



M8 M73 M74 MOTORWAY IMPROVEMENTS

Schedule 4 - O&M Works Requirements

Part 2: Routine Maintenance

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SCHEDULE 4

O&M WORKS REQUIREMENTS

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1. Routine Maintenance: Management

1.1 Introduction

- 1.1.1 This Part 2 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 Works Site roads in a good and safe working order and safeguard the environment.
- 1.1.3 This Section 1 of Part 2 of these O&M Works Requirements shall not apply to the routine inspection of structural elements of Structures.
- 1.1.4 This Part 2 of these O&M Works Requirements 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 will be items of construction Plant and equipment within O&M area that require maintenance. Such items shall normally be related to safety and include temporary safety barriers, temporary supports to Structures, temporary electrical works including temporary lighting 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 Unit.
- 1.1.8 Wherever practicable, the Company shall minimise the environmental impacts and disruption to road users arising from inspections and maintenance by undertaking multiple activities concurrently.

1.2 Routine Maintenance and Management System

- 1.2.1 The Company shall use the Routine Maintenance and Management System (RMMS) as referenced at section 15 of Part 1 of these O&M Works Requirements, in accordance with this Part 2 of these O&M Works Requirements, including Appendix A, to implement, monitor and record inspections, Safety Patrols, Category 1 Defects and Category 2 Defects and Routine Maintenance Operations undertaken on the roads within the O&M Works Site, including for maintenance of Traffic Scotland equipment.
- 1.2.2 The Company shall ensure that the RMMS data supports evidence for fatal accident inquiries and for the consideration of damages claims by third parties which arise as a result of alleged or confirmed Category 1 and Category 2 Defects in the roads within the O&M Works Site.

1.2.3 A data capture device shall be a hand held electronic device capable of capturing a range of data and downloading such data onto the RMMS. Data capture devices shall be used to record:

- (i) Category 1 Defects and Category 2 Defects; and
- (ii) Inspections and Safety Patrol data.

1.2.4 All Category 1 Defects and any other data identified during Inspections and Safety Patrols shall be recorded within the RMMS within 24 hours of identification. All Category 2 Defects and any other data identified during Inspections and Safety Patrols shall be recorded within the RMMS within 4 Business Days of identification.

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.

1.2.5 Records of all Operations shall be incorporated in the RMMS 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.

1.2.6 The Company shall include in its Quality Plan procedures for validation of all data for correctness and completeness before it shall be incorporated within the RMMS.

The Company shall maintain the accuracy of the RMMS data at all times.

When the Company shall discover any error or omission in the RMMS data such error or omission shall be corrected in the RMMS 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, Safety Patrols and maintenance activities in the Quality Plan. The procedures shall include, but shall not be limited to:

- (i) how the Company shall use the RMMS;
- (ii) Operations that shall be carried out by inspection and Safety Patrol teams to make Category 1 Defects safe at the time of inspection or Safety 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 RMMS or other storage facilities;
- (iv) checklists that shall be used for all types of inspections and Safety Patrols;
- (v) records that shall be maintained to support the robustness of all types of inspections and Safety Patrols;
- (vi) how the Company shall validate all data for correctness and completeness before it shall be incorporated into the RMMS; and
- (vii) how the Company shall monitor and demonstrate the accuracy and rigorousness of its inspections and Safety Patrols.

1.2.7 Defects and Response Times

Category 1 Defects shall be dealt with as required by paragraphs 1.2.7 (i) (a) to (k) inclusive, and

Category 2 Defects shall be dealt with as paragraphs 1.2.7 (ii) (a) to (e), inclusive, below.

Defects shall be classified as either Category 1 Defects or Category 2 Defects by the Company after consideration of the potential impact upon all road 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;
 - (iii) Take such other measures as shall be necessary to protect the public and other users of the O&M Works Site.
 - (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 repairs shall have been completed.

- (d) Where a Category 1 Defect shall be of a very serious nature rendering the O&M Works Site roads unsafe for road Users, the Company in co-ordination with the Police shall close the appropriate part of the O&M Works Site 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;
 - (ii) All other Category 1 Defects within 24 hours of the identification.
 - (f) All Category 1 Defects which shall 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 Project 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 as Category 2 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 photographic record of each Category 1 Defect to the corresponding routine maintenance and management function of the Scottish Executive Roads Information System record. A photographic record of each temporary and permanent repair shall also be attached to the routine maintenance and management function of the Scottish Executive Roads Information System record within four days of completion of each repair.
- (ii) Category 2 Defects
- Category 2 Defects shall be dealt with in accordance with the requirements of paragraphs 1.2.8 to 1.2.10, inclusive.

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.

1.2.8 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.

1.2.9 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 RMMS).

1.2.10 Identified maintenance activities shall be carried out by the Company within the stated response times unless specified otherwise in this Section 2.

1.2.11 The Company shall programme the check lists for inventory items within the RMMS into the data capture devices used for inspections and Safety 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 A of this Part 2 of Schedule 4, and
- (ii) inventory codes can only be used if the inventory item exists in the individual section.

1.3 Inspections

1.3.1 The programme of inspections shall commence during the first week of the Restricted Services Commencement Date.

1.3.2 The Company shall carry out the following types of inspections:

- (i) Safety Patrols;
- (ii) Safety Inspections;
- (iii) Detailed Inspections; and
- (iv) Night 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 2 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	Every 7 days midway between Safety Inspections
Safety Inspection frequency	Every 7 days
Night Inspections frequency	April to Sept – Every 28 days Oct to March – Every 14 days (Note paragraph 1.7.2 requirements)
Detailed Inspections frequency	As paragraph 3.3.1 in Appendix A
Electrical Testing	As defined in TD23 of the DMRB however, electrical inspection, testing and certification shall be at a maximum of 5 year intervals in accordance with Transport Scotland requirements. For further guidance refer to LDS8005.

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

1.4 Safety Patrols

- 1.4.1 Safety Patrols supplement Safety Inspections by providing more frequent surveillance of the routes to identify obvious hazards (Category 1 Defects).
- 1.4.2 Safety Patrols shall be carried out by the Company in a vehicle travelling as slowly as possible without disrupting traffic flow and shall inspect all that can practicably be seen from the vehicle within the boundaries of the O&M Works Site to identify hazards and defects. The Company shall include documented procedures in its Management System for determining the appropriate inspection speeds for Safety Patrols.
- 1.4.3 Any debris less than 25kg shall be removed immediately by the Company. Other hazards and defects which shall have been observed shall be removed or corrected immediately. If immediate removal or correction of these hazards is not practicable or safe, they shall be protected and dealt with in accordance with the requirements for Category 1 Defects in paragraph 1.2.7. These hazards and defects shall be recorded on the RMMS database as Category 1 Defects within 24 hours of the patrol having been completed.

- 1.4.4 A record shall be made by the Company of all Safety Patrols undertaken including the date, the inspector, the method and the time that each section of the road was patrolled and the data shall be entered into the RMMS database.
- 1.4.5 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 routine maintenance and management function of the Scottish Executive Roads Information System within 24 hours of the Safety Patrol commencing.
- 1.4.6 During inspections and patrols, the Company shall collect, collate and make available if requested, information relating to wildlife road-kill incidents involving the following:
- (i) Otter, badger deer (red, roe and fallow), red squirrel and raptor species.
- 1.5 Safety Inspections
- 1.5.1 Programmed Safety Inspections shall be designed primarily to identify Category 1 Defects. Safety Inspections shall inspect all that can be seen from a slow moving vehicle within the boundary of the O&M Works Site including adjacent footways and cycle facilities, except as specified in paragraph 1.5.2. 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.
- 1.5.2 At least one Safety Inspection of all pedestrian and cycle facilities shall be carried out by the Company on foot every 6 months.
- 1.5.3 Ad hoc Safety Inspections shall be carried out by the Company in response to reports or complaints from third parties within 24 hours of receipt. Data from these inspections shall be entered onto the RMMS database on the next Business Day.
- 1.5.4 Category 1 Defects encountered by the Company shall be dealt with as set out in paragraph 1.2.7. Safety Inspection personnel shall also record other obvious Defects. Appendix A contains schedules of types of defects some criteria information that should be considered and recorded by the Company.
- 1.5.5 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
 - (v) it shall carry signs and cones, to enable defects to be fenced off or to

advise road Users of a defect.

- 1.5.6 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.
 - 1.5.7 Safety Inspection data shall be collected on data capture devices using standard data capture programs adapted to meet the requirements of this Part 2 of these O&M Works Requirements and downloaded by the Company onto the RMMS database within 24 hours of the survey having been completed. Reports and complaints received from all other sources shall be similarly recorded and retained together with details of specific inspections and actions taken. The Safety Inspection data shall include details of weather conditions, road surface conditions, the initials of the inspector and all other relevant factors.
 - 1.5.8 Slip roads and link roads within interchanges shall be inspected at the same frequency as the associated main carriageways of the O&M Works Site.
- 1.6 Detailed Inspection Requirements
- 1.6.1 Detailed Inspections, other than for Roadside Electrical Apparatus and Lighting and Power Supplies, shall be walking inspections designed primarily to identify Category 2 Defects, with programmes of routine maintenance usually be derived to deal with them. For Roadside Electrical Apparatus and Lighting and Power Supplies detailed inspections reference shall be made to TD23, TD24, TD25.
 - 1.6.2 Requirements for the Detailed Inspections are specified in this Part 2 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 Scottish Ministers to the contrary.
 - 1.6.3 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 which shall require Lane Occupations shall be carried out in conjunction with other maintenance work. Where separate Lane Occupations shall be necessary, inspections shall be undertaken in off-peak traffic conditions.
 - 1.6.4 Detailed Inspections by the Company shall be carried out from the footway, hard shoulder, grass verge or nearside Lane, or as otherwise appropriate.
 - 1.6.5 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.
 - 1.6.6 Appendix A 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 RMMS database within 4 days of completion of such inspections.

- 1.6.7 The maintenance response requirements are defined in this Part 2 of these O&M Works Requirements in paragraph 1.2.8 for Category 2 Defects identified during a Detailed Inspection and in Section 2, including references to Appendix A, for maintenance activity requirements.
- 1.6.8 Within 12 months of the Restricted Services Commencement Date unless a shorter period is stated elsewhere, the Company shall validate and ensure that all inventory items shall have a corresponding inventory record recorded in the routine maintenance and management function of the Scottish Executive Roads Information System and that all attributes as defined in the Trunk Road Inventory Manual are fully populated.
- 1.7 Night Inspections
- 1.7.1 The Company shall carry out Night Inspections during the hours of darkness from a moving vehicle along illuminated sections of the O&M Works Site every 28 days during April to September inclusive and every 14 days during October to March inclusive in each Contract Year. They shall detect lamp failures in road lighting and illuminated signs and bollards.
- 1.7.2 At 6 monthly intervals the Night Inspection shall be undertaken across the whole O&M Works Site to report on the condition of road studs and subjectively assess the retro-reflectivity of signs and road markings during darkness. These inspections shall be additional to the inspection and testing requirements in Section 2.
- 1.7.3 Night Inspections shall be carried out using trained personnel operating as a two person team from a slow moving vehicle. The vehicle used shall as a minimum, meet the requirements specified in Part 5 of these O&M Works Requirements.
- 1.7.4 Night Inspection data shall be downloaded by the Company onto the RMMS within 24 hours of the survey having been completed. The night inspection data shall include details of weather conditions, road surface conditions the initials of the inspector and all other relevant factors.
- 1.8 Observations by the Scottish Ministers
- 1.8.1 General
- (i) The Scottish Ministers may observe situations within the O&M Works Site which are immediately hazardous. Once reported the Company shall respond in accordance with the agreed emergency procedure. In such circumstances a written retrospective 'notice' shall be issued to the Company within 7 days.
 - (ii) The Scottish Ministers may observe situations within the O&M Works Site which are non compliant with the O&M Works Requirements. In such circumstances a 'notice' shall be issued to the Company.
 - (iii) Such notices shall not be deemed as instructions from the Scottish Ministers to the Company.
 - (iv) Such notices are a method of formally identifying issues on the network.
 - (v) The Company shall ensure they address and respond to any hazard notice in accordance with the agreed procedure timescales..
- 1.8.2 Notifications
- (i) Written confirmation of the hazard or non compliance shall be issued

by the Scottish Ministers 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 Scottish Ministers.
- (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.

1.8.3 Actions by the Company

- (i) Once the Company shall have received a notice the Company shall respond directly to the Scottish Ministers.
- (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 Scottish Ministers. 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.

1.8.4 Monitoring of Notices Issued by the Scottish Ministers

- (i) A record of each notice issued by the Scottish Ministers, 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 hardshoulders, 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.
- (iv) The carriageway includes hardstrips and hard shoulders provided out with the edge marking.

2.1.2 Inspection Requirements

- (i) Inspection of carriageways shall be carried out by the Company in accordance with the requirements of Section 1.
- (ii) Inspections shall be carried out at the intervals and frequencies defined in Section 3.3 of Appendix A. 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 area 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.
- (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 (including verges which are likely to be traversed by non motorised Users) and non motorised User facilities within the O&M Works Site.
- (ii) Many covers in carriageways, non motorised User facilities shall be 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.
- (iii) Where an inspection or Safety Patrol by the Company shall identify a hazardous defect it shall be made safe in accordance with the requirements of paragraph 1.2.7.
- (iv) Where the cover or frame that shall have a defect shall be the property of an Undertaker or third party the Company shall at the same time 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 RMMS. The Category 1 Defect shall remain recorded as un-repaired in the RMMS 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 RMMS and reported to the Scottish Ministers 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.
- (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.

Inspection Requirements

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

2.4.2 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 1.2.8 to 1.2.10, 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 2.14, 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 2.10 or 2.11 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 shall often be located at known sensitive drainage points and therefore shall require regular attention by the Company. The connecting pipe shall often be 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 the Specification 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 the Specification 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.

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 the Specification 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 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 gullies manholes catchpits, soakaways, oil separators and other interceptors shall be carried out by the Company in accordance with the requirements of Section 1.
- (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 shall be 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.

2.10.3 Maintenance Requirements

- (i) The Company shall undertake maintenance in accordance with Clause 6105AR of the Specification 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 one Detailed Inspection in February or March each year and shall include the inspection of grills trash screens and watergates. The Company shall also carry out a further Detailed Inspection of grilles trash screens and watergates each September or October.

2.11.3 Maintenance Requirements

- (i) Cyclic Maintenance shall be carried out in accordance with Clause 6106AR of the Specification 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 storage 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 storage 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 storage ponds and otherwise causing a loss of storage capacity;

- (b) damage or erosion to the banks, walls or bunds of settlement, attenuation and storage ponds and otherwise;
 - (c) damage or obstruction to the settlement, attenuation and storage 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 storage ponds and otherwise may become important sites for nature conservation. Prior to commencing any maintenance of a pond the Scottish Ministers shall be consulted by the Company to ascertain whether specialist environmental advice shall be required.
- (v) Settlement, attenuation and storage 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 storage ponds and otherwise.
- (ii) The Company shall carry out Detailed Inspections of settlement, attenuation and storage 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 storage 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.
- (v) Electrically energised pumps and associated circuits shall be Inspected, Tested and Certificated in accordance with BS7671 at an interval no greater than 5 years.

2.13.3 Maintenance Requirements

- (i) Cyclic Maintenance shall be carried out in accordance with Clause 6107AR of the Specification 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 road 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 Trunk Road 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.

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 Scottish Executive Roads 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 Scottish Ministers 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.

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 Scottish Ministers 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 Scottish Ministers 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 Scottish Ministers.

2.15 Traffic Scotland and Miscellaneous Equipment

2.15.1 General

- (i) The requirements of this Section 2.15 shall relate to Traffic Scotland equipment, miscellaneous equipment and communications equipment, which shall include but not be limited to the equipment

described at paragraph 6.3.

- (ii) Maintenance of the Traffic Scotland Active Maintained Equipment as defined in paragraph 6.3.1 of this Section will be undertaken by authorised contractors under separate contracts which shall be managed directly by the Scottish Ministers 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 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 RMMS and transferred into the Fault Management System, as described in Section 1 and Section 6.
- (v) The Company shall not interfere with any Traffic Scotland Active Maintained Equipment as defined in paragraph 6.3.1 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 Transport Scotland Network Operations Manager via the Fault Management System described in Section 6.
- (vi) The Company shall hold a record of the above ground equipment in the RMMS. 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 Transport Scotland Network Operations 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 2 and as follows:
 - (a) Emergency Telephones
 - (i) The Company shall carry out inspections of emergency telephones every 14 days to ensure that they are accessible and visible that telephone housings shall be correctly aligned that identification numbers are legible and that they are operational. During these inspections the Company shall clean the telephones. The Company shall check telephones for speech quality at both outstation and instation. Correct identification by the Company of all telephones shall be verified by the in-station.

- (ii) The Company shall arrange with the police control room to which the emergency telephones are linked the timing and sequence of inspections. The Company shall report any telephone found not to be operational to the Traffic Scotland Networks Operations Manager as soon as possible.
- (b) 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.
- (c) 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.
- (d) 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 1.2.7 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 Ministers authorised contractor as may be required.
 - (b) In addition the Company shall comply with the Night Inspection requirements of Section 1.7 of Part 2 of these O&M Works Requirements.

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 Scottish Ministers 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 RMMS, 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 Scottish Ministers 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 Scottish Ministers following the submission of the Geotechnical Maintenance Forms Part A and Part B as specified in paragraph 2.16.2.

2.17 Waterbodies

2.17.1 General

- (i) The requirements of this Section 2.17 shall relate to the inspection of waterbodies which shall include but shall not be limited to:
 - (a) Lagoons;
 - (b) settlement, attenuation and storage ponds and otherwise;
 - (c) attenuation structures; and
 - (d) associated inlets outlets reedbeds and marginal plants.

2.17.2 Inspections

- (i) Inspection frequencies in accordance with the requirements of Section 1 shall not apply to waterbodies.
- (ii) Detailed Inspections of inlets outlets reedbeds and marginal plants shall be carried out twice per year in February and October of each

Contract Year.

- (iii) Detailed Inspections to determine the depth of silt within waterbodies shall be carried out once per year in April of each Contract Year and reported to the Scottish Ministers within 4 weeks of the Detailed Inspection.

2.17.3 Maintenance

- (i) There shall be no Cyclic Maintenance requirement for waterbodies.

2.18 Special Ecological Measures

2.18.1 General

- (i) The requirements referred to in this Section 2.18 shall relate to special ecological measures as referred to in Clause 3012 of the Specification.

2.18.2 Inspections

- (i) Inspections in accordance with the frequency requirements of Section 1 shall not apply to special ecological measures.
- (ii) Detailed Inspections of all fencing tunnels underpasses and all other provisions for wildlife shall be undertaken in October and February of each Contract Year.

2.18.3 Maintenance

- (i) Routine Maintenance of special ecological measures shall be in accordance with Clause 3012 of the Specification at frequencies as required by such Clause.

2.19 Sweeping and Cleansing of Roads

2.19.1 General

- (i) The requirements of this Section 2.19 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.
- (iii) Motorways and special roads to which these requirements shall apply are the M8 Motorway, M73 Motorway, M74 Motorway, A8 Special Road and A725 Special Road.
- (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.

2.19.2 Inspection Requirements

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

The Quality Plan shall document how it shall comply with the requirements referred to in this Section 2.19 and in Clause 3101AR of the Specification.

2.19.3 Maintenance Requirements

- (i) The Network Roads

- (a) The Company shall ensure all areas within the boundaries of the Network Roads 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 Scottish Ministers 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) Routes other than the Network Roads
- (a) On routes other than the Network Roads within the O&M Works Site 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.

2.19.4 Requirements over and above the Environmental Protection Act 1990

- (i) Notwithstanding the requirements of the Environmental Protection Act 1990 the Company shall sweep once 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.

Maintenance in respect of sweeping and cleansing and litter and refuse shall comply with the requirements of Clauses 3101AR and 3102AR of the Specification.

2.20 Removal of Dead Animals

General

- (i) The requirements of this Section 2.20 shall relate to the removal of dead animals.
- (ii) The Company shall comply with the requirements of Clause 3103AR of the Specification.
- (iii) Dead animals which could cause a risk to health or to the environment shall be treated as Category 1 Defects.
- (iv) If the animal shall be a domestic pet any identification tags shall be removed and delivered to the police together with a brief description of the animal.
- (v) 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 case the owner wishes to claim back the carcass.

Inspection Requirements

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

Maintenance Requirements

- (vii) There shall be no Routine Maintenance requirement for removal of dead animals.

2.21 Road Restraint Systems (Pedestrian and Vehicular)

2.21.1 General

- (i) The requirements of this Section 2.21 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.

2.21.2 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.

Because of the potential danger to road users, damaged sections of road restraint systems (pedestrian and vehicular) shall be treated as Category 2.1 Defects.

2.21.3 Maintenance Requirements

- (i) The following requirements shall be in addition to those stated in paragraphs 1.2.7 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.

2.21.4 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 to 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).

2.22 Fences, Walls, Screens and Noise Barriers

2.22.1 General

- (i) The requirements of this Section 2.22 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 Company.
- (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 Structures.
- (iv) Fences, walls, screens or noise barriers along the boundaries of Network Roads shall be the responsibility of the Company unless otherwise notified by the Scottish Ministers.
- (v) Walls which retain a Network Road within the O&M Works Site shall be

the responsibility of the Company. Boundary walls which retain land above a Network Road shall be the responsibility of the Company unless otherwise notified by the Scottish Ministers.

2.22.2 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 undertake any measures the Company considers necessary to deter and mitigate the effect of such vandalism, and shall notify the Scottish Ministers in writing of what measures are taken.
- (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 Company, the Company shall notify the owner and shall in writing request that repairs shall be carried out.
- (v) Not used.
- (vi) Detailed Inspection shall identify steel concrete and timber elements which as a result of long term deterioration shall require replacement.

2.22.3 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 or other high risk locations, including but not limited to where children could stray onto the motorways, within the O&M Site as Category 1 Defects.

2.23 Road Studs

2.23.1 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; hereafter referred to as CHART studs.
- (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.

2.23.2 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-reflectivity 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 is beginning to occur in significant number indicative of a general fault condition 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.

2.23.3 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.

2.23.4 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.

2.24 Road Markings

2.24.1 General

- (i) The requirements of this Section 2.24 shall relate to the maintenance of road markings.

2.24.2 Inspection Requirements

- (i) Detailed Inspections in accordance with the frequency requirements of Section 1 shall not apply to road markings.
- (ii) The Company shall carryout 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.

2.24.3 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.

2.25 Road Traffic Signs

2.25.1 General

- (i) The requirements of this Section 2.25 shall relate to permanent road traffic signs including, but not limited to, permanent bollards, permanent marker posts, telephone hoods, refuge beacons 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.

2.25.2 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 Scottish Executive Roads Information System.

2.25.3 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.

2.25.4 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 road in the O&M Works Site that shall be subject to a speed limit less than the national speed limit for that type of road.

2.26 Road Traffic Signals

2.26.1 General

- (i) The requirements of this Section 2.26 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 Working 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 Working Days of any change being effected.
- (ix) The Company shall provide any missing Records during the first 12 months of Restricted Services.

2.26.2 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.

The Company shall report the results of the reviews in writing to the Scottish Ministers with recommended changes not later than 28 days after the end of each Contract Year.

2.26.3 Maintenance Requirements

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

2.26.4 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 the Specification 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 1277AR of the Specification.

2.27 Roadside Electrical Apparatus, Road Lighting and Power Supplies

2.27.1 General

Roadside Electrical Apparatus and Road Lighting and Power Supplies shall include but not be limited to lighting columns, illuminated signs and bollards, traffic signals, control cabinets, feeder pillars, electrically energised pumps, weather stations, floodlights, luminaires and other roadside apparatus forming part of an Intelligent Lighting Control System (ILCS).

- (i) The requirements of this Section 2. shall relate to road lighting including but not limited to catenary systems, aircraft and marine navigation lights on Structures and high masts including their hoists, winches and cables.
- (ii) The Company shall maintain record drawings showing installation, electrical supply and distribution details. These record drawings shall be amended within 10 days of any change being effected.
- (iii) Where electrical apparatus is located adjacent to the Trunk 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*.
- (iv) The Company shall liaise with local authorities in accordance with Transport Scotland guidance document *LDS8017_09 – Special Requirements for Local Authority Roadside Electrical Apparatus*.
- (v) The Company shall remove any redundant electrical apparatus in accordance with Transport Scotland guidance document *LDS8013_09 – Guidance on making Roadside Electrical Apparatus obsolete, redundant or derelict*.
- (vi) 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.
- (vii) The Company shall make reference to Transport Scotland guidance document *LDS8025_09 – Typical Drawings for Roadside Electrical Apparatus*.

2.27.2 Inspection Requirements

- (i) Detailed Inspections in accordance with the frequency requirements of Section 1 shall not apply to road traffic signs. Inspections and testing by the Company shall also be 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 apparatus 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 apparatus and Installations with Model Forms*. Inspection and testing in accordance with BS7671 shall be carried out across the road network on the basis of approximately twenty percent of the electrical apparatus per annum. All electrical apparatus shall be inspected, tested and certified at least once every five years. The Company shall produce a programme of works for periodic inspection and testing, coinciding where possible with Detailed or other Inspections.
- (iii) Detailed Inspections shall be carried out by the Company to include all inspections as referred to in paragraphs 2.10 to 2.18 inclusive of TD23 of the DMRB. Where Annex B of TD23 of the DMRB defines intervals of 6 years the interval for this Contract shall be 5 years.

2.27.3 Maintenance Requirements

- (i) The Company shall carry out Cyclic Maintenance in accordance with and at the frequencies required by paragraphs 5.4 to 5.6 inclusive and 5.8 to 5.43 inclusive of TD23 of the DMRB and Clause 1370AR of the Specification and as required by paragraph 2.27.3 (iv).
- (ii) The Company shall clean luminaries to coincide with the bulk lamp change periods as defined in Table 2.27.3/1 for conventional light sources whilst LED light sources shall be cleaned at 5 year intervals to coincide with electrical test and inspection requirements.
- (iii) The Company shall clean luminaries at the time of the Detailed Inspection.
- (iv) Bulk lamp changes shall be carried out by the Company at the intervals given in Table 2.27.3/1. This Table 2.27.3/1 replaces Tables 4 and 5 in TD23 of the DMRB.
- (v) The Company shall maintain all power supplies.

Table 2.27.3/1 Maximum Intervals for Bulk Lamp Changes

Lamp Type	Nomenclature as TD23 of the DMRB	Bulk Change Interval For Dusk to Dawn Operation	Bulk Change Interval For 24 Hour Per Day Operation	Notes
Low Pressure Sodium	SOX	24 months	12 months	At bulk lamp change consideration shall be given to replacement of these lamp types. Bulk lamp intervals can then be adjusted accordingly.
High Pressure Mercury	MBFU			
High Pressure Fluorescent	MCFE SLPL			
High Pressure Sodium	SON SON-T	48 months	24 months	
Low Pressure Sodium	SOX-E			
Ceramic Metal Halide	CMH			
LED	LED	As Required	As Required	

2.27.4 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 road in the O&M Works Site that shall be subject to a speed limit less than the national speed limit for that type of road.

2.27.5 Maintenance Requirements – High Mast Lighting

- (i) The Company shall in addition to the requirement as set out in paragraph 2.27.3 maintain high mast lighting as follows:
 - (a) at 6 monthly intervals – Maintenance Schedule A;
 - (b) at 2 yearly intervals – Maintenance Schedule B.

Details of the Schedule A and B shall be as included in Appendix 13/70 to Part 5 of these O&M Works Requirements.

2.27.6 Replacement Luminaires

- (i) Where the Company identifies that a luminaire cannot be repaired and needs to be replaced, preference shall always be given to luminaires incorporating LED based light sources consistent with those installed as part of the New Works Requirements. The lighting design shall utilise full cut off luminaires with a minimum of G4 Classification.
- (ii) Replacement luminaires using electronic ballasts shall use lamps of not greater than 250Watt, however LED based luminaires have no similar restriction allowing LED luminaires rated as equivalent to 400Watt to be used. All luminaires shall be supplied with DALI compatible, enabled and accredited electronic control gear or LED driver, and shall be suitable for operation over the input voltage range of 210-250 volts. Electronic control gear or LED drivers shall incorporate over-temperature protection and have a power factor no less than unity. Prior to delivery of any luminaire using electronic control gear or LED driver, the Company shall provide the Overseeing Organisation with a statement of compatibility from the supplier, detailing and confirming that the electronic control gear or LED driver being supplied is capable of operating over the temperature and voltage range to which it will be exposed in use within the luminaire housing and that the lamp and control gear or LED driver are fully compatible with each other. All luminaires shall be compatible with Transport Scotland’s Intelligent Lighting Control System (“ILCS”)
- (iii) All new luminaires shall have an Ingress Protection rating of no less than IP 66 for the control gear, or LED driver, and lamp compartments. All glazed luminaires shall utilise toughened glass.

- (iv) When considering the replacement of a luminaire(s) the Company's design selection and extents evaluation shall be assessed in accordance with DMRB TD 34/07 complying with BS5489:2013, BS EN13201, CIE 115: 2010, and Scottish Government guidance note "Controlling Light Pollution And Reducing Lighting Energy Consumption".
- (v) When the Company identifies that a luminaire(s) mounted in a multiple head frame assembly requires replacement consideration shall be given to the replacement of all luminaires within the assembly to maintain a consistent light characteristic in terms of light output and appearance.

2.28 Weather Stations

2.28.1 General

- (i) The requirements of this Section 2.28 shall relate to Weather Stations including but not limited to ice prediction equipment. The requirements for Weather Stations shall include ice sensors and 'road sensors'.
- (ii) The Company shall retain or replace all existing ice sensors on the Project Roads unless otherwise approved in writing by the Scottish Ministers.
- (iii) Any failures of Weather Station equipment including ice sensors shall be classed as a Category 1 Defect.

2.28.2 Inspection Requirements

- (i) The Company shall carry out Detailed Inspections and calibration checks on Weather Station equipment including ice sensors in accordance with the manufacturers' recommendations twice per year during August to September and during December to February in each Contract Year.
- (ii) These Detailed Inspections and calibration checks shall be carried out by a specialist firm procured by the Company and consented to in writing by the Scottish Ministers.
- (iii) Calibration and test certificates shall be held in accordance with the Quality Plan and shall be available to the Scottish Ministers at any time.
- (iv) Detailed Inspections in accordance with the frequency requirements of Section 1 shall not apply to ice sensors.

2.28.3 Maintenance Requirements

- (i) The Company shall carry out the maintenance and repair of the equipment using a specialist firm within 14 days of any defect being identified. Upon completion of the repair the equipment shall be re-calibrated in accordance with the manufacturers written recommendations.
- (ii) There shall be no Cyclic Maintenance requirements for ice sensors.

2.29 Removal of Graffiti

2.29.1 General

- (i) The requirements of this Section 2.29 shall relate to graffiti.
- (ii) The requirements as referred to in this section relate to the removal of

graffiti including posters, paint and encrusted deposits.

2.29.2 Inspection Requirements

- (i) Detailed Inspections in accordance with the requirements of Section 1 shall not apply to removal of graffiti.
- (ii) Detailed Inspections shall be determined by the Company. The Quality Plan shall document how it shall comply with the requirements with Clause 2671AR of the Specification.

2.29.3 Maintenance Requirements

- (i) Maintenance shall be carried out in accordance with Clause 2671AR of the Specification at the following frequencies:
 - (a) all graffiti shall be removed within 25 Working Days;
 - (b) offensive graffiti which shall be:
 - (i) racist;
 - (ii) religiously bigoted;
 - (iii) Inflammatory; or
 - (iv) sexually explicit or obscene.
- shall be removed within 2 days of identification.

2.30 Node Markers

- 2.30.1 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 Trunk Road network shall be accurately located and visible at all times.
- 2.30.2 During inspections, the node marker location shall be checked against the location coordinates and documents stored in the Scottish Executive Roads Information System.
- 2.30.3 Any node markers that are found to be missing or defective shall be replaced by the Company within 25 Working Days of their identification to the location described in the node marker location document.
- 2.30.4 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 Scottish Ministers and replace the node markers within 25 Working Days of receiving approval.
- 2.30.5 In all cases, node studs shall be installed in accordance with the Scottish Executive Advice Note *Node Marker Standards*.

2.31 Network Referencing

- 2.31.1 Detailed Inspections of all the network referencing shall be carried out at intervals not exceeding three years and on approximately one third of the network within the O&M Works area on an annual basis from the Restricted Services Commencement Date.
- 2.31.2 During the Detailed Inspection, the company shall review all network referencing attributes held against each link or section Record in the Scottish Executive Roads Information System. The section length shall be measured during each inspection. Any discrepancies in the network referencing attributes shall be recorded in the routine maintenance and

management function of the Scottish Executive Roads Information System and shall be notified in writing to the Scottish Ministers within 25 Working Days of identification.

3 Winter Service - Operations and Management

3.1 Introduction

- 3.1.1 Notwithstanding the provisions of Clauses 2801AR to 2810AR, 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 to keep to a minimum 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 central 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 measures are taken to keep the roads of the O&M Works Site open to its users at all times and shall prevent snow or ice from remaining on Project Roads in accordance with the requirements of this Part
- 3.1.3 Not Used.
- 3.1.4 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.
- 3.1.5 The Winter Service Period shall be the period between 1 October to 15 May in the subsequent year, unless specified otherwise in this Agreement.
- 3.1.6 The Company shall provide a pre-wetted system for precautionary salting of all carriageways.
- 3.1.7 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.
- 3.1.8 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 Company shall prepare its Winter Service Plan in accordance with the structure in Appendices C and D of this Part. The Company shall also include the following details in its Winter Service Plan:
- a) liaison arrangements to ensure the coordination of Winter Service Operations at the boundary of the O&M Works site,

- b) Mutual Aid arrangements with adjacent operating companies, DBFO's and local authorities,
- c) it's response times for mobilising Winter Service and such other resources as shall be required to meet the requirements of this Part,
- d) rosters detailing the availability of all Company staff required to provide Winter Service throughout the Winter Service Period. The rosters shall include names, addresses and telephone numbers of the staff listed,
- e) proposed arrangements for safe clearing of all roads within the O&M Works Site when they are covered in snow or ice,
- f) processes and procedures for deciding when it is unsafe to continue with, or commence, clearing operations.

The Winter Service Plan and its appendices shall be a controlled item of the Quality Plan and shall form part of the O&M Manual. 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* as stated in Part 1 of this Schedule 4: O&M Works Requirements..

- (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 South East Unit, South West Unit or local authority areas 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 shall be provided for the O&M Works Site when forecasts issued by the expert weather forecasting service, as referred in paragraph 3.4.1, indicates that there is a low confidence.
- (v) Each Winter Service Plan shall describe the arrangements and the response times to be used by the Company to mobilise winter Service Plant and such other resources as shall be required to deal with snow clearance and ice clearance of carriageways and meet the requirements of this Section 3.
- (vi) In preparing each Winter Service Plan the Company shall consult with:
 - (a) The emergency services;
 - (b) Adjacent local authorities and their agents;
 - (c) South East Unit;
 - (d) South West Unit; and
 - (e) Other interested parties.
- (vii) Not later than 60 days prior to the Restricted Services Commencement Date the Company shall prepare and submit to the Scottish Ministers for their written consent a Winter Service Plan that meets the

requirements of this Part 2 of these O&M Works Requirements for the period between the Restricted Services Commencement Date and midnight on the next 15th May, which shall be in the first Contract Year when the Restricted Services Commencement Date shall be on or after 1st April or in the second Contract Year when the Restricted Services Commencement Date shall be before 1st April of a calendar year.

- (viii) Prior to 31 July of each Contract 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 Scottish Ministers.
- (ix) Once consented to by the Scottish Ministers each Winter Service Plan shall be incorporated into the Quality Plan.
- (x) Prior to the commencement of each annual Winter Service period the Company shall provide one controlled paper copy and one controlled electronic copy of each Winter Service Plan as consented to in writing by the Scottish Ministers to:
 - (a) the Scottish Ministers;
 - (b) the emergency services;
 - (c) adjacent local authorities and their agents;
 - (d) Scottish Minister's Trunk Road South East and South West Units including DBFO's; and
 - (e) other interested parties.
- (xi) 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 Scottish Ministers for written consent. When consented to, the Company's amended Winter Service Plan shall be incorporated into its Management System.
- (xii) 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 Scottish Ministers
 - (b) the Performance Audit Group,
 - (c) The Emergency Services,
 - (d) Scottish Minister's Trunk Road South East and South West Units including DBFO's,
 - (e) local authorities and their agents, and
 - (f) other operating companies.
- (xiii) The Company shall support the Scottish Ministers in the operation of the Scottish Salt Group as required. 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 operators' 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 Scottish Ministers 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 Scottish Ministers 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 Quality Plan and be available for inspection by the Scottish Ministers at any time during the Service Period. The following list of some typical records shall be required 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) Winter Service Plant down time and software faults;
 - (h) Winter Service plant deployment records (including global positioning system records) and driver operator logs;
 - (i) Logs of telephone, e-mail and two way communication calls;
 - (j) Loading point de-icing stocks and replenishment orders;
 - (k) Ice prediction system records;
 - (l) Weather forecasts and actual weather experienced;
 - (m) Complaints from members of the public and other road users;
 - (n) Accidents resulting from winter conditions;
 - (o) Road closures due to winter conditions;
 - (p) Weights and volumes as appropriate from de-icing material(s) spread for each route; and
 - (q) A log of hours for each operative spent on "call out" or "standby" shall be kept in accordance with the procedures in the Quality Plan.

3.2.4 Reporting

- (i) The Company shall provide the Scottish Ministers when requested with daily or weekly salt stock monitoring reports. Monthly salt stock

monitoring reports shall be produced and submitted to the Scottish Ministers on the first Working Day of each month during the Winter Service Period. Such reports shall detail salt stocks held, supply arrangement within the O&M Works Site, salt usage and include a position statement on salt stocks, actual and imminent salt orders and a forecast of forward usage. The salt stock monitoring report shall be in accordance with the structure shown in Table 6 of Appendix B to this Section.

- (ii) 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 Scottish Ministers and the Company as to the requirements for the next Winter Service Plan.
- (iii) Prior to the 31st of May of each year the Company shall submit to the Scottish Ministers a Winter Service report prepared for the immediately preceding Winter Service period ending 15th May:
- (iv) Each Winter Service annual report shall provide:
 - (a) An overview and review of the service provided;
 - (b) A summary of key performance reports;
 - (c) Information on significant events and related actions;
 - (d) An assessment of the accuracy of weather forecasts provided;
 - (e) An assessment of road sensor performance;
 - (f) An analysis of the ability of the Quality Plan to capture reported non compliances;
 - (g) Innovations and improvements implemented;
 - (h) Planned continuous improvements, including recommendations for the Scottish Ministers;
 - (i) An executive summary of the annual report;
 - (j) Actions taking during periods of low confidence forecasts of variable and marginal winter weather conditions; and
 - (k) Use of reserve spreading vehicles and mechanical snow clearance Service Plant.
- (v) An annual review meeting between the Company and the Scottish Ministers shall take place 10 Working Days after each annual Winter Service report shall have been submitted to the Scottish Ministers to consider the finding(s) of such Winter Service report.
- (vi) Within 24 hours of completing each precautionary treatment Operation or other snow or ice removal Operation or other Winter Service Operation, including management Operations a report shall be completed by the Company. During the Winter Service period this would generally be a report submitted every day because management Operations would generally be a daily activity.
- (vii) The report shall be held electronically in accordance with the procedures in the Quality Plan.
- (viii) Each day during the Winter Service period the Company shall produce planned and actual reports for each precautionary treatment 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 during the current Winter Service Period;
- (f) plough usage,
- (g) number of treatment days (capability) of de-icing material available for each deposit based on six treatments per route per day at 20 grammes per square metre,
- (h) the weather forecast accuracy, and
- (i) any other relevant information.

The Company shall upload its daily report on planned treatments onto the Traffic Scotland website by 15:00 hours each day.

For each operative, a log of hours spent on “call out” or “standby” shall be kept in accordance with the documented procedures in the Company’s Management System.

3.2.5 Throughout the Winter Service Period, a daily report shall be produced by the Company. Such reports shall be in electronic format, agreed with the Scottish Ministers, based upon information taken directly from the spreading vehicle’s data logging and reporting system. The Company shall upload the information onto the Traffic Scotland website by 15:00 hours each day.

3.2.6 The Company shall include the Winter Service Plan and specified records and reports in the Quality Plan procedures 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 Operators of Winter Service 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 there shall be available a minimum of 3 trained drivers for each item of front line Winter Service Plant, including each item of loading and spreading winter Service Plant, such that up to 24 hours per day working could be carried out, disruption to a Winter Service Operation due to:

- (i) Breakdown; or
- (ii) any other similar circumstance.

shall be minimised and shall not result in a delay to Winter Service Operations being carried out and non compliance with drivers' working hours requirements shall not occur.

3.3.4 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.

3.3.5 The Company shall arrange that sufficient qualified personnel shall be on standby at all times during each Winter Service period to respond to breakdowns or other failure of the Winter Service Plant.

The Company shall arrange for the necessary repairs to be carried out without delay or mobilise the reserve Winter Service Plant all such that the response times detailed in this Section 3 shall be met.

3.3.6 A system that allows spoken communication with other winter Service Plant and the Winter Service Duty Officer shall be fitted in all Winter Service 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.

3.3.7 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 2.

Prior to 1 October each year the Company shall prepare rosters detailing the availability of all Company staff required to provide the Winter Service throughout the Winter Service period.

3.3.8 The rosters shall include names addresses and telephone numbers of the staff listed.

The Company shall satisfy itself that arrangements for handling and loading de-icing materials at the loading points shall be adequate to achieve the response times required in this Part 2.

The loading points for de-icing materials shall be situated at locations which shall ensure that the Company can comply with the requirements of this Part 2.

Each loading location shall require to have all necessary equipment for the pre-wetted salt process.

3.3.9 Prior to 1 October each year the Company shall:

(i) travel the whole length of each precautionary treatment route in the Winter Service 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 Service Plant to be so equipped, in order to ensure its operatives are familiar with the route and plant to be used.

3.3.10 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,
- shall be held electronically by the Company in accordance with the documented procedures in its Management 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 access throughout the Contract Period to an expert weather forecasting service consented to in writing by the Scottish Ministers.

Such service shall provide weather forecasts of road conditions for each individual climatic domain within the O&M Works Site. During the Winter Service Period the weather forecasts shall be developed with the assistance of data recorded from road ice sensors within each climatic domain including but not limited to those in Appendix D.

- (ii) The Company shall continuously monitor weather and road conditions in the O&M Works Site and provide suitably trained designated persons who shall be rostered to be available on duty or on call at all times to act as Winter Service Duty Officer or to act as an assistant to the Winter Service Duty Officer to:

- (a) receive;
- (b) monitor; and
- (c) interpret climatic information.

When such persons shall not be the Winter Service Duty Officer they shall provide the Winter Service Duty Officer with such information and data as shall be necessary for making decisions on the implementation of Operations, issue of instructions for the commencement of such Operations and otherwise as required by paragraph 3.6.1.

- (iii) A computerised road weather information system including but not limited to hardware software and telecommunication links required to:

- (a) obtain;
- (b) interpret; and
- (c) display.

as a minimum

- (i) road sensor data (forecast and actual);
- (ii) historical thermal maps (where these are available, they shall be provided to the Company by the Scottish Ministers but these will not be up to date),
- (iii) weather data,

- (iv) weather camera images, and
- (v) other relevant information.

in a manner that shall predict trends in weather and road conditions.

- (iv) The computerised road weather information system required at paragraph 3.4.1(iii) shall be accessible to the expert weather forecasting service required at paragraph 3.4.1(i) 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.
- (v) Computer systems (including hardware software telecommunications links) required to display the data from ice sensors and thermal maps. The computer systems shall display current and historic ice sensor data and the road condition forecasts.
- (vi) The Company shall be responsible for the provision of everything within the computerised road weather information system. The computerised road weather information system shall be proposed by the Company for consent in writing by the Scottish Ministers and details submitted at least 4 weeks prior to the Restricted Services Commencement Date. The Scottish Ministers shall require a minimum of 14 days notice to consider and issue their consent or otherwise.
- (vii) The computerised road weather information system required at 3.4.1(iii) shall have suitable computer terminals and software for the display of weather related radar information from the expert weather forecasting service required at paragraph 3.4.1(i) and from the Meteorological Office.

Such information shall be accessible to the Company at all times during the Winter Service period to assist in the Winter Service decision making process.

3.5 Other Provisions

- 3.5.1 The Company shall be responsible for all telecommunication links to meet the provisions of this Part 2 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. Thereafter the Company shall procure everything required.
- 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 can be used but only where open access of the protocol shall be available to the Scottish Ministers to allow access to such protocol 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 2 of these O&M Works Requirements.
- 3.5.5 Road sensors shall be polled by the Company at intervals of 20 minutes between 1st October and 15th May inclusive and hourly at all other times. The Company shall ensure that all cameras are operational at all times.
- 3.5.6 The locations of road sensors and forecast sites are detailed in Annex 3.1.

- 3.5.7 The words 'road sensors' and 'ice sensors' shall have the same meaning.
- 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 on duty in the control room whenever Winter Service Operations are planned. The Winter Service Duty Officer shall keep all Records relating to each decision made.
- 3.7 Decision Making Processes
- 3.7.1 During the Winter Service period the Company shall monitor and interpret:
- (i) weather conditions,
 - (ii) O&M Works Site road conditions,
 - (iii) data from road and mobile road sensors,
 - (iv) the computerised road weather information system,
 - (v) weather conditions and Traffic Scotland cameras,
 - (vi) historical thermal maps (when provided by the Scottish Ministers),
- 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.
- 3.7.2 The Company shall utilise the equipment and services described in paragraph 3.4.1 to assist with this decision making process.
- 3.7.3 Thermal mapping and ice sensor data, where available prior to the Restricted Services Commencement Date, shall be supplied to the Company by the Scottish Ministers.
- 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 computerised road weather information system to determine the ongoing effectiveness of the treatment and to instruct further treatment when this shall be required.
- This shall be particularly important in situations where:
- (i) precipitation is forecast or has occurred that may reduce the effectiveness of a treatment; or
 - (ii) the trend data from the computerised road weather information system changes 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 ongoing 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 Scottish Ministers 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 Scottish Ministers and the Performance Audit Group. In the event that the performance is deemed unsatisfactory by any party, the Company shall be required to take remedial action to improve demonstrably 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 such conditions to the Traffic Scotland Operator. The Company shall liaise closely with:

- (i) Transport Scotland/Scottish Ministers
- (ii) the Police,
- (iii) the Traffic Scotland Operator,
- (iv) adjacent local road and highway authorities,
- (v) South East Unit; and
- (vi) South West Unit
- (vii) DBFO’s,

to monitor adverse winter weather and travelling conditions and shall notify Traffic Scotland immediately and other such organisations within 30 minutes when actual or potential adverse weather or road conditions shall have been identified and that to ensure that its Winter Service Plan for provision of Winter Service at boundary interfaces is implemented..

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

- (i) the Scottish Ministers,
- (ii) adjacent road authorities and/or their agents,
- (iii) South East Unit;
- (iv) South West Unit;
- (v) the Police, and
- (vi) the Traffic Scotland Operator,

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 Severe Weather.
- 3.9.4 During such periods of adverse winter weather the Company shall have the responsibility for reporting the known effects of such conditions to the Traffic Scotland Operator.
- 3.9.5 The Company shall liaise with the adjacent South East Unit and South West Unit operators including DBFO's to ensure that a consistent level of Winter Service shall be provided at boundary interfaces including but not limited to priorities for snow and ice clearance.
- 3.10 Winter Service Patrols
- 3.10.1 From 1 November to 31 March inclusive, the Company shall carry out Winter Service Patrols on those sections of Trunk Roads identified in Annex 3.2 of this Part.
- 3.10.2 Category A and category B Winter Service Patrols are identified in Annex 3.2 of this Part.
- 3.10.3 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 Specification.
- 3.10.4 When the road surface temperature for any climatic area within a Winter Service patrol route is forecast at any time to be less than, or equal to, three degrees centigrade, a winter Service Patrol shall be enacted.
- 3.10.5 Winter Service Patrols shall:
- (i) patrol all carriageways of Trunk Roads, excluding slip roads, identified in Annex 3.2, Table 3.2.1 of this Part.
 - (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 identified in Annex 3.3 of this Part.
 - (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. Where any Incident occurs within the O&M Works Site, but outwith the Winter Service Patrol route, the Company shall deploy additional resources to manage the Incident. When, during a patrol, ice is found to have formed on a major Structure, the Company shall use salt at the minimum rate specified in Appendix B Table 4 of this Part as a spot treatment. If additional treatment is required alternative de-icing material shall be used.

- 3.10.6 The Company shall monitor the operation of Winter Service Patrols and take any action necessary to ensure that they comply with the requirements of this Part.
- 3.10.7 Winter Service Plant for Winter Service Patrols shall be fully loaded with de-icing material at the commencement of the Winter Service Patrol.
- 3.10.8 Category A Winter Service Patrols shall operate from 02:00 to 10:00 at two hourly intervals as described in paragraph 3.10.9 of this Part and shall be designed such that each Winter Service Patrol alternates between a one hour patrol and a one hour standby on each route. All patrol routes shall be completed within one hour of commencement.
- The routes for dual carriageways and motorways 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.
- Category A Winter Service patrols shall operate outwith the specified times when forecasts indicate an increased risk of delays and disruption to users caused by snow and ice conditions.
- 3.10.9 Operating periods for Winter Service Patrols shall be between 02:00hrs and 04:00hrs, 04:00hrs and 06:00hrs, 06:00hrs and 08:00hrs and 08:00hrs and 10:00hrs.
- 3.10.10 Category B Winter Service Patrols shall operate from 00:00hrs to 09:00hrs at three hourly intervals. Operating periods for category B Winter Service Patrols shall be between 00:00hrs and 03:00hrs, 03:00hrs and 06:00hrs and 06:00hrs and 09:00hrs.
- 3.10.11 Winter Service Patrols shall allow for rest periods, patrolling both sides of dual carriageways and motorways and all actions required in accordance with paragraph 3.10.5 of this Part.
- 3.10.12 Winter Service Plant for Winter Service Patrols shall not be used by the Company for undertaking precautionary treatments.
- 3.10.13 Winter Service Plant for Winter Service Patrols shall be used by the Company for the clearance of snow or 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 patrol route.
- 3.10.14 Areas Requiring Special Attention are described in Annex 3.3 of this part and are areas where frost or ice is prone to occur, where water run-off is likely to happen or where gradient is likely to affect the traction of vehicles.
- 3.10.15 The Company shall review the areas requiring special attention referred to in Annex 3.3 of the Part at least once in each Annual Period and amend or add to the lists 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 an approved code of practice for the use of Airwave in compliance with *Traffic Scotland Airwave Users Guide/Operating/Protocols and Procedures*.
- 3.11.5 The Company shall indemnify the Scottish Ministers 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 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 immediately notify the Traffic Scotland Operator by telephone following a Critical Incident which had caused or will cause significant disruption to traffic flow.
- 3.12.3 The Company shall comply with the requirements of Part 1 of this schedule regarding notification of Critical Incidents to the Scottish Ministers and Performance Audit Group.
- 3.13 Salt Bins
- 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.

3.14 Records

3.14.1 The Company shall complete and keep daily Records for Winter Service requirements. The Records shall be held electronically and have a remote access facility available to both the Scottish Ministers and the Performance Audit Group. The format of these Records shall be in accordance with the documented procedure in the company's Management System as it relates to Winter Service. Data transmitted from the Winter Service Plant shall be received and stored in accordance with Clause 2809AR of the Specification.

3.15 Precautionary Treatment

3.15.1 Precautionary Treatment

- (i) The Company shall undertake such precautionary treatment as is required by this Part 2.
- (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) Precautionary treatment routes shall be designed to enable completion of treatment routes within two hours of commencement of the treatment in a single pass, except where the requirements detailed in paragraph 3.15.1 (xi) of this Part apply.
- (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 in the O&M Works Site 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) No Winter Service Plant shall be driven above the legal speed limit at any time or at a speed greater than 40mph during precautionary treatment Operations.
- (ix) On single carriageway roads de-icing material shall be spread across the full width of the road in a single pass with the Winter Service Plant travelling at a speed no greater than 30mph.
- (x) A spreading vehicle shall not be used to treat a carriageway of more than 3 Lanes in a single pass. If the width of carriageway to receive de-icing treatment shall be 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.
- The completion times shall be in accordance with the response times stated in this Part 2 and shall be deemed to apply to the whole width of the carriageway.
- (xi) Roads within the O&M Works Site 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.
- (xii) In the event of a breakdown on any of the Company's front line Winter Service 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 Service Plant to be made available in order to comply with the requirements of this Agreement.
- (xiii) Where ethylene glycol, 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.
- (xiv) The Company shall put into place arrangements to deal with variable road and weather conditions that may occur after precautionary

treatments have been completed.

- (xv) The Company shall have in place adequate resources such that where the spread rate in Table 2 of Appendix B shall be greater than 20 grammes per square metre the precautionary treatment can be undertaken in a single treatment which is completed within two hours of its commencement..
- (xvi) 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 grammes per square metre of brine 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.

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. Where normal access is prevented due to weather related or other incidents, the Company shall mobilise within one hour of becoming aware of the Incident and shall complete the precautionary treatment within three hours.
- 3.16.4 Should frontline Winter Service Plant vehicle break down once it has been mobilised then a reserve Winter Service 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.

- 3.16.6 The Company shall identify in each Winter Service Plan and shall implement arrangements and resources that shall ensure carriageway precautionary treatments shall be provided for sections of roads on the O&M Works Site where normal access shall be prevented due to weather or other related incidents. For such precautionary treatments the Company shall mobilise within one hour of becoming aware of the incident and shall have completed the precautionary treatment within three hours.

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 roads of the O&M Works Site. 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 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 always be employed. 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. On Motorways windrows may be temporarily left on hard shoulders but these shall be cleared as soon as road surface conditions on running Lanes are safe. Clearance work shall proceed continuously until no snow remains on the carriageway, including hardshoulders.
- 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 roads on the O&M Works Site. 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 shall not be 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.
- 3.17.10 When there is formation of hard packed ice or snow and the air temperature shall be below minus 5°C or where the snow or ice shall be 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. Reversion to the use of de-icing material only shall be made as soon as possible.
- 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 The Company shall in discussion with Network Rail ensure that appropriate safety precautions shall be taken when snow ploughing vehicles shall be negotiating railway level crossings. 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 is prohibited, ploughing shall be continuous followed by repeated applications of de-icing chemical. If snow becomes hard packed consideration shall be given to applying 5 millimetres sharp sand to aid traction while snow clearing Operations are being carried out.
- 3.17.14 Lifting and removal of snow and ice from multi-level and grade separated interchanges 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 Service Plant is not sufficient the Winter Service Duty Officer shall deploy additional Winter Service 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 not be 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 other wise comply with the requirements of Table 4 of Appendix B.
- 3.17.20 Areas requiring special attention are described in Annex 3.3 and are areas where frost or ice is prone to occur, where water run-off is likely to happen or where the gradient is likely to affect the traction of vehicles.
- 3.18 Winter Service Plant
- 3.18.1 The Company shall provide Winter Service Plant and other Constructional Plant in accordance with the requirements of this Section 3.
- 3.18.2 The Company shall ensure that the Winter Service Plant listed in Appendix D shall be available as necessary for the Winter Service.
- 3.18.3 The Company shall ensure that its Winter Service Plant is maintained in accordance with the manufacturer's recommendations.
- In the event of a breakdown on any of the company's front line Winter Service Plant:
- (i) details of the cause, time and location of the breakdown and any other relevant information shall be recorded,
 - (ii) the operator shall, if possible, return the vehicle to the nearest depot in order to minimise blockages and further disruption to the network, and
 - (iii) the Company shall make immediate arrangements for reserve Winter Service Plant to be made available in order to comply with the requirements of this Part.
- 3.18.4 The Company's Winter Service Plant shall as a minimum meet the requirements of this Part 2.
- 3.18.5 Appendix D details the minimum Winter Service Plant that shall be available for use in connection with the Winter Service.
- 3.18.6 Front line and reserve Winter Service Plant shall be fitted with on-board electronic data loggers fitted in accordance with Clause 2810AR of the Specification.

The onboard 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 2809AR of the Specification.

In the event of an onboard electronic data logger malfunction, the Company shall prepare a similar written record within 12 hours.

3.18.7 The Company shall provide apparatus to measure and record and shall measure and record the quantity of de-icing material spread on each occasion on each precautionary treatment route. Such apparatus shall be fitted to Winter Service Plant or shall be located at depots.

3.18.8 Such apparatus shall be additional to the data loggers required at paragraph 3.18.6.

3.18.9 As a minimum requirement, in September and January of each Contract 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 Scottish Ministers and in accordance with the requirements of the specific material being used..

September testing shall comply with the requirements of tests 'B' and 'C' 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 Management System.

3.18.10 The Winter Service 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.

3.18.11 Winter Service 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 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;

- (ix) be fitted with a salt discharge indicator connected to the salt spreading machine that shall inform the operator if spreading shall have ceased;
- (x) be fitted with an electronic data logger in accordance with in accordance with the requirements of this Section 3;
- (xi) be fitted with an on board global positioning system in accordance with the requirements of this Part 2;
- (xii) 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 2 relating to Winter Service Plant.

3.18.12 Winter Service Plant used for spreading pre-wetted salt shall:

- (i) be capable of delivering a constant supply of brine of the correct amount, comply with the requirements of paragraph 3.18.11 where such requirements shall not be inconsistent with the spreading of pre-wetted salt; and
- (ii) 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 Scottish Ministers that the brine delivery system of the Winter Service Plant used for spreading pre-wetted salt shall meet all the requirements of this paragraph 3.18.12 and the Company shall provide in writing to the Scottish Ministers the method that shall be employed to ensure that the quantity of the brine being applied during each route treatment is correct.

- 3.18.13 Winter Service Plant used for spreading alternative de-icing materials shall comply with the requirements of paragraph 3.18.11 where such requirements are not inconsistent with the spreading of alternative de-icing materials and any other requirements to ensure the effective distribution of alternative de-icing materials to comply with the requirements of this Section 3.
- 3.18.14 The Company shall provide a range of snowploughs that shall be capable of clearing all snow conditions in the O&M Works Site.
- 3.18.15 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.
- 3.18.16 All Winter Service Plant used for de-icing and snow and ice clearance operations shall comply with the requirements of paragraph 3.18.11 where such requirements are not consistent with the clearance of snow and ice and have 2 additional headlamps fitted to permit forward visibility when a snow plough is fitted.
- 3.18.17 Front Line Winter Service Plant
- (i) Subject to the other provisions of this Agreement the Company's minimum front line Winter Service Plant that shall be permanently available during the Winter Service period within the O&M Works Site for the Winter Service on carriageways shall be as Annex WSP 5 of Appendix D.
Such Winter Service Plant shall as a minimum have the ability to:
 - (a) deliver precautionary treatment to all precautionary treatment routes simultaneously;
 - (b) clear snow and ice to a fallen or formed depth not exceeding 100 millimetres, but excluding Winter Service Plant not required to be capable of spreading whilst echelon ploughing;
 - (c) comply with the requirements of sub-section 3.17; and
 - (d) Comply with the requirements of sub-section 3.15.
 - (e) Comply with the requirements of this Part.
 - (f) Comply with the requirements of sub-section 3.10.
 - (ii) Subject to the other provisions of this Agreement the Company's minimum front line Winter Service Plant permanently within the O&M Works Site for the Winter Service for non motorised User facilities shall be as in Annex WSP 5 of Appendix D.
Such Winter Service Plant shall as a minimum have the ability to deliver 20 grammes per square metre precautionary treatment to all routes simultaneously and clear ice and snow lying to a depth up to 100 millimetres.
 - (iii) All front line Winter Service 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.

- (iv) Front line Winter Service Plant shall, as a minimum, have the ability to:
 - (a) carry out precautionary treatment to all routes simultaneously,
 - (b) carry out Winter Service Patrols,
 - (c) clear ice and snow lying to a depth of up to 100 millimetres, and
 - (d) spread pre-wetted salt.

3.18.18 Reserve Winter Service Plant

- (i) The Company's reserve Winter Service Plant shall be that part of the Winter Service Plant permanently available within the O&M Works Site to supplement front line Winter Service Plant for the Winter Service for carriageways and non motorised User facilities in situations when such front line Winter Service Plant shall not be available for whatever reason for the Winter Service.
- (ii) The reserve Winter Service Plant may also be used to supplement front line Winter Service Plant in snow conditions.
- (iii) Subject to the other provisions of this Agreement the minimum reserve Winter Service Plant shall be as referred to in Annex WSP 5 of Appendix D.

3.18.19 Additional Winter Service Plant

- (i) The additional Winter Service Plant shall be that part of the Winter Service Plant that shall be available for the Winter Service for carriageways and non motorised user facilities either directly under the control of the Company or through contingency arrangements with third parties to deal with snow and ice lying to a depth of more than 100 millimetres and any other winter weather conditions which cannot be dealt with by front line or reserve Winter Service Plant.
- (ii) Subject to the other provisions of this Agreement the minimum additional Winter Service Plant shall be as referred to in Annex WSP 5 to Appendix D.

3.18.20 Mobilisation arrangements for additional Winter Service Plant available through contingency arrangements for the Winter Service for carriageways and non motorised User facilities shall be as referred to in Table 4 of Annex WSP 5 to Appendix D.

3.18.21 Loading Winter Service Plant

- (i) The minimum loading Winter Service Plant available within the O&M Works Site for loading:
 - (a) front line;
 - (b) reserve; and
 - (c) additional Winter Service Plant.

shall be as referred to in Annex WSP 5 of Appendix D.

3.18.22 Maintenance of Company's Winter Service Plant

The Company shall be responsible for ensuring that its Winter Service Plant shall be maintained in accordance with manufacturers' recommendations.

- 3.18.23 When used on a public road for operator training and maintenance runs the spinner disc at the rear of the Company's Winter Service 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.

3.19 Salting And Alternative De-Icing Agents

3.19.1 General

- (i) The Company shall procure and provide salt and alternative 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. If stocks have reduced to 90 percent on 21 December in any Winter Service Period, the Company shall restock to 100 percent of the full pre-season stocks.
- (iii) Salt for de-icing shall be 6.3 millimetres grading particle size complying with BS 3247:1991 or equivalent and treated with an anti caking agent.
- (iv) The method of salt storage at loading points shall ensure that the moisture content of the stored salt does not exceed four per cent. Should the moisture content of salt exceed four per cent, the Company shall take all measures necessary to ensure that compliance with the requirements of this Part is regained.

Where the moisture content of salt 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) New deliveries of salt received by the Company shall be tested by the Company in accordance with paragraph 3.19.1(v).
- (vii) 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. As a minimum, the salt should be tested at the base, centre and top of the stockpile.
- (viii) 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 as part of pre-wetted salt operations, not including the salt to be used in producing brine, shall be 6.3 millimetre grading particle size complying with British Standard 3247:1991 or equivalent.
- (ii) Salt for de-icing material as part of pre-wetted salt operations to be used in producing brine shall be suitable for such production.
- (iii) For pre-wetted salt spreading operations, the spread rates set out in Table 2 of Appendix B of this Part shall represent the total weight of

the spread material.

- (iv) The percentage of brine added to salt during spreading Operations shall comprise 30% of the total spread material by weight , giving a 70% salt:30% brine solution.
- (v) Fully saturated brine solution with a 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.

- (vi) 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.

- (vii) 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 saturators shall be protected from freezing by appropriate measures.

3.19.3 Alternative De-icing Materials

- (i) The use of agricultural by-products or other additives used in de-icing materials shall be in accordance with the supplier's instructions and shall require the prior written consent of the Scottish Ministers.
- (ii) Alternative de-icing materials used for de-icing Operations shall comply with the Ministry of Defence Specification 68-118 (De-icing/Anti-Icing Fluid for Runways) unless otherwise consented to in writing by the Scottish Ministers.
- (iii) Prior to the use of alternative de-icing materials the Company shall provide the Scottish Ministers, Scottish Environment Protection Agency and Scottish Natural Heritage with documentation to demonstrate that the de-icing material complies with all aspects of this Part 2 and the specified use of this material including but not limited to details of the storage and use of materials to comply with the anti-pollution requirements of Legislation including but not limited to the provisions of the Environmental Protection Act.
- (iv) 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, to be provided by the Scottish Ministers and subject to written consent. Such alternative de-icing material shall be described in the Company's Winter Service Plan.

- (v) The Company shall store 10,000 litres, or equivalent, of alternative de-icing material within the O&M Works Site to deliver the requirements of paragraph 3.19.3 (iv) of this Part.
- 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 2.
- 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(v);
 - (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; and
 - (ii) alternative de-icing materials.
- 3.19.6 As salt de-icing material is removed from storage areas by the Company a positive slope shall be maintained to avoid danger to operatives and winter Construction 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 Service Plant, cause the de-icing material to fail to comply with the requirements of this Part 2 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 and alternative de-icing materials.

Annex 3.1 – Location Details

Table 3.1.1 – Locations of Road Sensors and Forecast Sites

Road Number	Location
M73	Gartcosh

Annex 3.2 – Winter Service Patrols

Table 3.2.1 – Winter Service Patrols Routes

Road Number	Location	Category
M73	Jnc 1 (Maryville) to approximately two kilometres north of Jnc 2a (Gartcosh)	A
M74	Jnc 3a (Daldowie) to Jnc 6 Hamilton	A
M8	Jnc 10 (Easterhouse) to approximately 1.5 kilometres east of Jnc 6 (Newhouse)	A
A725/A726	Shawhead at junction with Kirkshaws Road to Bridge over River Clyde approximately 0.6 kilometres southwest of M74 Jnc 5 (Raith)	A
A8/A89	Baillieston at junction with A89 to Newhouse junction.	B
B7071	Bothwell at junction with Hamilton Road to Raith junction.	B

Annex 3.3 - Location of Known Areas Requiring Special Attention

Table 3.3.1 – Frost Susceptible Areas

Road Number	Location
None Known	

Table 3.3.2 – Water Run Off Locations

Road Number	Location
None Known	

Table 3.3.3 – Gradient Locations

Road Number	Location
A725	Raith Interchange towards East Kilbride
A725	Raith Interchange towards Bellshill
M73	Junction 1 to Junction 2
M74	Northbound on to M73

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 RMMS as specified in Section 2;
- (iii) Bridges and other Structures as specified in Section 5; and
- (iv) Road safety as specified in Section 18 of Part 1 of Schedule 4.

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. Subject to paragraph 4.2.2, the Company may elect to adopt the information obtained through the surveys conducted by the Scottish Ministers, as described in sub-section 15.2 of Part 1 of these O&M Works Requirements. The Company may also augment such surveys with whatever investigations/surveys it considers appropriate. 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 Notwithstanding paragraph 4.2.1, the Company shall ensure that no less than two deflectograph, two SCRIM and two high speed surveys are undertaken after the Initial Inspection and before the Expiry Date. Survey contractors, employed by the Company and approved by the Scottish Ministers, shall undertake all such surveys. The Company shall notify the Scottish Ministers in writing of the programme of routes and types of survey to be undertaken on the O&M Works Site each year during the Contract Period.

4.2.3 The survey contractors shall liaise directly with the Company informing it of the dates and types of survey being undertaken on the O&M Works Site. The Company shall liaise with the survey contractors when required for traffic management and other safety purposes and shall provide such assistance and all traffic management as may be required to facilitate such surveys.

4.2.4 Results of all such surveys shall be processed by the Company in a format compatible with Transport Scotland Pavement Management System and

shall be provided by the Company in a format suitable for input to the Scottish Executive Road Information System.

- 4.2.5 Prior to maintenance works which will involve trafficking on the hard shoulder the Company shall provide an assessment of the hardshoulder pavement to demonstrate the suitability of the hardshoulder for the proposed trafficking to the satisfaction of the Scottish Ministers. This submission shall be provided as part of any traffic management proposal to the Scottish Ministers in accordance with Schedule 4 Part 5 Appendix 1/17 where this is required or otherwise as a specific submission to Scottish Ministers prior to implementing the works.

4.3 Programmes

- 4.3.1 A programme of surveys of the road pavement other than for the purposes of routine maintenance shall be planned on or before the 1st of January of each year for implementation in the following spring. A copy of this programme shall be submitted as part of the annual report as detailed in Part 7 of these O&M Works Requirements. Maintenance assessment data shall be collected recorded and analysed on a systematic and regular basis. All records shall be available for inspection by the Scottish Ministers when requested during the working hours of a Business Day.
- 4.3.2 The programme of surveys shall be such as to ensure the level of service specified in paragraph 4.4. Irrespective of the extent of the surveys proposed in any year the programme shall be reviewed to take account of events which could lead to sudden deterioration of parts of the O&M Works Site such as severe winter.

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 at the end 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 CHART studs 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 is 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.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads
LANE SURVEY METHOD				H/S	L.1	L.2/ L.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads
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 4.1 OF HD28 of the DMRB				i) AVERAGE MSSC > INVESTIGATORY LEVEL+ 0.10 ii) MINIMUM LEVEL AS TABLE 4.1 OF HD28 of the DMRB			
HSS SCANNER (Ride Quality)	HD29 of the DMRB		GROUP 3	REFER TO NOTE 3	1	2	N/A	N/A	CATEGORY 3 TABLE 2.A.2 to HD29 of the DMRB	N/A	N/A	N/A	CATEGORY 4 TABLE 2A.2 to HD29 of the DMRB	N/A	N/A	N/A	i) AVERAGE CATEGORY 2 ii) MINIMUM CATEGORY 3 TABLE 2A.2 to HD/29 of the DMRB	N/A	N/A
HSS SCANNER (Rutting)	HD29 of the DMRB		GROUP 3	REFER TO NOTE 3	1	2	N/A	N/A	> 5 %WITH 11mm OR MORE	N/A	N/A	N/A	NOT MORE THAN 10% WITH 11mm OR MORE	N/A	N/A	N/A	AVERAGE RUT DEPTH OF 5 mm AND NOT MORE THAN 5 % WITH 11mm OR MORE	N/A	N/A

NOTES:

1. Key to general terms : H/S – Hard shoulder ; L1, L2, L3 and L.4 – Lane 1, Lane 2, Lane 3 and Lane 4.
2. Seasonal factor to be agreed with the Scottish Ministers.
3. Assessment to be carried out as required in accordance with Section 4.2.
4. The Company shall comply with the requirements of the Design Manual for Roads and Bridges for skid resistance management (HD 28) and the requirements and advice contained in the Guidance Document for Implementing a Skid Resistance Policy for Transport Scotland. If there is any conflict between these documents, the Guidance Document for Implementing a Skid Resistance Policy for Transport Scotland shall take precedence

Table 4/2 : Maintenance Assessment Surveys – Structural Performance

	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.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads
LANE SURVEY METHOD				H/S	L.1	L.2/ L.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads	H/S	L.1	L.2/ L.3/ L.4	Slip Roads
VISUAL CONDITION (Cracking/ Spalling)	REFER TO NOTE 1 BELOW	BITUMINOUS SURFACING	—	REFER TO NOTE 2	4	8	4	WC > 5 %				WC not > 10 %				WC not > 5 %			
DEFLECTO-GRAPH (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 : WC – Single longitudinal wheelpath cracking and multiple wheelpath cracking and crazing as defined in DMRB 7.3.2.3 Table 3.1 10% - WC 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 and L3 – Lane 1, Lane 2 and Lane 3.
- 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 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 Structures Engineer who shall be responsible for approving how the Company shall propose complying with the O&M Works Requirements in respect of Structures, including movements of abnormal loads. The Structures Engineer shall fulfil the requirements in BD63 of the Supervising Engineer.

5.3 Maintenance Management

5.3.1 General

- (i) Management procedures shall be developed and implemented by the Company in its Quality Plan to produce inputs to and general reports from the Structures Management System (SMS). The current requirements are set out in the User Manual, Published by the Scottish Executive. The Company shall be responsible for complying with any updated requirements of the Manual, as issued from time to time by Transport Scotland Bridges Branch.
- (ii) The Company shall prepare input sheets for any new Structures in accordance with the User Manual and this information shall be input into the SMS programme.
- (iii) The Company shall update the data held in the SMS within 3 Business Days as it shall become aware of any new or changed data particularly after Principal Inspections of Structures.
- (iv) Use of the SMS shall be by means of an ISDN linked system connected between the Transport Scotland offices at Buchanan House Glasgow and the Central Office and shall be procured and maintained by the Company.
- (v) Such system shall have appropriate firewalls at Buchanan House provided by the Scottish Ministers.
- (vi) The Scottish Ministers shall make access available to the Company, shall provide and maintain application software and shall update this from time to time.
- (vii) The Company shall provide maintain and update as necessary all computers which they shall require and ancillary routeing and network equipment necessary to establish and maintain a local area network to provide its access to the SMS in order to enable the Company to fulfil its obligations in respect of data records and access for Structures and the SMS under this Agreement.
- (viii) The Company shall, at the end of each calendar month, download all data held on the SMS for the O&M Works Site and shall forward this in CD Rom format within 5 Business Days to Transport Scotland Bridges Branch.

- 5.3.2 Details of all maintenance, replacements and repairs carried out on Structures during the Services Period shall be included within the SMS
- 5.3.3 Any maintenance and operations manuals and health and safety files for Structures shall be reviewed not less than once each Contract 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.
- 5.3.4 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 Scottish Ministers within 3 Business Days of completion of the review.

Maintenance Management of Sub-Standard Elements

The Company shall be responsible for identifying and carrying out a risk assessment of substandard safety critical elements of structures, including but not limited to parapets and bridge support piers, which do not meet current assessment collision loading. The Company shall programme and undertake works to upgrade these substandard elements of structures to current standards prior to Handback.

5.3.5 Assessment and Strengthening of Existing Structures

As a minimum the existing structures listed below shall be assessed and, if necessary, strengthened or replaced to meet the loading criteria noted prior to Handback.

Structure Reference Number	Structure Title	Design Check Category	Required Live Loading (excluding LM3 Special Vehicles) (Eurocode BS EN 1991-2)	LM3 Special Vehicles (Eurocode BS EN 1991-2)	Vehicle Parapet Type (where required)
M73S 1-1 10	M73 SB – M74 WB SLIP	3	ALL capacity of 40 tonnes and HB capacity in compliance with BD 37/01 LM1 and LM2 loading.	SV196 SV100 SV80	Vehicle restraint system in accordance with TD19 of the DMRB.
A8 40	Orchard Farm Rail	3	ALL capacity of 40 tonnes and HB capacity in compliance with BD 37/01 LM1 and LM2 loading.	SV196 SV100 SV80	Vehicle restraint system in accordance with TD19 of the DMRB.

5.4 Inspection Requirements

5.4.1 General

- (i) The Company shall carry out inspections in accordance with Volume 3, Section 1 of the DMRB, the following Scottish Executive documents and the procedures detailed in this section:
 - (a) Guidance Note: Trunk Road Structures: Principal Inspections for Maintenance Works Prioritisation;
 - (b) Location System: Principal Inspections: Trunk Road Structures; and
 - (c) TRBDB User Manual/SMS User Manual
- (ii) When requested the Company shall give the Scottish Ministers 7 days notice of any general or principal inspection or any other inspection of Structures to be conducted in accordance with these O&M Works Requirements.
- (iii) When the Company inspects Structures which shall be part of accommodation works for private users the road surface on the Structure and 3 metres beyond the ends of the Structure shall be included in the scope of the inspection.

5.4.2 Superficial Inspections

- (i) The main purpose of Superficial Inspections shall be to identify problems or deficiencies that may lead to accidents, deterioration or high repair costs if not rectified. Additional guidance on these inspections is contained in the DMRB Volume 3, Section 1, where they are referred to as safety inspections.
- (ii) Superficial Inspections shall also follow the relevant requirements of Safety Inspections, where these complement the scope and effectiveness of Superficial Inspections.
- (iii) There shall be two types of Superficial Inspections namely random and reactive.
- (iv) Random Superficial Inspections shall be undertaken during Cyclic Maintenance of Structures. Staff of the Company working in the vicinity of a Structure shall:
 - (a) observe the Structure;
 - (b) record any signs of problems or deficiencies; and
 - (c) report problems or deficiencies in accordance with the Company's defined procedures as required by these requirements.
- (v) Reactive Superficial Inspections shall be undertaken after a problem or deficiency has been observed and reported by:
 - (a) any of the Company's staff;
 - (b) the police; or
 - (c) the public

The Company shall report the findings of the inspection in accordance with the Company's defined procedures as required by these requirements.

- (vi) The Company shall provide records of Superficial Inspections and their findings on the SMS.

5.4.3 General Inspections

- (i) The Company shall plan and implement a programme of General Inspections (GI's) of Structures by competent personnel to take place at intervals of no more than two years after the last General or Principal Inspection.
- (ii) A GI shall consist of a visual inspection of representative parts of the Structure in accordance with the documentation listed in paragraph 5.4.1(i).
- (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) GI's shall be recorded in accordance with the documentation listed in paragraph 5.4.1(i), in particular the proforma at Annex B to BD63/07 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) The Company shall provide records of GI's and their findings on the SMS.

5.4.4 Principal Inspections

- (i) The Company shall plan and implement a programme of Principal Inspections (PI's) of Structures by competent personnel to take place at intervals of no more than six years after the last PI.
- (ii) A PI shall consist of a close examination, within touching distance, of all inspectable parts of a Structure in accordance with the documentation listed in paragraph 5.4.1(i).
- (iii) PI's shall be recorded in accordance with the documentation listed in paragraph 5.4.1(i).
- (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) The Company shall provide records of PI's and their findings on the SMS.

5.4.5 Special Inspections

- (i) Details of Special Inspections together with examples of when these may be required are given in BD 63 of the DMRB.
- (ii) The requirement for Special Inspections shall be determined by the Company and the Company shall be responsible for implementing

these.

- (iii) Special Inspections shall be recorded in accordance with the documentation listed in paragraph 5.4.1(i).
- (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) The Company shall provide records of Special Inspections and their findings on the SMS.

5.4.6 Scour Inspections

- (i) Scour inspections shall be implemented for Structures where the foundations and parts of the Structure are below water level. The Company shall carry out Scour Inspections at the same time as carrying out Principal Inspections.
- (ii) The Company shall carry out Scour Inspections in accordance with BA 74 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) The Company shall provide records of Scour Inspections and their findings on the SMS.
- (iv) 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 2 and where required a Special Inspection shall be undertaken.

5.4.7 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 BD7 of the DMRB.
- (iv) Weather resistant steel bridges that shall require to be monitored shall be listed within the SMS. The SMS 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.

5.4.8 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.

5.4.9 Identifying and Categorising Defects

- (i) Defects shall be identified and categorised as described in the documentation listed in paragraph 5.4.1(i). These can be summarised here 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 in accordance with these O&M Works Requirements.

5.5 Cyclic Maintenance of Structures

5.5.1 The requirements and scope of Cyclic Maintenance shall be as detailed in Clauses 6110AR to 6118AR of the Specification.

5.5.2 The Company shall carry out Cyclic Maintenance to each relevant Structure at least once each Contract Year 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.

5.6 Maintenance of Structures

5.6.1 Maintenance of Structures covers the rectification of defects to Structures that do not affect structural integrity. Typical examples are considered as failed waterproofing systems, parapet systems, expansion joints etc.

5.6.2 The Company shall be responsible for the 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 shall be identified as requiring Maintenance, appropriate steps shall be taken by the Company to carry out the Maintenance works as soon as possible.
- 5.6.4 Maintenance shall comply with the standards contained 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 Scottish Ministers that any proposed maintenance to Structures provides the Scottish Ministers with long term value for money.
- 5.6.6 Where Maintenance of Structures requires the alteration of the appearance of a Structure this shall require the written approval of the Scottish Ministers.
- 5.6.7 The Company shall be responsible for obtaining all statutory approvals for 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:
- (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 in accordance with the Agreement. 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 required due to:

- (i) structural members that have deteriorated such that their capacity is reduced; and
- (ii) increases in vehicle loadings above those used for the Design of a Structure; and
- (iii) Accidental damage to a structure

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 Scottish Ministers the Company shall be responsible for procuring this work by experienced assessing engineers.
- (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 implementing any necessary interim measures and permanent works to meet the requirements of the Agreement.
- (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 and for implementing such strengthening or replacement works as required.

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 Scottish Ministers.
- (ii) All Structures that shall require to be monitored shall be as listed within the SMS.

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 Scottish Ministers with long term value for money and the Company shall provide evidence of this to the Scottish Ministers 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 Scottish Ministers. 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 Scottish Ministers.
- (iv) All proposals for strengthening of Structures which require the alteration of the appearance of a Structure shall require the written Approval of the Scottish Ministers.
- (v) The Company shall be responsible for obtaining all statutory approvals for strengthening or replacement of Structures.
- (vi) The Company shall be responsible for the implementation of strengthening or replacement of Structures in accordance with these O&M Works Requirements, including Handback.

5.9.4 The Structures Management Function of the Scottish Executive Road Information System

- (i) The structures management function of the Scottish Executive Road Information System database is 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 Scottish Executive Road 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 Scottish Executive Road Information System shall be kept up to date by the Company throughout the duration of this Contract
- (ii) The Company shall update all data held in the structures management function of the Scottish Executive Road Information System, as follows:
 - (a) within three Working 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:
 - (i) demolished or infilled,
 - (ii) newly constructed,

- (iii) widened,
- (iv) maintained and subjected to remedial works, or
- (v) strengthened and or improved.

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

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 is no longer deemed sub-standard.

The Company shall manage sub-standard Structures in accordance with the requirements of the *Design Manual for Roads and Bridges*.

6 Network Operations Services and Maintenance of Traffic Scotland Equipment

6.1 Network Operations Services General

- 6.1.1 The Company shall undertake Operations in accordance with Schedule 4 to support the Scottish Minister's in the delivery of the Traffic Scotland Service, the Trunk Road Incident Support Service and the Traffic Customer Care Line.
- 6.1.2 The Company shall undertake Operations in accordance with this Section 6 from the Restricted Services Commencement date.
- 6.1.3 Network Operations is a branch of Transport Scotland which is responsible, on behalf of the Scottish Ministers for the provision of a number of national traffic, travel information and on road and public transport customer support services all of which are aimed at improving the operational efficiency and journey time reliability of the Trunk Road network and the Project Roads. These Network Operations services include the Traffic Scotland Service, Trunk Road Incident Support Service and Traffic Customer Care Line and due to the nature of these services it is likely that these services will change during the duration of the Agreement. The Network Operations Service changes may also include the provision of new additional services and improvements to current services.
- 6.1.4 The Company shall note that the point of contact for all Traffic Scotland matters is the Traffic Scotland Manager unless advised otherwise by the Scottish Ministers.
- 6.1.5 The Traffic Scotland Service provides Transport Scotland and its customers, the media, Scottish Ministers and Scottish Minister's resilience staff with accurate and timely real time information relating to conditions, Incidents and events prevailing across the trunk road network in Scotland and the Project Roads on a 24/7 basis. The Traffic Scotland Service Provider is responsible for the delivery of the Traffic Scotland Service, of which the operations element is carried out from the Traffic Scotland Control Centre at South Queensferry. Further to this the Traffic Scotland Provider is responsible for delivery of the Customer Contact Service as detailed in Schedule 4 Part 1 Section 26.
- 6.1.6 Network Operations through the Traffic Scotland Service also provide a traffic data service and collect traffic parameter data at the fixed location traffic counting sites within the Network Roads and Site Roads and Scottish trunk road network. Network Operations shall integrate the Company's Traffic Data into this element of the Traffic Scotland Service and the Company shall provide electronic transfer of the Company's Traffic Data in a data format agreed by the Traffic Scotland Service Provider so that the Company's Traffic Data is available to the Traffic Scotland Service within seven days of the Company collecting the Company's Traffic Data.
- 6.1.7 The names, addresses and contact numbers of the Traffic Scotland Service Provider shall be as referred to in Appendix Q of this Part or as otherwise notified to the Company in writing by the Scottish Minister's. The Scottish Minister's will notify the Company in writing of any changes made to the Traffic Scotland Service Provider roles.
- 6.1.8 No later than 30 days before the Restricted Services Commencement Date, the Scottish Minister's will issue to the Company in electronic format, an up-to-date Traffic Scotland Active Maintained Equipment inventory of all Traffic

Scotland Active Maintained Equipment located on the Project Roads and the Company shall from that date provide inventory updates to the Traffic Scotland Service Provider so that the Traffic Scotland Active Maintained Equipment is never more than seven days out of date.

- 6.1.9 The Company shall undertake liaison and coordination with the Traffic Scotland Service Provider regarding planned and unplanned roadworks and Incidents occurring on the Project Roads. The Company shall take a proactive approach in liaison and coordination with the Traffic Scotland Service Provider regarding planned and unplanned roadworks, events and Incidents that have adverse effects on the journey time reliability of the Project Roads.
- 6.1.10 The Traffic Scotland Service Provider will operate the Traffic Scotland Active Maintained Equipment located across Scotland and within the Project Roads to support the delivery of the Traffic Scotland Service. The Scottish Minister's retain the right to use, at any time, the Traffic Scotland Equipment to provide driver information and control services with the aim of ensuring safe and effective operation of the Project Roads and Scottish trunk road network to maximise the use of any existing capacity within the Project Roads and adjoining road network and thereby maintaining journey time reliability.
- 6.1.11 The Company shall not interfere with any Traffic Scotland Active Maintained Equipment inspected but shall ensure that any faults or damage identified on the Traffic Scotland Active Maintained Equipment during the course of the Company's Detailed Inspections shall be reported to the Traffic Scotland Service Provider..
- 6.1.12 The Company shall hold a record of Traffic Scotland Passive Maintained Equipment in IRIS. The Company shall maintain Traffic Scotland Passive Maintained Equipment record drawings showing the installation location, origin and destination of communication cable runs, electrical supply and associated power cables to equipment and cabinets and all other information required. These records shall be amended by the Company within 14 days of any change to the installations and copied to the Scottish Ministers in addition to the Company updating the Traffic Scotland Service health and safety file as required to comply with the CDM Regulations.
- 6.1.13 The Company shall liaise with the Scottish Ministers in regards to any modifications or alterations in the vicinity of Traffic Scotland Maintained Equipment such as to allow the Scottish Ministers to modify or alter the Traffic Scotland Maintained Equipment installation as required to maintain a consistent Traffic Scotland Service.
- 6.1.14 The Company shall provide assistance to the Scottish Ministers in the modification, alteration, or installation of new equipment as deemed necessary by the Scottish Ministers to improve or upgrade the Traffic Scotland Service. Such assistance shall include provision of Traffic Management by the Company.

6.2 CONSULTATION, LIAISON, NOTIFICATION AND COORDINATION REQUIREMENTS RELATING TO NETWORK OPERATIONS SERVICES

6.2.1 General

- (i) The Company shall consult, liaise, notify and coordinate with the Scottish Minister's and Traffic Scotland Service Provider as detailed in this Section 6 of Part 2.

- (ii) Where the Project Roads are not operating within its normal operational conditions, which shall include situations where delays exceed the limits defined in Appendix W of this Part or an Incident, the Company shall continually share its knowledge of the current operational conditions on the Project Roads with the Traffic Scotland Service Provider to enable the Traffic Scotland Service Provider to provide accurate traffic situation and incident information to customers as described in Part 1 and Part 2 of Schedule 4..
- (iii) The Company shall attend at least one meeting with the Scottish Minister's and the Network Operations Service Provider prior to the Restricted Services Commencement Date. Thereafter the Company shall meet at least six monthly with the Traffic Scotland Service Provider/Scottish Ministers, or additionally as requested by the Scottish Minister's, to provide feedback, learning and improvements that will assist in achieving the Scottish Minister's key objectives and to coordinate future activities on the Project Roads and adjoining road network.
- (iv) It is essential that the existing Traffic Scotland communications system remains at full operational capacity at all times during the the duration of the Agreement.. The Contractor shall ensure that all Operations are planned so Traffic Scotland Maintained Equipment is always maintained in a full operational state unless planned downtime is agreed, at a minimum of three months of the planned downtime, with the Scottish Ministers and the Traffic Scotland Service Provider. The Company is advised that main longitudinal cables in the Project Roads are likely to be part of the national carrier network in addition to its function of carrying local data from signals, telephones and the like and any damage to such longitudinal cables is likely to occur in significant downgrading of the Traffic Scotland Service .

6.2.2 Appointment of Journey Time Reliability Coordinator

- (i) The Company shall appoint suitably qualified personnel in accordance with the requirements of Section 6.7 of this Part who have the knowledge and capability to deliver the Journey Time Reliability Coordinator role.

6.2.3 Journey Time Reliability Coordinator's Role

- (i) The Journey Time Reliability Coordinator shall be responsible for supporting the Company in the delivery of the coordination, liaison and management requirements of the Company described within Part 1 and Part 2 of this Schedule 4.
- (ii) The Journey Time Reliability Coordinator shall be proactive in gathering relevant information and continuously monitoring the Automated Diary Facility, the Scottish Road Works Register, the Traffic Scotland Service website, operational partners and other relevant systems to ensure complete knowledge of all roadworks and any events occurring or planned to occur on or near the Project Road.
- (iii) The Journey Time Reliability Coordinator shall be the first point of contact within the Company's organisation for all roadworks undertaken by the Company and events occurring on or near the Project Roads during both Normal Working Hours and outwith Normal Working Hours. The Journey Time Reliability Coordinator shall be contactable on dedicated landline and mobile phone numbers.

- (iv) The Journey Time Reliability Coordinator shall be based within whichever offices the Company deems are most suitable to fulfil the requirements of the role and shall undertake periodic site visits to assess the implementation and impact of roadworks and events.
- (v) The Journey Time Reliability Coordinator shall:
 - (a) Liaise and communicate with the Traffic Scotland Service Provider, Scottish Ministers and relevant operational partners and shall
 - (i) disseminate accurate and timely information to assist in the effective delivery and coordination of roadworks and events on the Project Roads,
 - (ii) support the Company's Representative in ensuring representation by Company personnel at all liaison meetings with the operational partners,
 - (iii) supporting the Company's Representative in ensuring representation by the Company at seminars or working groups related to improving the methods by which Trunk Road management and maintenance activities shall be carried out, when required by the Scottish Minister's,
 - (iv) ensure that the minutes of all liaison meetings called by the Company are prepared and copies issued to the Scottish Minister's via the Company's Representative and relevant operational partners, within five Working Days of the meeting taking place, and
 - (v) ensure that the issues arising from the liaison meetings are managed in accordance with the requirements of the Agreement and that any actions required from the Company are completed within the agreed or required timescales.
 - (b) Provide a monthly report to the Scottish Minister's via the Company's Representative no later than the 15th day of each calendar month throughout the Contract Period detailing:
 - (i) liaison meetings held,
 - (ii) issues arising from such liaison meetings,
 - (iii) actions taken or to be taken arising from such liaison meetings,
 - (iv) action plans agreed between the Company and the Scottish Minister's or Operational Partner, and
 - (v) the impacts of the Company's activities on the journey time reliability of the Trunk Road network with recommendations for proposed improvements.
 - (c) Prepare and submitting reports annually to the Scottish Minister's detailing the impacts of all the Company's activities on the journey time reliability of the Trunk Road network including any proposed improvements and mitigation measures.

- (d) Take ownership and the management of the Automated Diary Facility ensuring that it is fully functional and kept updated at all times.
- (e) Take ownership for ensuring the precautionary treatment plans proposed by the Company are shared with the Traffic Scotland Service Provider using a data feed into the Traffic Scotland Web Site
- (f) Coordinate, monitor and control all roadworks or events to minimise road closures, potential impacts and conflicts and maximise the capacity of the Project Roads, using the Automated Diary Facility and Scottish Roadworks Register where necessary.
- (g) Disseminate accurate and timely information to operational partners via the Automated Diary Facility, emails, regular meetings and telephone calls to assist in the effective coordination of their activities.
- (h) Implement escalation procedures for roadworks and events which exceed allowable delay thresholds as described in this Part 2 of Schedule 4.
- (i) Liaise with the Incident Liaison Officer and relevant operational partners in dealing with Incidents occurring during roadworks including coordination of the activation and implementation of Standard Incident Diversion Routes.
- (j) Utilise and manage support personnel on specific tasks relating to the planning and implementation of roadworks or events including ensuring such personnel are provided with adequate communications equipment, coordinating, mobilising, deploying and supervising Traffic Management arrangements and evaluating their impacts.
- (k) Notify the Scottish Minister's via the Company's Representative promptly in writing of operational conflicts that may impact on the journey time reliability of the Project Roads and adjoining road network and coordinating the implementation of any corrective action consented to by the Scottish Minister's with the Traffic Scotland Service Provider.
- (l) Coordinate the programming, planning and installation of traffic management and traffic control equipment in relation to the roadworks undertaken by the Company to ensure the safety of Company operational staff and Project Road users.
- (m) Maintain a record of all traffic management installations, including mobile lane closures on the Unit for each day of each Annual Period on a central database maintained by the Company and ensuring that all updates are completed by 09.30 hours on the following Working Day.
- (n) Management and dissemination of information required by the Company and others for the preparation of Temporary Traffic Regulation Orders for roadworks and special events in accordance with the Specification.

- (o) Include the Temporary Traffic Regulation Order number associated with Roadworks in the Automated Diary Facility

6.2.4 The Automated Diary Facility

- (i) The Traffic Scotland Service Provider requires complete knowledge of:
 - (a) all planned and unplanned site operations, works, traffic management, lane closures and lane occupations, which are to be undertaken by the Company, Works Contractor, Undertaker, authorised contractor or others, and
 - (b) all events expected to attract a minimum of 3,000 attendees, including concerts, sporting events and seasonal events which are likely to generate significant traffic.
- (ii) The Journey Time Reliability Coordinator shall use the Scottish Minister's Automated Diary Facility for providing information to the Traffic Scotland Service Provider when:
 - (a) the Company proposes to undertake any Operations or Works Contracts, or
 - (b) the Company becomes aware of authorised contractors, Undertakers or others proposing to carry out any Works.
- (iii) The Journey Time Reliability Coordinator shall be responsible for ensuring that all information held in the Automated Diary Facility is accurate, complete and up to date at all times to enable the Traffic Scotland Service Provider to deliver reliable information to customers.
- (iv) The Journey Time Reliability Coordinator shall monitor both the Automated Diary Facility and Scottish Road Works Register to determine if there are any other roadworks scheduled or in progress by any Works Contractor, Undertaker, authorised contractor or others that may impact on the implementation of any proposed roadworks. Where other roadworks are identified as having such a potential impact, the Journey Time Reliability Coordinator shall coordinate these roadworks to minimise potential impacts or mitigate against conflicts with the proposed implementation programme.

6.2.5 Access to the Automated Diary Facility

- (i) No later than 30 days prior to the Restricted Services Commencement Date, the Company shall provide at their operational base a broadband internet connection for access to the Automated Diary Facility and the Company shall be responsible the ongoing continuous delivery of the broadband internet connection. Prior to ordering the required internet capable PC the Company shall contact the Traffic Scotland Service Provider to confirm the exact requirements.
- (ii) Prior to ordering this connection, the Journey Time Reliability Coordinator shall contact the Scottish Minister's to confirm the exact requirements.

6.2.6 Information to be Logged on the Automated Diary Facility

- (i) The Journey Time Reliability Coordinator shall ensure that details of all roadworks undertaken within the Project Roads are logged onto the Automated Diary Facility and kept updated at all times. The details

required are detailed in Appendix V. The Company shall liaise with Undertakers and others with a right to work within the O&M Site to provide comprehensive information to meet its obligations as referred to in this Part 2 of this Schedule 4. Each roadworks item logged shall be allocated a unique referencing number which shall be quoted by the Company in all communications with the Traffic Scotland Service Provider and within its own organisation and by its subcontractors.

- (ii) The information supplied by the Company via the Automated Diary Facility shall allow the Traffic Scotland Service Provider to create messages on the Traffic Scotland variable message signs, informing road users of potential delays and of alternative routes where applicable without requiring to ask for additional information from the Company. The Traffic Scotland Service Provider shall also provide this information to the media and road users via the Traffic Scotland website (www.trafficscotland.org)
- (iii) The Traffic Scotland Service website shall serve as the single, reliable source for information on all events. The Journey Time Reliability Coordinator shall ensure that the Traffic Scotland Service website is monitored on a daily basis to obtain information on forthcoming events that need to be incorporated into the planning of Operations or Works Contracts.
- (iv) The Journey Time Reliability Coordinator shall ensure that details of events expected to attract fewer than 3,000 attendees, but deemed by the Company to have potential to cause significant delays, are logged on the Automated Diary Facility and kept updated at all times.
- (v) The Journey Time Reliability Coordinator shall use the Network Access Form at Appendix V of this Part to request road works information from Works Contractors, authorised contractors, Undertakers and others with a right to work within the Unit, to ensure accurate and consistent information is utilised to meet the obligations of this Part. This information shall then be logged on the roadworks diary of the Scottish Minister's Automated Diary Facility for each roadworks event.
- (vi) The Journey Time Reliability Coordinator shall ensure all details logged into the Automated Diary Facility are reviewed and updated no later than 09.30 hours daily. Where the Company becomes aware of any significant change to such details, the Journey Time Reliability Coordinator shall ensure the Automated Diary Facility is updated within one hour of becoming aware.

6.2.7 Automated Diary Facility Severe Weather Information

- (i) During periods of Severe Weather, the Journey Time Reliability Coordinator shall ensure the Severe Weather information being published on the Automated Diary Facility is regularly reviewed and updated at not less than hourly intervals.
- (ii) Where the Company becomes aware of:
 - (a) any change in the situation at any location logged on the Automated Diary Facility, and
 - (b) any other locations where severe weather is affecting driving conditions or traffic movements on the Trunk Road network,

(c) the Journey Time Reliability Coordinator shall ensure the Automated Diary Facility is updated at the next scheduled review. The minimum information requirements for updating Severe Weather information on the Automated Diary Facility are referred to in Appendix Y of this Part.

6.2.8 Remote Access to Closed Circuit Television

- (i) Where considered necessary by the Scottish Minister's, the Scottish Minister's shall make arrangement to provide a single CCTV workstation to the Company at the location agreed between the Scottish Minister's and the Company.
- (ii) The Company shall make provision for the office space to accommodate a CCTV workstation as stated in Appendix U of this Part, and shall facilitate communications connections and installation by Traffic Scotland Service Provider.

6.2.9 Assessment of Roadworks Delays

- (i) Roadworks or any other activity being undertaken by the Company or authorised contractors, Undertakers or others, which reduce the operational capacity of the Trunk Road network shall require an assessment by the Company prior to commencement to assess the impact of the reduction in capacity. The Company shall use the delay modelling tool provided in Appendix Z of this Part to assess the impact and cost of traffic delay.
- (ii) The Company shall undertake reduction in capacity assessments for the full duration of any activity that reduces the operational capacity of the Trunk Road network and each assessment shall include the unique reference number as described in paragraph 6.2.6 (i) of this Part.
- (iii) The Company shall not assess roadworks relating to emergency repairs prior to commencement but shall assess such roadworks on the next Working Day after implementation.
- (iv) Where activities that reduce the operational capacity of the network are proposed which have been assessed as likely to cause traffic delays below the acceptable delay thresholds detailed in Appendix W of this Part, Company shall implement such activities following the normal notification period.
- (v) The Journey Time Reliability Coordinator shall record each delay modelling tool assessment in the Automated Diary Facility. .
- (vi) Where activities that reduce operational capacity are proposed which have been assessed as likely to cause traffic delays greater than the acceptable delay threshold of 12 minutes as detailed in Appendix W of this Part, the Company shall implement such activities only following receipt of consent from the Scottish Minister's. To allow the Scottish Minister's to determine if consent can be provided, the Company shall prepare a delay management report detailing justification for implementing activities that will cause delay greater than the acceptable delay threshold of 12 minutes. The delay management report shall include as a minimum the following details:
 - (a) activity location and description,

- (b) result of impact assessment using the delay modelling tool,
 - (c) data collection and modelling approach where modelling beyond the use of the delay modelling tool has been agreed by the Scottish Minister's,
 - (d) description of existing and expected operational condition of that part of the Trunk Road network affected by the proposed activity, with a summary of recommendations for measures to be applied to reduce delay.
- (vii) The Company shall notify the Traffic Scotland Service Provider at least 28 days prior to the commencement of the activity when the estimated delay is greater than eight minutes.
- (viii) For activities that may cause delay beyond the 12 minute delay threshold detailed in Appendix W of this Part the Company may propose the Use of microscopic simulation models for the Scottish Minister's consent. Complex roadworks refers to situations where specific work activities and time periods may make it impossible to meet the delay thresholds detailed in Appendix W of this Part. Conditions where this may occur include:
- (a) Roadworks located in areas where the existing Trunk Road is operating at or near capacity but where the existing traffic flow is relatively stable. At such locations, a slight reduction in capacity resulting from roadworks activities could have a significant impact on road users.
 - (b) Roadworks where lane closures are required to preserve the safety of road users and Company personnel or for environmental reasons.
 - (c) Roadworks being undertaken during periods of high traffic volume related to seasonal traffic, holidays and events.
- (ix) When the Company identifies an implementation option that reduces predicted delays below the 12 minute delay thresholds detailed in Appendix W of this Part, this implementation option shall be used by the Company.

6.2.10 Notification of Roadworks Delays

- (i) Where roadworks are being undertaken which have been assessed as likely to cause traffic delays in excess of thresholds detailed in Appendix W of this Part, or which involve the closure of an off-slip or on-slip road, the Journey Time Reliability Coordinator shall keep the Traffic Scotland Service Provider notified of traffic delays via regular telephone calls, quoting the unique Traffic Scotland Automated Diary Facility reference number for the Site, at the following intervals:
- (a) at code 3 and 4 delays, 15 minutes prior to traffic management commencing at a roadworks location,
 - (b) immediately when delays to traffic, assessed using the delay modelling tool, exceed 10 minutes,
 - (c) thereafter at no more than 30 minutes intervals or when delay changes of five minutes or more occur, giving details of the delay times until they have ceased to exceed 10 minutes, and

- (d) immediately once the traffic management has been removed from a roadworks location.
- (ii) The Journey Time Reliability Coordinator shall notify the Traffic Scotland Service Provider by telephone and update the Automated Diary Facility within one hour of becoming aware of changed circumstances which would significantly affect movement of traffic, including:
 - (a) when roadworks which were coded 1 to 2 in accordance with 'Coding for estimated traffic delays' detailed in Appendix W of this Part are causing traffic delays in excess of 10 minutes,
 - (b) when planned roadworks are cancelled at short notice and the cancellation has not yet been entered into the Automated Diary Facility,
 - (c) Incidents that have been notified to, or identified by, the Company, and
 - (d) when road, lane or slip closures or lane occupations have been, or are likely to be, put in place.

6.2.11 Monitoring and Evaluation

- (i) To facilitate learning and feedback from the implementation of roadworks, the Company shall monitor and evaluate predicted and actual delays. The Company shall include within the Automated Diary Facility actual delays for all code 4 works and for all codes of works designated in accordance with the 'Coding for estimated traffic delays' provided in Appendix W of this Part if the actual delay exceeds the predicted delay by any period greater than five minutes.
- (ii) If necessary, the Company shall utilise equipment which can automatically determine traffic delays through roadworks and disseminate appropriate messages to the Traffic Scotland Service Provider. Where the Company considers the use of automatic traffic delay monitoring equipment necessary, it shall submit written proposals for the deployment of such equipment to the Scottish Minister's for consent. Where the Company considers the use of automatic traffic delay monitoring equipment is not feasible, it shall instead deploy sufficient operational personnel to monitor traffic delays.
- (iii) Where the actual traffic delays exceed the predicted traffic delays by any period greater than 15 minutes, the Journey Time Reliability Coordinator shall immediately notify the Traffic Scotland Service Provider and the Scottish Minister's. The Journey Time Reliability Coordinator shall provide details of the discrepancy between the predicted and actual delays and propose suitable on Site corrective actions and shall keep the Scottish Ministers and Traffic Scotland Service Provider briefed fully on the status of such roadworks.
- (iv) The Scottish Minister's may require the Company to implement proposed corrective action or suspend the implementation of roadworks in order to reduce traffic delays which he considers unacceptable. Where the suspension of roadworks due to unacceptable travel delays would have a negative impact on the safety of road users, the Scottish Minister's may allow the implementation of roadworks to continue until the Company has

resolved the negative impact by taking the necessary corrective actions. The Journey Time Reliability Coordinator shall notify and liaise with the Traffic Scotland Service Provider in either situation.

6.2.12 Vehicle Activated Signs

- (i) The Company shall use vehicle activated signs during roadworks where such use will address safety issues relating to inappropriate speeds. The Company requests for use of vehicle activated signs shall be made in writing to the Scottish Minister's.
- (ii) Vehicle activated signs shall only be deployed in addition to regulatory signs as a response to excessive speed and in accordance with the following requirements:
 - (a) the *Traffic Signs Regulations and General Directions 2002* and other relevant United Kingdom and European Union guidance and standards. Departures shall not be permitted unless specifically authorised by the Scottish Minister's,
 - (b) be type approved for use on the Trunk Road network, and shall utilise only the legends approved by the Scottish Minister's,
 - (c) not be deployed where the works are located within those sections of the Trunk Road network that already have lane control signalling,
 - (d) where both directions within the roadworks area meet the criteria of this paragraph, one vehicle activated sign shall be deployed in each direction, and
 - (e) be deployed where detailed accident investigation or risk assessment confirms that vehicle activated signs are an appropriate remedial measure.
- (iii) Speed monitoring detectors shall be installed accurately to minimise errors in speed measurement.
- (iv) When the signs are activated, the displays shall provide appropriate warning to motorists when the assigned speed limit is exceeded and shall not interfere with the visibility and general effectiveness of any other signs in the area.

6.2.13 Mobile Variable Message Signs

- (i) The Traffic Scotland Equipment includes a network of permanently located variable message signs positioned at key locations throughout the Trunk Road network. These signs facilitate the provision of real time information to Trunk Road users.
- (ii) The Scottish Ministers own a number of mobile variable message signs. These shall be made available for use by the Company in advance of, or during, any major works or Operations in areas which are outwith the coverage of the permanent variable message sign system forming part of the Traffic Scotland Equipment.
- (iii) Where the Company requires the use of the mobile variable message signs, the Journey Time Reliability Coordinator shall apply in writing to the Traffic Scotland Service Provider for consent to use these mobile variable message signs, giving as much notice as possible. The Traffic Scotland Service Provider shall have absolute discretion to decide when the use of the mobile variable message signs is allowed,

based on the perceived benefits to road users.

- (iv) Where the Traffic Scotland Service Provider gives written consent to the use of mobile variable message signs, the responsibilities of the Company shall be as specified within the Use Of Mobile Variable Message Signs On The Trunk Road Network guidance provided in Appendix X of this Part.
- (v) In accordance with this guidance, the Transport Scotland mobile variable message signs shall be used by the Company to cover situations including:
 - (a) the signing of major roadworks where there are currently no permanent variable message signs,
 - (b) gauging driver reaction to the potential benefits of permanently locating a variable message sign at that position on the network,
 - (c) providing weather related information during the winter months, such as snowfalls which have the potential to require road closures or seriously affect traffic travelling these routes, and
 - (d) signing for large scale outdoor events that generate abnormally high levels of traffic in otherwise quiet areas for short periods such as pop concerts and sporting events.
- (vi) The Company shall be responsible for:
 - (a) the collection and return of the signs in good working order by arrangement with the Traffic Scotland Service Provider , and
 - (b) the provision of suitable locations for the signs, which shall include:
 - (i) hardstanding,
 - (ii) protection for the signs by an existing permanent barrier or by a temporary barrier,
 - (iii) a 230 volts power supply facility complete with appropriate methods of connecting to the mobile variable message signs,
 - (iv) the supply of fuel and the changing of filters and all necessary servicing when using signs with an in-built generator,
 - (v) appropriate communications including electricity supplies, and
 - (vi) inspection and maintenance during their operation.

6.2.14 Specialist Contractors Appointed by Network Operations

- (i) The Scottish Ministers has appointed the Traffic Scotland Service Provider to undertake routine maintenance and emergency repair of Traffic Scotland Active Maintained Equipment and to support the Scottish Minister's in the undertaking the design, construction, commissioning and testing of replacement or new Traffic Scotland Equipment.

6.2.15 Proposed Operations or Works Contract or Works in the vicinity of Network Operations Equipment

- (i) When:
- (a) the Company proposes to carry out Operations or a Works Contract within or adjacent to locations containing Traffic Scotland equipment, or
 - (b) the Company becomes aware of authorised contractors, Undertakers or others proposing to carry out works within or adjacent to locations containing Traffic Scotland equipment,
- the Journey Time Reliability Coordinator shall communicate with the Scottish Minister's and the Traffic Scotland Service Provider as if the Traffic Scotland Service Provider was an Undertaker as defined in the *New Roads And Street Works Act 1991*.

6.2.16 Proposed Operations or Works Contract or Works affecting Network Operations Equipment

- (i) When:
- (a) the Company proposes to undertake any Operations or a Works Contract that may have a physical effect on any Traffic Scotland Maintained Equipment, or
 - (b) the Company becomes aware of authorised contractors, Undertakers or others proposing to carry out works that may have a physical effect on any Traffic Scotland Maintained Equipment,
- the Journey Time Reliability Coordinator shall notify the Traffic Scotland Service Provider by completing and submitting the form provided at Appendix R of this Part via e-mail at least 15 days prior to the Operations, Works Contract or works commencing. The completion and submission of the form shall be in addition to all planning of relocation, design of relocation and consultation with the Scottish Minister's which the Company shall undertake when it commences any planning of Operations, Works Contract or works that will impact on Traffic Scotland equipment, as detailed in paragraph 6.2.16 (v) of this Part.
- (ii) Where the Company deems that such Operations, Works Contracts or works shall have no physical effect on any Network Operations equipment, the form shall be submitted to show a nil return.
 - (iii) Where Operations or Works Contracts undertaken by the Company involve the submission of a Statement of Intent and a Value for Money Assessment, these shall include reference to any work required at the Traffic Scotland Equipment site.
 - (iv) Where a Statement of Intent and Value for Money Assessment identifies that Network Operations equipment may be affected, a copy of the Statement of Intent and Value for Money Assessment shall be issued simultaneously to the Traffic Scotland Service Provider and the Scottish Minister's.
 - (v) The Journey Time Reliability Coordinator shall consult and liaise with the Scottish Minister's and the Traffic Scotland Service Provider regarding the nature of the Operations or Works Contract and shall make arrangements for the affected Traffic Scotland Maintained

- Equipment to be replaced or renewed. Such arrangements shall include detailed planning and design of works to accommodate the diversion and relocation of Traffic Scotland Maintained Equipment.
- (vi) Where the Scottish Minister's agree in writing that the Company has the skills and competence to undertake the planning, design, diversion, relocation and renewal of the Traffic Scotland Maintained Equipment or any part thereof, the Company shall undertake and complete this work as an integral part of the Operations or Works Contract and shall:
- (a) complete the planning and design of the diversion, relocation or renewal of Traffic Scotland Maintained Equipment as part of the planning and design of the Company Operations or Works Contract in consultation with the Scottish Minister's and the Traffic Scotland Service Provider,
 - (b) complete any diversion and relocation of Traffic Scotland Maintained Equipment in advance of, or during, the Operations or Works Contract as appropriate,
 - (c) when the Operations include road surfacing, ensure that the Traffic Scotland surface detection equipment is replaced and operational as part of the Company Operations or Works Contract or, if approved in writing by the Scottish Minister's, within seven Working Days of the surface course being laid, and
 - (d) undertake all relevant and statutory testing of Traffic Scotland Maintained Equipment and the provision of records to enable the Scottish Minister's and the Traffic Scotland Service Provider to maintain the relevant Health and Safety Files and New Roads and Street Works Act 1991 records. Testing shall take place as an integral part of the Company Operations or Works Contract and the records shall be provided within 14 days of the completion of Company Operations or Work Contract adjacent to the Traffic Scotland Maintained Equipment. If the Company fails to provide the necessary records within 28 days of such completion, the Scottish Minister's shall arrange for the Traffic Scotland Service Provider to undertake any tests and investigations necessary to prepare and provide all such records and shall recover any associated costs from the Company.
- (vii) The Company shall ensure that any affected Traffic Scotland Equipment is replaced as part of the Operations or Works Contracts in accordance with specifications that shall be supplied by the Scottish Minister's.
- (viii) When the Scottish Minister's do not consent to the Company undertaking the diversion, relocation or replacement of the Traffic Scotland Maintained Equipment or any part of the work required, the Journey Time Reliability Coordinator shall liaise with the Scottish Minister's and the Traffic Scotland Service Provider in the planning of the works to ensure that the completion of such works complies with the timescales agreed as part of the planning of the works and any other timescale as referred to in this Part.
- (ix) When Works that affect or may affect Traffic Scotland Maintained Equipment are to be undertaken under a Works Contract, the

Company shall include within the Works Contract a requirement for:

- (a) the Works Contractor to give notice in accordance with the timescales referred to in this Part, and
 - (b) the Traffic Scotland Maintained Equipment to be diverted, relocated or replaced as part of the Works Contract within the previously planned timescales.
- (x) When works that affect or may affect Traffic Scotland Maintained Equipment are to be undertaken by authorised contractors, Undertakers or others, the Journey Time Reliability Coordinator shall:
- (a) on receiving notice of the works from the authorised contractor, Undertaker or others, notify the Scottish Minister's and the Traffic Scotland Service Provider in writing of the proposed works, and
 - (b) make arrangements with the authorised contractor, Undertaker or others for the Traffic Scotland Maintained Equipment to be diverted, relocated or replaced as part of the works within the previously planned timescales.

In such circumstances, the Scottish Minister's reserve the right to nominate the Traffic Scotland Service Provider to undertake the diversion, relocation or replacement of the Traffic Scotland Maintained Equipment.

6.2.17 Proposed Operations or Works Contract or Works Relating to New Traffic Scotland Equipment

- (i) When the Company proposes a location for any new Traffic Scotland Maintained Equipment which may be required within the Project Roads, the Journey Time Reliability Coordinator shall complete the form provided at Appendix S of this Part and submit it via e-mail to the Scottish Minister's who shall either confirm its agreement to the proposed location or suggest revisions to the Company. The Company shall liaise and consult further until the Scottish Minister's consent to the revised location.
- (ii) When the Traffic Scotland Service Provider agrees to the Company undertaking the installation of the new Traffic Scotland Maintained Equipment, the Company shall undertake this work as part of the Operations in accordance with the requirements of this Part and the specification provided by the Scottish Minister's. Where the Scottish Minister's do not agree that the Company can undertake this installation work, the Scottish Minister's shall arrange for the Traffic Scotland Service Provider to undertake such works and the Company shall provide any information and support requested by the Scottish Minister's to the Traffic Scotland Service Provider.

6.2.18 Damage to Network Operations Equipment

- (i) The Company shall be aware of situations where Traffic Scotland Maintained Equipment is or may be susceptible to damage from Operations or from Works Contracts and shall ensure that all suitable precautions are taken to prevent damage to such equipment. The Company shall give special consideration during the planning stages of any work to avoiding damage to existing services and cables. Such situations may include:

- (a) edge drainage works and other drainage alterations.
 - (b) tree planting,
 - (c) provision of noise barrier fencing,
 - (d) reconstruction of carriageways,
 - (e) resurfacing,
 - (f) recabling contracts,
 - (g) provision of fencing and road restraint systems.
- (ii) Before commencing any work or moving heavy plant or equipment in the vicinity of Traffic Scotland Maintained Equipment, the Company shall, in accordance with the Special Requirements in Relation to Traffic Scotland, confirm details of the Traffic Scotland Maintained Equipment installed within the area with Transport Scotland's Network Operations Branch.
- (iii) The Company shall locate the actual position of all Traffic Scotland Maintained Equipment and shall mark the locations prior to any work commencing in the vicinity of Traffic Scotland Maintained Equipment. The manner of such marking shall be dependent on the surface under which the equipment lies and such marking shall at all times be clearly visible to all parties working on the Site. The Company shall notify all operatives, including sub-contractors employed by the Company, of the presence of Traffic Scotland Maintained Equipment, particularly cabling, together with the need to exercise extreme care and attention to ensure the prevention of any damage.
- (iv) The Company shall ensure that Traffic Scotland Maintained Equipment is protected from damage throughout the period of the works. The method of protection shall be such that the Company shall provide access to all Traffic Scotland Maintained Equipment for the repair or inspection of any damage within two hours of its notification. Depending on the extent of damage or the fault being repaired, access for vehicles, winches, cable drums and any further equipment may be required by the Traffic Scotland Operator. Access to all chambers and cabinets forming part of the Traffic Scotland Maintained Equipment shall be kept clear and unobstructed at all times. The Company shall particularly note that surface mounted cabling should not under any circumstances be aerially suspended without the prior consent of the Traffic Scotland Operator and then only in the manner specified by the Traffic Scotland Operator.
- (v) Any disconnections or connections to operational systems shall be made under the supervision of the Traffic Scotland Provider.
- (vi) Where traffic detection loops become inoperable the Company shall reinstate the traffic detection loops or feeder cables in accordance with the Specification for Highway Works MCH1540 specification for the Installation of Detector Loops.
- (vii) Where the Company causes damage, suspects that it, or its subcontractors or a Works Contract contractor may have caused damage, or becomes aware of any external activities that may have caused damage to Traffic Scotland Maintained Equipment, the Company shall immediately inform the Traffic Scotland Service Provider by telephone, providing an indication of what damage has

occurred. The Company shall subsequently complete the form provided at Appendix T of this Part and submit it to the Traffic Scotland Service Provider via e-mail within 24 hours of the damage being caused.

- (viii) When instructed by the Scottish Minister's, either the Company or Traffic Scotland Service Provider shall undertake repair of the damage at the earliest possible time.

When such a repair is temporary, the Company shall liaise with the Scottish Minister's and the Traffic Scotland Service Provider regarding the nature of the damage and make arrangements for the Traffic Scotland Maintained Equipment to be repaired or replaced by either the Traffic Scotland Service Provider or the Company.

When such a repair is temporary, the Company shall undertake the permanent repair in accordance with paragraph 6.2.16 of this Part. The timescales for completion of the permanent repair shall be agreed with the Scottish Minister's but shall usually be within 28 days of the date of the initial damage. If the Company fails to complete the permanent repair within the agreed timescales, the Scottish Minister's shall arrange for the Traffic Scotland Service Provider to undertake the repair. All costs associated with such repair shall be borne by the Company. In such circumstances the Scottish Minister's shall submit all costs incurred to the Company and the Company shall make payment to the Scottish Minister's.

- 6.2.19 The Company's obligations relating to the Trunk Road Incident Support Service are described in paragraph 32 of Part 1 of Schedule 4. The TRISS shall be despatched by the Traffic Scotland Service Provider. In addition to any obligation described in paragraph 32 of Part 1 of Schedule 4 the Company shall developed joint TRISS operational procedures that address the despatching of the TRISS in conjunction with the Traffic Scotland Service Provider. These Company TRISS operational procedures shall to the greatest extent possible be compatible with the current (no current procedures until April 2013) Operating Company/Traffic Scotland Service Provider TRISS operational Procedures.

- (i) Blank 1
(ii) Blank 2

- 6.2.20 The Company's Traffic Scotland Customer Care Line Service

- (i) Blank 1
(ii) Blank 2

6.3 Maintenance of Traffic Scotland Equipment

- 6.3.1 The Traffic Scotland Service Provider shall only be responsible for the repair and maintenance of the Traffic Scotland Active Maintained Equipment.. The Company shall be responsible for Traffic Scotland Passive Maintained Equipment repair and maintenance.

The Traffic Scotland Active Maintained Equipment that the Traffic Scotland Service Provider shall repair and maintain consists of Existing Traffic

Scotland Active Maintained Equipment already installed within the Project Roads until it is replaced with the Transport Scotland Issued Equipment as installed by the Company as follows:

- (i) single line VMS;
- (ii) Dambach MSUs;
- (iii) Dambach MAC units;
- (iv) Neuhaus VMS; and
- (v) Golden River TMUs.

And Traffic Scotland Maintained Equipment installed as part of the New Works as follows:

- (i) LCUs;
- (ii) ALMs;
- (iii) MS4 VMS;
- (iv) VMS Roadside Controllers
- (v) MAC displays;
- (vi) CCTV cameras;
- (vii) JTCs;
- (viii) IP Switches;
- (ix) Voice Gateways;
- (x) DSL Modems;
- (xi) MPC4s;
- (xii) TMUs;
- (xiii) ERTs;
- (xiv) CECs;
- (xv) UPS;
- (xvi) WIM equipment excluding inductive loops; and
- (xvii) Data Service cabinet equipment.

6.3.2 The Company shall be responsible for the repair and 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 clear 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 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 site;
 - (vii) maintenance of clear access to vehicle hard standing areas; and
 - (viii) removal of graffiti in accordance with section 2.29 of this Part.
- 6.3.3 The Company shall be responsible for the repair and 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 Project Roads or at a specified location over or adjacent to a local road where it is the Scottish Ministers responsibility,
 - (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 a Project Road that retain heights of infill material or natural ground level greater than 1.5 metres (ground level to ground level).
- 6.3.4 The Company shall report faults and Defects that are observed for which the Traffic Scotland Service Provider is responsible.
- 6.3.5 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 AA of this Part. The maintenance, inspection and testing regime for such electrical equipment cabinets is set out in Appendix AA of this Part.

6.4 Inspection Requirements

- 6.4.1 The Company shall carry out Detailed Inspections on the Traffic Scotland Maintained Equipment in accordance with the requirements in Section 1 and Section 2 of Part 2.

6.5 Maintenance Requirements

- 6.5.1 The following requirements shall be in addition to those stated in paragraph 1.2.7 of Section 1 of Part 2 and paragraphs 6.3 and 6.4 of Section 6 of Part 2 .
- (i) 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 to include provision of Traffic Management at the Company's expense as may be required.

- 6.5.2 Not Used
- 6.5.3 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 South East Management Unit, South West Management Unit, adjacent DBFO Companies, Traffic Scotland Service Provider and the Police
- 6.5.4 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 6.6. The Company shall provide sufficient skilled staff numbers with appropriate facilities to maintain this equipment in good working order through Routine Maintenance .
- 6.5.5 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 reference 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 equipment.
- 6.5.6 Where the Company reports a fault to the Scottish Ministers or the Scottish Ministers report 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.
- 6.5.7 Not Used
- 6.5.8 Not Used
- 6.5.9 Prior to the Restricted Services Commencement Date, the Company shall only report to the Traffic Scotland Operator 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 transmitted by

facsimile or electronically, subject to the agreement of the Scottish Ministers.

- 6.5.10 The Company shall provide traffic management measures as necessary to allow the Scottish Ministers, or his agent, to carry out work on any of the above equipment. Such measures shall be provided to the Scottish Ministers, or his agent, in advance of the work proposed and the Company shall liaise with the Scottish Ministers or, his agent over the maintenance of the above specialist equipment.

6.6 Traffic Scotland Maintenance Requirements

- 6.6.1 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 Scottish Ministers, 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.
- 6.6.2 The Company shall ensure that the equipment performance criteria are complied with throughout the Contract Period and shall replace any of the equipment described in paragraph 6.3 that has operationally degraded and no longer complies with the equipment performance and availability requirements. .
- 6.6.3 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 phone the Traffic Scotland Service Provider prior to taking the Traffic Scotland Passive Maintained Equipment into a down-time state.
- 6.6.4 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 equipment fully operational under any conditions.
- 6.6.5 The Company shall supply details of personnel, backup facilities, training etc. as the Scottish Minister's may require to demonstrate the Company's ability to comply with these O&M Works Requirements.
- 6.6.6 Where the performance of the Traffic Scotland 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 equipment.
- 6.6.7 The Company shall respond to faults within the response and repair times defined herein and shall maintain the Traffic Scotland equipment, including spares and Traffic Scotland test equipment, to the level of performance and availability required.
- 6.6.8 The Company shall ensure that power supplies to all Traffic Scotland equipment on the Project Roads shall be isolated from any adjacent supplies and maintained, including payment for supply and use.

6.7 Personnel and Resources

- 6.7.1 The Company shall provide sufficient resources for the purpose of carrying out these O&M Works Requirements.
- 6.7.2 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.
- 6.7.3 The Company shall be responsible for the day to day management of the resources and shall liaise with the Scottish Ministers, Traffic Scotland Providers and any other Relevant Authorities, as necessary concerning the programme for maintenance of the Traffic Scotland Passive Maintained Equipment.
- 6.7.4 A member of the Company's staff shall be nominated as the maintenance representative, who shall liaise with the Scottish Ministers regarding the programme for maintenance.
- 6.7.5 Only fully trained team members shall deal with call-outs.
- 6.7.6 All personnel on fault callout duty shall have nominated backup reserves available to provide support in the case of multiple faults.
- 6.7.7 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.
- 6.7.8 Each member of the maintenance staff shall be supplied with appropriate information regarding the Traffic Scotland equipment and shall have access to all workshop and information system facilities.
- 6.7.9 The Company shall advise the Scottish Ministers of the arrangements for contacting each member of the maintenance team, whilst they are working on the system and on callout duty.

6.8 Traffic Scotland Alterations

- 6.8.1 To facilitate development of Traffic Scotland equipment, the Scottish Ministers 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 equipment; and
 - (iii) add, remove or replace Traffic Scotland equipment.
- 6.8.2 In the event of additional works being required the Scottish Ministers 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 equipment.
- 6.8.3 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 Scottish Ministers to:
- (i) make any test or adjustment considered necessary;
 - (ii) alter the configuration of the Traffic Scotland equipment; and
 - (iii) add, remove or replace Traffic Scotland equipment.

6.9 Fault Classification

- 6.9.1 Maintained Equipment Faults shall be classified under four categories, which are:
- (i) Class 1 : High Priority;
 - (ii) Class 2 : Urgent;
 - (iii) Class 3 : Non-Urgent;
 - (iv) Class 4 : Deferred.
- 6.9.2 Class 1 High Priority 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 a significant geographical area or route;
 - (ii) a failure that prevents the removal of any Motorway Signalling Unit lane closed indication and where the Company is instructed by the staff of the Traffic Scotland Control Centre to arrange for the lane closed indication to be removed, using the appropriate local control; and
 - (iii) failure of any 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 Control Centre staff.
- 6.9.3 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 a limited geographical area or route for example loss of a single MPC at a Node Site where the MPC supports multiple devices;
 - (ii) failure of any 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 Control Centre staff; and
 - (iii) where two or more adjacent Emergency Telephones have a Fault.
- 6.9.4 Class 3 Non-urgent shall include any other fault.
- (i) a failure of any Maintained Equipment 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 Control Centre staff.
- 6.9.5 Class 4 Deferred shall include all faults, which can with the consent of the Scottish Ministers be rectified during the next planned maintenance activities.
- (i) any other Fault not classified as Class 1, Class 2 and Class 3.
- 6.9.6 Contended Faults
- (i) 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 Scottish Ministers. 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.

6.9.7 Faults Deemed to be an Emergency

- (i) Emergency Faults are those arising from an incident on or off a Traffic Scotland Site (or part of the Site) that:
 - (a) 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
 - (b) renders any road or area unsafe and that shall require the Company to execute actions in accordance with this Schedule 4 Part 2.
- (ii) For the purposes of the Contract an Emergency shall commence on the occurrence of such a qualifying incident and shall cease immediately that the Company has taken such actions as renders the Site (or that part of the Site affected by such) safe for users of the Site notwithstanding that
 - (c) temporary traffic management arrangements and or any other safety measures or actions remain on the Site ; and
 - (d) further actions (including but not limited to other temporary traffic management arrangements) may be necessary to be executed by the Company in order to execute a permanent solution for such incident.
- (iii) Subsequent actions including such other temporary or permanent repairs or other actions shall not be deemed to be Emergency.

6.10 Fault Notification and Callout

- 6.10.1 The Company shall be responsible for responding to Faults 24 hours per day and every day of the year.
- 6.10.2 The Company's Fault Reporting Centre shall be manned continuously during Working Hours and Fault reports made by telephone shall be to a single dedicated telephone number.
- 6.10.3 Outside Working Hours for Fault notification for Class 1/1N and Class 2/2N Faults the Company shall submit in writing to the Scottish Ministers for his approval, no later than 4 weeks before the start of the Initial Period, a procedure for the reporting of such Faults. All Fault reports to the Company's Fault Reporting Centre shall be automatically timed and date stamped at the time of receipt.
- 6.10.4 Fault notification shall be made in any one of the following ways:
 - (i) By a telephone call from:
 - (e) The Traffic Scotland Control Room;
 - (f) Police Control Rooms;
 - (g) Company's Staff;
 - (h) The Scottish Ministers or his representatives;
 - (i) The Chief Constables or their representatives;

- (j) Any of the Traffic Scotland Providers; and
 - (k) 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.
- 6.10.5 The whole Fault Management process of Maintained Equipment shall be monitored using the FMS, which shall hold data in a form that is fully compatible with the Asset Management System.
- 6.10.6 All Faults shall be passed to the Traffic Scotland Provider for recording on the FMS including those that are reported automatically and those that originate manually.
- 6.10.7 During 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 Fault reporting.
- 6.10.8 The dedicated Fault reporting telephone number shall not be changed, unless unavoidable and in such circumstances the Company shall give the Scottish Ministers a minimum of 30 days' notice of the intended change of telephone number for Fault reporting.
- 6.10.9 The Company shall inform the Scottish Ministers 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. The Scottish Ministers shall respond to the Company within 3 days of receipt of such a communication.

6.11 Performance Requirements for Fault Management

- 6.11.1 In response to a Fault report, the Company shall arrange for an appropriate trained member of the Dedicated Team or, if appropriate, a sub-contractor to attend at the location of the Fault to diagnose and repair the Fault or make other arrangements for its repair as necessary. The activities to diagnosing a Fault, repairing a Fault or making arrangements for repair of a Fault shall be subject to the following Response and Repair Times defined in this Section 6.11.
- (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 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 member of the dedicated team or the Traffic Scotland Provider to the FMS;
 - (v) the repair time shall be the period between the fault attendance time and the fault clearance time.

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- 6.11.2 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 be not greater than 6 elapsed hours.
- 6.11.3 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 be not greater than 6 working hours.
- 6.11.4 Where the Scottish Ministers consider a Class 2 urgent fault merits an accelerated response outwith working hours, he reserves the right to modify the fault classification.
- 6.11.5 For Class 3 non-urgent faults, the combined response time and repair time shall be not greater than 10 working hours.
- 6.11.6 Where the Scottish Ministers consider a Class 3 non-urgent fault merits an accelerated response outwith working hours, he reserves the right to modify the fault classification.
- 6.11.7 For a Class 4 Fault, the Company shall prepare and provide an acceptable programme to the Scottish Ministers for the repair of the Fault covering the period from the first reporting of the Fault through to completion of the repair. The Scottish Ministers shall use this programme to measure the Company's performance in accordance with the provisions of the contract..
- 6.11.8 In an Emergency the Response Time shall be considered to be the time taken from notification of the Emergency to the Company up to the commencement of appropriate action at the site of the incident.
- (i) Response Time shall always be as short as can be safely achieved but shall not exceed the maximum response time of ;
- (a) On Motorways - 1 hour
- (b) Other Roads - 1.5 hours
- 6.11.9 Repeat Faults may, at the discretion of the Scottish Ministers, 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.
- 6.11.10 For faults caused by damage to 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 Maintained Equipment into normal operation by the end of the next Working day. The full restoration of the Works Site may require the Company to undertake Works as an Infrastructure Services Scheme.
- 6.11.11 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 and other provisions of the Contract. The Company shall remain responsible for the satisfactory and timely restoration of the Maintained Equipment's functionality regardless of whether the work is carried out by, or is the responsibility of a Contracted Third Party.
- 6.11.12 On arrival at the site of the Maintained Equipment to attend to a Fault, the Company shall proceed with the following:
- (i) immediately record the Fault Attendance Time to be passed to the Traffic Scotland Provider for recording within the FMS.
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- (ii) Record any further details of the reported fault for passing to the Traffic Scotland Provider.
- 6.11.13 Where it is necessary to temporarily interrupt or degrade the normal operation of instation, transmission building or significant communications Maintained Equipment, in order to make a repair to the Maintained Equipment, the Company shall obtain clearance from the Scottish Ministers and inform all relevant bodies.
- 6.11.14 If, following an investigation of a Fault, in the opinion of the Company, the time required to repair the Fault exceeds 2 hours from the Fault Attendance Time, the Company shall update the Traffic Scotland Provider. This shall include the nature of the confirmed Fault and provide an estimate of the time required to effect a full repair. The Company shall update the Traffic Scotland Provider at two hourly intervals thereafter until such time as a full repair is affected or it has been determined that a further visit is required.
- 6.11.15 If the Company is unable to complete a Full Repair in a single visit or within the performance requirements, he shall immediately update the Traffic Scotland Provider accordingly and inform the Scottish Ministers as soon as is practical and indicate a proposed route of action to restore the Maintained Equipment to full operation. The Scottish Ministers will advise as to the action to be taken, this could include a relaxation in the Classification of the particular Fault.
- 6.11.16 Having attended a Fault and restored the Maintained Equipment to normal operational use and before leaving site, the Company shall proceed with the following:
- (i) immediately inform the Traffic Scotland Control Centre and other relevant bodies;
 - (ii) update the Traffic Scotland Provider with details of the Fault found and the action taken; and
- 6.11.17 During attendance on site the Company shall record Fault report details for entering into the FMS by the Traffic Scotland 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 the Scottish Minister's Spares Holding, such as parts used and delivery time to repair/replenish items.

The requirements placed on the Company with respect to any notification or any other communication with the Traffic Scotland Control Centre or any other party contained within this Section 6 shall not in any way relieve the Company of any of his obligations under the Contract.

6.12 Fault Clearance Methodology

- 6.12.1 The Company shall ensure that all faults are adequately progressed through to complete restoration of service, even where work on the fault is the responsibility of the Traffic Scotland Provider.
- 6.12.2 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).
- 6.12.3 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;
 - (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 Scottish Ministers on request.
- 6.12.4 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 defect 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.
- 6.12.5 Where, in exceptional circumstances, any component part, sub-assembly or peripheral item of the Maintained Equipment needs to be removed, and no replacement item is available, the Company shall:
- (i) during Working Hours, seek permission from the Scottish Ministers, before any such disconnection or removal is undertaken; and/or
 - (ii) outside Working Hours, the Company shall use his own judgement in deciding whether to make such a disconnection or removal. The Scottish Ministers shall be informed without delay during the next working day by the Company of any such action of decision.
- 6.12.6 Any permission given by the Scottish Ministers to the Company to remove, replace, modify or repair any component part, sub-assembly or peripheral item of the Maintained Equipment shall not relieve the Company of any of his obligations under the Contract.

- 6.12.7 The Company shall, at his own discretion, undertake a temporary repair to the 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 Contract.
 - (ii) The Company shall seek written approval of the Scottish Ministers to change the Fault classification to Class 4 Maintenance, with a 30 day Repair Time. The Company shall ensure that a Full Repair is made within this time.
- 6.12.8 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 Scottish Ministers regarding the extent of the damage, any required actions and the time for the expected resumption of normal operations;
 - (iii) repair accident damage as if the accident damage had been reported as a fault.
- 6.12.9 The Company shall advise the Traffic Scotland Control Centre of any temporary repair of Maintained Equipment as soon as is practical and provide details of its exact location.
- 6.12.10 Where the Company fails to undertake a permanent repair as detailed above, unless such failure is authorised by the Scottish Ministers, the Scottish Ministers shall undertake the permanent repair at the Company's cost.
- 6.12.11 Having attended to a fault and restored the Traffic Scotland equipment to operational use, the Company shall immediately inform the Scottish Ministers.

6.13 Damage by Others to Maintained Equipment

- 6.13.1 Where damage by others has occurred to 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 Contracted Third Party responsible for the cabinet but shall, within 24 hours provide written notice to the Contracted Third Party;
 - (ii) if not already in attendance, immediately call out the responsible Contracted Third Party(s) whose infrastructure has been damaged and advise the Scottish Ministers 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 Maintained Equipment from being subjected to further defect;
- (v) if the Police are in attendance at such a Works Site, then the Company shall comply with any instructions given by the Police.

6.13.2 The Company shall obtain verbal approval from the Scottish Ministers before starting any repair Works as a result of others, which may be required, except in the event that the repair Works may reasonably be considered as a Class 1, Class 1N; Class 2 or Class 2N Fault.

6.13.3 If, in the opinion of the Company the Fault may reasonably be considered as urgent, the Company, with the approval of the Scottish Ministers, shall supply resources and other facilities as necessary, which may include, but may not be limited to, civil Scottish Ministers works to expedite the reinstatement of the Maintained Equipment and Works Site.

6.13.4 The Company shall collect any defective Maintained Equipment that is salvageable or contains salvageable items and retain for a reasonable period pending instructions on disposal from the Scottish Ministers.

6.13.5 The Company shall provide a detailed report of the damage and Works undertaken to rectify such damage to the Scottish Ministers 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 Scottish Ministers, normally within 5 working days of such request.

6.14 Third Party and Other Works

6.14.1 The Company shall respond to calls and co-operate with third parties, where appropriate, including Undertakers, the Scottish Ministers and the Traffic Scotland Provider in providing technical assistance for the diagnosis and location of faults, tests and subsequent reinstatement of the equipment.

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

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

6.14.4 Where the Company has difficulties with third parties, the Company shall inform the Scottish Ministers as soon as possible.

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

6.15 Testing

- 6.15.1 The Company may request the Scottish Ministers 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.
- 6.15.2 Where tests being carried out which affect the operation of the Traffic Scotland equipment, the Company shall inform the Scottish Ministers and TSCC of the nature and expected duration of the tests. The Company shall inform the Scottish Ministers when such tests are completed and when the Traffic Scotland equipment is returned to normal operation. The Company shall postpone or interrupt the tests if requested to by the Scottish Ministers or the Police.
- 6.15.3 Tests that require traffic restrictions and management shall not be carried out unless it is established with the Scottish Ministers 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.
- 6.15.4 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 Scottish Ministers.

6.16 Records

- 6.16.1 Complete records (including serial numbers), shall be kept of all Traffic Scotland equipment, whether in use, spare or under repair.
- 6.16.2 The Company shall keep detailed records of all activities associated with the maintenance of Traffic Scotland equipment.
- 6.16.3 The Company shall maintain all appropriate system documentation and drawings.
- 6.16.4 The Company shall provide monthly written reports on the maintenance of the Traffic Scotland equipment. These shall include an analysis of Traffic Scotland equipment availability as defined in these O&M Works Requirements, and analysis and details of faults, and Traffic Scotland equipment problems. Where possible solutions and suggestions for improvement to the equipment shall be made.
- 6.16.5 Where the Company has called out the Traffic Scotland Provider, or has been called out by a third party, the Company shall, within 2 weeks, provide the Scottish Ministers with details of the work carried out.
- 6.16.6 The Company shall provide a list of fault codes and their associated fault category in their maintenance plan.

6.17 Spares

- 6.17.1 The Company shall provide, maintain and replenish, as necessary, sufficient spares for those items of Traffic Scotland 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 Substantial Completion.

- 6.17.2 At the Expiry Date, the Company shall hand over to the Scottish Ministers all Traffic Scotland equipment spares as detailed in paragraph 6.17.1.

6.18 Training

- 6.18.1 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 equipment and the infrastructure associated with the Traffic Scotland 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.

7.2.2. The Company shall notify in writing the Scottish Ministers, Traffic Scotland, the police and any relevant companies before O&M Works shall be carried out on a trafficked carriageway Lane or hardshoulder which shall be likely to cause significant additional delays to traffic in excess of 10 minutes.

7.2.3. The Company shall liaise and co-operate with Traffic Scotland local roads authorities the police and other emergency services to ensure that traffic diverted from an O&M Works Operation site onto a local road network and vice versa shall have the minimum impact on either network and shall not adversely affect the performance of the emergency services.

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 can be removed from a carriageway and that traffic Lanes or hardshoulders can be re-opened to vehicles within 30 minutes of a decision by the Scottish Ministers 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 Scottish Ministers at any time.

7.6. Traffic Officer

7.6.1. The Company shall nominate to the Scottish Ministers and appoint a suitable person from its staff to act as the traffic safety and control officer as required in Appendix 1/17 of Part 5 of these O&M Works Requirements, along with a suitable deputy to cover periods when the appointed person is

not on the O&M Works Site as well as the nominees to liaise with Traffic Scotland. 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 Scottish Ministers, the New Works Contractors, contractors including undertakers, Traffic Scotland, adjacent Road Authorities, other companies and the police;
- (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) dealing with emergencies;
- (vii) 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 Scottish Ministers before noon on the Thursday of the preceding week. Records of all traffic management carried out within the O&M Works Site shall be maintained and shall be available for inspection by the Scottish Ministers at any time.
- (viii) Ensuring compliance with Clauses 113SR and 117SR and Appendix 1/17 of the Specification in all respects, including but not limited to managing the requirements for liaison, contact with Traffic Scotland, traffic management for Emergency events, supply of information and records.

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 motorways in the O&M Works Site 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 Scottish Ministers 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 Scottish Ministers 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) On the M8 between junction 8 and junction 12 or on the M74 between junction 1 and junction 5 between 0600 and 2200 on any day in the period between 1 December and 15 January inclusive;
 - (iii) Good Friday to Easter Monday inclusive;
 - (iv) Between Friday and Monday inclusive on any local bank holiday or public holiday weekend during May or September;
 - (v) The weekends at the start and end of the Glasgow Fair holiday: and
 - (vi) As directed by the police.
- 7.7.4. On side roads reduction to the existing provision of Lanes shall be subject to the prior written approval of the Scottish Ministers, 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 Scottish Ministers 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 Scottish Ministers.
- 7.7.7. The Scottish Ministers 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 Scottish Ministers 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 can be utilised provided that they shall be associated with and required for roadworks. The Scottish Ministers 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 Scottish Ministers to the making or amending of such Traffic Regulation Orders shall be eight weeks.

7.7.9. The Company shall consult with the Scottish Ministers 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 Scottish Ministers 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 Scottish Ministers 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 Scottish Ministers 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 proportion 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 road 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) browsing animals and vermin (rabbits, deer etc.)
- (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 the routine maintenance and management function of the Scottish Executive Road Information System.
 - (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 the routine maintenance and management function of the Scottish Executive Road Information System.
- (iii) Maintenance of special ecological measures shall be in accordance with Clause 3012 of the Specification and at frequencies referred to in the 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 to be in accordance with Clause 3003 of the Specification.
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8.2. Verges and Grassed Areas

8.2.1. Introduction

- (i) The following requirements apply to the maintenance of all New Works 'grass verge seeding', 'rough grassland seeding', 'flowering rough grassland seeding', roundabout 'grass / meadow seeding' and 'bulb planting'. In addition the requirements will cover all existing areas of grassland, meadow and bulb planting within the O&M Works boundary. These requirements apply to maintenance of all such areas for a period of 30 years upon the receipt of the Permit to Use. These requirements shall also relate to those areas where the growth of vegetation shall be prevented or eliminated.
- (ii) All grassland, meadow and bulb planting within the O&M Works Site will be managed to encourage the conservation and promotion of biological diversity, consolidate the surrounding landscape character, provide for the safety and enjoyment of users and to encourage the growth of wildflowers.
- (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, meadow and bulb planting to be in accordance with Clause 3005 of the Specification.
- (v) All access areas to electrical and associated equipment shall be kept clear of vegetation.

8.2.2. Inspection and Survey Requirements

- (i) Detailed inspections shall be carried out by a suitably qualified and experienced chartered landscape architect at the intervals specified in Appendix 30/1.
- (ii) At the end of the New Works Establishment Period and thereafter at 5 year intervals until the end of the Services Period the Company shall undertake detailed surveys of all 'rough grassland seeding', 'flowering rough grassland seeding' and roundabout 'meadow seeding' during the spring and summer to record species composition and percentage cover.
- (iii) Detailed Inspections of 'flowering rough grassland seeding' and roundabout 'meadow seeding' shall be carried out during their flowering season at intervals not exceeding 12 months.

8.2.3. Reporting Requirements

- (i) A 30 Year Landscape Management and Maintenance Strategy, Landscape Development Plan and Annual Landscape Report shall be prepared by a suitably qualified and experienced chartered Landscape Architect and submitted to the Scottish Ministers. These documents shall include, but shall not be limited to, the matters described in these O&M Works Requirements and the extent and timing of maintenance required. The documents shall also identify areas which require special treatment to promote biological diversity and improvement of landscape quality.

8.2.4. Maintenance Requirements

- (i) All grass, grassland, wildflower/meadow and bulb planting areas

within the O&M Works Site shall be maintained for a period of 30 years upon receipt of the Permit to Use in accordance with Part 5 of these O&M Works Requirements and reseeded as necessary to ensure establishment of a full cover of plants.

- (ii) Hard surfaces including paved or chipped central reservations and verges, including exposed filter drains and kerbs/channels, shall be treated as necessary to remain weed free in accordance with Part 5 of these O&M Works Requirements.
- (iii) Maintenance of grass, wildflower/meadow and bulb areas shall be carried out in accordance with Clause 3007 and Appendix 30/7 of the Specification and the categories stated in the routine maintenance and management function of the Scottish Executive Road Information System. Maintenance shall include cutting and edging. The maintenance record entered in the routine maintenance and management function of the Scottish Executive Road Information 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.
- (iv) The Company shall coordinate litter picking operations to be carried out prior to grass cutting operations.
- (v) Maintenance of grassed areas shall include weed control in accordance with Clause 3002 of the Specification.

8.3. Ornamental Planting

8.3.1. Introduction

- (i) The following requirements apply to the maintenance of all New Works ornamental planting including 'ornamental shrub mix areas' and 'roundabout shrub, herbaceous and bamboo planting'. In addition the requirements will cover all existing ornamental planting within the O&M Works boundary. These requirements apply to maintenance of all such areas for a period of 30 years upon the receipt of the Permit to Use. These requirements shall also relate to those areas where the growth of vegetation shall be prevented or eliminated.
- (ii) All ornamental planting areas within the O&M Works Site will 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

Detailed inspections shall be carried out by a suitably qualified and experienced chartered landscape architect at the intervals specified in Appendix 30/1.

8.3.3. Reporting Requirements

A 30 Year Landscape Management and Maintenance Strategy, Landscape Development Plan and Annual Landscape Report shall be prepared by a suitably qualified and experienced chartered landscape architect and submitted to the Scottish Ministers. These documents shall include, but shall not be limited to, the matters described in these O&M Works

Requirements and the extent and timing of maintenance required. The documents shall also identify areas which require special treatment to promote biological diversity and improvement of landscape quality.

8.3.4. Maintenance Requirements

- (i) All ornamental planted areas will be maintained for a period of 30 years upon receipt of the Permit to Use in accordance with Part 5 of these O&M Works.
- (ii) Ornamental planted areas shall be treated as necessary to remain weed free in accordance with Part 5 of these O&M Works Requirements.
- (iii) The Company shall coordinate routine litter picking as part of ornamental planting maintenance operations.

8.4. Trees, Shrubs 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 boundary. 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 Scottish Ministers without delay. These requirements shall apply to maintenance of all such areas for a period of 30 years upon receipt of the Permit to Use.
- (ii) Trees, shrubs and hedges within the O&M Works Site will 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

Detailed inspections shall be carried out by a suitably qualified and experienced landscape architect at the intervals specified in Appendix 30/1. Inspections shall also identify any dead or dying trees, shrubs or hedges which are a hazard to users within the O&M Works Site.

8.4.3. Reporting Requirements

A 30 Year Landscape Management and Maintenance Strategy, Landscape Development Plan and Annual Landscape Report shall be prepared by a suitably qualified and experienced landscape architect and submitted to the Scottish Ministers. These documents shall include, but not be limited to, the matters described in these O&M Works Requirements and the extent and timing of maintenance required. These documents shall also identify areas which require special treatment to promote biological diversity and improvement of landscape quality.

8.4.4. Maintenance Requirements

- (i) All new tree, shrub and hedge planting within the O&M Works Site will be maintained in accordance with Part 5 of these O&M Works Requirements for an Establishment Period of 5 years after planting. All planting implemented as part of the New Works shall be maintained for the Establishment Period in accordance with Parts 2 and 4 of Schedule 2 and thereafter in accordance with the O&M Works Requirements, including Part 5 and the 30 Year Management and Maintenance Strategy upon receipt of the Permit to Use.
- (ii) The Company shall take all necessary measures to promote and sustain healthy growth, minimise problems and encourage all planting to become as self-reliant as possible. Maintenance shall be carried out as necessary to keep the O&M Works Site in a safe condition and to prevent nuisance. Trees, shrubs and hedges shall be trimmed as necessary or removed to prevent minimum lines of sight being impeded.
- (iii) During the Establishment Period for new tree, shrub and hedge planting within the O&M Works site, maintenance operations shall be carried out in accordance with Part 5 of these O&M Works Requirements to ensure that all maintenance, repair and replacement work listed in the detailed inspection reports as being necessary is completed in the appropriate timescale and season.
- (iv) Following the Establishment Period(s) for New Works not less than one maintenance visit shall be made after each detailed inspection during which all maintenance, repair and replacement work stated in the report as being necessary prior to the next detailed inspection shall be completed. The maintenance work shall be completed not more than 2 months after the detailed inspection except for those elements which are restricted by season. These shall be completed within 1 month of the commencement of the appropriate season and, in any event, prior to the next detailed inspection.
- (v) The Company shall consult the relevant planning authority / other body prior to carrying out maintenance of trees within areas covered by Tree Preservation Orders, SSSI's, Semi Ancient Woodland and SINC Sites.
- (vi) 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 include waterbodies such as lagoons, 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 Scottish Ministers without delay. These requirements shall apply to maintenance of all such areas for a period of 30 years upon receipt of the Permit to Use.

- (ii) Wetlands within the O&M Works Site will 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 routine maintenance and management function of the Scottish Executive Road Information System.
- (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. Reporting Requirements

A 30 Year Landscape Management and Maintenance Strategy, Landscape Development Plan and Annual Landscape Report shall be prepared by a suitably qualified and experienced Landscape Architect and submitted to the Scottish Ministers. These documents shall include, but not be limited to, the matters described in these O&M Works Requirements and the extent and timing of maintenance required. These documents shall also identify areas which require special treatment to promote biological diversity and improvement of landscape quality.

8.5.4. Maintenance Requirements

All Wetland areas within the O&M Works Site shall be maintained for a period of 30 years upon receipt of the Permit to Use in accordance with Part 5 of these O&M Works Requirements 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 the Specification.

8.6. Existing Mature Woodland

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 Scottish Ministers without delay. These requirements shall apply to maintenance of all such areas for a period of 30 years upon receipt of the Permit to Use.
- (ii) Existing mature woodland within the O&M Works Site will 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

Detailed inspections shall be carried out by a suitably qualified and experienced Landscape Architect at the intervals specified in Appendix 30/1. Inspections shall also identify any dead or dying trees or trees which are a hazard to users within the O&M Works Site.

8.6.3. Reporting Requirements

A 30 Year Landscape Management and Maintenance Strategy, Landscape Development Plan and Annual Landscape Report shall be prepared by a suitably qualified and experienced landscape architect and submitted to the Scottish Ministers. These documents shall include, but not be limited to, the matters described in these O&M Works Requirements and the extent and timing of maintenance required. These documents shall also identify areas which require special treatment to promote biological diversity and improvement of landscape quality.

8.6.4. Maintenance Requirements

- (i) All existing mature woodland within the O&M Works Site will be maintained in accordance with the O&M Works Requirements, including Part 5 and the 30 Year Management and Maintenance Strategy upon receipt of the Permit to Use.
- (ii) The Company shall take all necessary measures to promote and sustain healthy growth, minimise problems and encourage all planting to become as self-reliant as possible. Maintenance shall be carried out as necessary to keep the O&M Works Site in a safe condition and to prevent nuisance. Trees will be trimmed as necessary or removed to prevent minimum lines of sight being impeded.
- (iii) The Company shall consult the relevant planning authority / other body prior to carrying out maintenance of trees within areas covered by Tree Preservation Orders, SSSI's, Semi Ancient Woodland and SINC Sites.

8.7. 30 Year Landscape Management and Maintenance Strategy, Landscape Development Plan and Annual Landscape Report

8.7.1. General

- (i) The following documents which shall be prepared annually by the Company's chartered landscape architect:
 - (a) 30 Year Landscape Management and Maintenance Strategy (revisions).
 - (b) Landscape Development Plan (revisions).
 - (c) Annual Landscape Report.
- (ii) The Company shall submit to the Scottish Ministers three electronic copies of the 30 Year Landscape Management and Maintenance Strategy, Landscape Development Plan and Annual Landscape Report annually on CD Rom read only memory format disks with any drawings in PDF format. Each document shall clearly state the

periods covered.

- (iii) The Company shall maintain and annually update as-built drawings of all landscape areas for the duration of the Services Period so that they provide an accurate record of the extent and nature of all planted areas.

8.7.2. 30 Year Landscape Management and Maintenance Strategy

- (i) Not later than the end of the Establishment Period for the New Works the Company shall prepare in consultation with the Scottish Ministers a 30 Year Landscape Management and Maintenance Strategy. The Company shall annually review, revise and update the previous 30 Year Landscape Management and Maintenance Strategy, in consultation with the Scottish Ministers until the end of the O&M Works Period.
- (ii) The strategy shall include but not be limited to the following:
 - (a) Clear cross referencing with the as-built landscape drawings.
 - (b) Ordnance Survey based location plans clearly showing Routes and the areas under review.
 - (c) Brief descriptions of the Routes and areas under review highlighting the general character of the location, its appearance and value of the landscape, the quality of the landscape and any ecological elements which may be affected by the maintenance and management of the landscape areas.
 - (d) A range of photographs typical of the various character zones.
 - (e) Consideration of 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 outside of the O&M Works boundary.
 - (f) Consideration of any relevant related studies, plans or strategies for the location.
 - (g) General proposals for the future development of the environment related to the O&M Works Site.
 - (h) 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.
- (iii) The Company shall take account of the proposals in the agreed 30 Year Landscape Management and Maintenance Strategy in preparing the Landscape Development Plan.

8.7.3. Landscape Development Plan

- (i) Not later than the end of the Establishment Period for the New Works the Company shall prepare and submit to the Scottish Ministers a Landscape Development Plan comprising a 5 Year Landscape Maintenance Review and a Pesticide Reduction Plan. The Company shall review, revise and update the Landscape Development Plan annually thereafter until the end of the O&M Works period.
- (ii) The Landscape Development Plan shall be a controlled item of the Quality Plan and shall be deemed to form part of the O&M Manual. It shall be developed in accordance with Transport Scotland's

commitment to the protection and enhancement of biodiversity encompassed within but not limited to the following documents:

- (a) The Scottish Ministers' landscape design and maintenance policy contained in Cost Effective Landscape Learning from Nature (CEL:LfN) published by The Stationary Office February 1998, or any revisions of the policy thereafter.
 - (b) The Trunk Roads Biodiversity Action Plan published in as a consultation document in January 2000 or any revisions of the document thereafter.
 - (c) Scotland's Biodiversity, the Scottish Ministers' biodiversity strategy published in 2004, or any revisions of the strategy thereafter.
 - (d) The Scottish Executive's Inventory of Wildlife Mitigation Measures.
- (iii) Any new or existing wildlife mitigation measures shall be taken into account within the Landscape Development Plan.
- (iv) The 5 Year Landscape Maintenance Review shall identify all areas which could be improved for the following 5 year period by alternative Maintenance requirements to those referred to in Part 5 of Schedule 4 in terms of:
- (a) General amenity.
 - (b) More efficient maintenance.
 - (c) Improved biodiversity.
 - (d) Other issues identified as significant by the Company's chartered Landscape Architect.
- (v) The 5 Year Landscape Maintenance Review shall include reporting of the detailed surveys of wildflower seeded areas undertaken every 5 years, recording species composition, percentage cover, key associations, a photographic record and site notes together with recommendations for enhancement.
- (vi) The Pesticide Reduction Plan shall include but not be limited to:
- (a) The volumes of each type of herbicide applied and reasons for use within the previous year.
 - (b) Proposals for reduction of herbicide use for the following year through use of alternative but equally effective proposals.

8.7.4. Annual Landscape Report

- (i) At the end of the Establishment Period for the New Works and subsequent annual periods until the end of the O&M Works period the Company shall prepare and submit to the Scottish Ministers a written annual landscape report detailing the maintenance and management O&M Works undertaken during the preceding annual period.
- (ii) The Annual Landscape Report shall record:
 - (a) The general condition of landscape areas.
 - (b) The effectiveness of maintenance activities over the year.

- (c) Details of any new O&M Works undertaken.
- (d) The following information for all recently created planting areas subject to establishment maintenance in tabular form:

Planting Area	Location	Contractor	Date Created	Establishment Period	Condition
---------------	----------	------------	--------------	----------------------	-----------

- (e) A detailed schedule of all maintenance operations that shall have been undertaken within the period covered by the Annual Landscape Report including the dates and locations (with reference to marker posts) and other relevant details of all grass cutting, litter picking, herbicide/pesticide applications, pruning, trimming, felling, coppicing, thinning, hedge cutting, checking/removal of stakes and ties, maintenance of waterbodies, wildlife mitigation and otherwise.
- (f) Dates and records of all inspections that shall have been undertaken during period covered by the Annual Landscape Report.
- (g) A written report with photographic illustrations for all locations which shall have been seeded or otherwise planted with grasses or other herbaceous vegetation, areas of trees, hedges and other planting within each landscape character area, including a general description and reviewing inter alia: species, diversity, wildlife habitat value, safety, amenity, landscape character, ground/soil conditions, presence of weeds, condition/vigour of plants, performance against objectives and maintenance recommendations for the following 12 month period.
- (h) The performance of contractor(s) responsible for the establishment and maintenance for planting areas.
- (i) The effectiveness of recently created planting areas in meeting the requirements of the Landscape Development Plan.
- (j) Progress of the Pesticide Reduction Plan specifying the general level of herbicide use noting locations subjected to significant applications.
- (k) Pesticide Record Forms in accordance with Clause 3001 of Part 5 of these O&M Works Requirements shall be included as an annex to the Annual Landscape Report.
- (l) Details of any O&M Works that shall have been undertaken in support of enhancing biodiversity and nature conservation including works associated with creating, repairing or improving any wildlife mitigation measures.
- (m) A general statement of any problems or specific unforeseen issues which shall have arisen during the period covered by the Annual Landscape Report and recommendations for action required thereafter.
- (n) Observations resulting from detailed inspections of landscape areas.
- (o) Details of any amendments to the as built-drawings.

- (p) A provisional programme of maintenance operations for the following 12 month period.

9. Traffic Counting Duties

- 9.1. The Scottish Ministers carry out traffic counting duties at the fixed location traffic counting sites the location of which within the O&M Works Site can be found on the Transport Scotland website using the following link:

<http://www.transportscotland.gov.uk/road/technology/traffic-count/map-application>

- 9.2. Data collection at these sites is managed for the Scottish Ministers by the Scottish Roads Traffic Database Manager.
- 9.3. The current Scottish Roads Traffic Database Manager commission is with Atkins whose staff is co-located with the Scottish Ministers staff at Buchanan House in Glasgow.
- 9.4. The Scottish Ministers shall notify the Company in writing of any change to the Scottish Roads Traffic Database Manager.
- 9.5. The Company shall notify the Scottish Roads Traffic Database Manager at least 15 Business Days before any aspect of:
- (i) the New Works;
 - (ii) the Restricted Services; or
 - (iii) work by Undertakers and other third parties.

that shall have a physical effect on any fixed location traffic counting sites referred to in paragraph 9.1 is undertaken.

- 9.6. The Company shall comply with the Scottish Ministers details for the replacement, renewal or discontinuance of any fixed location traffic counting site so affected.
- 9.7. The Scottish Ministers current Scottish Roads Traffic Database contractors are
- To be confirmed**

- 9.8. The Scottish Ministers shall notify the Company in writing of any change to the Scottish Roads Traffic Database contractor.

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 Routine Management Maintenance System (RMMS) and describes various conventions which shall be adopted by the Company when undertaking surveys in order to ensure consistency in the database record.

This Appendix A revises some of the codes in the previous Scottish RMMS Inventory and Inspection Manuals with regard to inventory attributes and inspections.

1 General Survey Rules (Inventory and Inspection)

1.1. Network Node Points

- 1.1.1. Each network node point represents a fixed definable point on the road surface to which chainage can be related. In the RMMS 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.

1.2. Cross-Sectional Position

- 1.2.1. The position of an inventory item or defect within a section is 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 is created and not where existing Lane use is redesignated.

- 1.2.2. An optional overlay for fitting over the keyboard of some data capture devices is 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

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

1.3. Survey Procedure

1.3.1. 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 is carried out in the reverse direction to that specified by the start and end nodes in the RMMS 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 RMMS 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 RMMS 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 is 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 is not present or is 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 is 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 is 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 RMMS 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 Scottish Ministers, relevant local authority or others.

1.4. Standard Procedures and Consistency

1.4.1. 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.

1.4.2. The following points shall be considered when an Inspection survey is 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.

1.5. Data Capture Device and Data Collection Software

- 1.5.1. It shall be noted that this Appendix revises some of the codes in previous RMMS inventory and Inspection manuals with regard to inventory attributes and inspections.
- 1.5.2. A range of data capture devices and data collection software is commercially available. Any device and associated software package shall be acceptable to the Scottish Ministers if it shall be suitably adapted to comply with all the requirements of this Appendix. The Company shall be required to demonstrate to the Scottish Ministers 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

1.6. 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

<u>ITEM</u>	<u>MNEMONIC</u>	<u>TYPE</u>
ELECTRICAL SUPPLY PILLARS		
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
HARD SHOULDER	HS	C
HEDGE	HG	C
WEATHER STATION		
ICE SENSOR	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

<u>ITEM</u>	<u>MNEMONIC</u>	<u>TYPE</u>
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
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):

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

1.7. Notebook Facility

- 1.7.1. The notebook facility (NT) is not an inventory item but is 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 RMMS. 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.

1.8. Sign Dimensions

- 1.8.1. 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 is defined as the height from the bottom of the sign to the ground level.

1.9. Item Length

- 1.9.1. The inventory items in this section are categorised as 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 chainage. 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 is not required e.g. transverse culverts, carriageways, bridges).

1.10. Double Counting

- 1.10.1. 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).
- 1.10.2. Care shall be taken to avoid double counting of other inventory items at start and end sections (e.g. carriageway, lighting points, signs).

1.11. Intermediate

- 1.11.1. 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

1.12. Introduction

- 1.12.1. 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 RMMS database and subsequently inspected in accordance with the requirements laid out in this Part 2 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 RMMS database.
- 1.12.2. A detailed description of each inventory item follows together with the information on each item which the Company is 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.

1.12.3. 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 1.72 of this Appendix A.

1.13. **CW** - Carriageway

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

1.13.1. 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]

1.13.2. Convention

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

1.13.3. 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.

1.14. 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.

1.14.1. 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]

1.14.2. Convention

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

1.14.3. 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.

1.15. LB - Lay-by

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

1.15.1. 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]

1.15.2. Convention

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

1.15.3. 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.

1.16. XO - Crossover

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

1.16.1. 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

1.16.2. Convention

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

1.16.3. Rules

- (i) A crossover occurs when the surface type is different to the surface of the item crossed.
- (ii) A crossover shall be recorded in the cross-sectional position that is 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 is

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.

1.17. CI - Central Island

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

1.17.1. 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]

1.17.2. Convention

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

1.17.3. 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) is 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).

1.18. CR - Central Reserve

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

1.18.1. 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]

1.18.2. Convention

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

1.18.3. 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 is 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 is crossed by a crossover it is allowed to continue and not ‘clocked off’ by the inventory program. Thus crossover is 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).

1.19. **FW** - Footway

1.19.1. 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) ($0.5 < W < 99.9$)
Footway Category	{-}	1,2 or 3 as defined

1.19.2. Convention

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

1.19.3. Rules

- (i) A footway is 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 is crossed by a crossover (XO) it is allowed to continue and not 'clocked off' by the inventory program. Thus crossover is 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 is required for the other item. If in doubt, the entry for FW takes priority.

1.20. CT - Cycle Facility

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

1.20.1. 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 {----

1.20.2. Convention

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

1.20.3. Rules

- (i) A cycle facility is 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 is crossed by a crossover (XO) it is allowed to continue and not 'clocked off' by the inventory program. Thus crossover is 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 is required for the other item. If in doubt, the entry for FW takes priority.

1.21. **KB - Kerb**

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

1.21.1. 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 3 = Extruded Asphalt 4 = Other
Type	{-}	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

1.21.2. Convention

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

1.21.3. 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 is crossed by a crossover (XO) it is 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).

1.22. CH - Channel

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

1.22.1. 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

Prefomed Concrete Blocks
3 = Natural Stone
4 = Metal Grating
Combined Kerb & Channel
6 = Other

1.22.2. Convention

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

1.22.3. 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 is recorded under the inventory item grip (GP).

1.23. 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 is usually surmounted by a grating.

1.23.1. Input Details

- (i) Site Entries

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

1.23.2. Convention

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

1.23.3. 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 is a chamber which requires to be emptied periodically and is usually surmounted by a grating. A grating and other ironwork which is 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).

1.24. 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.

1.24.1. 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)

1.24.2. Convention

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

1.24.3. 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 is recorded.

1.25. 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.

1.25.1. 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)

1.25.2. Convention

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

1.25.3. Rules

- (i) Unless it is clear that a catchpit exists below a manhole cover, the chamber shall be recorded under the inventory item manhole (MH).

However, if a catchpit is definitely present, the chamber shall be recorded as a catchpit and the cover shall NOT be recorded separately.

1.26. MH - Manhole

1.26.1. 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)

1.26.2. Convention

(i) A manhole is defined as a point item.

1.26.3. Rules

- (i) A manhole shall only be recorded if it does not occur with a catchpit or interceptor or if it is not known what is 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.

1.27. PG - Piped Grip

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

1.27.1. 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)

1.27.2. Convention

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

1.27.3. Rules

- (i) A piped grip shall be recorded in the cross-sectional position of the offlet. Where the offlet is 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 offlet (weir) associated with a piped grip is NOT a separate inventory item (i.e. gully inlet with no pot).

1.28. **PD** - Piped Drainage

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

1.28.1. 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

1.28.2. Convention

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

1.29. GP - Grip

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

1.29.1. 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

1.29.2. Convention

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

1.29.3. 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.

1.30. DI - Ditch

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

1.30.1. 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

1.30.2. Convention

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

1.30.3. Rules

- (i) A ditch on the left road boundary line is recorded in cross-sectional position 1 and if on the right road boundary line in position 0.
- (ii) When a ditch is crossed by a crossover (XO) it is allowed to continue and not 'clocked off' by the inventory program.

1.31. 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.

1.31.1. 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)

1.31.2. Convention

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

1.31.3. 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 is crossed by a crossover (XO) it is allowed to continue and not 'clocked off' by the inventory program.
- (iii) Counterfort drains are recorded as a separate item.

1.32. 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

1.32.1. 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)

1.32.2. Convention

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

1.32.3. Rules

- (i) The start chainage of a counterfort drain occurs when the measuring wheel is level with the point at which the drain is first encountered.
- (ii) The end chainage occurs when the measuring wheel is level with the point at which the drain is last encountered.

1.33. CV - Culvert

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

1.33.1. 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)

1.33.2. Convention

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

1.33.3. 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.

1.34. 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.

1.34.1. Input Details

- (i) Site Entries

Item Code	{BP}	
Geographical Information System	Point	OSGR coordinate of balancing pond centre

Cross-Sectional Position	Functional Keys{-}	See Section 1.2 of this 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
------------------------	--

1.34.2. Convention

- (i) A balancing pond is defined as a point item

1.34.3. 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 is recorded as cross-sectional position 1 if it is on the left and cross-sectional position 0 if it is on the right.

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

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

1.35.1. 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)

1.35.2. Convention

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

1.35.3. 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 is recorded as cross-sectional position 1 if it is on the left and cross-sectional position 0 if it is on the right.

1.36. **SV** – Sluices and Valves

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

1.36.1. 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)

1.36.2. Convention

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

1.36.3. 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 is recorded as cross-sectional position 1 if it is on the left and cross-sectional position 0 if it is on the right.

1.37. AI – Ancillary Equipment

Ancillary equipment, including pumps, associated with road drainage.

1.37.1. 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)

1.37.2. Convention

- (i) Ancillary equipment is defined as a point item

1.37.3. 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 is recorded as cross-sectional position 1 if it is on the left and cross-sectional position 0 if it is on the right.

1.38. CC - Communication Cabinet

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

1.38.1. Input Details

(x) 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)

1.38.2. Convention

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

1.38.3. Rules

- (i) When the cabinet identity code is 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.

1.39. **TB** - Emergency Telephone Box

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

1.39.1. 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

1.39.2. Convention

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

1.39.3. Rules

- (i) In an identity code is 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.

1.40. 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

1.40.1. 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

1.40.2. Convention

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

1.40.3. Rules

- (i) In an identity code is 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. EC - Embankments and Cuttings

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

1.41.1. Input Details

(i) Site Entries

Item Code	{EC}	
Geographical Information System	Polygon	Polygon around boundary of 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)

1.41.2. Convention

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

1.41.3. 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 is crossed by a crossover (XO) it is 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 is recorded with adjacent carriageway sections.
- (vii) If required, the maintainable grass width of an embankment/cutting shall be recorded using the verge item (VG).

1.42. Landscape Areas

1.43. **VG** - Verge

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

1.43.1. Input Details

- (i) Site Entries

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

1.43.2. Convention

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

1.43.3. Rules

- (i) The maintained verge width is 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 is crossed by a crossover (XO) it is 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.

1.44. GA – Grassed Areas

1.44.1. 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

1.44.2. Convention

- (i) A grassed area is 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 is 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

1.44.3. 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 is crossed by a crossover (XO) it is allowed to continue and not “clocked off” by the inventory program
- (iv) If there is any doubt as to the ownership of a grassed area, then it shall be recorded within the Works site network inventory

1.45. HG - Hedge

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

1.45.1. 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

1.45.2. Convention

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

1.45.3. 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 is crossed by a crossover (XO) it is allowed to continue and not 'clocked off' by the inventory program.
- (vi) If there is any doubt as to the ownership of the hedge, then it shall be recorded.

1.46. TR - Tree

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

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

1.46.1. 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

1.46.2. Convention

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

1.46.3. 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 is no interlocking canopy with the nearest neighbour shall be recorded
- (iii) Each individual sporadic tree where there is 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 is doubt as to the ownership, then the presence of trees shall be recorded

1.47. SR - Shrub

An ornamental or woodland planted area

1.47.1. 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

1.47.2. Convention

- (i) A shrub area is 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

1.47.3. 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 is crossed by a crossover (XO) it is allowed to

continue and is not “clocked of” by the inventory program

- (iv) If there is any doubt as to the ownership of the shrub area then it shall be recorded

1.48. **WD** - Woodland

A collection of trees

1.48.1. 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

1.48.2. Convention

- (i) A woodland area is defined as an area item
- (ii) Different areas shall be defined for each type of woodland
- (iii) New woodland (under 5 years old) is 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) is 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) is areas of dense tree cover, whether single or mixed species or varieties, and with or without a woodland shrub layer

1.48.3. Rules

- (i) A woodland area shall be recorded in the cross sectional position in which it occurs

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

1.49. **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

1.49.1. 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

1.49.2. Convention

- (i) A scrub area is defined as an area item

1.49.3. 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 is crossed by a crossover (XO) it is allowed to continue and is not “clocked of” by the inventory program
- (iv) If there is any doubt as to the ownership of the scrub area then it shall be recorded

1.50. **BB** - Bulb

An area of naturalised or planted bulbs

1.50.1. 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

1.50.2. Convention

- (i) A bulb area is defined as an area item

1.50.3. 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 is crossed by a crossover (XO) it is allowed to continue and is not "clocked of" by the inventory program

1.51. **WT** - Wetland

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

1.51.1. 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

1.51.2. Convention

- (i) A wetland area is defined as an area item

1.51.3. Rules

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

1.52. SF – Safety Fence

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

1.52.1. 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 3 = Other
Beam Profile	{-}	1 = Corrugated 2 = Box Beam 3 = Other

1.52.2. Convention

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

1.52.3. 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.

1.53. 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.

1.53.1. 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

1.53.2. Convention

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

1.53.3. 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 is made changes, but the guardrail continues.

1.54. **FB** - Fences and Barriers

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

1.54.1. 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

1.54.2. Convention

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

1.54.3. 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 is 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 is 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 is crossed by a crossover (XO) it is 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.

1.55. **RW - Retaining Wall**

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

1.55.1. 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

1.55.2. Convention

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

1.55.3. 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 is on the right-hand road boundary.

1.56. **CB - Traffic** Control Barrier

A moveable barrier or gate which controls the flow of traffic or which is used to close sections of the road in severe weather conditions.

1.56.1. 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

1.56.2. Convention

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

1.56.3. 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 is in two parts or more.

1.57. **RS** - Road Studs

A stud placed in the carriageway to guide traffic.

1.57.1. 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	{----}	(To nearest metre)
Type	{-}	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

1.57.2. Convention

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

1.57.3. Rules

- (i) This item is 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.

1.58. LH - Road Markings (Hatched)

Road markings on the carriageway with a distinctive hatched design.

1.58.1. 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)

1.58.2. Convention

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

1.58.3. 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.

1.59. LL - Road Markings (Longitudinal)

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

1.59.1. 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)
-----------------------	-------	-------------------------

1.59.2. Convention

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

1.59.3. 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 is recorded in cross-sectional position 3. If it is on the right-hand side it is 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.

1.60. **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.

1.60.1. 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)

1.60.2. Notes

'1 = STOP' is a continuous line.

'2 = GIVE WAY' is a broken line.

'3 = WORDS' – e.g. BUS STOP, STOP SLOW, TURN LEFT.

1.60.3. Convention

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

1.60.4. 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 is 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 is 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.

1.61. SG - Signs

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

1.61.1. 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 C2 Section C3 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

1.61.2. Convention

- (i) A sign is defined as a point item.

1.61.3. Rules

- (i) Only permanent signs shall be recorded.
- (ii) If an identity code is 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.

1.61.4. 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)

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

1.61.6. The mounting height is the distance from the lower edge of the sign to the road surface.

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

1.61.8. 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

1.61.9. 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.

1.61.10. The control box (even when not integral) is assumed to be included with the sign.

1.61.11. If the sign dimensions do not conform to the pre-defined ‘standard’ values, enter the width and height directly.

1.61.12. 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.

1.61.13. Signs on a gantry shall be recorded in the cross-sectional position to which they apply.

1.61.14. 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 is circular or 561 if the reflector is rectangular. If two identical reflectors are present then the rule at 1.29.5 will apply.

1.61.15. 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.

1.62. **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.

1.62.1. 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	{----	(Alphanumeric)
Diagram	{-----}	(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

1.62.2. Convention

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

1.62.3. 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 is not present or unreadable an asterisk (*) shall be entered.
- (iii) Where no sign is 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 is 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.

1.63. RF - Reference Marker Point

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

1.63.1. 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)

1.63.2. Convention

- (i) A marker point is defined as a point item

1.63.3. Rules

- (i) Only marker points which refer to the O&M Works Site network shall be recorded.
- (ii) If an identity code is not present or is 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).

1.64. **TS** – Road Traffic Signals

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

1.64.1. Input Details

(i) Site Entries:

Item Code	{TS}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position Chainage	{- } {----}	See Section 1.2 of this Appendix A (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

1.64.2. Convention

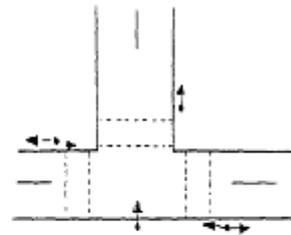
- (i) A traffic signal is defined as point item.

1.64.3. Rules

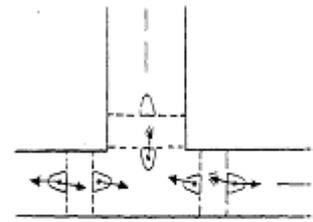
- (i) Each post supporting a set of traffic signals must be included as a separate inventory item. When there is doubt as to which section a post is in, it shall be recorded in the section which contains the control box.
- (ii) A lamp unit is an individual light, i.e. a set of red/amber/green counts 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 is not present or is unreadable, an asterisk (*) shall be used.
- (iv) Wattage is 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.

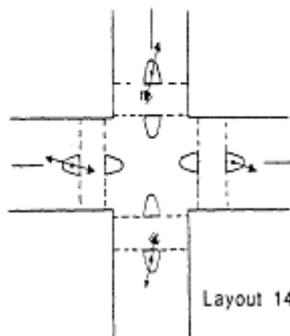
Traffic Signal Layout Diagrams



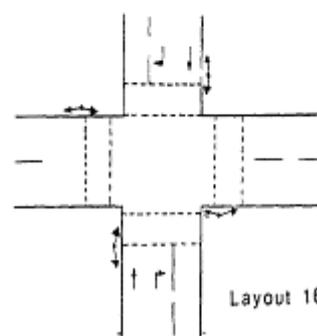
Layout 100



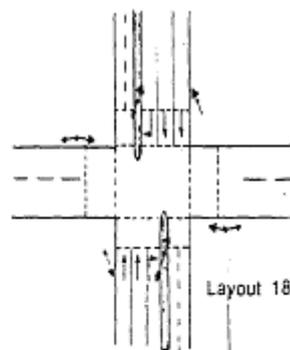
Layout 120



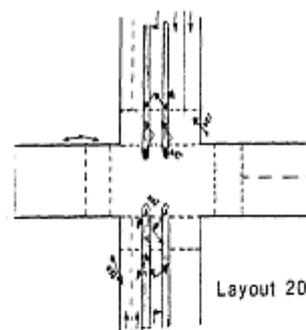
Layout 140



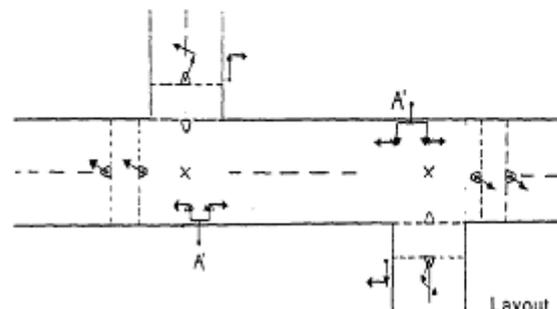
Layout 160



Layout 180

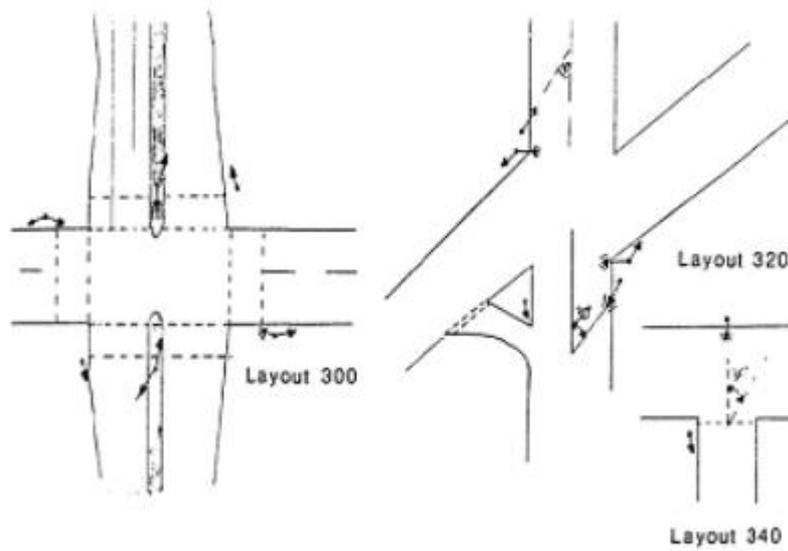
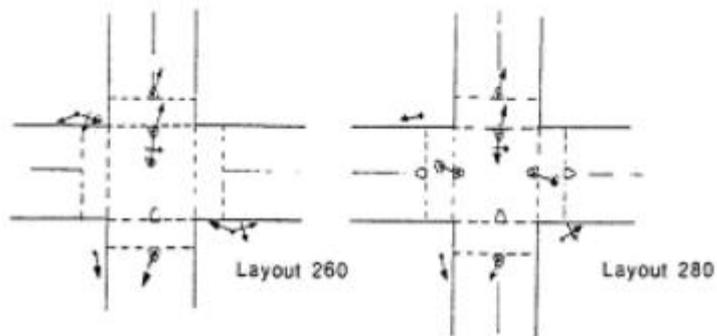
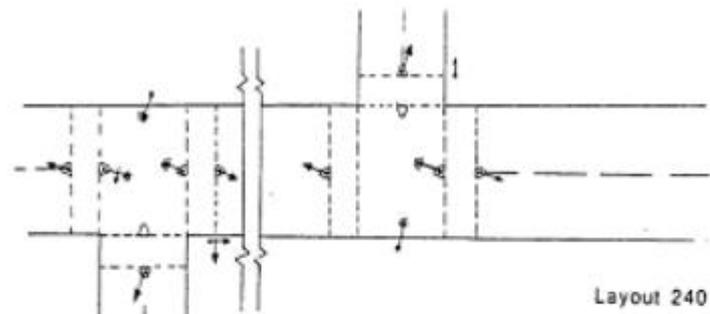


Layout 200



Layout 220

Traffic Signal Layout Diagrams



1.65. PX - Pedestrian Crossing

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

1.65.1. 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

1.65.2. Convention

(i) A pedestrian crossing is defined as point item.

1.65.3. Rules

- (i) Each individual lighting post associated with a pedestrian crossing is 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.

1.66. DL – Detector Loops

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

1.66.1. 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

1.66.2. Convention

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

1.66.3. Rules

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

1.67. LP – Road Lighting Point

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

1.67.1. 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

1.67.2. 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

1.67.3. Convention

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

1.67.4. Rules

- (i) If an identify code is not present or is 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 is 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 is 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.

1.68. BO - Overbridge

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

1.68.1. 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

1.68.2. Convention

- (i) An overbridge is defined as a continuous item.

1.68.3. Rules

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

1.69. BU - Underbridge

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

1.69.1. 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

1.69.2. Convention

- (i) An underbridge is 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.

1.69.3. Rules

- (i) When the bridge identity code is 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 is 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 is 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.

1.70. IS - WEATHER STATION

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

1.70.1. Input Details

- (i) Site Entries:

Item Code	{IS}		
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	{-}	T = Yes	N = No

Sensor

Year Installed {----}

1.70.2. Convention

- (i) An ice sensor is defined as a point item and will be associated with a Weather Station.

1.70.3. Rules

- (i) If an identity code is 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.

1.71. **SP** - Snow Poles

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

1.71.1. 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

1.71.2. Convention

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

1.72. **AB** – Arrester Bed

Normally a bed of loose gravel to stop vehicles.

1.72.1. Input Details

- (i) Site Entries:

Item Code	{AB}	
Geographical Information System	Point	OSGR Coordinate
Cross Sectional	{-}	See Section 1.2 of this

Position		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

1.72.2. 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 Management System database or the separate street lighting management system if approved by the Scottish Ministers 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 RMMS database, or the separate street lighting management system if approved by the Scottish Ministers.

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 Scottish Ministers requirements for routine maintenance of the O&M Works Site are incorporated in this Part 2 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 is conducting these inspection surveys and the procedures for recording the defects on the RMMS 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 RMMS database in a systematic format via electronic data capture devices and the use of inspection codes and defect codes. 3.2 of this Appendix contains a schedule of the information required when the Company is undertaking 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 RMMS database.
- (v) Paragraphs 3.4 to 3.31 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) It shall be for the Company to 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 adequate 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 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	(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 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 RMMS database.
- (ii) In a number of instances, the RMMS 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 onerous frequency shall be set within the RMMS.

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
BF	Barriers & fencing metal /	Int	2 years		24 hrs	28

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
	conc					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
CS	Comms Equip (Matrix &	Int	3 months		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
	signals)					
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
LE	Lamp columns:		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
	electrical					
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	Metre s	1	50
Surfacing joints Open or excessive joints	SRJT	Length	Metre s	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 is more than one inspection interval defined for this inspection activity in this Part 2 of the O&M Works Requirements, the most onerous interval shall be set within the RMMS 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				
Deep spalling at joints	DSPL				

Description	Code	Attribute	Units	Min	Max
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

- (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 is more than one inspection interval defined for this inspection activity in this Part 2 of these O&M Works Requirements. The most onerous interval shall be set within the RMMS database and it is intended that the available facility is 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
Standing Water	STWT	Length	metres	1	50
Slab profile – uneven/trips/gap>20mm	SLPF	Area	m ²	1	200

Description	Code	Attribute	Units	Min	Max
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 is 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 is more than one inspection interval defined for this inspection activity in this Part 2 of these O&M Works Requirements, the most onerous interval shall be set within the RMMS 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				
Difference in components levels. Differential levels between different components exceeding 20 millimetres.	ICLV				
Rocking under load	IRLD				

Description	Code	Attribute	Units	Min	Max
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 Scottish Ministers.

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 is more than one inspection interval defined for this inspection activity in this Part 2 of these O&M Works Requirements, the most onerous interval shall be set within the RMMS 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				

(i)

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 is 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 is considered in Section 3.7 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 is 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 3.7 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 is 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 is 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
Obstruction	OBST	Length	metres	1	50
Deposited rubbish	DRUB				
Silted	SILT	Length	metres	1	100
Flooding	FLOD	Area	m ²	1	500
Other	OTHR				
None	NONE				

3.14 Filter Drains

3.14.1 The following inspection code relates to this activity:

Filter Drain FD

3.14.2 The following inventory item is applicable to this inspection activity:

Counterfort Drain CD

Filter Drain FD

3.14.3 Convention

This inspection item includes both filter and counterfort drains.

3.14.4 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Weed growth	WEED	Length	metres	1	100
Filter drain damaged	FMDM	Length	metres	1	50
Filter material displaced	FMDS	Length	metres	1	50
Silted	SILT	Length	metres	1	100
Flooding	FLOD	Area	m ²	1	500
Other	OTHR				
None	NONE				

3.14.5 General Notes

- (i) The Company shall make maximum use of emptying and cleansing operations to check that filter drains are operating satisfactorily.
- (ii) When sub-surface blockages are suspected (e.g. because of the presence of ponding), trial pits shall be excavated by the Company to determine the nature and the extent of the defect.
- (iii) Schemes for replacement of filter media shall be submitted by the Company for the consent of the Scottish Ministers as part of their normal planned programme of works.

3.15 Culverts

3.15.1 The following inspection code relates to this activity:

Culverts CV

3.15.2 The following inventory item is applicable to this inspection activity:

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 is 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 RMMS.

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 is 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 outlet which will affect the controlled	OUTF				

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 is more than one inspection interval defined for this inspection activity in this Part 2 of these O&M Works Requirements, the most onerous interval shall be set within the RMMS 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.

3.18.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Flooding	FLOD	Area	m ²	1	500
		Cause	Characters	1	40
Other	OTHR				
None	NONE				

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 Scottish Ministers.
- (ii) Particular attention shall be paid to areas where excessive water is standing on the carriageway or where water is 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 Unit	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 impaired.	ACES				
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 equipment which is 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 is 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]
(Scottish Ministers'): Soundness	HN (Specialist) [HG,TR]
(Non-Scottish Ministers'): Soundness	HX (Specialist [HG,TR]

3.22.2 The following inventory item is 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 Accidental or other damage results in an unstable tree / branch	UNST				
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 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 is 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)	CMTP				
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 Road Markings

3.27.1 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)

3.27.2 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

3.27.3 Definition

This section relates to all road markings in thermoplastic materials.

3.27.4 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				

3.27.5 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				

3.27.6 Notes on Defects

- (i) WEAR - The Company shall take action when % remaining is 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.

3.27.7 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				
Surface corrosion	SFCO				
Accident damage	ACCD				

Description	Code	Attribute	Units	Min	Max
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				
Lamp failure	LAMP				
Counter / loop damaged	CDAM				

Description	Code	Attribute	Units	Min	Max
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 is 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 Station

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 is applicable to this inspection activity:

Weather Station: 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 ice sensor 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 Management 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 is 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 is considered to be only damp when water is present that clearly darkens the road surface, but there is no spray or water flowing across the surface. A wet road is one where minimal spray is evident and there is no water flowing across the surface and no drops of water are formed by trafficking. A very wet road is 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 is only achieved when salt is 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 is 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 is 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 is any hint of moisture being present a pessimistic view of the forecast should 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 Spreading Rates (Other alternative de-icing agent spreading rates to be in accordance with manufacturers recommendations)

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)	Ploughing	Blowing
	Salt		
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

Table 5 – Snow Clearance

Condition Criteria	Category A Patrol Routes		Non Category A Patrol Routes	
	Dual carriageways and Motorways		Dual carriageways	Wide Single 2+1 (WS2+1) & Single carriageways
	Number of Existing Lanes		Number of Existing Lanes	
	2	3 or more	2	1 or 2 (WS2+1)
	Minimum number of lanes in each direction free from ice and snow as far as is reasonably practical		Minimum number of lanes in each direction free from ice and snow as far as is reasonably practical	
Snow at any time	1	2	1	1
Following clearance of minimum lanes of the cessation of snow fall all lanes are to be clear of snow	6 hours	6 hours	12 hours	12 hours

Table 6 – Salt Stock Monitoring Report

M8 M73 M74 Motorway Improvements DBFO	Reporting Month
Salt used during reporting period	
Actual salt stocks held at the end of the reporting period	
Salt orders placed and deliveries received during reporting period	
Salt orders expected during next reporting period (include imports, dates deliveries expected & tonnage expected)	
Forecast usage during next reporting period	
Any other items to report (such as reduced treatment networks, any notable arrangements with local authorities, etc.)	

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

M8 M73 M74 Motorway Improvements 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 SCOTTISH MINISTERS USE

Draft document submitted to the Scottish Ministers ____ Signed:

Comments to Company from the Scottish Ministers ____ Signed:

Final Document submitted to the Scottish Ministers ____ Signed

Strategy Consented to by the Scottish Ministers ____ Signed

M8 M73 M74 Motorway Improvements 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 Scottish Ministers.

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. Ice sensors 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 Scottish Ministers

6.1.2. the Police

6.1.3. the Traffic Scotland Operator

6.1.4. adjacent road and highway authorities

6.1.5. adjacent South East Unit and South West Unit including DBFO's, 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 1 to Appendix D of this Part.

8.1.2. A Winter Service Patrol report shall be provided by the Company in the format referred to in Table 3 of Annex WSP 1 to Appendix D of this Part.

9. 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 South East and South West Units including DBFO's and other adjacent road authorities;
- (ii) contingency plans for alternative access to precautionary treatment routes where normal access is 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 is 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. WINTER SERVICE PLANT

12.1. Front Line Winter Service Plant

- 12.1.1. The Company's front line Winter Service Plant and reserve Winter Service Plant available within the O&M Works Site shall be provided by the Company in Annex WSP 5 of Appendix D.
- 12.1.2. Details of the Company's front line Winter Service 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.

12.2. Reserve Winter Service Plant

- 12.2.1. Details of the reserve Winter Service Plant shall be as referred to in Annex WSP 5 of Appendix D.

12.3. Additional Winter Service Plant

Details of the additional Winter Service Plant shall be as referred to in Annex WSP 5 to Appendix D. Mobilisation arrangements for additional Winter Service Plant available through contingency arrangements for the Winter Service for carriageways, footways, footbridges and cycling facilities.

12.4. Loading Winter Service Plant

- 12.4.1. Loading Winter Service Plant available within the O&M Works Site for loading:
- (i) front line;
 - (ii) reserve; and
 - (iii) additional.
- 12.4.2. Additional Winter Service Plant shall be as referred to in Annex WSP 5 of Appendix D.

12.5. Calibration of Winter Service Plant

- 12.5.1. Calibration arrangements and procedures for front line and reserve Winter Service Plant.

12.5.2. The Winter Service Plan shall describe how the requirements of paragraph 3.18.9 of this Part 2 shall be met and where and how the calibration certificates shall be held.

13. COMPOUNDS, DEPOTS AND FACILITIES

13.1. A schedule of compounds, depots and facilities covering the network within the O&M Works Site shall be provided by the Company in Annex WSP 5 of Appendix D.

14. MAPS DRAWINGS AND GEOGRAPHICAL INFORMATION

14.1. Maps

14.1.1. 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) salt bins,
- (viii) vertical concrete barriers,
- (ix) other facilities, and
- (x) where route based forecasting is not used, climatic domains and the sensor used to generate domain forecasts.

15. COMPILING AND MAINTAINING RECORDS

16. SALT BINS

16.1 Stock level monitoring and replenishment procedures

17. SALT MEASUREMENT APPARATUS

17.1 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 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: WINTER SERVICE PATROLS

[Participants shall insert details of plant to be used on Winter Service Patrols and routes to be used]

Table 1 – Winter Service Plant for all Winter Service Patrols

Type and Registration No	Depot Location	Specification including Capacity	Quantity

Table 2 – Winter Service Patrol Routes

Category (A/B)	Route	Depot	Route Description	Depot to Route (km)	Time to Route (mins)	Patrol Length (km)	Avg Speed (km/hr)	Route Time (mins)	Route to Depot (km)

Table 3 – Winter Service Patrol Report Record

Patrol Route..... Date..... Information checked by.....

Winter Service Patrol start and end time	Weather conditions for Winter Service Patrol route		Assessed road condition (by driver) (X)				Assessed residual salt level (by driver) (X)			Action implemented (use symbols provided below)*						Route salted prior to patrol (X)		
	Air (°C)	Road Surface temperature (°C)	Snow	Icy	Wet	Dry	High	Medium	Low	Action code	Treatment Type	Spread rate (g/m ²)	Approximate location of salting or other action	Treatment Start Time	Treatment End Time	Yes	No	Time of salting

*Action symbols:

- | | | | |
|---|--|---|--|
| 1 | Spot treatment as instructed by the Winter Service Duty Officer. | 2 | Spot treatment as determined by driver. |
| 3 | Route treatment as advised by the Winter Service Duty Officer. | 4 | Route treatment as determined by driver. |
| 5 | Attend to runoff or seepage on surface. | 6 | Remove obstruction (eg dead dog, fallen tree, and other obstructions.) from surface. |
| 7 | Pre-wetted Salt | 8 | Dry Salt |
| 9 | Potassium Acetate | | |

ANNEX WSP 2: PRECAUTIONARY SALTING ROUTES

[Tenderer shall insert a table of salting routes 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 is pre-wetted or non pre-wetted

Note – a route for each spread rate shown at (11) shall be produced.

ANNEX WSP 3: OPERATIONAL SALT STOCK LEVELS

Minimum Stock Levels shall be as Table 1 in this Annex WSP 3.

Table 1: Minimum Salt Stock Levels

Minimum Salt Stock Level at Start of Season (tonnes)
2,700

De-icing Material (i.e. Dry salt/ABP)	Location	Type (barn/open)	Min (tonnes) 1 st Oct

Table 1A –Brine Production and Storage

Location	Type (saturator/storage only)	Capacity (L)	Min (L)

ANNEX WSP 4: NOT USED

ANNEX WSP 5: WINTER SERVICE PLANT

Front line Winter Service 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 Service Plant and registration number	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use* (i), (ii) (iii)

*Under plant use identify separately plant for:

- (i) precautionary treatment;
- (ii) snow clearance up to 100 millimetres; and
- (iii) arrangement to comply with Section 3 of this Part 2 of these O&M Works Requirements.

Front line Winter Service 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 Service Plant and registration number	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use (i), (ii)

Under plant use, identify separately plant for:

- (i) precautionary treatment; and
- (ii) snow clearance.

Reserve Winter Service 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 Service Plant and registration number	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use

Under plant use identify separately plant for:

- 1. carriageways; and
- 2. footways, footbridges, and cycle facilities.

Additional Winter Service Plant shall be as Table 4. For Constructional 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 Service 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 Service 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 Service Plant and registration number	Depot Location and Operator	Vehicle Capacity	Number of Vehicles

Table 6

Compound, Depot or Facility Name	Owner	Postal Address	Purpose	Access Arrangements	Contact Details	Facilities

ANNEX WSP 6: LOCATION OF EXISTING ROAD / ICE SENSORS 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 Scheme Reference Contract Plans; Requirements for Roads.

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 Structures to the Scottish Ministers for acceptance.

The Scottish Ministers 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 Scottish Ministers the period of approval of 4 weeks shall recommence on receipt of the redrafted submission. If action (iii) shall be taken by the Scottish Ministers a minimum period of approval of 1 week shall commence on receipt of the additional information.

Where the Scottish Ministers 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 Scottish Ministers 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.

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

Technical Approval Procedures for Assessment of Structures in Scotland

Schedule

Assessor shall submit assessment and check
Certificates on which shall be recorded all agreed
departures from standards.

AIP = Approval in Principle

OD = Overseeing
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 is 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 is 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 is poor visibility;
 - (iii) There is 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 is 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 RMMS.

Checklist : Advance Planning for a Mobile Lane Closure

In column P "X" denotes 'do not proceed with mobile Lane closure if answer is 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 is a risk of vehicles skidding?				G
25	Has there been consultation with the police?				G
28	At night if hard shoulder is 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 is 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 is 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 is required where there is 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 is 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 maybe due to the requirement for slower moving vehicles to change Lane. The Company should consider this in its risk assessment.
10. It is 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 limit

Difficulties can occur at uphill sections because the manoeuvrability of slow moving vehicles, including heavy goods vehicles, is 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 is required when O&M Works require operatives to be on foot on the carriageway. If the mobile Lane closure technique is 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 is 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 is 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 is fitted?			
17	Can you confirm that signs can/will be covered or removed from view when not			

Number	Question	Yes	No	Comments
	in use or normal driving of sign vehicle 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 is substantial e.g. gully cleaner/ sweeper and is 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, is 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			NB. The establishment or covering of vehicle mounted signs

Number	Question	Yes	No	Comments
	available)?			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 is 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

* CODING FOR USE IN "ESTIMATED DELAY"
COLUMN

The first digit indicates the extent of the delay

- 1 LITTLE OR NO DELAY
- 2 SLIGHT DELAY
- 3 MODERATE DELAY
- 4 SERIOUS DELAYS

N/S: NEARSIDE
O/S: OFFSIDE
C/L: CENTRE LANE
RL: ROUNDABOUT
TL: TURNING LANE
SL: SLIP LANE
CF: CONTRAFLOW

The second digit indicates the time the delay is expected

- 1 AT ALL TIMES
- 2 PEAK HOURS
- 3 OFF PEAK HOURS

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 Junction Number/name DIRECTION			Insert Activity Detail in Order of: LOCATION/DESCRIPTION/REASON DIVERSION												CLOSURE TYPE A,B OR C (SPEED LIMIT)	REPORTED DELAY*	CONING BY	MAIN CONTRA C-TOR
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 is 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

Not Used

**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 is 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 operator to confirm the exact requirements to ensure that the quoted specification is 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:

▲
▼

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

Monklands Canal – the Company shall consult and comply with the South West Management Unit and Scottish Canals with any works which are adjacent or which may impact upon the Monklands Canal. Special Requirements in relation to Scottish Canals is provided in Part 8 of this Schedule.

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 is 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 is isolated, this shall be indicated by means of warning labels attached to both the exterior and interior of the cabinet. Unless isolation is 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 is 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 is situated outwith the O&M Works area, the local roads authority is responsible for remedial and cyclic maintenance except where the equipment is located on a road section on which new works by others is in progress or the road section is covered by previous maintenance arrangements arising from such works.

At junctions in remote areas where there is 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 *Design Manual for Roads and Bridges* 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: Not Used

Appendix P Severe Weather Services

Appendix P: Severe Weather Services

1. INTRODUCTION

1.1 General

- 1.1.1 This Part identifies the planning activities the Company shall undertake in preparation for Incident Response Operations relating to Severe Weather events.
- 1.1.2 The Company shall undertake planning activities for Severe Weather events relating to the Winter Service in accordance with the requirements of Part 2.
- 1.1.3 The requirements of this Part shall be undertaken as part of the Incident Response Plan and Incident Response Operations stated in Part 1.
- 1.1.4 The Company shall include documented procedures in its Management System to deliver the requirements of Parts 1 and 2.

2. PLANNING ARRANGEMENTS FOR SEVERE WEATHER EVENTS

2.1 General

- 2.1.1 The Company's planning activities for responding to Severe Weather events shall include the development and use of management plans, processes and systems. The Company shall establish such arrangements in advance of a Severe Weather event occurring to enhance its Incident Response Operations and mitigation activities as stated in Part 1.

2.2 Information Gathering and Impact Assessment

- 2.2.1 The Company shall establish its arrangements for gathering and processing information on the key characteristics of any Severe Weather event that occurs or is predicted to occur within the Unit. Such information shall include the nature and severity of the Severe Weather event and its potential impact on the operation of the O&M Works Site.
- 2.2.2 The Company shall procure the services of an expert weather forecasting service to assist it with the prediction and management of Severe Weather events. This expert weather forecasting service shall be operational seven days a week during Normal Working Hours to provide specific, timely and accurate weather forecasts and advance warnings of Severe Weather events predicted to occur within the Unit. Such information shall, as a minimum, be specific to the conditions of the O&M Works Site.
- 2.2.3 The expert weather forecasting service for Severe Weather events is in addition to the Winter Service weather forecasting requirements stated in Part 1 & 2.
- 2.2.4 No later than 30 days prior to the Restricted Services Commencement Date, the Company shall submit to the Scottish Ministers for consent, details of its proposed expert weather forecasting service for Severe Weather events.
- 2.2.5 The Company shall provide suitably trained designated personnel who are able to receive, continuously monitor and interpret information provided by its expert weather forecasting service for Severe Weather events. Such personnel shall be authorised to make key decisions on the implementation of the Company's Incident Response Operations relating to Severe Weather events.

2.3 Liaison and Coordination

- 2.3.1 No later than 30 days prior to the Restricted Services Commencement Date, the Company shall:
- (i) identify all Operational Partners that have involvement in dealing with Severe Weather events,
 - (ii) agree the communication arrangements between itself, the Traffic Scotland Operator and other relevant Operational Partners during a Severe Weather event, and
 - (iii) ensure a mutual understanding of the roles and responsibilities of the Company and the relevant Operational Partners during a Severe Weather event.
- 2.3.2 The Company's procedures contained within its Management System shall include:
- (i) details of all relevant Operational Partners,
 - (ii) the arrangements for disseminating accurate, timely and relevant Severe Weather information to the Traffic Scotland Operator and other Operational Partners,
 - (iii) the communication arrangements between the Company, the Traffic Scotland Operator and other relevant Operational Partners to be followed during a Severe Weather event, and
 - (iv) the roles and responsibilities of the Company and all relevant Operational Partners for dealing with a Severe Weather event.
- 2.3.3 The Company shall attend regular meetings with all relevant Operational Partners to review and update the communication arrangements and enable the integration of communication systems and technology.

2.4 Information Management and Dissemination

- 2.4.1 The Company shall establish and record within its Management System, the arrangements for managing and disseminating Severe Weather information to relevant Operational Partners during the implementation of its Incident Response Operations in Part 1 of this Schedule.

3. SEVERE WEATHER MANAGEMENT PLANS

3.1 General

- 3.1.1 The Company shall execute the management, implementation, review and updating of all Severe Weather management plans and related Incident Response Operations.
- 3.1.2 The Company shall develop new Severe Weather management plans at new Disruption Risk Sites. The Company shall submit such plans to the Scottish Ministers for consent.
- 3.1.3 All Severe Weather management plans shall contain details of the arrangements for Incident Response Operations and mitigation activities at the Disruption Risk Sites where Severe Weather has been identified as a cause of disruption. Such

plans shall include actions for dealing with high winds, flooding and landslides as stated in this Part.

- 3.1.4 All Severe Weather management plans shall contain details of any Mutual Aid arrangements.
- 3.1.5 Severe Weather management plans shall form part of Company's Disruption Risk Management Plan as stated in Part 1.

3.2 Wind Management Plans

- 3.2.1 No later than 30 days prior to the Restricted Services Commencement Date, the Scottish Ministers will provide the Company with details of existing wind management plans.
- 3.2.2 The Company shall develop additional wind management plans at Disruption Risk Sites where high winds have been identified as a cause, or potential cause, of disruption to the operation of the O&M Works Site.
- 3.2.3 The Company shall ensure all wind management plans are produced in accordance with Transport Scotland's *High Winds Strategy and National Winds Management Guidelines* and shall take account of other relevant Operational Partners' wind management strategies.
- 3.2.4 Each wind management plan shall contain the arrangements for implementing the Company's Incident Response Operations and mitigation activities for any wind related Severe Weather event that occurs or is predicted to occur at the Disruption Risk Site.
- 3.2.5 The Company's expert weather forecasting service for Severe Weather events shall provide real-time wind speed data at all sites subject to a wind management plan. Such data shall be made available to the Scottish Ministers and the Traffic Scotland Operator.
- 3.2.6 The Company shall review and update all wind management plans at the same time as undertaking the review and update of the Incident Response Plan as stated in Part 1 and submit any proposed revisions to the Scottish Ministers for consent.

3.3 Flooding Management Plans

- 3.3.1 The Company shall develop flooding management plans at Disruption Risk Sites where flooding has been identified as a cause, or potential cause, of disruption to the operation of the O&M Works Site.
- 3.3.2 Each flooding management plan shall detail arrangements for implementing the Company's Incident Response Operations and mitigation activities for any flooding related Severe Weather event that occurs or is predicted to occur at the Disruption Risk Site.
- 3.3.3 The Company's shall use its expert weather forecasting service for Severe Weather events to assist in the planning and implementation of its programme for inspections and patrols of Disruption Risks Sites where flooding has been identified as a cause of the disruption. Such inspections and patrols shall be undertaken in accordance with Parts 1 & 2.

- 3.3.4 The Company shall review and update all flooding management plans at the same time as undertaking the review and update of the Incident Response Plan as stated in Parts 1 & 2 and submit any proposed revisions to the Director for consent.

3.4 Landslides Management Plans

- 3.4.1 The Company shall develop landslide management plans for Disruption Risk Sites where landslides have been identified as a cause, or potential cause, of disruption to the operation of the Unit, including those identified in the Transport Scotland's *Landslide Study Report*. The Company shall ensure all landslide management plans take account of other relevant Operational Partners' landslide management strategies.

- 3.4.2 Each landslide management plan shall detail arrangements for implementing the Company's Incident Response Operations and mitigation activities for any landslide related Severe Weather event that occurs or is predicted to occur at the Disruption Risk Site.

- 3.4.3 When exceptional rainfall events are predicted, the Company shall use its expert weather forecasting service for Severe Weather events to assist in the planning and execution of additional inspections and patrols in areas identified as being prone to landslides.

- 3.4.4 The Company shall review and update all landslide management plans at the same time as undertaking the review and update of the Incident Response Plan as stated in Parts 1 & 2 and submit any proposed revisions to the Scottish Ministers for consent.

4. INCIDENT RESPONSE OPERATIONS FOR SEVERE WEATHER EVENT

4.1 General

- 4.1.1 When the Company becomes aware of a Severe Weather event occurring or predicted to occur within the O&M Works Site, it shall commence its Incident Response Operations in accordance with the requirements of Parts 1 & 2 and implement the arrangements stated in the relevant Severe Weather management plan.

- 4.1.2 The Company's mitigation activities shall include short- and long-term activities aimed at minimising or eliminating the vulnerability and exposure of the O&M Works Site and its users to the risks from the types of Severe Weather event detailed in paragraph 3 of this Appendix. The mitigation activities to be undertaken shall be stated in the relevant Severe Weather management plan. All mitigation activities shall be undertaken in accordance with the Company's Disruption Risk Management Plan, which shall be prepared and maintained by the Company in accordance with the Disruption Risk Manual as stated in Parts 1 & 2.

Appendix Q Contact List of Network Operations Service Providers

APPENDIX Q – Contact Details - Traffic Scotland Service Provider

Group A - Main Network Operations Service Providers

Traffic Scotland Service Provider - xxxx

Traffic Scotland Control Centre

Group B - Network Operations Services Providers working on Trunk Road

W

Appendix R Notification of Planned Operations and Works Contracts and Works in the Vicinity of Network Operations Equipment

Digit 1

1. Operations or works contracts
2. Accident or incident
3. Other events

Digit 2

- A: works contracts by Company or Works contactor
 - B: works by authorised contractor
 - C: works by undertaker
 - D: works by other
- F To include any Operations, Works Contract or works carried out to make situation safe and proposals for any necessary repairs or modifications to, or at, the network operation sites.
- G Network Operations Service Provider to acknowledge receipt of this form.
- H Any additional comments as appropriate.

Appendix S Notification of Proposed New Network Operation Sites

General Notes

- 1 Use this form to record any proposals for the creation of new Network Operations services sites.
- 2 Use one line for each proposed site.

General Notes

- A eg A75
- B The name by which the Operations or works contracts is known [within this Contract].
- C Dates can be approximate.
- D Dates can be approximate.
- E For example, whether resurfacing or road realignment, etcetera. If appropriate, sketches may be supplied to make Scheme type clear.
- F This can be either by description or by Ordnance Survey Grid Reference - if appropriate, sketches may be supplied.
- G This should specify the equipment type, for example, with traffic counting sites, whether volumetric or classifier.

Appendix T Notice to Network Operations Service Provider of Damage or Suspected Damage to Network Operations Equipment

APPENDIX T – Notice to Network Operations Service Provider of Damage or Suspected Damage to Network Operations Equipment

Notice to Network operations providers of damage/suspected damage to Network operations equipment

Sheet Ref:

--

(to be continuous with previous sheets - e.g. 2004/12)

Date:

--

(date when sheet submitted)

Name:

--

(of individual responsible for sheet contents)

Network Unit:

--

(NE / NW / SE / SW)

Site Reference (A)	Date (s) damage occurred/identified (B)	Details (C)	Operation/ Works/ work Type(D)	Organisation which caused damage (if known) (E)	Additional Notes (F)

Column Notes:

- A References must be those contained within the inventory information
- B Insert the date when the damage occurred or the date the damage was identified – indicate which is applicable
- C Details of the damage and effects of the damage
- D Insert details of the cause of the damage (if known)
- E Name and contact details of organisation which caused the damage (if known)
- F To include all relevant details not covered elsewhere in the form – to include contact details in all cases

Use separate additional sheets if required, but make reference to them here

Appendix U Specification of Requirements for the Company 's Dedicated Computer Terminal

APPENDIX U – Minimum Requirements for CCTV Workstation

Dual 20" monitors

Large footprint desk top PC

Keyboard

Mouse

CCTV control panel

Appendix V Network Access Form for the Request of Information on Planned Operations, Works Contracts, Works and Events from Utilities and Other Third Parties

Appendix V Network Access Form for the Request of Information on Planned Operations, Works Contracts, Works and Events from Utilities and Other Third Parties

Input Company references and logo in this area (Document, Issue, Related To, Page No. etc.)

Before completing this form, please read the conditions and general requirements for applicants wishing to carry out work on the network.

Documents required with application	Req	Rec'd	App'd	Sign'd	Unit	<input type="text"/>
Location Plan					Ref No.	<input type="text"/>
Site Specific TM layout					SRWR Ref No.	<input type="text"/>
SRWR ref					Depot (if applicable)	<input type="text"/>
Road Opening Permit						
Planning Consent Approval						
TM Method Statement						

Applicant / Originator of Works:										
Traffic Management Contractor:										
Contractor for the Works:										
Contractor Address:						Head Office Tel:				
						Site Contact Tel:				
						Contractor 24hr Tel:				
						Traffic Man. 24hr Tel:				
Contractor Email Address:										
Route No.:										
Location:										
OS Start	E								N	
OS End	E								N	
OS Centre Point (if applicable)	E								N	
Start Section (7 digits)										
End Section (7 digits)										
Chainage Start*****										
Chainage End*****										
List sections affected from start to finish										
Description of Works (include direction)										
Works Supervisor Details:										
Contact No. for Works Supervisor:										
Lane Occupation Start Date:						Lane Occupation End Date:				
Working Days	Mon	Tue	Wed	Thu	Fri	Sat	Sun			
Lane Occupation Start Time*										
Lane Occupation End Time*										
Closure Type**:										

Lanes Closed***:	
Speed Limit on Road / Proposed Speed Limit:	
Works Method Statement:	Health & Safety Plan:
Consultation with Local Authorities, Police etc:	
Is Traffic Order required? (If Yes, approval is conditional):	
Expected Delays****	

Notes

Access will only be granted on condition that the Traffic Scotland Service Provider is informed by telephone (0141 300 8100) 15 minutes prior to the first cone being placed on the network and again when all traffic management has been lifted.

* Time Restrictions may apply

** A, B or C

*** L1, L2, L3, slip lane, hardshoulder, lay-by or verge

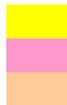
**** To be completed by the Traffic Officer

***** Relative to the start of that section

Required for Automated Diary Facility

Required for OC Audit trail

Add to Automated Diary Facility for OC & TS info



Company Response

Approval - Yes / No:

Signed:

Date:

Appendix W Coding for Estimated Traffic Delays

APPENDIX W – Coding for Estimated Traffic Delays

Number	Description	Time
1	Little or no delay	Up to 4 minutes
2	Slight delay	More than 4 minutes but less than 8 minute More than 8 minutes but less than 12 minutes
3	Moderate delay	
4	Serious delay	12 minutes or more

Escalation of Delays

Base Level – code 1

The base Level is ascribed to any roadworks (as defined) on the trunk road network within the Unit, or in adjacent Unit or Units, or off the trunk road.

First Level – code 2

The first escalation is to slight delay as defined above. The notification requirements specified within Schedule 4 Part 2 shall apply.

Second Escalation – Code 3

The Second escalation is to moderate delay as defined above. The notification requirements specified within Schedule 4 Part 2 shall apply.

Third Escalation – code 4

The third escalation is to serious delay as defined above. The Journey Time Reliability Coordinator shall determine this escalation level and then seek agreement with the Traffic Scotland Service Provider . Notification requirements specified within Schedule 4 Part 2 shall apply in such circumstances.

Appendix X Guidance Document on the 'Use of Mobile Variable Message Signs on the Trunk Road Network'

APPENDIX X – Guidance Document on the 'Use of Mobile Variable Message Signs on the Trunk Road Network'

Appeal

Doc No 1: Date:

Doc No 1: Date: A

Doc No 1: Date:

Doc No 1: Date: |

Doc No 1: Date: Mar

Doc No 1: Date: 1

Doc No 1: Date: /

Doc No 1: Date: M

Doc No 1: Date: M

Doc No 1: Date: M:

Doc No 1: Date: /

Doc No 1: Date:

Doc No 1: Date: 1

Doc No 1: Date: M:

Doc No 1: Date: 1

Doc No 1: Date: 1

Doc No 1: Date: 1

Doc No 1: Date:

Doc No 1: Date: March

Doc No 1: Date: March

Doc No 1: Date: March 2

Doc No 1: Date: March

Doc No 1: Date: March 2

Doc No 1: Date: March 20

Signature _____
Date _____

Published by

Doc No 1: Date: March 201

Appendix Y Information Required for the Severe Weather Bulletin Board for the Automated Diary Facility

APPENDIX Y – Information Required for the Severe Weather Bulletin Board for the Automated Diary Facility

The list below provides up-to-date information regarding any current Severe Weather problems being experienced on roads within the [to be inserted] Police Area which may have significant impact on your journey.

Last Page Update: [to be inserted]

ROUTE	LOCATION	ROAD STATUS	COMMENTS	INFORMATION FROM	LAST STATUS CHANGE
		Road Open	Snow. Passable with care.	Grampian Police	
			Icy conditions. Passable with care.		
			Single lane operation. Passable with care.		
			Route not recommended unless journey is absolutely necessary.		
		Road Closed	Heavy snow.		
			Drifting snow.		
			Snow clearing in progress.		
			Road estimated to re-open at	Trunk Road Operator	
		Road Re-opened	Passable with care.		
			Single lane operation. Passable with care.		
			Route not recommended unless journey is absolutely necessary.		

Appendix Z Overview of Delay Modelling Tool

APPENDIX Z – Overview of Delay Modelling Tool

Provision of the Delay Modelling Tool

The delay modelling tool facilities will be supplied by the Director.

Access to the Delay Modelling Tool

No later than 30 days prior to the Commencement of Service Date the Company shall provide and maintain at the Central Office a broadband internet connection for access to the delay modelling tool.

Prior to ordering this connection, the Journey Time Reliability Coordinator shall contact the Director to confirm the exact requirements.

Features

The delay modelling tool will use a simple demand/capacity flow model to simulate conditions at a location on the Scottish Trunk Road network.

The delay modelling tool will estimate the delay in minutes and the approximate queue length in kilometres resulting from a reduction in operational capacity at a specified location on the Scottish Trunk Road network. Estimated delays will take into account delays that are the result of recurrent congestion. The delay modelling tool will provide a delay value relating to the additional journey time that is in excess of the free flow journey time (total delay) and a further delay value for the additional time in excess of the typical journey time for the specified time of day and day of week (normal delay). The location will be defined by network link(s), typically junction to junction, or by subsections of a link.

For roadworks that extend over a number of links, the capacity reduction will be assumed to apply at the most upstream link or section.

Roadworks interventions that affect both directions at a network location will require separate analysis and identification by the Company .

The delay modelling tool will estimate the delay cost based on average traffic composition and value of time figures provided by Scottish Transport Appraisal Guidance (Scot-TAG).

A facility to specify an upstream diversion rate as a percentage of the demand flow in vehicles per hour will be provided. The Company shall use this to estimate the cost saving resulting from the implementation of the diversion.

The delay modelling tool will have access to tables of normal flow rates and speeds at different times of the day and days of the week for network links that have monitoring facilities. These will be in three minute or 15 minute periods depending on the level of equipment provision at the location of the monitoring facilities.

The delay modelling tool will have access to tables of normal journey times for some network links. The Company may use these in addition to the point information from monitoring sites to improve the accuracy of the delay estimation.

The Company shall record the output from the delay modelling tool analysis relating to a confirmed roadworks entry in the Automated Diary Facility using the appropriate Automated Diary Facility identifier.

The delay modelling tool will provide details of capacity flow rates and capacity reductions for different road types and typical closure scenarios based on values in the Design Manual for Roads and Bridges. These may be overridden by a delay modelling tool user.

Data Inputs

The delay modelling tool will contain appropriate details of:

- (i) Normal traffic flow, speed and composition.
- (ii) Normal link journey times.
- (iii) Link length, free flow speed and journey time and capacity.
- (iv) Value of time figures.

Additional information required to model a capacity reduction will be required to be entered by a delay modelling tool user; this will include:

- (i) Location of the works in terms of links and/or sections of links.
- (ii) Chainage in metres from start of link/section to start of works.
- (iii) Length of works.
- (iv) Day(s) of week.
- (v) Start/end time.
- (vi) Lanes closed.
- (vii) Confirmation of free flow speed on the link/section (suggested by the delay modelling tool).
- (viii) Confirmation of link capacity remaining after roadworks implemented (suggested by the delay modelling tool).
- (ix) Expected diversion rate (to estimate benefit of diversion).
- (x) Length of diversion route.

Report Outputs

The Company shall estimate the following information for each model analysis:

- (i) Details of works location (links/sections).
- (ii) The delay in minutes during the period while the roadworks are implemented and until resultant queues have cleared (at intervals of three minutes or 15 minutes).
- (iii) The queue length (at intervals of three minutes or 15 minutes).
- (iv) The total delay in vehicle hours.
- (v) The total queue size in vehicle kilometres.
- (vi) The cost/diversion benefit of the roadworks in terms of lost time/saved time.

**Appendix AA – Procedures for Accessing, Maintaining, Inspecting and Testing of
Traffic Scotland Maintained Equipment Shared Electrical Apparatus**

Appendix AA – Procedures for Accessing, Maintaining, Inspecting and Testing of Traffic Scotland Maintained Equipment Shared Electrical Apparatus

3. Access and Isolation of Supply in Shared Electrical Equipment Cabinets

3.1 Where access to shared electrical equipment is required by any of the parties, it shall be undertaken in accordance with the following access procedure.

3.1.1 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.

3.1.2 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 part 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.

3.1.3 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.

3.1.4 Only the circuits isolated and being worked on should be labelled within the cabinet. Where a complete cabinet is isolated, this shall be indicated by means of warning labels attached to both the exterior and interior of the cabinet. Unless isolation is 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.

- 3.1.5 In the event that the party working on the circuit is 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.

4. Maintenance, Inspection and Testing of Shared Electrical Equipment

4.1 Responsibility for Maintenance

- 4.1.1 Where an electrical equipment cabinet that provides electrical energy to both Company maintained equipment and equipment maintained by is situated outwith the Project Roads, the Company is responsible for remedial and cyclic maintenance.

4.2 Inspection

- 4.2.1 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*.

- 4.2.2 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

- 4.2.3 nature, extent and timing of such repairs.

- 4.2.4 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.

- 4.2.5 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.

4.3 Testing

- 4.3.1 Electrical testing as described in Annex C to TD23/99 of the *Design Manual for Roads and Bridges* shall be undertaken by the Company with results being made available on request.

- 4.3.2 The timing of such testing shall follow an agreed timetable. The Company shall be responsible for liaising with all affected parties regarding the timing of such tests.