conspicuity shall not normally be carried out at the time of normal inspections. This code shall be used to indicate the need for a specialist inspection.

3.26.7 General Notes

- (i) The Company shall immediately remove displaced road studs lying on the carriageway, hard shoulder or in lay-bys.
- (ii) The Company shall immediately remove loose road studs.
- (iii) All depressible road studs shall be considered as “cats eyes” for inspection purposes.

3.27 The following inspection codes relate to this activity:

Road Markings: RM[PX, RM, RF, LH, LL]

Road Markings: (skid resistance) SR(Specialist)

Road Markings: (reflectivity) RR(Specialist)

3.27.1 The following inventory items are applicable to this inspection activity:

Pedestrian Crossing PX

Reference Marker Point RF

Transverse and Special RM

Hatched Road Markings LH

Road Markings

Longitudinal Road Markings

LL

3.27.2 Definition

This section relates to all road markings in thermoplastic materials.

3.27.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Wear (e.g. erosion)	WEAR	Length	metres	1	999
		% remaining	Per cent	1	100
Spread	SPRD	Length	metres	1	30
		% of original	Per cent	1	100
Colour	COLR	Length	metres	1	100
		Percentage	Per cent	1	100
Initiate skid test	SKID	Length	metres	1	30
Initiate retro-reflectivity measurement	RETR	Length	metres	1	100
Missing node marker	MIRF				
Other	OTHR				
None	NONE				

3.27.4 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Skid resistance test failure	SKIT	Length	metres	1	30
		SRV		0	99
Retro-reflectivity test failure	RETT	Length	metres	0	30
Other	OTHR				
None	NONE				

3.27.5 Notes on Defects

- (i) WEAR - The Company shall take action when % remaining shall be less than 70%.
- (ii) SP - The Company shall take action when spread exceeds +10% of original dimension.
- (iii) COLR - Thermoplastic markings shall have a luminance factor greater than 45%.
- (iv) SKID - Measurement of skid resistance shall not normally be carried out at the time of an inspection. This code shall be used to initiate a

test.

(v) RETR - Measurements of retro-reflectivity shall not normally be carried out during normal inspections. This code shall be used to indicate the need for specialist inspection.

(vi) SKIT - Skidding resistance measurements.

3.27.6 General Notes

(i) The appropriate values of wear, spread, colour and retro-reflectivity can be estimated by visual inspection or measured.

3.28 Road Traffic Signs

3.28.1 The following inspection codes relate to this activity:

Face/structure/fixings	SG	[SG]
Lamp Failures	SV (Specialist)	[SG]
Visibility Inspection	SS (Specialist)	[SG]
Moving Parts	SM (Specialist)	[SG]
Electrical	Se (Specialist)	[SB,SG]

3.28.2 The following inventory items are applicable to this inspection activity:

Reference Marker Point	RF
Sign	SG
Safety Bollard	SB

3.28.3 Definition

This section relates to all road traffic signs including permanent bollards

3.28.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Initiate target distance measurement	TRGD				
Initiate legibility distance measurement	LEGD				
Initiate surface luminance check	SFLM				
Initiate surface colour check	SFCL				
Physical condition of fittings	COFT				
Physical condition of frame	COFR				
Physical condition of post	COPT				
Lamp on during day	LPON				
Lamp failure	LAMP				
Moving part malfunction Refers to moving parts of secret and variable message signs	MOVP				
Electrical condition	COEL				
Exposed wiring	EXPW				

Description	Code	Attribute	Units	Min	Max
Surface corrosion	SFCO				
Accident damage	ACCD				
Loss of surface /paint covering	LOPT				
Obscured sign	OBSG				
Dirty sign	DIRT				
Missing	MISS				
Damaged <i>Damage other than accident damage</i>	DAMG				
Pointing wrong way	RWAY				
Other	OTHR				
None	NONE				

3.28.5 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Target distance test failure	TRGT	Length	metres	0	200
Legibility distance test failure	LEGF	Length	metres	0	200
Surface luminance test failure <i>Inadequate retro-reflectivity</i>	SFLN				
Surface colour test failure	SFCT				
Lamp failure	LAMP				
Moving part malfunction Refers to moving parts of secret and variable message signs.	MOVP				
PECU failure	PECU				
Timeswitch failure	TMSW				
No electricity supply	NOSP				
No fuse	FUSE				
Electrical condition	COEL				
Exposed wiring	EXPW				
Other	OTHR				
None	NONE				

3.28.6 General Notes

- (i) Measurements of target distance (TRGT), legibility distance (LEGD), surface luminance (SFLM and surface colour (SFCL) shall not normally be made at the time of inspection. These codes shall therefore only be used to initiate these tests.

- (ii) The Company shall treat missing cylinders from emergency crossings as Category 1 Defects.
- (iii) The Company shall pay particular attention to damaged, defective, displaced or missing traffic signs, as, depending on the sign category and nature of the defect, these defects may constitute an immediate hazard.
- (iv) The Company shall pay particular attention to dirty or obscured traffic signs which constitute an immediate hazard and shall be treated as Category 1 Defects.

3.29 Road Traffic Signals

3.29.1 The following inspection codes relate to this activity:

Hardware	TS [DL,TS]
TSC and AUX equipment	TA (Specialist)[CC,TS]
Electro-Mechanical Parts	TM (Specialist)[TS]
Electrical	TE(Specialist)[CC,DL,TS]

3.29.2 The following inventory items are applicable to this inspection activity:

Communication Cabinet	CC
Traffic signal	TS
Detector Loop	DL

3.29.3 Definition

This section relates to the routine maintenance of permanent traffic signals at junctions or outside emergency vehicle stations and at controlled pedestrian crossings.

3.29.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Equipment wiring and earth condition	EQWE				
Equipment cabinet condition	EQCB				
Condition of base seals	CBSL				
Presence of gas	PGAS				
Hardware physical conditions	HPCD				
Condition of buttons / detectors	CBDT				
Condition of regulatory signs / illumination Condition of regulatory signs associated with traffic signals and the condition of their illumination	CRSI				
Condition of pole wiring / earth	CPWE				
Alignment or obscuration Alignment, cleanliness and visibility of signal heads	ALOB				
Condition of loop / feeder	CLOF				
Audible circuit failure	AUDC				
Damaged	DAMG				
Signals stuck	STUK				

Description	Code	Attribute	Units	Min	Max
Lamp failure	LAMP				
Counter / loop damaged	CDAM				
Condition poles / caps / heads / boards	PLCD				
No data sheets	NDTA				
Difficult access to cabinet	ACES				
Faulty mast arm assembly	MAST				
Other	OTHR				
None	NONE				

3.29.5 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Equipment wiring and earth condition	EQWE				
Condition of pole wiring / earth	CPWE				
No fuse	FUSE				
Audible circuit failure	AUDC				
No electricity supply	NOSP				
Controller failure	NOOP				
Speed assessment equipment failure	SPED				
Dimming unit failure	LDIM				
Phase times incorrect	TIME				
Red lamp monitor circuit failure	RLMC				
Link failure	LINK				
WAIT lamp failure	WAIT				
Push button failure	PUSH				
Other	OTHR				
None	NONE				

3.29.6 General Notes

- (i) The Company shall pay particular attention to damaged, defective, displaced or missing traffic signals, which will constitute a Category 1 Defect.
- (ii) The Company shall treat dirty or obscured signals as a Category 1 Defect.

3.30 Road Lighting

3.30.1 The following inspection codes relate to this activity:

Columns	LP
Lamp Failures	SL
Electrical	LE (Specialist)

3.30.2 The following inventory item shall be applicable to this inspection activity:

Lighting Point LP

3.30.3 Definition

This section relates to the routine maintenance of road lighting installations

3.30.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Lighting failure	LAMP				
Photo-electric circuit failure	PECU				
Lamp on during the day	LPON				
Time switch failure	TMSW				
Electrical condition	ELCN				
Wiring deterioration	WDET				
Exposed wiring	EXPW				
Corrosion of columns	CCOR				
Need for tree pruning	NTPR				
Missing (door / lamp / bowl)	MISP	Number		1	50
Damage post / column Damage to post or column other than accident damage	DAMG				
Loss of surface paint / coating	LOPT				
Obscured lamp	OBLP				
Accident damage	ACCD				
Physical condition of fittings	COFT				
No electrical supply	NOSP				
Other	OTHR				
None	NONE				

3.30.5 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Lighting failure	LAMP				
PECU failure Photo-electric circuit failure	PECU				
Time switch failure	TMSW				
Wiring deterioration	WDET				
No electrical supply	NOSP				
No fuse	FUSE				

Other	OTHR				
None	NONE				

3.30.6 General Notes

- (i) The Company shall pay particular attention to damaged or defective lighting equipment which shall often constitute a Category 1 Defect.

3.31 Weather Stations

3.31.1 The following inspection codes relate to this activity:

- Cabinets, Poles etc. IC
- Electronic equipment IE (Specialist)

3.31.2 The following inventory item shall be applicable to this inspection activity:

- Weather Stations: IS

3.31.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Road sensor failure	ROSE				
Other sensor failure	OTSE				
Damage to cabinets	DAMG				
Other	OTHR				
None	NONE				

3.31.4 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Road sensor failure	ROSE				
Other sensor failure	OTSE				
Processor failure	PROC				
Other	OTHR				
None	NONE				

3.31.5 General Notes

- (i) The Company shall recalibrate the weather station equipment using specialist sub-contractors during the months of September and January each year.

4 Notes for Guidance

4.1 Category 1 Defects

4.1.1 The following defects are examples of the type which shall be reported if they represent an immediate or imminent hazard and constitute a Category 1 Defect. The list shall not be regarded as exhaustive:

- (i) potholes and other local defects in the carriageway, including defective ironware, abrupt level differences and edge deterioration;
- (ii) excessive standing water and water discharging on to and/or flowing across the road;
- (iii) damaged safety fences, parapet fencing and other barriers;
- (iv) debris and spillage in traffic Lanes or on hardshoulders;
- (v) kerbing, edging and channel defects;
- (vi) damaged lighting columns and other street furniture;
- (vii) damaged, defective, displaced or missing traffic signs or signals;
- (viii) dirty or otherwise obscured traffic signs and signals;
- (ix) trees, shrubs, grassed areas and hedges which by virtue of their position in visibility splays and other locations or their condition constitute a hazard to road Users;
- (x) defective, missing, loose or displaced road studs (particularly the "Cats eye" type) lying in the carriageway, hardshoulder or lay-bys;
- (xi) faults in Structures e.g. impact damage to superstructures, supports or parapets, flood damage, insecure expansion joint parts;
- (xii) difference in level between abutting concrete slabs at transverse or longitudinal joints;
- (xiii) rocking gratings or covers in urban areas causing intrusive noise;
- (xiv) damaged boundary fences where animals or children could gain access;
- (xv) dead animals;
- (xvi) defective road and sign lighting;
- (xvii) overhead wires in a dangerous condition;
- (xviii) vandalism particularly if electrical consequences;
- (xix) blocked gully and piped grip gratings and obstructed channels, grips and slot drains;
- (xx) earthslips where debris has encroached or shall be likely to encroach on to the road;
- (xxi) rock or rock faces constituting a hazard to road Users;
- (xxii) TD26 of the DMRB Category 1 criteria for road markings;
- (xxiii) TD25 of the DMRB Category 1 criteria for traffic signs;
- (xxiv) TD24 of the DMRB Category 1 criteria for traffic signals;
- (xxv) TD23 of the DMRB Category 1 criteria for road lighting;

- (xxvi) failure of road sensors during the Winter Service Period;
- (xxvii) empty grit bins during the Winter Service Period; and
- (xxviii) any missing or damaged reference marker or network node marker used to reference and record Routine Maintenance and Quality System data.

APPENDIX B

WEATHER FORECAST AND ROAD CONDITION STATUS, REQUIREMENTS FOR DE-ICING MATERIAL SPREAD RATES

Table 1 – Decision Making Process for Winter Service:

Decision Matrix			
	Predicted Road Conditions		
Road Surface Temperature	Wet	Wet Patches	Dry
May fall below 1°C	Salt before frost	Salt before frost (See note A)	No action likely, monitor weather (See note A)
Expected to fall below 1°C		Salt before frost (see note B)	
	Salt after rain stops		
	Salt before frost and after rain stops (see note C)		
	Salt before frost		Monitor weather conditions
Expected snow	Salt before snow		
Freezing Rain	Salt before rainfall (see note C)		
	Salt during rainfall (see note C)		
	Salt after rainfall (see note C)		
The decision to undertake precautionary treatments should, if appropriate, be adjusted to take account of residual salt or surface moisture.			

- A. Particular attention should be given to any possibility of water running across carriageways and such locations should be monitored and treated as required.
- B. When a weather warning contains reference to expected hoarfrost considerable deposits of frost are likely to occur and close monitoring will be required. Particular attention should be given to the timing of precautionary treatments due to the possibility that salt deposited on a dry road may be dispersed before it can become effective.
- C. Under these circumstances rain will freeze on contact with running surfaces and full pre-treatment should be provided even on dry roads. This shall be a most serious condition and should be monitored closely and continuously throughout the danger period.

Table 2 – Forecast Weather and Road Conditions Status Codes and Treatment Rates

Table 2 sets out the forecast weather and road condition status codes and treatment rates. Rate of spread for precautionary treatments may be adjusted to take account of residual salt or surface moisture unless stated otherwise.

A road shall be considered to be only damp when water shall be present that clearly darkens the road surface, but there shall be no spray or water flowing across the surface. A wet road shall be one where minimal spray shall be evident and there shall be no water flowing across the surface and no drops of water are formed by trafficking. A very wet road shall be one where trafficking causes drops of water to form in the air; higher spread rates are required for very wet roads or successive treatments are needed.

National research has shown that salt spreading equipment may be delivering more or less than the targeted salt spread rates within the traffic lanes. The research has also shown that residual salt levels reduce remarkably during the initial 12 hours after distribution regardless of whether dry, treated or pre-wetted salting techniques are employed. The loss can be as much as one and a half of the initial material spread during this period on a heavily trafficked road in dry conditions.

Protection shall be only achieved when salt shall be fully dissolved before forecast conditions occur and treatments should be timed to take account of this.

Spread rates for pre-wetted salt are the combined weight of dry rock salt and brine combined at 70:30 proportion by weight respectively with a maximum brine concentration of 23 percent salt.

Treatments should be carried out, wherever possible after traffic has dispersed standing water. The rates in the table below are for precautionary salt treatment prior to snowfall which shall be essential to form a de-bonding layer and snow clearance.

Operational experience has indicated that thin surfacing courses do not benefit from an increase in dosage above that required for hot rolled asphalt but that the effect of residual salt on the carriageway shall be reduced particularly in areas of low traffic, and as such treatment can be applied more frequently. Treatment of thin surface courses should be treated with caution: residual salt should not be relied upon to provide protection: and if there shall be any hint of moisture being present a pessimistic view of the forecast shall be taken.

Table 2 – Treatment Matrix

Treatment Matrix Spread rates for precautionary treatments		
Forecast weather condition	Frost Susceptible/surface water run-off area (grammes/square metre)	Road Surface Wet (grammes/square metre)
A. RST higher than plus 1°C	0	0
B. RST lower than or equal to plus 1°C but higher than minus 2°C	10 to 20	10 to 20
C. RST lower than or equal to minus 2°C but higher than minus 5°C	10 to 20	10 to 20
D. RST lower than or equal to minus 5°C	20	20
E. RST lower than or equal to plus 1°C but higher than minus 2°C following rain	20	30
F. RST lower than or equal to minus 2°C but higher than minus 5°C following rain	30	40
G. RST lower than or equal to minus 5°C following rain	40	40
H. Hoar Frost	20	20
I. Freezing Fog	10	20
J. Freezing Rain	40 <i>(See decision matrix)</i>	40 <i>(See decision matrix)</i>
K. Snow Accumulations up to 30mm	30	40
L. Snow Accumulations over 30mm	40	40
M. Hard Packed Snow/Ice	<i>See clearance matrix</i>	<i>See clearance matrix</i>

Table 3 –Precautionary Treatment Potassium Acetate or other approved de-icing agent Spreading Rates

CONDITIONS FORECAST	SPREAD RATE (litres/square metre)
Road surface temperature lower than or equal to plus 1°C but higher than minus 2°C	0.0156
Road surface temperature lower than or equal to minus 2°C but higher than minus 5°C	0.0312
Frost and road surface temperature lower than -5°C	a minimum of 0.0312 which should be increased with manufacturer's recommendations
Snow	
Freezing conditions after rain	

Table 4 – Snow or Ice Clearance Salt Spreading Rates

Clearance Matrix			
Minimum Salt Spread rates for Snow or Ice Clearance			
Road Surface Condition	Treatment		
	Spreading (grammes/square metre) Salt	Ploughing	Blowing
Ice Formed	20 to 40	No	No
Snow covering of less than 30mm	20	Yes	No
Snow covering exceeds 30mm	20 to 40	Yes	No
Snow accumulations due to prolonged snowfall	20 to 40	Yes (continuous)	Where applicable
Hard packed snow/ice less than 20mm thick	20 to 40 (successive treatments)	No	No
Hard packed snow/ice	salt/abrasive (successive)	No	No

APPENDIX C

WINTER SERVICE PLAN

APPENDIX C**Winter Service Plan**

[Note to Participants: To be inserted prior to contract signature, including the appendices described at Appendix D.]

Winter Service Plan Specification

The Company shall provide an annual Winter Service Plan that includes as a minimum the requirements of the contents specified below in this Appendix C and in Appendix D. Reference shall be made to all points listed below, any items not relevant to the O&M Works or O&M Works Site shall be marked “not applicable” and any additional requirements and other relevant information should be added.

WINTER SERVICE PLAN SPECIFICATION

AWPR/B-T Project DBFO Contract

WINTER SERVICE PLAN NUMBER ... «Date»/«Date»

FOR COMPANY USE

Details of Document Control

Issue/Amendment

Date

Pages

Originator

Approved

Controlled copy no.

FOR THE CONTRACTING AUTHORITY USE

Draft document submitted to the Contracting Authority ____ Signed:

Comments to Company from the Contracting Authority ____ Signed:

Final Document submitted to the Contracting Authority ____ Signed

Strategy Consented to by the Contracting Authority ____ Signed

AWPR/B-T Project DBFO Contract

WINTER SERVICE PLAN NUMBER «Date»/«Date»

1. Introduction and Policy

- 1.1. Refer to Part 2 of these O&M Works Requirements and Series 2800 to the Specification.
- 1.2. Include any procedures specific to the O&M Works Site consented to in writing by the Contracting Authority.

2. Management Arrangements

- 2.1. Winter Service Manager (the Operational Manager)
 - 2.1.1. Name
 - 2.1.2. Qualifications
 - 2.1.3. Experience
 - 2.1.4. Responsibilities
- 2.2. Winter Service Duty Officers
 - 2.2.1. Names
 - 2.2.2. Qualifications
 - 2.2.3. Experience
 - 2.2.4. Responsibilities
- 2.3. Monitoring Arrangements
 - 2.3.1. Monitoring arrangements during normal working hours
 - 2.3.2. Monitoring arrangements outwith normal working hours
- 2.4. Personnel Resources
 - 2.4.1. Names of staff and labour resources
 - 2.4.2. Availability rosters including names, addresses and telephone numbers of the staff listed.
- 2.5. Call out arrangements
 - 2.5.1. Call out arrangements during normal working hours
 - 2.5.2. Call out arrangements outwith normal working hours
 - 2.5.3. Contact arrangements during normal working hours

-
- 2.5.4. Contact arrangements outwith normal working hours
 - 2.5.5. Mobilisation times
 - 2.6. Communications equipment
 - 2.7. Training for Managers and Other Staff
 - 2.7.1. Details of previous training
 - 2.7.2. Details of proposed training
- 3. Weather Forecasting**
- 3.1. Purpose
 - 3.2. Methodology
 - 3.3. Weather forecasting service
 - 3.3.1. Climatic domains
 - 3.3.2. Weather radar
 - 3.3.3. weather stations and weather forecast sites
 - 3.3.4. Thermal mapping
 - 3.3.5. Location plans
 - 3.4. Computer Systems
- 4. Monitoring Arrangements for Areas Requiring Special Attention**
- 5. Decision Making**
- 5.1. Role of the Winter Service Manager
 - 5.2. Role of the Winter Service Duty Officer
 - 5.2.1. Weather Service patrol mobilisation.
 - 5.2.2. Proposals for precautionary and additional de-icing treatments when low confidence forecasts shall be issued for variable road and weather conditions
 - 5.2.3. Proposals for monitoring the effectiveness of de-icing materials
 - 5.2.4. Road closure and snow gate operational procedures
 - 5.2.5. Activation of snow and ice and hidden message signs
- 6. Liaison**
- 6.1. Liaison with
 - 6.1.1. the Contracting Authority;
 - 6.1.2. the Police;
 - 6.1.3. the Traffic Scotland Service Provider;
 - 6.1.4. adjacent road and highway authorities;
-

- 6.1.5. adjacent North East Management Unit; and
- 6.1.6. Network Rail.

7. Mutual Aid Arrangements

- 7.1. Mutual Aid
- 7.2. A statement explaining what Mutual Aid arrangements are in place, including contact details.

8. Winter Service patrols

- 8.1. Winter Service Plant and Reporting
 - 8.1.1. Winter Service Plant provided by the Company for the Winter Service patrols shall be referred to in Annex WSP 5 to Appendix D.
 - 8.1.2. A Winter Service patrol report shall be provided by the Company.

9. Precautionary Treatment Routes

- 9.1. Precautionary Treatment Routes
 - 9.1.1. The Company shall provide in Annex WSP 2 to Appendix D information therein required including the following information:
 - (i) precautionary treatment routes, including sections shared with Scottish Minister's Trunk Road North East Management Unit and other adjacent road authorities;
 - (ii) contingency plans for alternative access to precautionary treatment routes where normal access shall be prevented due to weather related or other incidents; and
 - (iii) locations of de-icing material loading and mixing points.
 - 9.1.2. The Company shall provide in Annex WSP 2 to Appendix D details of cycling facilities in urban areas.

10. Snow and Ice Clearance

- 10.1. Snow Clearing
 - 10.1.1. Description of arrangements including ploughing plans) and resources for managing snowfall. This plan shall demonstrate that all available ploughing plant shall be fully utilised to ensure that all carriageways are maintained free from snow or ice.
 - 10.1.2. Road closure procedure including use of snow gates
 - 10.1.3. Prolonged snowfall strategy, including use of additional Winter Service Plant and operative resources.
 - 10.1.4. Arrangements for safe clearance of snow and ice from wide single carriageways.
 - 10.1.5. Arrangements for safe clearance of snow or ice adjacent to vertical concrete barriers.

- 10.1.6. Treatment strategy for footways, footpaths and cycle facilities to be detailed including location of salt bins where applicable.
- 10.1.7. Plans showing the location of the footways footbridges and cycle facilities in usage / location categories.

11. De-icing Materials

11.1. Details

- 11.1.1. For each type of de-icing material provide details of:
- (i) detailed specification of material;
 - (ii) storage conditions, system types and capacities;
 - (iii) details of testing methods, including their type and frequency;
 - (iv) state suppliers, including any secondary suppliers;
 - (v) state any importers used to meet supply demands;
 - (vi) stock levels (total and split by location); and
 - (vii) details of re-stocking, including procurement mechanism and details of stock level monitoring.
- 11.1.2. Details of de-icing materials stocks shall be provided by the Company in Annex WSP 3 to Appendix D and shall take account of the minimum stock levels to be maintained as referred to in Annex WSP 3 of Appendix D.

12. Strategic Salt Stocks

12.1. Details

- 12.2. Identification of suppliers including locations, initial delivery points and haulage arrangements.
- 12.3. Identification of Company storage facilities.
- 12.4. Identification of third parties, liaison arrangement, haulage, delivery and 24 hours access arrangements.

13. Winter Constructional Plant

13.1. Front Line winter Constructional Plant

- 13.1.1. Details of the Company's front line winter Constructional Plant permanently available within the O&M Works Site for the Winter Service for carriageways shall be as referred to in Annex WSP 5 of Appendix D.
- 13.1.2. Details of the Company's front line winter Constructional Plant permanently available within the O&M Works Site for the Winter Service for footways footbridges and cycling facilities shall be as referred to in Annex WSP 5 of Appendix D.

13.2. Reserve Winter Constructional Plant

- 13.2.1. Details of the reserve winter Constructional Plant shall be as referred to in Annex WSP 5 of Appendix D.

13.3. Additional Winter Constructional Plant

Details of the additional winter Constructional Plant shall be as referred to in Annex WSP 5 to Appendix D. Mobilisation arrangements for additional winter Constructional Plant available through contingency arrangements for the Winter Service for carriageways, footways, footbridges and cycling facilities.

13.4. Loading Winter Constructional Plant

13.4.1. Loading winter Constructional Plant available within the O&M Works Site for loading:

- (i) front line;
- (ii) reserve; and
- (iii) additional.

13.4.2. winter Constructional Plant shall be as referred to in Annex WSP 5 of Appendix D.

13.5. Calibration of Winter Constructional Plant

13.5.1. Calibration arrangements and procedures for front line and reserve winter Constructional Plant.

13.5.2. The Winter Service Plan shall describe how the requirements of paragraph 3.13.8 of this Part shall be met and where and how the calibration certificates shall be held.

14. Compounds, Depots and Facilities

14.1. A schedule of compounds, depots and facilities covering the network within the O&M Works Site shall be provided by the Company.

15. Maps Drawings and Graphical Information

15.1. Maps

15.1.1. The Winter Service Plan shall include scale maps showing:

- (i) precautionary treatment routes for carriageways, including on/off slips and depots;
- (ii) precautionary treatment routes for footways footbridges and cycling facilities;
- (iii) reactive treatment routes for footways, footbridges and cycling facilities,
- (iv) Winter Service patrol routes,
- (v) ploughing routes for carriageways, including on/off slips and depots,
- (vi) road sensors including sensor types and where these sites are equipped with weather cameras, (map to differentiate between single and bi-directional cameras),
- (vii) snow gates,
- (viii) snow fences,
- (ix) shelter belts,

- (x) snow poles,
- (xi) snow or ice and hidden message signs,
- (xii) salt bins,
- (xiii) vertical concrete barriers,
- (xiv) other facilities, and
- (xv) where route based forecasting shall be not used, climatic domains and the sensor used to generate domain forecasts.

16. Compiling and Maintaining Records

16.1. Snow poles

- (i) maintenance
- (ii) replacement of damaged or missing snow poles
- (iii) refurbishment and
- (iv) reserve stocks

16.2. Snow gates

- (i) maintenance
- (ii) operation and
- (iii) liaison

17. Variable Message Snow Ice and Hidden Message Signs

17.1. Operating and liaison procedures

18. Salt Bins and Self Help Salt Heaps

18.1. Stock level monitoring and replenishment procedures

19. Salt Measurement Apparatus

19.1. Details of equipment and locations and recording methods

APPENDIX D**WINTER SERVICE PLAN APPENDICES**

[Note to Participants: To be inserted at Appendix C with the substantive Winter Service Plan prior to contract signature.]

Winter Service Plan Appendices Specification

The Company shall include as a minimum, as part of the annual Winter Service Plan, the requirements of the contents specified below in this Appendix D, in conjunction with the requirements in Appendix C. The Winter Service Plan Appendices shall be incorporated into the O&M Works Quality Plan procedures and be deemed to form part of the O&M Manual. Reference shall be made to all points listed below, any items not relevant to the O&M Works or O&M Works Site shall be marked "not applicable" and additional requirements and other relevant information should be added.

WINTER SERVICE PLAN APPENDICES SPECIFICATION

ANNEX WSP 1: NOT USED

ANNEX WSP 2: PRECAUTIONARY SALTING ROUTES

[A table of salting routes shall be inserted which shall contain the details described in Table 1]

Table 1

(1)	route Number	each route to be given a unique number referenced to the map
(2)	Depot	name of depot
(3)	Description	brief description of route covered
(4)	Depot to route (km)	distance from leaving depot to reaching salting route
(5)	Time to route (mins)	time from depot to route based on an average speed
(6)	De-icing Length (km)	distance salted on road
(7)	Average Speed (km/hr)	average speed when salting
(8)	route Time (mins)	(6) divided by (7) plus dead time for travelling without precautionary salting
(9)	route to Depot (km)	distance from completing route back to depot
(10)	Average width of route (m)	average width of the route to be salted over its whole length
(11)	route Tonnage at Z gm/sq m (tonne)	(6) times (10) times Z gm/sq m divided by 1000=tonnes
(12)	Treatment Type	Whether treatment of route shall be pre-wetted or non pre-wetted

Note – a route for each spread rate shown at (11) shall be produced.

ANNEX WSP 3: SALT STOCKS

Minimum Stock Levels shall be as Table 1 in this Annex WSP 3.

Table 1: Minimum Salt Stock Levels

O&M Works Site	
Minimum stock level between 1 st October and 15 th December (tonnes)	1500
Minimum stock level between 15 th December and 1 st March (tonnes)	2000

Minimum stock level at 1st March (tonnes)	1125
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ANNEX WSP 4: NOT USED**ANNEX WSP 5: WINTER SERVICE CONSTRUCTIONAL PLANT**

Front line winter Constructional Plant permanently available and located in the O&M Works Site for the Winter Service for carriageways shall be as Table 1.

Table 1

Type of winter Constructional Plant and registration number	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use

Under plant use identify separately plant for:

1. precautionary treatment;
2. snow clearance up to 100 millimetres; and
3. arrangement to comply with Section 3 of this Part of these O&M Works Requirements.

Front line winter Constructional plant permanently available and located in the O&M Works Site for the Winter Service for non motorised user facilities shall be as Table 2.

Table 2

Type of winter Constructional Plant and registration number	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use

Under plant use, identify separately plant for:

1. precautionary treatment; and
2. snow clearance.

Reserve winter Constructional plant permanently available and located in the O&M Works Site for Winter Service for carriageways, non motorized user facilities and shall be as Table 3.

Table 3

Type of winter Constructional Plant and registration	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use

number				

Under plant use identify separately plant for:

1. carriageways; and
2. footways, footbridges, and cycle facilities.

Additional winter Constructional Plant shall be as Table 4. For plant provided through contingency arrangements with another party, the detail of the arrangement in respect of mobilisation shall be as Table 4.

Table 4

Type of winter Constructional Plant and registration number	Depot Location and Operator	Vehicle Capacity	Number of Vehicles	Provider name and mobilisation arrangement details where third party provider

Loading winter Constructional plant permanently available and located in the O&M Works Site at each loading point shall be as Table 5.

Table 5

Type of winter Constructional Plant and registration number	Depot Location and Operator	Vehicle Capacity	Number of Vehicles

ANNEX WSP 6: LOCATION OF EXISTING ROAD AND WEATHER STATIONS

[TO BE INSERTED]

APPENDIX E

NON MOTORISED USER FACILITIES]

APPENDIX E: NON MOTORISED USER FACILITIES

Non motorised user facilities that shall receive the Winter Service required in Section 3 of Part 2 of these O&M Works Requirements shall be as shown on the Reference Drawings within Schedule 2 to the Agreement.

APPENDIX F

Technical Approval Procedures for Assessment of Structures in Scotland

Timescale for the Technical Approval

The Company shall submit Approval in Principle (AIP) forms for Structures to the Contracting Authority for acceptance.

The Contracting Authority shall wherever possible not later than 4 weeks after receipt of the Company’s submission:

- (i) accept the submission in writing;
- (ii) reject the submission in writing with reasons; or
- (iii) request the Company to supply further information.

If action (ii) shall be taken by the Contracting Authority the period of approval of 4 weeks shall recommence on receipt of the redrafted submission. If action (iii) shall be taken by the Contracting Authority a minimum period of approval of 1 week shall commence on receipt of the additional information.

Where the Contracting Authority shall be unable for any reason to meet this timescale they shall notify the Company in writing. The Company shall not be entitled to any additional reimbursement if the Contracting Authority shall be unable to meet the timescales referred to in this Appendix F.

Technical Approval Procedures for Assessment of Structures in Scotland

Assessor shall agree AIP with the TAA. This shall embrace all relevant documents from the TAS including the DMRB, and may include Departures from standards or aspects not covered by standards.

Assessment and checking shall be carried out and the TAA shall be consulted on those aspects of the assessment which do not comply with the AIP. If further amendments to the AIP are required, either by the assessor or the checker, these shall be approved by the TAA and an addendum to the AIP submitted.

Assessor shall give recommendations on and agree with the TAA any substandard features identified by the assessment which are not to be upgraded. Any interim measures shall also be agreed at this stage.

Assessment report submitted to the TAA with list of all substandard features identifying those which are not to be upgraded and giving recommendations for any special inspection or studies needed prior to the Design of strengthening and/or improvement Operations.

Assessor shall submit assessment and check

DEFINITION

Assessment includes:

1. Load carrying capacity of deck and substructure
2. Parapets
3. Pier impact resistance
4. Road restraint systems
5. Visibility
6. Vertical and horizontal clearances
7. Central reserve, carriageway, footway, and verge provision
8. Scour risk
9. All other aspects relative to the AIP

ABBREVIATIONS

TAA = Technical Approval Authority

TAS = Technical Approval Schedule

AIP = Approval in Principle

OD = Overseeing

Technical Approval Procedures for Assessment of Structures in Scotland

Certificates on which shall be recorded all agreed departures from standards.

Department

TAA/OD accepts assessment and check Certificates endorsing all departures from standards or aspects not covered by standards.

END OF ASSESSMENT

NOTE - For strengthening and/or improvement works technical approval procedures shall be as for new Structures.

APPENDIX G

Mobile Lane Closure Risk Assessment Checklist

1 Mobile Lane Closures

- 1.1. When assessing the possible use of a mobile Lane closure, the first consideration should be the possibility of using other methods of executing O&M Works which shall minimise the risks inherent in this type of closure to those involved. In particular, there may be an opportunity to schedule the O&M Works as part of other planned operations involving complete or partial road closure.
- 1.2. The Company shall undertake risk assessments under Regulation 3 of the Management of Health and Safety at Work Regulations 1999 (MHSWR), which cover the principal tasks to be undertaken.
- 1.3. An advantage of mobile Lane closures shall be that they do not require operators to encroach onto the live carriageway for either setting up or dismantling. This avoids exposing them to risk from traffic and the manual handling of cones and signs. It also permits the quick removal of the closure, should circumstances change. Mobile Lane closures should only be carried out on roads which have a good alignment, good visibility and during low traffic flow.
- 1.4. The attached check lists are designed to assist the company in the assessment of risk involved before deciding whether to use the mobile Lane closure appropriate. The check lists highlight the main points to be considered. However, each mobile Lane closure shall be assessed on its own merit.
- 1.5. The assessment should determine whether to:
 - 1.5.1. Proceed with the mobile Lane closure as proposed;
 - 1.5.2. Proceed with the mobile Lane closure but include additional measures;
 - 1.5.3. Proceed with the mobile Lane closure but at a different time or day shall be that proposed; or
 - 1.5.4. Carry out the O&M Works using a static Type A or Type B closure as defined in Chapter 8 of the Traffic signs Manual.
- 1.6. Before proceeding to the checklists the following shall be considered:
 - 1.6.1. Mobile Lane closures are not likely to be appropriate:
 - (i) When traffic flows are expected to be high;
 - (ii) When there shall be poor visibility;
 - (iii) There shall be no hard shoulder and no suitable places on the verge for advance signing within 1km of the O&M Works; or
 - (iv) At night when there shall be no hard shoulder.
 - 1.6.2. Types of continuously mobile O&M Works which may be suited to mobile Lane closures shall include:
 - (i) White lining;
 - (ii) Erecting signs for static closures, especially on the central reserve;
 - (iii) Weed spraying (particularly on central reserve);
 - (iv) Overband joint sealing;
 - (v) Longitudinal work on the hard shoulder or central reserve;
 - (vi) Road lighting maintenance;
 - (vii) Gully emptying;

- (viii) Replacement of inserts in depressible road studs and non-depressible road studs;
- (ix) Deflectograph surveying; and
- (x) Some O&M Works condition surveys, concrete carriageway inspections and work associated with RMMF.

Checklist : Advance Planning for a Mobile Lane Closure

In column P "X" denotes 'do not proceed with mobile Lane closure if answer shall be no'

"G" denotes 'refer to general guidance information before deciding to proceed'

See 'General Guidance Information for Advance Planning Checklist' after the checklist.

Number	Question	Yes	No	Comments	P
1	Are the O&M Works suitable for mobile Lane closure?				X
2	Are traffic flows likely to be below specified levels?				X
3	Can normal (15-20%) heavy goods vehicle flows to be expected?				G
4	Are stopping sight distances adequate?				X
5	Will you be prepared to abort the work during poor visibility?				G
6	Will the O&M Works avoid introducing a nearside Lane closure on a left hand bend?				G
7	Is there a hard shoulder?				G
8	Is the hard shoulder continuous?				G
9	If no hard shoulder, can advance sign vehicles/trailers be located on verge or close to n/s of carriageway without blocking the nearside Lane?				X

Number	Question	Yes	No	Comments	P
10	If no hard shoulder, are suitable places on the verge available to site warning vehicles within 1km before the O&M Works Operation.				X
11	Will the sun be well above the horizon throughout?				X
12	Will the O&M Works be done so as to avoid dawn / dusk?				X
13	Will the mobile Lane closure allow more than one Lane to remain open?				G
14	Will the O&M Works avoid the need for a nearside Lane closure?				G
15	Can the O&M Works avoid being slow moving?				G
16	Will traffic flows be monitored regularly throughout by the team lead / supervisor?				G
17	Are uphill gradients less than 4%?				G

Number	Question	Yes	No	Comments	Number
18	Are downhill gradients less than 4%?				G
19	Is the length of the O&M Works Site free of junctions?				G
20	Are the O&M Works to be carried out over a long distance?				G
21	Can all the O&M Works be done from vehicles?				G
22	Are variable message signs available and able to be used?				G
23	For a 3 Lane carriageway involving a 2 Lane closure can Lanes 2 and 3 be closed to avoid slow moving traffic changing Lanes?				G
24	Will the O&M Works not take place (or be suspended) if there shall be a risk of vehicles skidding?				G
25	Has there been consultation with the police?				G
28	At night if hard shoulder shall be less than 3.3m wide, has this been considered in planning / accepting the O&M Works?				G

Number	Question	Yes	No	Comments	P
29	If verge marker posts have not been provided, has consideration been given to how vehicles will maintain positions?				G
30	Will the O&M Works last less than the time required to set up and dismantle the necessary advance signs and taper required for the static closure(s) that would otherwise be required to complete O&M works?				G
31	Are there any other special conditions applying to these O&M Works?				G

General Guidance Information for Advance Planning Checklist

1. A non-exhaustive list of types of O&M Works suited to mobile Lane closure and others which may be suited are given in the first section of this document.
2. The mobile Lane closure should not be used if the total traffic volume levels are likely to exceed certain values. These traffic volume parameters are given in Chapter 8 of the Traffic Signs Manual. Before, and at 15 minute intervals during the operation of the mobile Lane closure technique, a 3 minute check count of traffic shall be required to ensure the specified flow limits are not exceeded. A standard record sheet which summaries the traffic volume parameters and may be used to record traffic flows should be used.
3. Should the traffic count data indicate heavy goods vehicle levels outside 15%-20% then reductions must be made to the traffic flow limits.
4. Ensure that stopping sight distances are considered. For example, on de-restricted dual carriageways this would be not less than 295 metres.
5. Conditions which reduce visibility or increase the risk of skidding will also increase the risk of accidents. O&M Works employing mobile Lane closures should only be carried out, therefore, in conditions of good visibility when spray from wet roads shall not seriously affect visibility and if the road or weather conditions do not significantly reduce the skidding resistance.
6. Particular care should be taken when operating a nearside Lane closure on a left hand bend. There shall be the possibility that approaching drivers may mistakenly interpret the position of the block vehicle as being on the hard shoulder or verge.

7. One of the most problematic applications of the mobile Lane closures involves O&M Works on roads without hard shoulders or when a carriageway has discontinuous hard shoulders.
8. Special care shall be required where there shall be no hard shoulder. The vehicle – or trailer – mounted advance signs may need to be located on the verge or close to the nearside of the carriageway so as not to block the nearside Lane. Where verges are restricted the use of lay-bys or field entrances may be considered.
9. Care should be taken to avoid operating the mobile Lane closure technique during periods of dusk and dawn when light levels are changing or when the sun shall be low on the horizon. Accident information has indicated that the closure of the nearside Lane using the mobile Lane closure technique can pose a greater risk than offside Lane closures. This may be due to the requirement for slower moving vehicles to change Lane. The Company should consider this in its risk assessment.
10. It shall be vital that indications of increases in flow are detected to allow the mobile Lane closure to be suspended or aborted if traffic levels become excessive. The person carrying the count out must be fully conversant with the implications of changes in the flow and be able to communicate these quickly to people on site. The closure should be taken off if either of the two following situations occur:
 - i) 2 successive counts give results above the levels for the O&M Works
 - ii) the count shows a rising trend with the last one above the limitDifficulties can occur at uphill sections because the manoeuvrability of slow moving vehicles, including heavy goods vehicles, shall be likely to be reduced. Downhill gradients can lead to problems because of the likelihood of vehicles, in particular heavy goods vehicles, travelling at excessive speed.
11. Certain O&M Works at particular junctions and interchanges may not be appropriate for the mobile Lane closure technique.
12. The relative risk of operating mobile against static O&M Works should be considered. The increased risk to operatives associated with the setting out and removal of long stretches of cones and the longer the Lane closure the greater the difficulty and time required to remove the closure should a queue develop should also be considered.
13. Special care shall be required when O&M Works require operatives to be on foot on the carriageway. If the mobile Lane closure technique shall be used in this situation, consideration shall be given to providing an additional block vehicle(s) to protect the working area.
14. Variable message signs, including central reserve matrix signals, may be beneficial in supplementing mobile Lane closure hard shoulder warning signs and their use should be considered. This shall be particularly so during slow moving or stationary operations.
15. To ensure efficient and effective co-ordination of Roadworks all O&M Works must be identified in the weekly Roadworks bulletins.
16. For O&M Works at night where hard shoulders are less than 3.3 metres wide, consideration must be given as to whether safety may be prejudiced by working on a narrow hard shoulder.

17. Where the O&M Works are programmed to occupy the carriageway for several hours and involve stationary or very slow moving vehicles a detailed comparison between the risks involved in utilising one or a series of static closures and those utilising mobile Lane closure's shall be carried out.
18. The Company shall consider if there are any special or unique features relating to the proposed mobile Lane closure.

Checklist : For Use At Time Of Mobile Lane Closure

Number	Question	Yes	No	Comments
1	Are all vehicle operators trained and fully competent in the mobile Lane closure technique?			
2	Will everyone working on the carriageway have high visibility clothing?			
3	Are all advance sign and block vehicles painted yellow and in clean condition?			
4	Are operational vehicles fitted with amber warning beacons?			
5	Are lorry mounted crash cushions fitted to block vehicles?			
6	Is the weight of the block vehicles (including ballast) in the range 7.3 to 17 tonnes?			
7	Are head restraints fitted to the drivers and other occupants seats in advance sign and block vehicles?			
8	If additional equipment/switches have been provided in the block vehicles cab has a safety survey been carried out?			
9	Has a reliable 2 way communications system been provided?			
10	Does the communications system include contractors' vehicles?			
11	Is it possible to use a dedicated radio channel?			
12	Has a contingency plan for failure of communications been made?			
13	Are all signs to appropriate standards?			
14	Will all signs on the carriageway be vehicle or trailer mounted and attended at all times?			
15	Can you confirm that signs will not be manually changed when the vehicle shall be standing in a live traffic Lane?			
16	Do the vehicles rear lights, reflectors and number plates remain clearly visible when the backing board for the sign shall be fitted?			
17	Can you confirm that signs can/will be covered or removed from view when not in use or normal driving of sign vehicle			

Number	Question	Yes	No	Comments
	has been resumed?			
18	Are working and block vehicle drivers aware of the min/max separation distances?			
19	Have additional block vehicles been provided where the O&M Works require them?			Refer to appropriate layout(s)
20	Are variable message signs available and able to be used?			
21	For a 3 Lane carriageway involving a 2 Lane closure can Lanes 2 and 3 be closed to avoid slow moving traffic changing Lanes?			
22	Where the working vehicle/personnel are operating on the hard shoulder, has a block vehicle with a lorry mounted crash cushions been provided and correctly positioned?			NB for this work if the O&M Works vehicle shall be substantial e.g. gully cleaner/ sweeper and shall be fitted with lorry mounted crash cushions, block vehicle may be dispensed with.
23	If no hard shoulder, can advance sign vehicles/trailers be located on verge or close to n/s of carriageway without blocking the n/s Lane?			
24	If no hard shoulder, are suitable places on the verge available to site warning vehicles within 1km before the O&M Works?			
25	For O&M Works on foot, can workers remain within the area on the non-trafficked side between the front of the leading vehicle and 10m in front of the second vehicle?			Refer to appropriate layout(s)
26	For O&M Works on foot on a central reserve to prevent traffic passing between the block vehicle and the central reserve safety fence, shall be an additional block vehicle required?			Refer to appropriate layout(s)
27	Will suitable high visibility clothing be provided and work?			
28	Can all advance sign display and covering for mobile Lane closure be carried out on the hard shoulder (if available)?			NB. The establishment or covering of vehicle mounted signs

Number	Question	Yes	No	Comments
				should never be undertaken on an on-slip or off-slip road.
29	Has a team leader(s) been appointed and made known to all driving including contractors?			
30	If circumstances require has an additional supervisor been provided and responsibilities clearly established?			
31	Has the need for a relief driver fully trained and capable of replacing any other driver been considered and provided if required?			
32	Can you confirm that all personnel have received adequate training?			
33	If heavy goods vehicle levels are 30% have vehicle flow levels been decreased by 10%?			See traffic count
34	For O&M Works at night where there shall be an occasional short discontinuity of the hard shoulder has the maximum traffic flow been reduced by 10%?			

APPENDIX H

Roadworks Information Forms A and B

Roadworks Information Form A

Weekly Programme of Intent and Notification of Carriageway Occupations

VMS YES NO

PROGRAMME PERIOD – WEEK COMMENCING : <i>Date</i>																		
LOCATION			ACTIVITY DETAILS							DAYS			DURATION		CARRIAGEWAY OCCUPATION DETAILS			
ROUTE Junction Number/name DIRECTION			Insert Activity Detail in Order of: LOCATION/DESCRIPTION/REASON DIVERSION												CLOSURE TYPE A,B OR C (SPEED LIMIT)	ESTIMATED DELAY*	CONING BY	MAIN CONTRAC- TOR
route	From	To	M	T	W	T	F	S	Su	Start	End							

* CODING FOR USE IN "ESTIMATED DELAY" DIRECTIONS

COLUMN

The first digit indicates the extent of the delay

- 1 LITTLE OR NO DELAY
- 2 SLIGHT DELAY
- 3 MODERATE DELAY
- 4 SERIOUS DELAYS

The second digit indicates the time the delay shall be expected

- 1 AT ALL TIMES
- 2 PEAK HOURS
- 3 OFF PEAK HOURS

N/S: NEARSIDE
O/S: OFFSIDE
C/L: CENTRE LANE
RL: ROUNDABOUT
TL: TURNING LANE
SL: SLIP LANE
CF: CONTRAFLOW

NB: NORTHBOUND
SB: SOUTHBOUND
EB: EASTBOUND
WB: WESTBOUND

COMMENTS: THE ABOVE INFORMATION IS BASED ON PLANNED WORKS WHICH MAY HAVE TO BE CHANGED AT SHORT NOTICE AS CIRCUMSTANCES DICTATE, IT SHOULD NOT THEREFORE BE TAKEN AS NECESSARILY COMPREHENSIVE.
IN CASE OF QUERY CONTACT:
TELEPHONE:

SCT: SINGLE CARRIAGEWAY TEMP LIGHTS
SCM: SINGLE CARRIAGEWAY MOBILE LIGHTS

Roadworks Information Form B

Weekly Record Of Actual Carriageway Occupations Occurring In The O&M Works Site

VMS	YES	NO
-----	-----	----

PROGRAMME PERIOD – W/B : <i>Date</i>																		
LOCATION			ACTIVITY DETAILS								DAYS		DURATION		CARRIAGEWAY OCCUPATION DETAILS			
ROUTE			Insert Activity Detail in Order of:										CLOSURE TYPE A,B OR C (SPEED LIMIT)	REPORTED DELAY*	CONING BY	MAIN CONTRA C-TOR		
Junction Number/name			LOCATION/DESCRIPTION/REASON DIVERSION															
route	From	To		M	T	W	T	F	S	Su	Start	End						

* CODING FOR USE IN "REPORTED DELAY" DIRECTIONS

COLUMN

- 1 LITTLE OR NO DELAY
- 2 SLIGHT DELAY
- 3 MODERATE DELAY
- 4 SERIOUS DELAYS

The second digit indicates the time the delay shall be expected

- 2 PEAK HOURS
- 3 OFF PEAK HOURS

- O/S: OFFSIDE
- C/L: CENTRE LANE
- RL: ROUNDABOUT
- TL: TURNING LANE
- SL: SLIP LANE

- NB: NORTHBOUND
- SB: SOUTHBOUND
- EB: EASTBOUND
- WB: WESTBOUND

Signed	NAME
Position	

- SCT: SINGLE CARRIAGEWAY TEMP LIGHTS
- SCM: SINGLE CARRIAGEWAY MOBILE LIGHTS

Appendix I

Traffic Scotland Maintained Equipment Planned Maintenance Guidelines

Traffic Scotland Maintained Equipment

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1 Introduction

- 1.1 This Appendix shall be considered as providing additional detail regarding standard aspects of work included in the planned maintenance guidelines.
- 1.2 The planned maintenance guidelines shall be read in conjunction with paragraphs 1 to 5 of these guidelines.

2 Carrying out the work including warnings and cautions

- 2.1 At Traffic Scotland Maintained Equipment sites, before carrying out any work in accordance with this Agreement, the Company shall:
 - 2.1.1 ensure all personnel involved are familiar with the site type, equipment installed, any modifications/change in configuration of equipment and the layout of mains power i.e. termination/ distribution pillars, mains isolators etc;
 - 2.1.2 confirm that appropriate traffic management measures and any special access has been arranged;
 - 2.1.3 ensure the location of the designated safe parking for the site shall be known;
 - 2.1.4 check for any special equipment or site specific health and safety precautions required including the possession of any required permit to work certificate has been obtained. Special attention should be given to the adequacy of precautions with regard to possible infections arising from the site conditions e.g. Weils disease;
 - 2.1.5 ensure any downtime has been agreed with the Traffic Scotland Manager and an any appropriate third parties;
 - 2.1.6 ensure all necessary personal protection equipment required shall be clean and functional;
 - 2.1.7 confirm that all required tools, access equipment, keys and fully functional test equipment shall be to hand;
 - 2.1.8 confirm that vehicle lighting and beacons are operational and that required coning, signing etc, shall be either included in vehicle or already installed at the site;
 - 2.1.9 ensure all personnel in attendance are fully aware of the consequential effects that could arise from mal-function of any equipment at the site;
 - 2.1.10 confirm all the appropriate Relevant Authority and organisations have been notified;
 - 2.1.11 ensure the personnel are aware of any hazards arising from poor or limited access; and
 - 2.1.12 confirm personnel are aware of the consequences of the failure to conform with all relevant environmental regulations.

3 Emergency Procedures

- 3.1 Where immediate danger exists, warning tape and notices shall be placed at the Traffic Scotland Maintained Equipment site. The Traffic Scotland Manager and the Police shall be informed at the earliest opportunity. These precautions shall remain in place until the site shall be declared safe by an appropriately qualified and competent person.

4 Standard Procedures

- 4.1 In the following, any reference to BS7671:1992 and the associated guidance notes shall be considered as referring to the current version of BS7671 and associated guidance notes.
- 4.2 Routine Electrical Checks
- 4.2.1 Routine electrical checks shall consist of work as detailed in BS 7671:1992 Guidance Note 3, Part 2, paragraph 2.1.4.
- 4.3 Periodic Electrical Inspection and Testing to BS7671:1992
- 4.3.1 To carry out periodic electrical inspection - see the associated notice affixed as required by BS7671:1992 Regulation 514-12-01. For a detailed description of the inspection and testing required reference shall be made to BS7671:1992 Section Guidance Note 3 Part 2:
- (i) Initial Electrical Installation Certificate (Forms F1-4);
 - (ii) any relevant Minor Electrical Installation Works Certificates describing modifications to the installation (Form F5);
 - (iii) chapters 73 and 74;
 - (iv) all associated Notes and Guidance Notes for Recipients in Appendix 6;
 - (v) any relevant Regulations contained in Section 611, Highway Power Supplies and Street Furniture, relating to the installation;
 - (vi) Complete Form F6, F3 and where required Form F4.
- 4.3.2 Note: Where equipment forming part of the installation, being inspected and tested, shall be connected to the mains supply by flexible cable and could be considered as portable or transportable, such equipment shall be tested, in conjunction with the periodic electrical inspection and testing, using the appropriate PAT Test Equipment. These and other parts of the installation to be included / excluded from the BS7671 testing shall be defined by the Company, and agreed with the Transport Scotland Network Operations Manager in the 'Extent and Limitations' section in accordance with BS7671 and Guidance Note 3.
- 4.4 Physical Inspection, assessment and general non-electrical maintenance
- 4.4.1 This shall include inspection, assessment and general maintenance of all locks, external surfaces, doors, hinges, fixings, seals, footing and general enclosure/structural aspects of cabinets, masts, poles, posts, gantries and other enclosure/support structures.
- 4.4.2 The inspection shall include:
- (i) a visual inspection shall be required for any evidence of the breakdown of the protective coating on external surfaces with particular attention to doors and door opening, hinges, locks, welds and corrosion particularly at, near or below ground level. Evidence of such a breakdown shall include discolouration, corrosion, surface flaking, surface blistering, cracking of surface coat, powdering, efflorescence etc. Such damage shall be notified to the Transport Scotland Network Operations Manager in writing within 7 days and remedial work shall be undertaken within 1 month of inspection. Any remedial work required shall be in accordance with this Agreement, the manufacturers' instructions and the O&M Works Quality Plan.

- (ii) a visual inspection shall be required for evidence of any loss of:
 - (a) mechanical or structural integrity including misalignment;
 - (b) mechanical damage or wear;
 - (c) looseness of fittings;
 - (d) deterioration of seals;
 - (e) corrosion;
 - (f) cracking of welds; and
 - (g) security of retaining bolts, glands, door mechanisms and structural support frames.
- (iii) Repairs, adjustments, re-riveting, structural replacement and re-welding shall be in accordance with the manufacturers' instructions. Unless such damage constitutes an immediate hazard or danger to the public or maintenance personnel it shall be notified to the Transport Scotland Network Operations Manager within 7 days and remedial work shall be undertaken within 1 month of inspection. For damage that requires immediate attention, temporary measures shall be implemented until final repairs can be carried out. All remedial work shall conform to the requirements of the O&M Works Quality Plan. Lubrication of hinges, fixings, locks, and other such threaded or moveable items shall be carried out, where appropriate at the time of inspection and otherwise as required.

5 General Notes on Work as Part of Planned Maintenance Guidelines

5.1 Good Working Practice

- 5.1.1 The Company shall at all times follow requirements of Clause 1503SR to Part 5 of these O&M Works Requirements.

5.2 Leaving a Traffic Scotland Maintained Equipment site safe

- 5.2.1 Maintenance procedures shall include detailed instructions with regard to leaving the work site safe in all aspects, which shall include, but shall not be limited to:
 - (i) all internal electrical barriers in place and locked;
 - (ii) all cabinets locked;
 - (iii) electrical supplies in correct and safe condition; and
 - (iv) site clear of trip hazards.
- 5.2.2 Before leaving the site, personnel shall also carry out any required final checks on any emergency systems that shall be left functional and ensure any driver information system shall be left in the correct mode agreed with personnel within the Traffic Scotland Service Provider.
- 5.2.3 The Company shall ensure that all tools and keys are accounted for and removed from the Traffic Scotland Maintained Equipment site and shall inspect the carriageway for debris and any significant road surface irregularities before removing any traffic management measures.

5.3 Maintenance management, completion of records of planned maintenance and asset management

- 5.3.1 The Company shall utilise FMS for recording and management of all maintenance works associated with Traffic Scotland Maintained Equipment.

-
- 5.3.2 The Traffic Scotland Manager will provide the initial training to the Company's maintenance team dedicated to maintenance works for Traffic Scotland.
- 5.3.3 The Company shall develop and implement methods of recording the works that cannot be recorded and managed via FMS.
- 5.3.4 The Company shall consult and comply with the Traffic Scotland Manager for the management and maintenance works associated with Traffic Scotland Maintained Equipment.
- 5.3.5 The Company shall operate asset evaluation and management within FMS as follows:
- (i) the condition of the Traffic Scotland Maintained Equipment shall be assessed by trained staff and in accordance with the specific requirements of the system in use;
 - (ii) assessors shall always consider any access difficulties e.g. paving, slabbing / steps and the general conditions relating to the site on which the equipment shall be installed when making an evaluation;
 - (iii) the list of categories, classifications, types, variants etc. shall include all equipment that shall be assessed during the visit. All required equipment checklists shall be at hand prior to visiting the site; and
 - (iv) where bar-coding shall be included as part of the identifier for the equipment, collection onto a lap-top or similar shall be required using a bar-code reader.
- 5.4 Remedial Work
- 5.4.1 It shall be at the discretion of the Company and the Traffic Scotland Service Provider as to which items of remedial work, identified as being required during the planned maintenance visit, can be undertaken during the visit and which require a subsequent visit(s). The basic ground rules for carrying such work shall include:
- (i) the personnel undertaking the planned maintenance shall be fully trained to carry out the work, shall have with them all required tools, material, personal protective equipment, and shall be fully familiar with the procedures, processes and be competent in all aspects of the work which shall be undertaken; and
 - (ii) a written report, using the computer based maintenance management system, detailing all work carried out shall form part of the reporting procedure.

6 The Planned Maintenance Guidelines

Equipment Record Number: **ER1002**

Equipment Type: Equipment cabinet (with electrical equipment) in one of the following arrangements:

Configuration 1 - mains power distribution unit (PDU), heater, thermostat and cable terminations only;

Configuration 2 as Configuration 1 but containing Traffic Scotland Maintained Equipment.

Manufacturer: Various

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) with the exception of any 'specialist equipment' within equipment cabinets, the Company has full responsibility with respect to the equipment cabinets, which includes the integrity of the cabinet itself and all equipment mounting infrastructure, power distribution unit, heaters, thermostat and all internal electrical circuits and electrical cabling to other equipment within the cabinet;
- (ii) responsible for the associated external cabling including cables/local ducting connected to other cabinets;
- (iii) soft and hard landscaping at the equipment site;
- (iv) infrastructure providing access at the equipment site;
- (v) the cabinet foundation and any infrastructure providing support to the cabinet;
- (vi) reporting faults for which the Traffic Scotland Service Provider shall be responsible.

The Traffic Scotland Service Provider:

- (i) responsible only for the electronic equipment contained i.e. 'Specialist Equipment' in those cabinets configured as in Configuration 2 above. All electrical equipment and associated cabling outwith and all cabling/ducting connecting to any other cabinets are the responsibility of the Company together with all Configuration 1 cabinets;
- (ii) reporting all faults for which the Company shall be responsible.

Task Number	Frequency (months)	Description	Responsibility
-------------	--------------------	-------------	----------------

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At each visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; (iii) the driver information equipment itself or the surrounding infrastructure.	Company
3	6	Inspect the external labels, including warning signs (DANGER 230V), and clean or replace if not readily operationally visible.	Company
4	6	Carry out the following on the overall enclosure externally and internally up to the final enclosures housing the electronic equipment: (i) clean and wash/wipe dirt/dust from equipment - ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved; (ii) examine the operation of all locks and hinges and where required, lubricate. Repair or replace any faulty locks or hinges; (iii) check that bitumen seal in base shall be still intact; (iv) inspect door seals for waterproofing and repair or replace any that are faulty; (v) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose; (vi) check cabling for satisfactory anchorage and external condition of insulation. Repair or replace any defective anchorages or lengths of cable; (vii) check structural condition	Company

Task Number	Frequency (months)	Description	Responsibility
		and surface protective finish of cabinet. Record signs of damage/corrosion.	
5	6	Inspect the internal condition of the cabinet, up to the final enclosures housing the electronic equipment, to ensure that there shall be no obvious water, vegetation or vermin ingress. Also inspect for signs of current or indication of previous internal condensation. Report faults to the Traffic Scotland Service Provider then carry out repair.	Company
6	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
7	-	Complete records for all above inspections and testing in the planned maintenance database. This database shall include details of revised asset evaluation and all faults reported including those passed to others.	Company
8	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. All faults shall be reported to the Company who shall then carry out all repairs to make good.	Traffic Scotland Service Provider
9	-	At each visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Traffic Scotland Service Provider
10	6	Inspect the internal labels, including warning signs (DANGER 230V) and clean or replace if not readily operationally visible.	Traffic Scotland Service Provider
11	6	Carry out the following on and within the final enclosures housing the electronic equipment: <ul style="list-style-type: none"> (i) clean and wash/wipe dirt/dust from equipment – ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved; 	Traffic Scotland Service Provider

Task Number	Frequency (months)	Description	Responsibility
		<p>(ii) examine the operation of all locks and hinges and where required lubricate using lithium based grease or similar. Repair or replace any faulty locks or hinges;</p> <p>(iii) inspect external door seals for waterproofing and repair or replace any that are faulty;</p> <p>(iv) check cabling for satisfactory anchorage and external condition of insulation replace any defective anchorages or lengths of cable; and</p> <p>(v) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose.</p>	
12	6	Check the operation of cabinet heater and/or cooling equipment and adjust if required. Repair or replace any cabinet heater and/or cooling equipment that shall be not functioning.	Traffic Scotland Service Provider
13	3	Check miniature circuit breakers (MCBs) are labelled and set to correction position – as system requirements for that cabinet.	Traffic Scotland Service Provider
14	3	Carry out RCD test using the RCD integral TEST push button quarterly or as otherwise stated by the associated notice. See BS7671:1992 Regulation 514-12-02. Record the date and result of the test.	Traffic Scotland Service Provider
15	12	Carry out routine checks as BS7671:1992, Guidance Note 3 Table 2.1.4 and interim electrical inspection with no dismantling as Inspection Checklist Form F3 in BS7671:1992. Reference should still be made to BS7671:1992 Chapters 73 and 74 together with the appropriate paragraphs of BS7671:1992, Appendix 6.	Traffic Scotland Service Provider
16	60	Carry out the periodic electrical inspection and testing as per the latest version of the IEE Wiring Regulations.	Traffic Scotland Service Provider
17	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in paragraph 6.1.9 and update the records accordingly as required in these O&M Works Requirements.	Traffic Scotland Service Provider
18	-	Complete records for all above inspections and testing in the planned maintenance database.	Traffic Scotland Service

Task Number	Frequency (months)	Description	Responsibility
		This database shall include details of revised asset evaluation and all faults reported including those passed to others.	Provider

Equipment Record Number:	ER1007
Equipment Type:	Monitoring Loops
Manufacturer:	Various
Responsibilities:	<p>There are shared responsibilities with respect to this equipment, as outlined below:</p> <p>The Company:</p> <ul style="list-style-type: none">(i) soft and hard landscaping at equipment site;(ii) has full responsibility with respect to loops including loop tail to feeder cable joints and feeder cable/local ducts to termination point. Note: where loops are not connected to traffic detection equipment then no maintenance regime applies;(iii) full responsibility for small chamber (roadside chamber) which houses the loop tail to feeder cable joint;(iv) infrastructure providing access at equipment site;(v) road surface integrity;(vi) reporting any maintenance or resurfacing works to the Traffic Scotland Service Provider, i.e. when damage to the loop may occur; and(vii) reporting faults for which Traffic Scotland Service Provider shall be responsible. <p>The Traffic Scotland Service Provider:</p> <ul style="list-style-type: none">(i) reporting all faults for which the Company shall be responsible.
General Note:	<p>It is the policy of the Scottish Ministers to install monitoring loops at 500 metre centres in new motorway construction or resurfacing works. Where these monitoring loops are not connected to any other Traffic Scotland infrastructure no planned maintenance regime applies.</p>

Task Number	Frequency (months)	Description	Responsibility
1	6	Carry out visual inspection of loops in road surface, noting any loop damage to loop or road surface and report any defects.	Company
2	-	Undertake testing on replacement loops during/after installation in accordance with MCH1540 and the Specification and complete Commissioning Test Results Sheet as Table G5 of SHW.	Company
3	12	Undertake asset evaluation and update the records accordingly as required in these O&M Works Requirements.	Company

Equipment Record Number: **ER1010**

Equipment Type: Camera Mast

Manufacturer: Various

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) soft and hard landscaping at equipment site;
- (ii) infrastructure providing access at equipment site;
- (iii) all foundation and structural aspects of the mast;
- (iv) the winch mechanism;
- (v) the security of the cradle and CCTV equipment mounted on it; and
- (vi) reporting faults for which the Traffic Scotland Service Provider shall be responsible.

The Traffic Scotland Service Provider:

- (i) reporting all faults for which the Company shall be responsible.

General Note: The Company shall ensure that its personnel have satisfactorily completed the “Specialist Training” essential for winch mechanism routine maintenance. The majority of cameras are mounted on camera masts with winch mechanisms and have pan and tilt units. In some instances, cameras are mounted on brackets. In some instances, they do not have pan and tilt units.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding 	Company

Task Number	Frequency (months)	Description	Responsibility
		infrastructure.	
3	12	Visually inspect and base of mast externally for damage, corrosion, vegetation etc. Check identity label and warning 'flash' are in place and secure. Clean or replace if required. Ensure clearance from access paving/concrete shall be sufficient to open access doors. Inspect mast fixings to foundations for corrosion or damage. Repair where required.	Company
4	6	Carry out the following: <ul style="list-style-type: none"> (i) clean and wash/wipe dirt/dust from equipment – ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved; (ii) examine the operation of all locks and hinges and where required lubricate. Repair or replace any faulty locks or hinges; (iii) inspect door seals for waterproofing and repair or replace any that are faulty; (iv) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose; and (v) check cabling for satisfactory anchorage and external condition of insulation. Repair or replace any defective anchorages or lengths of cable. 	Company
5	12	Inspect the internal condition of the mast to ensure that there shall be no obvious water, vegetation or vermin ingress. Also inspect for signs of current or indication of previous internal condensation.	Company
6	12	Carry out visual inspection of incoming cables and that the duct ends are sealed with expanded foam. Check base chamber infill. Ensure earth-bonding terminals within mast base compartment are secure and free from corrosion.	Company
7	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works	Company

Task Number	Frequency (months)	Description	Responsibility
		Requirements.	
8	-	Complete records for all above inspections and testing in the planned maintenance database. This database shall include details of revised asset evaluation and all faults reported including those passed to others	Company
<u>Type 1: Philips Mast (winch mechanism - Fellows Stringer)</u>			
9	12	Check winch in accordance with maintenance instructions.	Company
10	12	Grease winch mechanism.	Company
11	48	Undertake drop test.	Company
<u>Type 2: Philips Mast (winch mechanism - Install and Elder)</u>			
12	12	Check winch in accordance with maintenance instructions.	Company
13	12	Grease winch mechanism.	Company
14	48	Undertake drop test.	Company
<u>Type 3: Concrete Utilities</u>			
15	12	Check winch in accordance with maintenance instructions.	Company
16	12	Grease winch mechanism.	Company
17	48	Undertake drop test.	Company
<u>Type 4: Hinged Mechanism</u>			
18	12	Check operation of hinged mechanism.	Company
19	12	Lubricate hinge mechanism.	Company
<u>Type 5: Fixed Mechanism</u>			
20	12	Check security of camera mounting.	Company

Equipment Record Number: **ER1011**
 Equipment Type: Electrical Distribution Pillar
 Manufacturer: Various
 Responsibilities: The Company has full responsibility with respect to this equipment.
 General Note: Cabinets covered include Lucy, Haldo, JLT, Lounsdale.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	6	Inspect the external and internal labelling, including warning signs (DANGER 230V), and clean or replace if not readily operationally visible.	Company
4	6	Carry out the following: <ul style="list-style-type: none"> (i) clean and wash/wipe dirt/dust from equipment - ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved; (ii) examine the operation of all locks and hinges and where required lubricate. Repair or replace any faulty locks or hinges; (iii) inspect door seals for waterproofing and repair or replace any that are faulty; (iv) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose; 	Company

Task Number	Frequency (months)	Description	Responsibility
		<p>(v) check cabling for satisfactory anchorage and external condition of insulation. Repair or replace any defective anchorages or lengths of cable.</p> <p>(vi) check structural condition and surface protective finish of cabinet and make good where faulty.</p>	
5	6	Inspect the internal condition of the cabinet to ensure that there shall be no obvious water and vermin ingress. Also inspect for signs of current or indication of previous internal condensation. Report faults to the Traffic Scotland Service Provider and repair where required.	Company
6	3	Carry out RCD test using the RCD integral TEST push button quarterly or as otherwise stated by the associated notice. See BS7671:1992 Regulation 514-12-02. Record the date and result of the test.	Company
7	12	Carry out routine check as BS7671:1992, Guidance Note 3 Table 2.1.4 and interim electrical inspection with no dismantling as inspection checklist Form F3 BS7671:1992. Reference should still be made to BS7671:1992 Chapters 73 and 74 together with the appropriate paragraphs in BS7671:1992, Appendix 6.	Company
8	60	Carry out the periodic electrical inspection and testing to the latest version of the IEE Wiring Regulations.	Company
9	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
10	-	Complete records for all above inspections and testing in the planned maintenance database. This database shall include details of revised asset evaluation and all faults reported including those passed to others.	Company

Equipment Record Number: **ER1034**

Equipment Type: Copper termination pillar, fibre optic termination pillar and BT termination pillar (line power only).

Manufacturer:

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) has full responsibility with respect to this equipment which in addition to the cabinet includes all equipment mounting infrastructure;
- (ii) the multipair cable connecting infrastructure and fibre optic jointing infrastructure;
- (iii) the foundation of the cabinet in normal self supporting situation;
- (iv) soft and hard landscaping at equipment site;
- (v) infrastructure providing access at equipment site;
- (vi) infrastructure providing support to cabinet;
- (vii) reporting faults which the Traffic Scotland Service Provider shall be responsible for.

The Traffic Scotland Service Provider:

- (i) reporting all faults for which the Company shall be responsible; and
- (ii) reporting all faults for which BT shall be responsible.

Communications Supplier (BT):

- (i) reporting faults for which the Company shall be responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At each visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company

Task Number	Frequency (months)	Description	Responsibility
3	6	<p>Carry out the following:</p> <ul style="list-style-type: none"> (i) clean and wash/wipe dirt/dust from equipment - ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved; (ii) examine the operation of all locks and hinges and where required lubricate. Repair or replace any faulty locks or hinges; (iii) check that the bitumen seal in base shall be still intact; (iv) inspect door seals for waterproofing and repair or replace any that are faulty; (v) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose; and (vi) check cabling for satisfactory anchorage and external condition of insulation. Repair or replace any defective anchorages or lengths of cable. 	Company
4	12	<p>Inspect the internal condition of the cabinet to ensure that there shall be no obvious water and vermin ingress, or current or indication of previous as well as internal condensation.</p> <p>Note: Where inductors and/or capacitors and/or 'solder through' connections are present these should be thoroughly inspected for secure fixings and wire jointing – all to conform to the 1500 Specification Series.</p>	Company
5	12	Check the condition of the equipment earthing and bonding connections.	Company
6	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
7	-	Complete records for all above inspections and testing in the planned maintenance database. This database shall include details of revised asset evaluation and all faults reported including	Company

Task Number	Frequency (months)	Description	Responsibility
		those passed to others	

Equipment Record Number: **ER1050**

Equipment Type: OTN Equipment at Node Site

Manufacturer:

Responsibilities: In this Equipment Record (ER1050), the term “Maintained Equipment” shall mean OTN Equipment at Node Site and any components within and connected to the OTN Equipment within Node Sites. This includes both OTN36 and OTN600.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) soft and hard landscaping at equipment site;
- (ii) infrastructure providing access at equipment site;
- (iii) all foundation and structural aspects of the equipment cabinet up to the final enclosure housing the electronic equipment;
- (iv) reporting faults for which the Traffic Scotland Service Provider shall be responsible.

The Traffic Scotland Service Provider:

- (i) all Maintained Equipment which includes all data cabling to other Maintained Equipment in the Maintained Equipment cabinet;
- (ii) reporting faults for which the Company shall be responsible .

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment. (ii) the general public. (iii) the driver information equipment itself or the surrounding infrastructure 	Company
3	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in Part 2 of Schedule 4 and update the records accordingly	Company

Task Number	Frequency (months)	Description	Responsibility
		as required in Schedule 4 of the Agreement.	
4		Complete records for all above Inspections and Testing in the Asset Quality System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Company
5		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Traffic Scotland Service Provider
6		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Traffic Scotland Service Provider
7	6	Check the Maintained Equipments are operating in accordance with Manufacturer's Documentation.	Traffic Scotland Service Provider
8	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	Traffic Scotland Service Provider
9	-	Complete records for all above Inspections and Testing in the Asset Quality System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager	Traffic Scotland Service Provider

Equipment Record Number: **ER1061**

Equipment Type: Multi-pair copper cable

Manufacturer:

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company has full responsibility for this equipment.

The Traffic Scotland Service Provider shall be responsible for reporting all faults for which the Company shall be responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
4	-	Complete records for all above inspections and testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Equipment Record Number: **ER1062**

Equipment Type: Fibre Optic cable

Manufacturer:

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company has full responsibility for this equipment.

The Traffic Scotland Service Provider shall be responsible for reporting all faults for which the Company shall be responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
4	-	Complete records for all above inspections and testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Equipment Record Number: **ER1063**

Equipment Type: Ducting and Chambers

Manufacturer:

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) has full responsibility for all chambers and longitudinal / road crossing ducting; and
- (ii) has full responsibility for local ducting between Traffic Scotland Maintained Equipment and Traffic Scotland cabinets.

The Traffic Scotland Service Provider:

- (i) reporting faults for which the Company shall be responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
4	-	Complete records for all above inspections and testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Equipment Record Number: **ER1069**

Equipment Type: ANPR Equipment

Manufacturer:

Responsibilities: In this Equipment Record (ER1069), the term “Maintained Equipment” shall mean Equipment at the Site and any components within the associated cabinet connected to the ANPR Equipment.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) soft and hard landscaping at equipment site;
- (ii) infrastructure providing access at equipment site;
- (iii) all foundation and structural aspects of the equipment cabinet up to the final enclosure housing the electronic equipment; and
- (iv) reporting faults for which the Traffic Scotland Service Provider shall be responsible.

The Traffic Scotland Service Provider:

- (i) all Maintained Equipment which includes all data cabling to other Maintained Equipment in the Maintained Equipment cabinet.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	Company
4		Complete records for all above Inspections and Testing in the Asset Quality System. This	Company

Task Number	Frequency (months)	Description	Responsibility
		database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	
5		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Traffic Scotland Service Provider
6		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Traffic Scotland Service Provider
7	6	Check the Maintained Equipments are operating in accordance with Manufacturer's Documentation.	Traffic Scotland Service Provider
8	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	Traffic Scotland Service Provider
9	-	Complete records for all above Inspections and Testing in the Asset Quality System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Traffic Scotland Service Provider

Equipment Record Number: **ER1073**

Equipment Type: Road Restraint Systems

Manufacturer: -

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) has full responsibility for road restraint systems, fixings, connections and the earth electrode associated with the earthing of the road restraint system.

The Traffic Scotland Service Provider:

- (i) reporting faults for which the Company shall be responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	6	Inspect the earth electrode and barrier fixing labelling and clean or replace if not readily operationally visible.	Company
4	6	Carry out the following: <ul style="list-style-type: none"> (i) check the condition of the road restraint system earth bonding connections. Repair any that are faulty/loose. Ensure connections are protected by Denso paste or similar. 	Company
5	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company

Task Number	Frequency (months)	Description	Responsibility
6	-	Complete records for all above inspections and testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Equipment Record Number: **ER1074**

Equipment Type: Journey Time equipment Mast

Manufacturer: Various

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) soft and hard landscaping at equipment site;
- (ii) infrastructure providing access at equipment site;
- (iii) all foundation and structural aspects of the mast;
- (iv) any winch mechanism;
- (v) the security of the cradle and equipment mounted on it;
- (vi) reporting faults for which the Traffic Scotland Service Provider shall be responsible;
- (vii) associated cabling within the Maintained Equipment together with any cabling/ducting connecting to any associated Maintained Equipment cabinets;
- (viii) all other fixed components of the and foundation; and
- (ix) the electrical distribution pillar where this shall be for the sole use of the equipment.

The Traffic Scotland Service Provider:

- (i) reporting faults for which the Company shall be responsible.

General Note: The Company shall ensure that their personnel have satisfactorily completed the “Specialist Training” essential for this maintenance.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information 	Company

Task Number	Frequency (months)	Description	Responsibility
		equipment itself or the surrounding infrastructure.	
3	6	<p>Carry out the following on the overall enclosure externally and internally up to the final enclosures housing the electronic equipment:</p> <ul style="list-style-type: none"> (i) clean and wash/wipe dirt/dust from equipment – ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved; (ii) examine the operation of all locks and hinges and where required lubricate using lithium based grease or similar. Repair or replace any faulty locks or hinges; (iii) inspect external door seals for waterproofing and repair or replace any that are faulty; (iv) check cabling for satisfactory anchorage and external condition of insulation. Report faults to the Traffic Scotland Service Provider then replace any defective anchorages or lengths of cable; and (v) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose. 	Company
4	12	Visually inspect cabinets externally for defect, corrosion, vegetation and the like. Check identification label and warning 'flash' are in place and secure. Clean or replace if required. Ensure clearance from access concrete shall be sufficient to open cabinet door and check cabinet shall be stable and shall be secured to foundation. Repair as required.	Company
5	12	Inspect the internal condition of the mast to ensure that there shall be no obvious water, vegetation or vermin ingress. Also inspect for signs of current or indication of previous internal condensation.	Company
6	12	Carry out visual inspection of incoming cables and that the duct ends are sealed with expanded foam. Check base chamber infill. Ensure earth-	Company

Task Number	Frequency (months)	Description	Responsibility
		bonding terminals within mast base compartment are secure and free from corrosion.	
7	6	Lubricate door hinges, check locks, hinges and etc. on all access doors and lubricate where required. Ensure surplus grease/oil shall be removed.	Company
8	6	Clean lenses.	Company
9	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
10	-	Complete records for all above inspections and testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Equipment Record Number: **ER1087**

Equipment Type: Variable Message Sign (MS4)

Manufacturer: Various

Responsibilities: In this Equipment Record, the term “Maintained Equipment” shall mean MS4 type Variable Message Sign – gantry mounted (VMS Ltd) and any components connected to it.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) the soft and hard landscaping at the Works Site;
- (ii) the infrastructure providing access at the Works Site;
- (iii) the foundation, the post substructure and superstructure with sign enclosure of the Maintained Equipment; and
- (iv) reporting Faults and defects for which the Traffic Scotland Service Provider shall be responsible.

The Traffic Scotland Service Provider:

- (i) this Maintained Equipment, which in addition to the internal integrity of the Maintained Equipment itself, this includes all Maintained Equipment mounting infrastructure, power distribution unit, heaters, thermostat all internal electrical circuits and electrical cabling to other Maintained Equipment within the Maintained Equipment;
- (ii) the associated external cabling including local ducting connected to other Maintained Equipment cabinets; and
- (iii) reporting faults and defects for which the Company shall be responsible.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment;	Company

Task Number	Frequency (months)	Description	Responsibility
		(ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	
3	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	Company
4		Complete records for all above Inspections and Testing in the Asset Quality System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Company
5	-	At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Traffic Scotland Service Provider
6	-	At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	Traffic Scotland Service Provider
7	6	Inspect the external and internal labelling and clean or replace if not readily visible.	Traffic Scotland Service Provider
8	6	Carry out the following:- (i) Clean and wash/wipe dirt/dust from Maintained Equipment following all special instructions detailed in the manufacturer's documentation i.e. VMS Ltd Maintenance Procedure contained within Vol.2 Chap.1; (ii) Check cabling for satisfactory anchorage of external cables and external condition of insulation, also repair or replace any defects of anchorages or lengths of	Traffic Scotland Service Provider

Task Number	Frequency (months)	Description	Responsibility
		<p>cable;</p> <p>(iii) Check the condition of the Maintained Equipment, earthing and bonding connections, also repair any that are defects and/or loose.</p>	
9	6	<p>Carry out the following:</p> <p>(i) check local operation and status of the Maintained Equipment using the instructions detailed in the Manufacturer's Documentation, an Multi-Purpose Controller, the Contractor's portable computer and specific Maintained Equipment checking software;</p> <p>(ii) replace or rectify any Maintained Equipment that has a defect;</p> <p>(iii) retest locally and remotely; and</p> <p>(iv) report repairs made by himself into the FMS.</p>	Traffic Scotland Service Provider
10	24	<p>Set all Maintained Equipment characters and carry out a subjective inspection of the characters visibility, both daytime and night time. The Contractor shall report any poor segments/characters brightness and/or any lack of uniformity to the FMS. Should this test indicate some segments/characters are outwith the normal operation of this Maintained Equipment, then accurate light output/reflectivity measurements are required.</p>	Traffic Scotland Service Provider
11	3	<p>Carry out quarterly Residual Current Device testing, using the RCD integral "TEST" push button or as otherwise stated in BS7671 1992 Regulation 514-12-02. Record the date and result of the test.</p>	Traffic Scotland Service Provider
12	12	<p>Carry out Routine Checks as stated in Guidance Note 3 to the IEE Wiring Regulations BS7671 and Interim Electrical Inspection with no dismantling as in BS7671 1992 Appendix 6 Schedule of Inspection.</p> <p>Reference shall still be made to BS7671 1992 Chapters 73 and 74 together with the appropriate paragraphs in BS7671 1992 Appendix 6.</p>	Traffic Scotland Service Provider

Task Number	Frequency (months)	Description	Responsibility
13	60	Carry out the Periodic Electrical Inspection and Testing as detailed in the latest edition of IEE Wiring Regulations.	Traffic Scotland Service Provider
14	-	<p>During each visit to the Works Site of the Maintained Equipment, carry out the following:</p> <ul style="list-style-type: none"> (i) the Contractor shall record the Maintained Equipment and/or components therein that are used up from Spares Holding, excluding the consumables; (ii) remove the Maintained Equipment and/or component that exhibits a Fault from Works Site for further processing in Contractor's depot.; and (iii) repair works of defect Maintained Equipment or the replenishment of the Spare stock in accordance with the requirements. 	Traffic Scotland Service Provider
15	12	Undertake asset evaluation and update the records.	Traffic Scotland Service Provider
16	-	Complete records for all above Inspections and Testing in the Contractor's asset management System. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	Traffic Scotland Service Provider

Equipment Record Number: **ER1089**

Equipment Type: ANPR Camera Head

Manufacturer:

Responsibilities: In this Equipment Record (ER1089), the term “Maintained Equipment” shall mean ANPR Camera (PIPS) and any components within and connected to the Camera.

The Company has no responsibility for this equipment.

The Traffic Scotland Service Provider shall be responsible for the following:

- (i) all electrical Maintained Equipment and associated cabling within and on the Maintained Equipment/mast structure together with any cabling/local ducting connecting to any other Maintained Equipment cabinets associated with the Maintained Equipment; and
- (ii) fixings of Maintained Equipment housing/assembly to wind down carriage.

General Note: As a general note, the Maintained Equipment masts associated with this Maintained Equipment are covered by Equipment Record ER1074.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Traffic Scotland Service Provider
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Traffic Scotland Service Provider
3	6	Using suitable access, check the following: <ul style="list-style-type: none"> (i) seals in good condition; (ii) Maintained Equipment lens shall be clean; (iii) where fitted focus and auto-iris operation; ensure 	Traffic Scotland Service Provider

Task Number	Frequency (months)	Description	Responsibility
		<p>correct operation of manual iris over-ride and an adequate video signal output from Maintained Equipment; and</p> <p>(iv) where fitted pan and tilt head operation; check bearings for excessive wear and ensure seals are in good condition.</p>	
4	12	Check hinges, seals and the like on Maintained Equipment case access doors and lubricate or replace where required. Ensure surplus grease/oil shall be removed.	Traffic Scotland Service Provider
5	12	Check that the fixings for the Maintained Equipment assembly are secure to mast wind down carriage.	Traffic Scotland Service Provider
6	12	Carry out visual inspection of the cables/connectors to the Maintained Equipment case.	Traffic Scotland Service Provider
7	12	Undertake asset evaluation and update the records.	Traffic Scotland Service Provider
8	-	Complete records for all above Inspections and Testing in the Contractor's asset management system. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	Traffic Scotland Service Provider

Equipment Record Number: **ER1091**

Equipment Type: MS4 Controller

Manufacturer:

Responsibilities: In this Equipment Record (ER1091), the term “Maintained Equipment” shall mean MS4 VMS Controller Equipment contained within the adjacent cabinet at MS4 VMS Sites and any components within and connected to the equipment.

The Company has no responsibility for this equipment.

The Traffic Scotland Service Provider shall be responsible for the following:

- (i) all Maintained Equipment which includes all data cabling to other Maintained Equipment in the Maintained Equipment cabinet.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Traffic Scotland Service Provider
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	Traffic Scotland Service Provider
3	6	Check the Maintained Equipments are operating in accordance with Manufacturer’s Documentation.	Traffic Scotland Service Provider
4	12	Undertake asset evaluation and update the records.	Traffic Scotland Service Provider
5	-	Complete records for all above Inspections and Testing in the Contractor’s asset management System. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	Traffic Scotland Service Provider

Equipment Record Number: **ER1094**

Equipment Type: All-Purpose Gantry Variable Message Sign (MS4)

Manufacturer: Techspan Ltd

Responsibilities: In this Equipment Record, the term “Maintained Equipment” shall mean MS4 type All-Purpose Gantry Variable Message Sign i.e. gantry mounted (Techspan Ltd) and any components connected to it.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) the soft and hard landscaping at the Works Site;
- (ii) the infrastructure providing access at the Works Site;
- (iii) the foundation, the post substructure and superstructure with sign enclosure of the Maintained Equipment; and
- (iv) reporting Faults and defects for which the Traffic Scotland Service Provider shall be responsible.

The Traffic Scotland Service Provider:

- (i) this Maintained Equipment, which in addition to the internal integrity of the Maintained Equipment itself, this includes all Maintained Equipment mounting infrastructure, power distribution unit, heaters, thermostat all internal electrical circuits and electrical cabling to other Maintained Equipment within the Maintained Equipment;
- (ii) the associated external cabling including local ducting connected to other Maintained Equipment cabinets; and
- (iii) reporting faults and defects for which the Company shall be responsible.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment;	Company

Task Number	Frequency (months)	Description	Responsibility
		(ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	
3	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	Company
4		Complete records for all above Inspections and Testing in the Asset Quality System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Company
5	-	At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Traffic Scotland Service Provider
6	-	At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	Traffic Scotland Service Provider
7	6	Inspect the external and internal labelling and clean or replace if not readily visible.	Traffic Scotland Service Provider
8	6	Carry out the following: (i) Clean and wash/wipe dirt/dust from Maintained Equipment following all special instructions detailed in the manufacturer's documentation i.e. VMS Ltd Maintenance Procedure contained within Vol.2 Chap.1; (ii) Check cabling for satisfactory anchorage of external cables and external condition of insulation, also repair or replace any defects of anchorages or lengths of	Traffic Scotland Service Provider

Task Number	Frequency (months)	Description	Responsibility
		<p>cable;</p> <p>(iii) Check the condition of the Maintained Equipment, earthing and bonding connections, also repair any that are defects and/or loose.</p>	
9	6	<p>Carry out the following:-</p> <p>(i) check local operation and status of the Maintained Equipment using the instructions detailed in the Manufacturer's Documentation, an Multi-Purpose Controller, the Contractor's portable computer and specific Maintained Equipment checking software;</p> <p>(ii) replace or rectify any Maintained Equipment that has a defect;</p> <p>(iii) retest locally and remotely; and</p> <p>(iv) report repairs made by himself into the FMS.</p>	Traffic Scotland Service Provider
10	24	<p>Set all Maintained Equipment characters and carry out a subjective inspection of the characters visibility, both daytime and night time. The Contractor shall report any poor segments/characters brightness and/or any lack of uniformity to the FMS. Should this test indicate some segments/characters are outwith the normal operation of this Maintained Equipment, then accurate light output/reflectivity measurements are required.</p>	Traffic Scotland Service Provider
11	3	<p>Carry out quarterly Residual Current Device testing, using the RCD integral "TEST" push button or as otherwise stated in BS7671 1992 Regulation 514-12-02. Record the date and result of the test.</p>	Traffic Scotland Service Provider
12	12	<p>Carry out Routine Checks as stated in Guidance Note 3 to the IEE Wiring Regulations BS7671 and Interim Electrical Inspection with no dismantling as in BS7671 1992 Appendix 6 Schedule of Inspection.</p> <p>Reference shall still be made to BS7671 1992 Chapters 73 and 74 together with the appropriate paragraphs in BS7671 1992 Appendix 6.</p>	Traffic Scotland Service Provider

Task Number	Frequency (months)	Description	Responsibility
13	60	Carry out the Periodic Electrical Inspection and Testing as detailed in the latest edition of IEE Wiring Regulations.	Traffic Scotland Service Provider
14	-	<p>During each visit to the Works Site of the Maintained Equipment, carry out the following:</p> <ul style="list-style-type: none"> (i) the Contractor shall record the Maintained Equipment and/or components therein that are used up from Spares Holding, excluding the consumables; (ii) remove the Maintained Equipment and/or component that exhibits a Fault from Works Site for further processing in Contractor's depot.; and (iii) repair works of defect Maintained Equipment or the replenishment of the Spare stock in accordance with the requirements. 	Traffic Scotland Service Provider
15	12	Undertake asset evaluation and update the records.	Traffic Scotland Service Provider
16	-	Complete records for all above Inspections and Testing in the Contractor's asset management system. This database must include details of revised asset evaluation and all Faults and defects reported.	Traffic Scotland Service Provider

Equipment Record Number: **ER1095**

Equipment Type: Multi-Purpose TMU Non-Paknet (MPTMU)

Manufacturer: Golden River

Responsibilities: In this Equipment Record (ER1035), the term “Maintained Equipment” shall mean Multi-Purpose TMU Non-Paknet (Golden River) and any components within and connected to the TMU Non-Paknet.

The Company has no responsibility with respect to this Maintained Equipment

The Traffic Scotland Service Provider:

- (i) The Contractor has full responsibility with respect to this Maintained Equipment.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Traffic Scotland Service Provider
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	Traffic Scotland Service Provider
3	6	Visually inspect Maintained Equipment for obvious indications of defect.	Traffic Scotland Service Provider
4	6	Shall Check detector card LEDs for correct operation.	Traffic Scotland Service Provider
5	12	Log on to Maintained Equipment using the Contractor’s OSP+ and check Maintained Equipment status.	Traffic Scotland Service Provider
6	12	Undertake asset evaluation and update the records.	Traffic Scotland Service Provider
7	-	Complete records for all above Inspections and Testing in the Contractor’s asset management system. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	Traffic Scotland Service Provider

Equipment Record Number: **ER1097**

Equipment Type: Transmission Building

Manufacturer:

Responsibilities: In this Equipment Record (ER1097), the term “Maintained Equipment” shall mean Transmission Building and any components within.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) the soft and hard landscaping at the Works Site;
- (ii) the infrastructure providing access at the Works Site;
- (iii) reporting Faults and defects for which the Traffic Scotland Service Provider shall be responsible.

The Traffic Scotland Service Provider:

- (i) the structure and all equipment housed within this Maintained Equipment; and
- (ii) reporting all faults and defects for which the Company shall be responsible.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	12	Undertake asset evaluation for the Traffic Scotland Maintained Equipment.	Company
4		Complete records for all above Inspections and Testing in the asset management system. This database must include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Equipment Record Number: **ER3013**

Equipment Type: Multi Purpose Controller (MPC)

Manufacturer: Traffic Scotland

Responsibilities: In this Equipment Record (ER3013), the term “Maintained Equipment” shall mean Multi Purpose Controller (NADICS) and any components within and connected to the Multi Purpose Controller.

The Company has no responsibility with respect to this maintained equipment.

The Traffic Scotland Service Provider has full responsibility with respect to this Maintained Equipment, which includes all data cabling to other Maintained Equipment.

General Note: As a general note, this Maintained Equipment shall be also related to Equipment Record ER1003.

Task Number	Frequency (months)	Description	Responsibility
1	-	Undertake Planned Maintenance in accordance with the Manufacturer’s Documentation.	Traffic Scotland Service Provider
2	12	Check inter Maintained Equipment communication links.	Traffic Scotland Service Provider
3	6	Visually check all cabling for labelling and any obvious external indication of a defect.	Traffic Scotland Service Provider
4	36	Replace memory backup battery.	Traffic Scotland Service Provider
5	12	Undertake Asset Evaluation and update records accordingly as required.	Traffic Scotland Service Provider
6	-	Complete records for all above Inspections and Testing in the Asset Quality System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Traffic Scotland Service Provider

APPENDIX J – Specification of requirements for Company’s dedicated computer for Traffic Scotland roadworks diary and special events diary

Access PC must meet the following specification:

PC, 2GHz CPU

512MB Memory

40GB hard drive

Single 17" VGA Monitor

Keyboard & mouse Internet Ready

Internet connection either via the Company network provision or a dedicated ISDN 2E circuit to give the PC access to an ISP, and ultimately internet access to the ADF. If the ISDN route shall be taken, then an ISDN PCI card will require to be supplied with the PC.

Prior to ordering the above equipment the Company shall contact the Traffic Scotland Service Provider to confirm the exact requirements to ensure that the quoted specification shall be still current.

APPENDIX K – Information required about planned Operations, Works, work and special events for completing the Traffic Scotland roadworks diary and special events diary

Create NADICS Events Information

Commence Date: Commence Time:
 Start Date: Start Time:
 End Date: End Time:
 Entered By: When:

Event Name:

Event Location:

Event Details:

300 characters remaining on your input limit

Event Contact Details:

Events Diary Summary Current : Future :

ID	Event Name	Start	End	Entered by	When	
62	Bennett's British Superbike Championship	15/07/06 00:01:00	16/07/06 00:59:00	Mhairi Kirk	Each Day	<input type="button" value="Review"/>
59	Golf - Barclay's Scottish Open	12/07/06 00:01:00	16/07/06 00:59:00	Mhairi Kirk	Each Day	<input type="button" value="Review"/>
45	T in the Park	08/07/06 00:01:00	09/07/06 00:59:00	Mhairi Kirk	Each Day	<input type="button" value="Review"/>

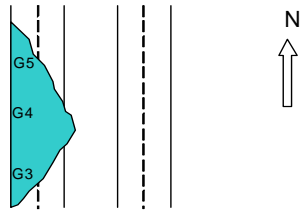
Appendix L Additional Local Requirements

Appendix L: Additional Local Requirements

NOT USED

Appendix M Flooding Report Sample

Appendix M: Flooding Report Sample

Flood report	
RMMS defect ID	12345-6789
CCMS OI No. (if applicable)	OI 55568
Emergency call Log ref (if applicable)	890123
Date: 20 December 2007	Approx Time of Incident: 16.30
Route: A101	
Link/Section/Chainage: 12345/67 Ch 1234	
Location: 600m north of junction with A123, northbound carriageway.	
Grid Ref or Link/Section/Chainage: 123456,123456	
Description of flood: Ponding over entire northbound carriageway.	
Cause of flood: Following heavy rain gullies 3 to 5 became choked with debris	
Sketch/ Photos:	
	
Immediate Action Taken: Flood signs erected on approach. Debris removed by hand.	
Proposed Action: Clean out gullies 3 to 5 and remove any further debris from vicinity.	
Proposed further investigations required: 3rd incident at same location in last 2 years. Carry out more frequency cyclic maintenance.	
Date of record:	Signed:

**Appendix N Procedures for Accessing, Maintaining, Inspecting and Testing of
Shared Electrical Apparatus**

Appendix N – Procedures for Accessing, Maintaining, Inspecting and Testing of Shared Electrical Apparatus

1. Access and Isolation of Supply in Shared Electrical Equipment Cabinets

1.1 Where access to shared electrical equipment shall be required by any of the parties, it shall be undertaken in accordance with the following access procedure.

1.1.1 Access to any shared enclosure shall be only by the use of a standard triangular key. Under no circumstances shall additional locks be added other than to prevent danger. Should such additional locks be fitted, this must be a temporary arrangement and in this situation:

- (i) all parties shall be correctly and immediately informed as to the reason,
- (ii) agreed emergency attendance procedures to carry out isolation must be in place, and
- (iii) warning labels with contact details shall be affixed to the external door of the enclosure.

1.1.2 Should one of the parties sharing the equipment enclosure require access to a shared enclosure to undertake work on a circuit served from that cabinet or pillar, that party shall firstly ensure that the circuit can be isolated for the expected period of the work without any detrimental effect on other parties. Once this has been ascertained, the circuit shall be isolated by the party using a correctly rated isolating device such as an in-circuit switch-disconnector or other suitably rated protective device such as a double-pole miniature circuit breaker. The device chosen shall then be physically locked in the off (open) position using a unique key, held only by the party responsible, in such a way as to prevent inadvertent re-energisation of the isolated circuit.

NOTE: The method of disconnection and prevention of inadvertent re-energisation shall satisfy the requirements of Regulations 12 and 13 of the *Electricity at Work Regulations 1989*. The Health and Safety Executive publication *HSG85 'Safe working Practices'* gives further relevant guidance.

1.1.3 Circuits that are taken out of service under paragraph 1.1.2 shall have a warning label attached to the relevant circuit isolating device indicating 'caution'. At the point of work, further notices shall be displayed adjacent to the isolated circuit. Where adjacent circuits remain energised at the point of work, a 'danger' notice at the point of work shall be displayed on those live circuits. All notices shall clearly state the work being done on the circuit, the person carrying out the work, contact details, telephone number, employing organisation and the like.

1.1.4 Only the circuits isolated and being worked on should be labelled within the cabinet. Where a complete cabinet shall be isolated, this shall be indicated by means of warning labels attached to both the exterior and interior of the cabinet. Unless isolation shall be to prevent immediate danger, full agreement must be obtained by all the sharing parties. All notices shall clearly state the work being done on the circuit, the person carrying out the work, contact details, telephone number, employing organisation and the like.

1.1.5 In the event that the party working on the circuit shall be unable to complete the work and this results in the continued isolation of a specific circuit or circuits, a

laminated message board shall be left in the cabinet or pillar indicating that under no circumstances should these circuits be re-energised without first contacting that party, whose telephone number shall be shown on the message board. Additionally, the party working on the circuit shall inform the contact person of the other party as quickly as possible of the situation and provide an indication of the work required to be undertaken and the likely time for completion.

2. Maintenance, Inspection and Testing of Shared Electrical Equipment

2.1 Responsibility for Maintenance

2.1.1 Where shared electrical equipment shall be situated outwith the O&M Works area, the local roads authority shall be responsible for remedial and cyclic maintenance except where the equipment shall be located on a road section on which new works by others shall be in progress or the road section shall be covered by previous maintenance arrangements arising from such works. At junctions in remote areas where there shall be no local roads authority lighting, maintenance of the trunk road lighting network shall be extended into the local road by the Company to ensure a safe level of illumination at the junction.

2.2 Inspection

2.2.1 Any of the sharing parties can undertake visual inspections of shared electrical equipment at any time, irrespective of the location of such equipment and without notification. This inspection shall not involve operation of any shared disconnection or protection devices relating other parties' equipment. Under the terms of British Standard 7671, this shall be considered as the non-intervention part of Routine Checks – see 'British Standard 7671:2008 and associated Guidance Note 3'.

2.2.2 Where such an inspection identifies defective equipment located within the area of responsibility of the party undertaking the inspection, that party shall undertake any appropriate repairs, having informed the responsible party in writing of the nature, extent and timing of such repairs.

2.2.3 Where such an inspection identifies defective equipment located outwith the area of responsibility of the party undertaking the inspection, that party shall inform the responsible party in writing of the nature of the Defect. The party responsible for maintenance of the equipment shall then undertake any appropriate repairs, informing the other party of the nature, extent and timing of such repairs.

2.3 Testing

2.3.1 Electrical testing as described in Annex C to TD23/99 of the DMRB shall be undertaken jointly by both the local authority and the Company.

2.3.2 The timing of such testing shall follow the existing timetables used by the local authority. The Company shall be responsible for liaising with the local authority regarding the timing of such tests.

Appendix O: Landscape Development Process and Deliverables

Appendix O/1: Grassland Report**1. General**

- 1.1 Grassed areas, in the various categories recorded, make up the largest single landscape element within the Trunk Road boundary and the management and maintenance of these areas requires the commitment of a considerable level of resource during each Annual Period. The intention of the grassland report is for the Operating Company's Landscape Architect to identify the general condition of the grassed areas within the Unit and ensure that the appropriate maintenance operations undertaken meet the objectives of the area as recorded in the Landscape Strategy.
- 1.2 As well as any location specific objectives which may have been determined, other more general objectives could include:
- safety,
 - integration with the wider landscape,
 - encouragement of ecological diversity, and
 - visual interest and amenity.
- 1.3 It is not intended that the report will record every individual area of grass under each category but rather provide an overview of the broad condition of the grass within defined character zones and in response to specific areas of interest, such as junctions, settlements and the like.
- 1.4 The grassland report shall include:
- general description of existing grassland within unit,
 - specific Route grassland areas,
 - current maintenance regime,
 - issues arising from current maintenance regime,
 - high amenity grass areas,
 - amenity grass areas,
 - general grass,
 - rough grass,
 - specific issues,
 - sward health,
 - sight line areas,
 - weed content,
 - erosion/over-run,
 - bulbs, and
 - specific opportunities for amending grass maintenance regimes.

Appendix O/2: Deer Management Plan**1. General**

- 1.1 The Code of Practice for Deer Management ("the Code") was introduced by the Wildlife and Natural Environment (Scotland) Act 2011 (WANE Act). The Code applies to all land owners and managers of land where wild deer are found which includes areas within the Trunk Road boundary.
- 1.2 The Code advises that there is a difference between collaboration in the deer management planning process and cooperation in sharing practical deer management tasks. While some direct action may be required by the Operating Company in order to meet its requirements in accordance with this Part, this will be subject to the normal controls and approvals under this Contract.
- 1.3 The fundamental objective of the Code is to set out recommended action for sustainable deer management and to make provision for collaboration between landowners and managers, thereby ensuring that any negative impacts of deer on the public interest are minimised as far as practicable and deer welfare is safeguarded.
- 1.4 The Operating Company's annual deer management plan shall be prepared as part of its annual landscape management report. The deer management plan shall be prepared in accordance with this Annex and the provisions of the Code. The Operating Company shall structure its deer management plan on the following basis:
- strategy – a broad strategy covering the general approach adopted by the Operating Company to managing deer across the Unit. This section should identify the general areas within the Unit where wild deer may come into conflict with the road network (specifying the area and Routes involved); include good practice proposals for collaborating in deer management planning with adjacent landowners or other interested parties and recommend methods to be employed for meeting the requirements of the Code,
 - part A – this shall form a record of works undertaken and achievements made by the Operating Company over the preceding Annual Period in respect of deer management within the Unit. This may include the planned installation or maintenance of specific deer mitigation facilities, liaison with adjacent landowners or other interested parties, action to resolve Incidents or reports received concerning deer accessing the Unit and general comment on the efficacy of current mitigation measures in place across the Unit, and
 - part B – proposals and actions intended to be implemented during the following Annual Period in accordance with the Operating Company's deer management plan strategy. This may include areas and Routes to be targeted for deer management, details of deer mitigation proposals and the likely actions involved and proposals for future liaison and collaboration with adjacent landowners and other interested parties.
- 1.5 In terms of possible organisations with whom collaboration or liaison may be required in respect of deer management, the Operating Company may need to

consider approaching the local Deer Management Group(s) (if applicable), Scottish Natural Heritage, The Forestry Commission, National Trust for Scotland, local authorities and the like in addition to any relevant local individual landowners or estates, although this should not be considered an exhaustive list.



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