

SCHEDULE 4 : O&M WORKS REQUIREMENTS

CONTENTS

- PART 1: OVERALL REQUIREMENTS
- PART 2: ROUTINE MAINTENANCE
- PART 3: HANDBACK
- PART 4: DESIGN AND CONSTRUCTION CRITERIA
- PART 5: SPECIFICATION
- PART 6: CERTIFICATION
- PART 7: REPORTS, INFORMATION AND RECORDS
- PART 8: THIRD PARTIES
- PART 9: LIAISON PROCEDURES
- PART 10: NOT USED
- PART 11: RESTRICTED SERVICES

SCHEDULE 4 : O&M WORKS REQUIREMENTS
PART 2 : ROUTINE MAINTENANCE

CONTENTS	Page Number
1. Routine Maintenance: Management.....	2
2. Routine and Cyclic Maintenance: Activities	11
3. Winter Service Operations and Management	37
4. Maintenance of Road Pavements	60
5. Maintenance and Management of Structures	64
6. Maintenance of Traffic Scotland Equipment	72
7. Road Safety and Traffic Management	85
8. Landscape Maintenance	90
9. Traffic Counting Duties.....	97
Appendix A. Detailed Inventory and Inspection Procedures.....	99
Appendix B. Weather Forecast And Road Condition Status	213
Appendix C. Winter Service Plan	217
Appendix D. Winter Service Plan Appendices.....	225
Appendix F. Technical Approval Procedures for Assessment of Structures in Scotland.....	232
Appendix G. Mobile Lane Closure Risk Assessment Checklist	235
Appendix H. Roadworks Information Forms A and B	247
Appendix I. Planned Maintenance Guidelines	252
Appendix J. Specification of requirements for Company’s dedicated computer for Traffic Scotland roadworks diary and special events diary	313
Appendix K. Information required about planned Operations, Works, work and special events for completing the Traffic Scotland roadworks diary and special events diary	314

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.

1.2 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 (h) 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 of the identification of the defect on the O&M Works Site unless otherwise specified in this Part 2 of these O&M Works Requirements.
 - (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.
- (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.
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- 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, 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

- 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.
- 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.

1.5 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 shall be walking inspections designed primarily to identify Category 2 Defects, with programmes of routine maintenance usually be derived to deal with them.
- 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, as 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.
- 1.7 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.
 - 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 or non compliant with the O&M Works Requirements. In such circumstances a 'notice' shall be issued to the Company.
- (ii) Such notices shall not be deemed as instructions from the Scottish Ministers to the Company.
- (iii) Such notices are a method of formally identifying issues on the network.
- (iv) The Company shall ensure they address and respond timeously to any hazard notice.

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 outwith 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.

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 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.

2.4.2 Inspection Requirements

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

2.4.3 Maintenance Requirements

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

2.5 Road Drainage

2.5.1 General

- (i) The requirements of this Section 2.5 shall relate to all types of

road drainage including piped drainage systems, gullies, catchpits and interceptors, piped grips, ditches, filter drains, culverts and small span bridges, settlement, attenuation and storage ponds and otherwise, along with any related ancillary items.

- (ii) In determining the requirements for maintenance of road drainage the following points shall be considered by the Company:
 - (a) Surface water reduces safety particularly if allowed to pond on a running carriageway;
 - (b) The road pavement structure shall be adequately drained to allow reduction of maintenance responsibilities and prolong the life of the road;
 - (c) The Relevant Authorities have a duty to prevent nuisance to adjoining landowners by flooding and to ensure that polluted effluent from the clearing of road drainage shall not be directed indiscriminately into watercourses.
- (iii) Maintenance considerations in this Section 2.5 shall be in addition to those stated in paragraphs 1.2.8 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 2.15, inclusive.

2.6 Piped Drainage Systems

2.6.1 General

- (i) The requirements of this Section 2.6 shall relate to piped drainage systems.

Piped drainage systems shall include, but shall not be limited to, piped drains, combined drainage and kerb systems, feeder pipes, slot drains, kerb or channel offlet pipes, kerb block drains, channels through chambers, piped grips covered by the Series 500 of the Specification, drainage facilities that are not Structures and other drains not defined in Sections 2.11 or 2.12 as filter drains or culverts and small span bridges.
- (ii) Piped grips shall be defined as short lengths of pipe carrying water from a road channel across a verge to a ditch, piped drainage system or chamber.
- (iii) Piped grips 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 6104 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 6103 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.

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 runoff 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 March/April 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.

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.

2.13 Ancillary Drainage Items

2.13.1 General

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

2.13.2 Inspection Requirements

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

2.13.3 Maintenance Requirements

- (i) Cyclic Maintenance shall be carried out in accordance with Clause 6107AR of 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.

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.

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 6.1.2.
- (ii) Maintenance of the Traffic Scotland equipment defined in paragraph 6.1.9 will be undertaken by authorised contractors under separate contracts which shall be managed directly by the Scottish Ministers and outwith 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 equipment defined in paragraph 6.1.9 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.

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 Road

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 New M80 Motorway and the New M80-M73 Link 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.

- 2.19.3 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.

2.19.4 Maintenance Requirements

- (i) **The New Roads**
 - (a) The Company shall ensure all areas within the boundaries of the New 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 New Roads**
 - (a) On routes other than the New 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.

2.19.5 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.

2.19.6 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****2.20.1 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.

2.20.2 Inspection Requirements

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

2.20.3 Maintenance Requirements

- (i) 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.

2.21.3 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.

2.21.4 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.

2.21.5 Mounting Heights for Steel Road Restraint Systems

- (i) The specified limits of the mounting heights for the various steel road restraint systems shall be:
 - (a) Tensioned Corrugated Beam and Open Box Beam Road Restraint Systems:
580 millimetre to 640 millimetre to the centre of the beam.
 - (b) Wire Rope Road Restraint Systems:
575 millimetre to 595 millimetre to mid point 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 Scottish Ministers.

- (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) Excluding Motorways, fences, walls, screens or noise barriers along the boundaries of roads other than motorways shall generally be the responsibility of the adjoining landowner.
- (v) Walls which retain a road within the O&M Works Site shall generally be the responsibility of the Scottish Ministers. Boundary walls which retain land above a road generally shall be the responsibility of the landowner.

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 notify the Scottish Ministers in writing.
- (iii) The Company shall carry out Detailed Inspections of fences, walls, screen fences and noise barriers in respect of structural condition at intervals of 2 years.
- (iv) Where defects shall be identified by the Company in fences, walls, screen fences, snow fences and noise barriers which shall not be the responsibility of the Scottish Ministers the Company shall notify the owner and shall in writing request that repairs shall be carried out.
- (v) When maintenance shall be required on existing retaining walls, consideration shall be given by the Company to the provision of non motorised User protection in accordance with BA48 of the DMRB. Where the Company considers that such protection would be appropriate, it shall submit a report to the Scottish Ministers for written instruction.
- (vi) Detailed Inspection shall identify steel concrete and timber elements which as a result of long term deterioration shall require replacement.

2.22.3 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 and other high risk locations where children could stray onto the Motorway 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.

2.23.3 Maintenance Requirements

- (i) There shall be no Cyclic Maintenance requirement for retro-reflective and non-reflective road studs.

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 and painted surfaces of vehicle road restraint systems painted for road safety purposes.
- (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 carryout 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.

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 DRMB 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.

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 1273AR 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 1274AR 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 1274AR of the Specification.

2.27 Road Lighting

2.27.1 General

- (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 up to and including 20 metres 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.

2.27.2 Inspection Requirements

- (i) Detailed Inspections in accordance with the frequency requirements of Section 1 shall not apply to road traffic signs.
- (ii) 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 (iii).
- (ii) The Company shall clean lanterns at the time of the Detailed Inspection.
- (iii) Bulk lamp changes shall be carried out by the Company at the intervals given in Table 2.29.3/1. This Table 2.29.3/1 replaces Tables 4 and 5 in TD23 of the DMRB.
- (iv) The Company shall maintain all power supplies.

Table 2.29.3/1 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
Low Pressure Sodium	SOX	24 months	12 months
High Pressure Mercury	MBFU		
High Pressure Fluorescent	MCFE SLPL		
High Pressure Sodium	SON SON-T	36 months	18 months
Low Pressure Sodium	SOX-E		
Ceramic Metal Halide	CMH		

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.

2.28 Ice Sensors

2.28.1 General

- (i) The requirements of this Section 2.28 shall relate to ice sensors including but not limited to ice prediction equipment. The requirements for ice sensors shall also be requirements for 'road sensors'.
- (ii) Any failures of 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 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 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 28 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 business Days.

3 Winter Service - Operations and Management

3.1 Introduction

- 3.1.1 Notwithstanding the provisions of Clauses 2801AR to 2808AR, inclusive contained in Part 5 of these O&M Works Requirements this Section 3 specifies the requirements for Winter Service Operations and management.
- 3.1.2 The requirements for Winter Service Operations and management shall allow the safe movement of users of the O&M Works Site and 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 reasonable measures are taken to keep the roads of the O&M Works Site open to its users at all times.
- 3.1.3 The Company shall be responsible for providing the Winter Service Operations and management and achieve the level of service specified in this Section and the other provisions of this Agreement. The Company shall nominate a Winter Service Duty Officer who shall be responsible for ensuring the delivery of the Winter Service Operations and management as required by paragraph 3.6.1.
- 3.1.4 The Winter Service period shall be the period between 1 October to 15 May in the subsequent year, unless specified otherwise in this Agreement.
- 3.1.5 The Company shall provide a pre-wetted system for precautionary salting of all carriageways.
- 3.1.6 If winter conditions shall occur outwith the Winter Service period the Company shall provide and maintain the Winter Service in accordance with this section for the duration of such winter conditions.
- 3.1.7 The Company shall assist the Scottish Ministers in the preparation of an annual Winter Service publicity leaflet and shall carry out its distribution to filling stations, motorist service centres, motoring organisations, libraries and other public and private distribution outlets within the O&M Works Site.

3.2 Planning and Reporting Requirements

3.2.1 Winter Service Plan

- (i) The Winter Service Plan and its appendices shall be a 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).

- (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 Management Unit, South West Management 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 Constructional 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 Management Unit;
 - (d) South West Management 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) When 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) other trunk road operating companies; and
- (e) other interested parties.

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 Constructional 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) 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.
- (ii) 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:
- (iii) 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 Constructional Plant.
- (iv) An annual review meeting between the Company and the Scottish Ministers shall take place 14 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.
- (v) 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.
- (vi) The report shall be held electronically in accordance with the procedures in the Quality Plan.
- (vii) 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
- (f) any other relevant information.

3.2.5 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 Drivers of winter Constructional Plant shall hold appropriate skills qualifications and experience.

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.

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 Constructional Plant, including each item of loading and spreading winter Constructional 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 Constructional Plant.

The Company shall arrange for the necessary repairs to be carried out without delay or mobilise the reserve winter Constructional 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 Constructional Plant and the Winter Service Duty Officer shall be fitted in all winter Constructional Plant. Such system shall be effective at all times and within all parts of the O&M Works Site including at the location of the Winter Service Duty Officer.

3.3.7 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 Constructional Plant to be used for precautionary treatment for such route at speeds not exceeding those required by this Section 3 for such precautionary treatment; and
- (ii) fit and remove the plough to all winter Constructional Plant to be so equipped.

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

- (i) time taken to travel the route;
- (ii) time taken to fit the plough;
- (iii) any problems encountered; and
- (iv) any other relevant information.

shall be held by the Company in accordance with the procedures in the Quality Plan.

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) thermal maps;
- (iii) weather data; and
- (iv) 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 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 TR2020B 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 1 November and 31 March inclusive and hourly at all other times during the Winter Service period to obtain updates of road conditions.
- 3.5.6 The words 'road sensors' and 'ice sensors' shall have the same meaning.

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.

3.7 Decision Making

- 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 sensors;
 - (iv) the computerised road weather information system;
 - (v) actual weather conditions;
 - (vi) thermal maps; and
 - (vii) the Scottish Ministers' cameras.

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

Notwithstanding any other provisions of this Agreement where the information available to the Winter Service Duty Officer shall cast doubt on the 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 Liaison and Communication

3.8.1 The Company shall liaise closely with:

- (i) the Police;
- (ii) the Traffic Scotland Networks Operation Manager;
- (iii) adjacent local road and highway authorities;
- (iv) South East Management Unit; and
- (v) South West Management Unit.

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.

3.8.2 When a Winter Service Operation shall be planned the Company shall fax or e-mail, as required by the organisation:

- (i) the Scottish Ministers;
- (ii) adjacent road authorities and/or their agents;

- (iii) South East Management Unit;
- (iv) South West Management Unit;
- (v) the Police; and
- (vi) the Traffic Scotland Networks Operations Manager.

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

- 3.8.3 The Company shall liaise with the Police who may supply information to the media regarding road travelling conditions during periods of adverse winter weather.
- 3.8.4 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 Networks Operations Manager.
- 3.8.5 The Company shall liaise with the adjacent South East Management Unit and South West Management Unit operators 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.

3.9 Precautionary Treatment

3.9.1 Precautionary Treatment

- (i) The Company shall undertake such precautionary treatment as is required by this Part 2.
- (ii) During the Restricted Services Period, the use of ethylene glycol for de-icing at Moodiesburn Footbridge at Avenuehead Road on the A80 Crow Wood to Mollinsburn.
- (iii) Precautionary treatment Operations shall commence at the time and be carried out at the spread rates instructed by the Winter Service Duty Officer.
- (iv) 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) hatched areas; and
 - (ix) any other trafficked area.

shall receive precautionary treatments

- (v) The minimum requirements for de-icing material spread rates for precautionary treatment shall be as provided in Tables 1, 2 and

4 of Appendix B.

- (vi) The Company shall put into place arrangements for precautionary treatment when road surface temperatures of less than or equal to plus 1° C and relative humidity levels of less than or equal to 80% shall be forecast or present.

When such conditions shall prevail salt moisture content for precautionary treatment shall be increased to 5%.

This is described in Table 2 of Appendix B.

- (vii) 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.

- (viii) 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.

- (ix) No winter Constructional Plant shall be driven above the legal speed limit at any time or at a speed greater than 40mph during precautionary treatment Operations.

- (x) On single carriageway roads de-icing material shall be spread across the full width of the road in a single pass with the winter Constructional Plant travelling at a speed no greater than 30mph.

- (xi) 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.

- (xii) 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.

- (xiii) In the event of a breakdown on any of the Company's front line Winter Constructional Plant.

Details of:

- (a) the cause of the breakdown;

- (b) the time of the breakdown;
- (c) the location of the breakdown; and
- (d) any other relevant information.

shall be recorded, and

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

- (xiv) Where ethylene glycol 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.

Ethylene glycol shall be applied to Moodiesburn Footbridge at Avenuehead Road on the A80 Crow Wood to Mollinsburn.

- (xv) The Company shall put into place arrangements to deal with variable road and weather conditions that may occur after precautionary treatments have been completed.
- (xvi) Where the spread rate in Table 2 of Appendix B shall be greater than 20 grammes per square metre the Company shall be deemed to comply with the Agreement by undertaking two separate precautionary treatments.

In such a case the Company shall undertake the first precautionary treatment at a spread rate of at least 20 grammes per square metre and within the timescales required under the Agreement.

The Company shall commence the second precautionary treatment within 3 hours of the completion of the first treatment unless the trend from a range of road sensors indicates that the road temperature shall remain at least 1 °C higher than the forecast weather status in Table 1 of Appendix B that resulted in the intervention treatment in Table 2 of Appendix B which shall have been the basis of the decision for the first pass precautionary treatment.

- (xvii) 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; and
- (d) The total width of non motorised User facilities shall be treated.

3.10 Response Times

- 3.10.1 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.
- 3.10.2 When planned response shall be 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.
- 3.10.3 For immediate or planned responses the Company shall complete precautionary treatment routes within two hours from the commencement of precautionary treatment and other de-icing Operations.
- 3.10.4 Should frontline winter Constructional Plant vehicle break down once it has been mobilised then a reserve winter Constructional Plant vehicle shall require to be mobilised and commence Operations within one hour of the breakdown.
- 3.10.5 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 3.11.5(ii) a weekday shall mean Monday to Friday inclusive.
- 3.10.6 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.

3.11 Snow and Ice Clearance

- 3.11.1 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.
- 3.11.2 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.

- 3.11.3 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.
- 3.11.4 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.
- 3.11.5 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.
- 3.11.6 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.
- 3.11.7 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 temperature shall continue 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 3 of Appendix B.
- 3.11.8 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 or when the traffic shall be insufficient to disperse the snow 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.
- 3.11.9 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 3 of Appendix B.

- 3.11.10 When 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.

- 3.11.11 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.
- 3.11.12 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.
- 3.11.13 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.
- 3.11.14 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.
- 3.11.15 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.
- 3.11.16 In the event of significant snow falls where snow ploughing is being carried out by the front line and reserve winter Constructional Plant is not sufficient the Winter Service Duty Officer shall deploy additional winter Constructional Plant for snow clearance to ensure delays caused by the weather conditions shall be kept to a minimum.
- 3.11.17 When machine snow clearance shall not be suitable (including clearance around carriageway obstructions) hand snow clearance and salting shall be carried out.
- 3.11.18 Snow and ice clearance shall take place on footways, footbridges and cycling facilities identified in Appendix E.

3.11.19 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.

3.11.20 The application of salting, ploughing or blowing Operations shall other wise comply with the requirements of Table 3 of Appendix B.

3.12 Winter Constructional Plant

3.12.1 The Company shall provide winter Constructional Plant and other Constructional Plant in accordance with the requirements of this Section 3.

3.12.2 The Company shall ensure that the winter Constructional Plant listed in Appendix D shall be available as necessary for the Winter Service.

3.12.3 The Company winter Constructional Plant shall as a minimum meet the requirements of this Part 2.

3.12.4 Appendix D details the minimum winter Constructional Plant that shall be available for use in connection with the Winter Service.

When used on a public road for operator training and maintenance runs the spinner disc at the rear of the Company's winter Constructional Plant shall be covered in such a way that damage by sharp edges in the event of an accident shall be reduced to a minimum.

3.12.5 Front line and reserve winter Constructional Plant shall be fitted with on-board electronic data loggers fitted with or connected to a global positioning system all of which shall provide an accurate record of:

- (i) time;
- (ii) distance travelled;
- (iii) times when de-icing materials shall have been spread;
- (iv) rate of spread; and
- (v) width of spread.

All continuously referenced to the Ordnance Survey grid.

The onboard electronic data loggers shall be capable of downloading their data to a personal computer. The Company shall download the data from the electronic data loggers on a daily basis and shall load and retain such data on an electronic database. In the event of an on-board electronic data logger malfunction the Company shall within 12 hours prepare a similar written record.

3.12.6 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 Constructional Plant or shall be located at depots.

3.12.7 Such apparatus shall be additional to the data loggers required at paragraph 3.12.5.

3.12.8 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 or equivalent or where BS1622 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.

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 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 Quality Plan.

3.12.9 The winter Construction 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.

3.12.10 Winter Constructional Plant used for spreading salt shall:

- (i) be of robust construction and shall comply fully with the requirements of the Motor Vehicle Construction and Use Regulations;
- (ii) have a suitable wheelbase to accommodate the appropriate salt spreader body without excessive overhang behind the rear spring suspension brackets;
- (iii) be fitted with an engine that develops sufficient horsepower to cater for snow clearing and Winter Service Operations;
- (iv) be of proven design and comply fully with the requirements of BS.1622 – Spreaders for the Winter Maintenance of Roads, or equivalent;
- (v) be capable of spreading dry salt to BS 3247, or equivalent;
- (vi) be capable of symmetrical and asymmetrical spreading in accordance with the Class A1 requirements of BS 1622, or equivalent;
- (vii) be fitted with a hopper that itself shall be fitted with removable salt screens;
- (viii) be fitted with a spreading mechanism at the rear of the machine designed to minimise damage to passing vehicles when the machine is operating 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 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 Constructional Plant.

3.12.11 Winter Constructional 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 3.12.10 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 Constructional Plant used for spreading pre-wetted salt shall meet all the requirements of this paragraph 3.12.11 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.

3.12.12 Winter Constructional Plant used for spreading ethylene glycol or other de-icing materials shall comply with the requirements of paragraph 3.12.10 where such requirements are not inconsistent with the spreading of ethylene glycol or other de-icing materials and any other requirements to ensure the effective distribution of ethylene glycol or other de-icing materials to comply with the requirements of

this Section 3.

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

3.12.14 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.

3.12.15 All winter Constructional Plant used for de-icing and snow and ice clearance Operations shall comply with the requirements of paragraph 3.12.10 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.

3.12.16 Front Line Winter Constructional Plant

- (i) Subject to the other provisions of this Agreement the Company's minimum front line winter Constructional 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 Constructional Plant shall as a minimum have the ability to:

- (a) deliver 20 grammes per square metre precautionary treatment to all precautionary treatment routes simultaneously;
 - (b) clear ice and snow lying to a depth up to 100 millimetres;
 - (c) comply with the requirements of sub-section 3.11; and
 - (d) Comply with the requirements of paragraphs 3.9.1 to 3.9.7.
- (ii) Subject to the other provisions of this Agreement the Company's minimum front line winter Constructional Plant permanently within the O&M Works Site for the Winter Service for non motorised User facilities shall be as in Annex WSP 5 of Appendix D.

Such winter Constructional 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.

3.12.17 Reserve Winter Constructional Plant

- (i) The Company's reserve winter Constructional Plant shall be that part of the winter Constructional Plant permanently available within the O&M Works Site to supplement front line Constructional Plant for the Winter Service for carriageways and non motorised User facilities in situations when such front line Constructional Plant shall not be available for whatever reason for the Winter Service.

- (ii) The reserve winter Constructional Plant may also be used to supplement front line winter Constructional Plant in snow conditions.
- (iii) Subject to the other provisions of this Agreement the minimum reserve winter Constructional Plant shall be as referred to in Annex WSP 5 of Appendix D.

3.12.18 Additional Winter Constructional Plant

- (i) The additional winter Constructional Plant shall be that part of the winter Constructional 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 Constructional Plant.
- (ii) Subject to the other provisions of this Agreement the minimum additional winter Constructional Plant shall be as referred to in Annex WSP 5 to Appendix D.

3.12.19 Mobilisation arrangements for additional winter Constructional 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.

3.12.20 Loading Winter Constructional Plant

- (i) The minimum loading winter Constructional Plant available within the O&M Works Site for loading:
 - (a) front line;
 - (b) reserve; and
 - (c) additional winter Constructional Plant.shall be as referred to in Annex WSP 5 of Appendix D.

3.12.21 Maintenance of Company's Winter Constructional Plant

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

3.13 Salting And Other De-Icing Agents

3.13.1 General

- (i) The Company shall procure and provide salt and other de-icing materials necessary to comply with the Winter Service requirements.
- (ii) The minimum stock level requirements for de-icing materials shall be as shown in Annex WSP 3 to Appendix D.
- (iii) Salt for de-icing shall be 6.3 millimetres grading particle size complying with BS 3247 or equivalent.
- (iv) At loading points salt storage shall ensure that the moisture content of the stored salt shall not exceed 4%.equivalent and treated with an anti-caking agent.

Where the moisture content of salt used for de-icing shall exceed 4% spread rates shall be increased by 100% for spread rates up to and including 20 grammes per square metre except where the moisture content has been increased above 4% in accordance with the requirements of paragraph 3.9.1(vii).

- (v) Within 10 days of delivery salt shall be tested by the Company at loading points in accordance with BS 812 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 3.13.1(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.
- (viii) An electronic data base shall be provided by the Company for the storage of materials test data.

3.13.2 Pre-wetted Salt

- (i) Salt for de-icing material as part of pre-wetted salt shall be 6.3 millimetres grading particle size complying with BS 3247 or equivalent.
- (ii) The percentage of brine added to salt during spreading Operations shall not exceed 30% of the total spread material (70% salt/30% brine solution) without the written consent of the Scottish Ministers.
- (iii) Fully saturated brine solution with a minimum concentration of 23% dissolved sodium chloride shall be used as the pre-wetting agent.

Where temperatures shall be forecast to fall below minus 15°C the fully saturated brine shall be diluted by the addition of 5%-10% water to prevent recrystallisation of the salt.

The addition of water shall be undertaken in such a manner that shall ensure that the water and brine shall be thoroughly mixed to produce a consistent concentration of brine.

As soon as temperatures rise above minus 15°C a fully saturated solution shall be used.

- (iv) The Company shall arrange as a minimum for sufficient brine to be stored at each depot to treat simultaneously at a maximum spread rate all precautionary treatment routes serviced from that depot with an additional quantity of 20% brine above that quantity held in reserve.

The brine within the storage facilities shall be replenished within 2 hours of being depleted.

- (v) Sensors with digital read outs shall be fitted to the Company's storage facilities to measure automatically the salt concentration of the brine.

Daily checks shall be carried out by the Company using a saturation meter and the results shall be stored electronically.

3.13.3 Other 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) Ethylene glycol 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 ethylene glycol the Company shall provide the Scottish Ministers 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.

3.13.4 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.

3.13.5 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 3.13.1(v);
 - (b) paragraph 3.13.2(iv) to 3.13.2(v) inclusive; and
 - (c) Current planning and environmental Legislation and supplier's written instructions in the case of:
 - (i) additives;
 - (ii) ethylene glycol; and
 - (iii) any other de-icing materials.

3.13.6 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.

3.13.7 The Company shall be responsible for safeguarding and management

of all de-icing material stock and storage facilities.

- 3.13.8 The Company shall ensure that the de-icing material stock does not become contaminated with matter likely to cause damage to winter Constructional Plant, cause the de-icing material to fail to comply with the requirements of this Part 2 or adversely affect road Users.

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, 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 Part 3 of Schedule 8.

4.2 Road Condition

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

4.3 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

LANE SURVEY METHOD	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	Slip Roads	H/S	L.1	L.2/L.3	Slip Roads	H/S	L.1	L.2/L.3	Slip Roads	H/S	L.1	L.2/L.3	Slip Roads
SCRIM (SKIDDING RESISTANCE)	HD28 of the DMRB	CATEGORY 1 EQUIVALENT	SKID	REFER TO NOTE 3	2	2	2	TABLE 3.1 OF HD28 of the DMRB				NOT LESS THAN THE INVESTIGATORY LEVELS IN TABLE 3.1 OF HD28 of the DMRB				i) AVERAGE MSSC > INVESTIGATORY LEVEL+ 0.10 ii) MINIMUM LEVEL AS TABLE 3.1 OF HD28 of the DMRB			
HSS (Ride Quality)	HD29 of the DMRB		GROUP 3	REFER TO NOTE 3	1	2			CATEGORY 2 TABLE 2.3(a) to HD29 of the DMRB			CATEGORY 3 TABLE 2.3(a) to HD29 of the DMRB					i) AVERAGE CATEGORY 1 ii) MINIMUM CATEGORY 2 TABLE 2.3(a) to HD/29 of the DMRB		
HSS (Rutting)	HD29 of the DMRB		GROUP 3	REFER TO NOTE 3	1	2			> 5 %WITH 10mm OR MORE			NOT MORE THAN 10% WITH 10mm OR MORE				AVERAGE RUT DEPTH OF 5 mm AND NOT MORE THAN 5 % WITH 10 mm OR MORE			

NOTES:

Key to general terms : H/S – Hard shoulder ; L1, L2 and L3 – Lane 1, Lane 2 and Lane 3.

Seasonal factor to be agreed with the Scottish Ministers.

Assessment to be carried out as required in accordance with Section 4.3.

Table 4/2 : Maintenance Assessment Surveys – Structural Performance

LANE SURVEY METHOD	RELEVANT STANDARD		DATA PROCESSING METHOD	ASSESSMENT FREQUENCY (YEARS)				INVESTIGATORY LEVELS				MINIMUM PERFORMANCE LEVELS DURING SERVICE PERIOD				MINIMUM PERFORMANCE LEVELS AT HANDBACK			
	REFERENCE	SURVEY CATEGORY		H/S	L.1	L.2/L.3	Slip Roads	H/S	L.1	L.2/L.3	Slip Roads	H/S	L.1	L.2/L.3	Slip Roads	H/S	L.1	L.2/L.3	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 %			
DEFLECTOGRAPH (Residual life of flexible pavement)	HD29 of the DMRB	CATEGORY 1A OR 1B	PANDEF VERSION 3 OR EQUIVALENT	REFER TO NOTE 2	4	8	4	RESIDUAL LIFE (YEARS)				RESIDUAL LIFE (YEARS)				Refer to Note 5 MINIMUM RESIDUAL LIFE FOR EACH LANE: (i) 100 metre: 85% with 10 YEARS or more ii) 1 km: - 9x100m lengths with 10 YEARS or more - 100m lengths all 1 YEAR or more			
								<4	<4	<8	<4	>0	>0	>0	>0				

NOTES:

- Key to Visual Condition terms : 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 Trunk Road Bridge Database (TRBDB). The current requirements are set out in the TRBDB 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 TRBDB User Manual and this information shall be input into the TRBDB programme.
- (iii) The Company shall update the data held in the TRBDB 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 TRBDB 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 TRBDB in order to enable the Company to fulfil its obligations in respect of data records and access for Structures and the TRBDB under this Agreement.
- (viii) The Company shall, at the end of each calendar month, download all data held on the TRBDB 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 TRBDB

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.

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.

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.

(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 TRBDB.

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 Appendix B to BA63/94 of the DMRB.
- (v) The defect description and prioritisation ranking shall be in accordance with these documents. The Company shall review the outcomes of the inspections and incorporate the findings into future maintenance works accordingly.
- (vi) The Company shall provide records of GI's and their findings on the TRBDB.

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 TRBDB.

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 TRBDB.

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 TRBDB.
- (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 TRBDB. The TRBDB 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 to 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. 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.

5.8.3 Accidental damage to a Structure

5.8.4 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 recommending any necessary interim measures.

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

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

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

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.

6 Maintenance of Traffic Scotland Equipment

6.1 General

6.1.1 Traffic Scotland Operator will operate the Traffic Scotland equipment within the O&M Works Site to provide driver information and control services for the Project Roads and the Scottish trunk road network. The 24 hour operation of Traffic Scotland is carried out from the TSCC. The Transport Scotland Network Operations Manager shall 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 trunk road network and to maximise the use of any existing capacity within the strategic road network. The Traffic Scotland Operator will operate the Traffic Scotland equipment for the Transport Scotland Network Operations Manager. The Company and the term contractor for the maintenance of Traffic Scotland equipment ("**TSM&GW Contractor**") shall maintain the Traffic Scotland equipment for the Transport Scotland Network Operations Manager.

6.1.2 Certain specialist items of Traffic Scotland equipment shall be maintained by others and are described in paragraph 6.1.9. Items of non-specialist Traffic Scotland equipment, which the Company shall be responsible for maintaining, are described below:

- (i) emergency telephones including the housings, handsets, mounting arrangements, cabling;
- (ii) all chambers and ducting for the distribution of data, voice, video, and power supply cabling;
- (iii) CCTV camera masts and their foundations, including cradle and winch;
- (iv) the mounting arrangement for the journey time cameras;
- (v) all Traffic Scotland cabinets;
- (vi) Traffic Scotland power supply and distribution cables and associated switch-gear in termination pillars, traffic equipment, distribution pillars and mini pillars;
- (vii) Traffic Scotland traffic monitoring facilities;
- (viii) the structures and foundations for each variable message sign;
- (ix) copper and fibre optic cables and associated termination equipment;
- (x) any hardstanding or access facilities associated with the Traffic Scotland equipment, and;
- (xi) automatic traffic counter ("ATC") loop detectors.

6.1.3 Maintenance of any of the above items shall include the provision of all associated traffic management measures and liaison with the South East Management Unit, South West management Unit, Traffic Scotland Operator and the Police, as appropriate.

6.1.4 The Company shall provide a team of service personnel to carry out the duties defined in these O&M Works Requirements.

- 6.1.5 A computer based Fault Management System (FMS) is integrated within the Traffic Scotland operating system. The FMS shall facilitate:
- (i) the reporting of faults (whether automatic or manual);
 - (ii) the classification of the faults;
 - (iii) fault report time;
 - (iv) fault response time;
 - (v) fault attendance details;
 - (vi) fault clearance time;
 - (vii) other details pertinent to the individual faults; and
 - (viii) inventory, asset evaluation and management of Traffic Scotland equipment.
- 6.1.6 The FMS will be made available prior to the Full Services Commencement Date and the Company shall utilise the FMS to register all non-routine activities associated with the maintenance of the Traffic Scotland equipment.
- 6.1.7 The Transport Scotland Network Operations Manager will supply to the Company a workstation for the FMS, complete with associated hardware, software, and communication infrastructure and shall also provide the required training for the utilisation of the FMS. The FMS shall also allow for reporting of any Traffic Scotland equipment faults to the Company, and under certain circumstances, call-out of the Company to attend to the repair of faults.
- 6.1.8 Prior to the Full 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 Transport Scotland Network Operations Manager.
- 6.1.9 The following specialist equipment shall be maintained and replaced, as necessary, by others and shall not be the responsibility of the Company:
- (i) CCTV cameras and associated control cable to CCTV cabinet;
 - (ii) camera termination panel and video transmission equipment;
 - (iii) traffic monitoring units and SRTDb equipment;
 - (iv) emergency telephone responders;
 - (v) the journey time cameras and associated data collection and processing equipment;
 - (vi) all electrical and electronic equipment located within each VMS;
 - (vii) all multi purpose controllers;
 - (viii) all specialised equipment within the cabinets; and
 - (ix) all in-station equipment associated with the Project.
- 6.1.10 The Company shall provide traffic management measures as

necessary to allow the Transport Scotland Network Operations Manager, or his agent, to carry out work on any of the above equipment. Such measures shall be provided to the Transport Scotland Network Operations Manager, or his agent, in advance of the work proposed and the Company shall liaise with the Transport Scotland Network Operations Manager or, his agent over the maintenance of the above specialist equipment.

6.2 Traffic Scotland Maintenance Requirements

- 6.2.1 The provision and maintenance requirements of the Traffic Scotland equipment under this Agreement are designed to enable the provision of a service to the Transport Scotland Network Operations Manager, Traffic Scotland Operator, 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.
- 6.2.2 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 6.1.2 that has operationally degraded and no longer complies with the equipment performance and availability requirements.
- 6.2.3 The Company shall provide sufficient skilled staff numbers with appropriate facilities to maintain this equipment in good working order through Routine Maintenance.
- 6.2.4 The Company shall at all times maintain the equipment with the minimum of disturbance to Traffic Scotland operation and equipment down-time.
- 6.2.5 The Company shall have management responsibility for the servicing, repair and reinstatement of this equipment in order to keep all such Traffic Scotland equipment fully operational under any conditions.
- 6.2.6 The Company shall supply details of personnel, backup facilities, training etc. as the Transport Scotland Network Operations Manager may require to demonstrate the Company's ability to comply with these O&M Works Requirements.
- 6.2.7 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.
- 6.2.8 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.
- 6.2.9 The Company shall ensure that power supplies to all Traffic Scotland equipment on the O&M Works Site shall be isolated from any adjacent supplies and maintained, including payment for supply and use.

6.3 Personnel and Resources

- 6.3.1 The Company shall provide sufficient resources for the purpose of carrying out these O&M Works Requirements.

- 6.3.2 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.
- 6.3.3 The Company shall be responsible for the day to day management of the resources and shall liaise with the Transport Scotland Network Operations Manager, Traffic Scotland Operator, TSM&GW Contractor and any other Relevant Authorities, as necessary concerning the programme for maintenance of the Traffic Scotland equipment.
- 6.3.4 A member of the Company's staff shall be nominated as the maintenance representative, who shall liaise with the Transport Scotland Network Operations Manager regarding the programme for maintenance.
- 6.3.5 Only fully trained team members shall deal with call-outs.
- 6.3.6 All personnel on fault callout duty shall have nominated backup reserves available to provide support in the case of multiple faults.
- 6.3.7 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.
- 6.3.8 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.
- 6.3.9 The Company shall advise the Transport Scotland Network Operations Manager of the arrangements for contacting each member of the maintenance team, whilst they are working on the system and on callout duty.
- 6.4 Traffic Scotland Alterations
- 6.4.1 To facilitate development of Traffic Scotland equipment, the Transport Scotland Network Operations Manager shall reserve the right to:
- (i) make any tests or adjustments considered appropriate for the network as a whole;
 - (ii) alter the configuration of the Traffic Scotland equipment; and
 - (iii) add, remove or replace Traffic Scotland equipment.
- 6.4.2 In the event of additional works being required the Transport Scotland Network Operations Manager 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.
- 6.4.3 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 Transport Scotland Network Operations Manager 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.

6.5 Fault Classification

6.5.1 The faults associated with Traffic Scotland equipment shall be classified as follows:

- (i) Class 1 : High Priority;
- (ii) Class 2 : Urgent;
- (iii) Class 3 : Non-Urgent;
- (iv) Class 4 : Deferred.

6.5.2 Class 1 High Priority faults shall include:

- (i) any fault which causes a loss of disruption or any one of the following Traffic Scotland equipment or facilities:
 - (a) three or more adjacent emergency telephones in one carriageway;
 - (b) accidental damage to Traffic Scotland equipment;
 - (c) accidental damage on longitudinal copper and fibre optic communication infrastructure;
- (ii) any fault that causes a total loss or disruption of Traffic Scotland equipment facilities, over 3 kilometres of the Project Roads;
- (iii) any fault which causes a total loss or disruption of any one of the following facilities:
 - (a) journey time vehicle detection system.

6.5.3 Class 2 Urgent faults shall include:

- (i) any power supply failure which causes a loss or disruption of any one of the following items of Traffic Scotland equipment or facilities:
 - (a) communications channel;
 - (b) one variable message sign (VMS);
 - (c) one CCTV camera;
 - (d) two adjacent emergency telephones;
 - (e) four or more emergency telephones; and
 - (f) one journey time vehicle detection site.

6.5.4 Class 3 Non-urgent shall include any other fault.

6.5.5 Class 4 Deferred shall include all faults, which can with the consent of the Transport Scotland Network Operations Manager be rectified during the next planned maintenance activities.

6.6 Fault Notification and Callout

6.6.1 The Company shall be responsible for attending to faults as described in paragraph 6.5 every day of the year, as described below. Fault notification may be by telephone calls from the Transport Scotland Network Operations Manager, the Police, Users or through the Traffic Scotland FMS.

6.6.2 The Company shall set up a team located within a Fault Reporting

Centre, through which all activities pertaining to Traffic Scotland fault reporting and repair shall be co-ordinated.

- 6.6.3 The Fault Reporting Centre shall be manned during normal working hours of 08:00 hours and 18:00 hours Monday to Friday, and between 08:30 hours and 12:30 hours on a Saturday, excluding public and statutory holidays.
- 6.6.4 Outwith these hours, an automatic callout procedure to the satisfaction of the Transport Scotland Network Operations Manager shall be available to respond to urgent faults.
- 6.6.5 The Company shall supply the Transport Scotland Network Operations Manager with a telephone number to be used in the event of an automatic callout. This shall be the telephone number of the dedicated team member on callout duty.
- 6.6.6 The following requirements shall be met with respect to the callout arrangements:
 - (i) the automatic callout telephone shall be manned at all times. Telephone automatic answering and recording systems shall not be used; and
 - (ii) the Company shall provide the Transport Scotland Network Operations Manager with at least 14 working days notice of any change to the automatic callout telephone number supplied.
- 6.6.7 Having received an automatic callout, the dedicated team member on callout duty shall call back the FMS, the TSM&GW Contractor or the Transport Scotland Network Operations Manager for details about the fault.
- 6.7 Response to Fault Reports
 - 6.7.1 In response to a fault report, the Company shall arrange for a dedicated team member and, if appropriate, a representative from the TSM&GW Contractor to attend at the fault location to diagnose and repair the fault, or to make arrangement for its repair. The TSM&GW Contractor shall only be called where the fault relates to the equipment described in paragraph 6.1.9. These activities shall be subject to the response times and repair times defined below:
 - (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 TSM&GW Contractor;
 - (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 TSM&GW Contractor to the FMS;
 - (v) the repair time shall be the period between the fault attendance

time and the fault clearance time.

- 6.7.2 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.
- 6.7.3 For Class 2 urgent faults, the response time and repair time shall be as detailed below:
- (i) For faults occurring between 07:00 hours and 18:00 hours, the response time shall be less than 4 elapsed hours and the repair time shall be less than 4 elapsed hours;
 - (ii) For faults occurring between 18:00 hours and 07:00 hours, the response shall be made by 11 00 hours the next day and the repair shall be made by 15 00 hours of the same day.
- 6.7.4 Where the Transport Scotland Network Operations Manager considers a Class 2 urgent fault merits an accelerated response outwith working hours, he reserves the right to modify the fault classification.
- 6.7.5 For Class 3 non-urgent faults, the response time and repair time shall be as detailed below:
- (i) For faults occurring when the Company's fault reporting centre is manned, the response time shall be less than 8 elapsed hours and the repair time shall be less than 4 elapsed hours;
 - (ii) For faults occurring when the Company's fault reporting centre is not manned, the response shall be by 15:00 hours on the first day the Company's fault reporting centre is again manned. The repair time shall be less than 4 working hours.
- 6.7.6 Where the Transport Scotland Network Operations Manager considers a Class 3 non-urgent fault merits an accelerated response outwith working hours, he reserves the right to modify the fault classification.
- 6.7.7 The Class 4 deferred faults shall be rectified during the next planned maintenance visit to the O&M Works Site.
- 6.8 Procedures
- 6.8.1 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 TSM&GW Contractor.
- 6.8.2 Immediately on arrival at any Traffic Scotland equipment site to attend to a fault, the Company shall record the time of arrival which shall be recorded as the fault attendance time within the Traffic Scotland FMS.
- 6.8.3 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).
- 6.8.4 The Company shall obtain clearance from the Transport Scotland Network Operations Manager, prior to commencing any work where it is necessary to interrupt or degrade the operation of Traffic Scotland equipment in order to effect a repair.
- 6.8.5 Following investigation of a fault, if in the opinion of the Company, the time required to repair the fault will exceed 2 hours, the Transport Scotland Network Operations Manager shall be informed. The 2 hours shall be timed from the fault attendance time.

- 6.8.6 If, after 2 hours, the Company has not managed to repair the fault, the Transport Scotland Network Operations Manager shall be informed immediately. The Company shall decide if additional support is required and make the necessary arrangements. The Company shall continue to report progress to the Transport Scotland Network Operations Manager on a two-hourly basis until the fault is cleared, unless otherwise advised by the Transport Scotland Network Operations Manager.
- 6.8.7 If the Company is unable to complete the repair within a single visit or within a reasonable time, he shall inform the Transport Scotland Network Operations Manager as soon as possible and indicate a proposed action to rectify faults and restore the Traffic Scotland equipment to full operation.
- 6.8.8 Having attended to a fault and restored the Traffic Scotland equipment to operational use, the Company shall immediately inform the Transport Scotland Network Operations Manager.
- 6.8.9 The Company shall:
- (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 Transport Scotland Network Operations Manager on request.
- 6.8.10 In the case of a cable fault, the Company shall:
- (i) precisely locate the fault;
 - (ii) make temporary arrangements to rapidly restore services over the faulty section of cable;
 - (iii) where it is not possible as per 6.8.10 (ii) to bridge a faulty section of cable, the Company shall take any necessary steps to restore services with minimum delay.
- 6.8.11 Where any component of Traffic Scotland equipment requires to be withdrawn, which shall leave part of all the Traffic Scotland equipment non-operational, or where such removal shall cause further degradation of that equipment which requires to be maintained by the Company needs to be withdrawn, which shall leave part of all the Traffic Scotland equipment non-operational, or where such removal will cause further degradation of that equipment or part of all the Traffic Scotland equipment, permission shall be obtained from the Transport Scotland Network Operations Manager before any withdrawal is made. Permission given by the Transport Scotland Network Operations Manager shall not relieve the Company of any responsibility to comply with these O&M Requirements.
- 6.8.12 Temporary repairs may be performed at the discretion of the Company as follows:

- (i) temporary measures adopted shall employ sound engineering principles and be capable of giving service for at least 28 days without further attention;
 - (ii) the Company shall advise the Transport Scotland Network Operations Manager that a temporary repair is being undertaken and provide details of the repair and of its exact location. This information shall be logged in the FMS; and
 - (iii) the Company shall ensure that a permanent repair shall be made with minimum delay and within 28 days, unless otherwise authorised by the Transport Scotland Network Operations Manager.
- 6.8.13 Where the Company fails to undertake a permanent repair as detailed above, unless such failure is authorised by the Transport Scotland Network Operations Manager, the Scottish Ministers shall undertake the permanent repair at the Company's cost.
- 6.8.14 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 Transport Scotland Network Operations Manager 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.
- 6.9 Routine / Preventative Maintenance and Asset Management
 - 6.9.1 The Company shall carry out routine and preventative maintenance of the Traffic Scotland equipment described in paragraph 6.1.2 to ensure that minimum life span of the equipment is realised and that specialist equipment is protected from ingress of water, dust, vermin, condensation, and high and low temperature.
 - 6.9.2 The Company shall define the level of routine and preventative maintenance in the Quality Plan, which shall be used in the creation of a routine and preventative maintenance programme.
 - 6.9.3 The Company shall prepare method statements for undertaking the routine and preventative maintenance of the Traffic Scotland equipment which shall take cognisance of, and not be limited to, the planned maintenance guidelines outlined in document included in Appendix I.
 - 6.9.4 Following the issue of the relevant Permit to Use, the Company shall undertake asset management responsibilities throughout the remaining Contract Period. Such responsibilities shall be in accordance with the Highway Agency (MCH) requirements and standards for the NOMAD database (National On-line Motorway Asset Database) which is developed and integrated within the Traffic Scotland equipment and operating system.
 - 6.9.5 The Company shall determine the Traffic Scotland equipment upgrade, repair and replacement strategy based on the condition of assets as determined by the asset survey undertaken by the

Company. The Traffic Scotland equipment upgrade, repair and replacement strategy shall form part of the asset management records within the Traffic Scotland equipment and operating system. The Company shall each year provide details of the proposed equipment upgrade, repair and replacement strategy to the Transport Scotland Network Operations Manager and shall comply with any reasonable comments made in writing by the Transport Scotland Network Operations Manager.

6.10 Third Party and Other Works

- 6.10.1 The Company shall respond to calls and co-operate with third parties, where appropriate, including Undertakers,, the Transport Scotland Network Operations Manager and the TSM&GW Contractor in providing technical assistance for the diagnosis and location of faults, tests and subsequent reinstatement of the equipment.
- 6.10.2 The Company shall call out the TSM&GW Contractor for any fault that the Company considers requires their attention. The Company shall then inform the Transport Scotland Network Operations Manager of the action they have taken.
- 6.10.3 Where the Company has called out the TSM&GW Contractor, it shall confirm that service has been restored on the completion of the third party works.
- 6.10.4 Where the Company has difficulties with third parties, the Company shall inform the Transport Scotland Network Operations Manager as soon as possible.
- 6.10.5 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.

6.11 Testing

- 6.11.1 The Company may request the Transport Scotland Network Operations Manager to arrange the testing of equipment which has been repaired, replaced or modified, where it is essential to prove that a fault has been cleared.
- 6.11.2 Where tests being carried out which affect the operation of the Traffic Scotland equipment, the Company shall inform the Transport Scotland Network Operations Manager and TSCC of the nature and expected duration of the tests. The Company shall inform the Transport Scotland Network Operations Manager 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 Transport Scotland Network Operations Manager or the Police.
- 6.11.3 Tests that require traffic restrictions and management shall not be carried out unless it is established with the Transport Scotland Network Operations Manager that this is the only way to verify the clearance of a fault. These tests shall only be carried out in exceptional circumstances and only with the full approval of the Police and, where necessary, approved 'Sign under Test' signs shall be displayed to traffic in advance of the signal.

6.11.4 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 Transport Scotland Network Operations Manager.

6.12 Records

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

6.12.2 The Company shall keep detailed records of all activities associated with the maintenance of Traffic Scotland equipment.

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

6.12.4 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.

6.12.5 Where the Company has called out the TSM&GW Contractor, or has been called out by a third party, the Company shall, within 2 weeks, provide the Transport Scotland Network Operations Manager with details of the work carried out.

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

6.13 Spares

6.13.1 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.

6.13.2 At the Expiry Date, the Company shall hand over to the Transport Scotland Network Operations Manager all Traffic Scotland equipment spares as detailed in paragraph 6.13.1.

6.14 Training

6.14.1 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.

6.15. Roadworks Diary and Special Events Diary

- 6.15.1. The Company shall provide and maintain at the Central Office a dedicated computer terminal with a broadband internet connection to the specification referred to in Appendix J of this Part 2 of this Schedule 4. The internet connection shall be via either the Company's network provision or a dedicated integrated services digital network (ISDN) 2E circuit to give the computer access to an internet service provider, and ultimately internet access to the ADF. If the ISDN route is taken, an ISDN PCI card shall be supplied with the computer.
- 6.15.2. Prior to ordering this equipment, the Company shall contact the Traffic Scotland operator to confirm the exact requirements, including checking that the quoted specification is still current.
- 6.15.3. This terminal shall be used to access the Traffic Scotland roadworks diary and the Traffic Scotland special events diary.
- 6.15.4. The Company shall be responsible for logging onto the Traffic Scotland roadworks diary the details of all planned Operations, temporary traffic management, Lane closures and Lane Occupations, undertaken by the Company, an Undertaker, an authorised contractor or other organisation.
- 6.15.5. The Company shall review the Traffic Scotland special events diary on at least a weekly basis and shall lodge the details of any special events such as concerts, sporting events and seasonal events which are likely to generate significant traffic.
- 6.15.6. The information required to be logged on the Traffic Scotland roadworks diary for each occurrence of the works referred to in paragraph 6.15.4 and for each special event is shown at Appendix K of this Part 2 of this Schedule 4.
- 6.15.7. 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.
- 6.15.8. The Company shall be responsible for reviewing and updating the roadworks diary by 09.30 hours during each day when the works referred to in paragraph 6.15.4 shall be being undertaken and there shall be:
 - (i) a significant change to the planned programme; or
 - (ii) a significant change as a result of unplanned roadworks.
- 6.15.9. The Company shall record in the roadworks diary each occurrence of the works referred to in paragraph 6.15.4:
 - (i) In relation to its own works not less than 5 Business Days before they are undertaken;
 - (ii) In relation to Undertakers and third part works as soon as the Company is informed; and
 - (iii) external events as soon as it is informed through undertaking its various obligations under this Agreement.
- 6.15.10. Each item of roadworks and each special event entered on the Traffic Scotland roadworks diary or Traffic Scotland special events diary shall

be allocated a unique number which shall be quoted by the Company in all communications with the Traffic Scotland operator.

- 6.15.11. The information supplied by the Company via the Traffic Scotland roadworks diary and special events diary shall allow the Traffic Scotland operator to create messages on the Traffic Scotland variable message signs informing road users of potential delays and of alternative routes where applicable.
- 6.15.12. The Traffic Scotland operator shall also provide this information to the media and road users via the Traffic Scotland website (www.trafficscotland.org).

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) Good Friday to Easter Monday inclusive;
- (iii) Between Friday and Monday inclusive on any local bank holiday or public holiday weekend during May or September;
- (iv) The weekends at the start and end of the Glasgow Fair holiday; and
- (v) 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 than 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. Verges and Grassed Areas

8.1.1. Introduction

- (i) The requirements in this Section 8 shall apply to the maintenance of all locations which shall have been seeded or otherwise planted with grasses or other herbaceous vegetation within the O&M Works Site. These requirements shall apply to maintenance of all such areas after the end of the Establishment Period until the end of the Services Period and all O&M Works. These requirements shall also relate to those areas where the growth of vegetation shall be prevented or eliminated. These requirements do not relate to trees, hedges and planted areas, the requirements for which are set out in paragraph 8.2.
- (ii) All planted and seeded areas within the O&M Works Site together with features such as ponds, open ditches, wetlands and otherwise shall be managed to encourage sustainable development and the conservation and promotion of biological diversity, to consolidate the surrounding landscape character, to 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 Relevant Authorities where any designated site of natural, cultural or historical interest or its curtilage is affected by the O&M Works.

8.1.2. 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 wildflower seeded areas during the spring and summer to record species composition and percentage cover.

8.1.3. Reporting Requirements

- (i) A 5-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 in accordance with Section 8.3. 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.

8.1.4. Maintenance Requirements

- (i) All grass and wildflower areas shall be maintained 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) 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.

8.1.5. Road Safety

- (i) Visibility for road users and non motorised users at junctions, accesses and bends shall not be obstructed. The criterion shall be to maintain desirable minimum stopping distances and the full overtaking sight distance.

8.1.6. 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.

8.1.7. 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.

8.2. Trees, Hedges and other Planted Areas

8.2.1. Introduction

- (i) The requirements of this Section 8.2 shall apply to the maintenance and control of trees, hedges and other planting within the O&M Works Site, excluding grasses and other herbaceous vegetation. These requirements shall also relate to trees and shrubs 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 after the end of the Establishment Period until the end of the Services Period and to all O&M Works carried out.
- (ii) All planted areas within the O&M Works Site together with features such as ponds, open ditches and wetlands shall be managed to encourage sustainable development and the conservation and promotion of biological diversity.
- (iii) The Company shall consult and comply with the requirements of the Relevant Authority where any designated site of natural or historical interest or its curtilage is affected by the O&M Works.

8.2.2. Inspection Requirements

- (i) 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.

8.2.3. Reporting Requirements

- (i) A 5-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 in accordance with Section 8.3. 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.

8.2.4. Maintenance Requirements

- (i) All planting implemented as part of the O&M Works Requirements shall receive sufficient intensive care in accordance with Part 5 of these O&M Works Requirements for an Establishment Period of not less than 5 years after planting shall be completed or the Permit to Use shall be issued, whichever shall be later, to ensure successful establishment and subsequently the minimum of routine maintenance. All planting implemented as part of the New Works shall be maintained for the Establishment Period in accordance with Parts 2 and 3 of Schedule 2 and thereafter in accordance with the O&M Works Requirements, including Part 5.
- (ii) The Company shall take all necessary measures to act as necessary 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, hedges or planted areas shall be trimmed as necessary or removed to prevent the desirable minimum stopping line of sight being impeded.
- (iii) During the Establishment Period for O&M Works, 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 and O&M Works, not less than one maintenance visit shall be made after each detailed inspection during which all the 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 prior to carrying out maintenance of trees within areas covered by Tree Preservation Order.

8.2.5. Road Safety

- (i) Visibility for road users and non motorised users at junctions, accesses and bends 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.

8.2.6. Pests and Disease

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

8.2.7. Browsing Animals and Vermin

- (i) All planting shall be adequately protected against browsing animals and vermin. If damage shall be identified action to prevent and control effects shall be taken as soon as possible.

8.2.8. Appearance and Amenity

- (i) Planted areas 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.

8.2.9. 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.

8.2.10. Establishment and Growth Performance

- (i) All trees, shrubs and hedgerow planting 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.

8.3. 5-Year Landscape Management and Maintenance Strategy, Landscape Development Plan and Annual Landscape Report

8.3.1. General

- (i) The following documents which shall be prepared annually by the Company's chartered landscape architect:
 - (a) 5-Year Landscape Management and Maintenance Strategy;

- (b) Landscape Development Plan; and
- (c) Annual Landscape Report.
- (ii) The Company shall submit to the Scottish Ministers three electronic copies of the 5-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 areas seeded or otherwise planted with grasses or other herbaceous vegetation, trees, hedges and planted areas.

8.3.2. 5-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 5-Year Landscape Management and Maintenance Strategy for the following five years. The Company shall annually review, revise and update the previous 5-Year Landscape Management and Maintenance Strategy annually thereafter, in consultation with the Scottish Ministers until the end of the Services Period.
- (ii) The strategy shall include but not be limited to the following:
 - (a) clear cross referencing with the as-built landscape drawings;
 - (b) location plans showing the area under review;
 - (c) brief descriptions of the areas under review highlighting the general character of the location, its appearance and value, 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) perceived main issues relating to the continued management of the landscape areas taking into account inter alia safety, visual aspects, amenity and biodiversity;
 - (f) consideration of any relevant related studies, plans or strategies for the location; and
 - (g) general proposals for the future development of the environment related to the O&M Works Site.
- (iii) The Company shall take account of the proposals in the agreed 5-year Landscape Management and Maintenance Strategy in preparing the Landscape Development Plan.

8.3.3. 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 Services 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 Executive's 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; and
 - (c) Scotland's Biodiversity, the Scottish Executive's biodiversity strategy published in 2004, or any revisions of the strategy thereafter.
- (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; and
 - (d) any 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; and
 - (b) proposals for reduction of herbicide use for the following year through use of alternative but equally effective proposals.

8.3.4. Annual Landscape Report

- (i) At the end of the Establishment Period for the New Works and

subsequent annual periods until the end of the Services 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; and
- (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 in set out below.

Site	Site description	Easting	Northing
JTC00263	A80 South of M80 Junction 4	278824	679094
JTC00264	A80 Cumbernauld to Castlecary	277368	676736
JTC00265	A80 East of Auchinkilns Rbt	276343	676153
JTC00266	A80 East of M73 Junction	272651	672640
JTC00267	A80 West of M73 Junction	270402	670852
JTC00268	A80 Muirhead to Moodiesburn	269320	669931
JTC00269	A80 West of Muirhead	267500	669100

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

WS Atkins

Clifton House

Clifton Place

Glasgow

G3 7LD

And

Northern Link Traffic Data Consultancy

Unit D Baron Way

Kingmoor Business Park

Carlisle

Cumbria CA6 4SJ

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**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:

Appendix A Detailed Inventory and Inspection Procedures

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-

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

- (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:

Appendix A Detailed Inventory and Inspection Procedures

- (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

Appendix A Detailed Inventory and Inspection Procedures

<u>ITEM</u>	<u>MNEMONIC</u>	<u>TYPE</u>
CROSSOVER	XO	P
CYCLE FACILITY	CT	C
CULVERT	CV	C
DITCH	DI	C
EMBANKMENTS AND CUTTINGS	EC	C
EMERGENCY TELEPHONE BOX	TB	P
FENCES AND BARRIERS	FB	C
FOOTWAY	FW	C
FILTER DRAIN	FD	C
GRASSED AREAS	GA	C
GRIP	GP	P
GULLY	GY	P
HARD SHOULDER	HS	C
HEDGE	HG	C
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

Appendix A Detailed Inventory and Inspection Procedures

<u>ITEM</u>	<u>MNEMONIC</u>	<u>TYPE</u>
ROAD MARKINGS (hatched)	LH	C
ROAD MARKINGS (longitudinal)	LL	C
ROAD MARKINGS (transverse and special)	RM	P
ROAD STUDS	RS	C
ROAD TRAFFIC SIGNS	TS	P
SAFETY FENCE	SF	C
SCRUB	SC	C
SHRUB	SH	C
SIGNS	SG	P
SLUICES AND VALVES	SV	P
SNOW POLES	SP	P
TRAFFIC CONTROL BARRIER	CB	P
TREE	TR	P
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.

Appendix A Detailed Inventory and Inspection Procedures

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 change. A point item shall be located by its cross-sectional position, with its chainage measured from the start of the section and its section identifier.
 - (ii) Continuous items are those that occur over a particular length and have a start and end chainage. A continuous item shall be located by its start and end chainage, section identifier and usually cross-sectional position (except where the cross-sectional position 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.

Appendix A Detailed Inventory and Inspection Procedures

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 1.37 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

Appendix A Detailed Inventory and Inspection Procedures

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 a 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

Appendix A Detailed Inventory and Inspection Procedures

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])

Appendix A Detailed Inventory and Inspection Procedures

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 <

Appendix A Detailed Inventory and Inspection Procedures

		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

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

(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

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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
Width	{----	(To nearest 0.1 metre between 0.0 and 99.9)[1.0 < W < 10.0]

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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 Preformed 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

Appendix A Detailed Inventory and Inspection Procedures

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).

Appendix A Detailed Inventory and Inspection Procedures1.24. **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.

Appendix A Detailed Inventory and Inspection Procedures

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)

Appendix A Detailed Inventory and Inspection Procedures

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.

Appendix A Detailed Inventory and Inspection Procedures**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

Appendix A Detailed Inventory and Inspection Procedures

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}
------------------	------

Appendix A Detailed Inventory and Inspection Procedures

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).

Appendix A Detailed Inventory and Inspection Procedures

- (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 Aooenidx 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	Point	OSGR coordinate at outfall centre

Appendix A Detailed Inventory and Inspection Procedures

System

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

Appendix A Detailed Inventory and Inspection Procedures

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

(i) Site Entries

Item Code	{CC}	
Geographical Information System	Point	OSGR Coordinate
Cross-Sectional Position	{- }Position	See Section 1.2 of this Appendix A Functional Keys

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

(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

Appendix A Detailed Inventory and Inspection Procedures

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	{- }Position	See Section 1.2 of this Appendix A Functional Keys
Chainage	{----	(To nearest metre)
Actual Width	{----	(To nearest 0.1 metre between 0.0 and 99.9)
Maintained Width	{----	(To nearest 0.1 metre [between 0.0 and 99.9)
Angle	{-}	1 = Level 2 = Inclined 3 = Steep

1.43.2. Convention

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

1.43.3. Rules

Appendix A Detailed Inventory and Inspection Procedures

- (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

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

- (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

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures1.51. **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

Appendix A Detailed Inventory and Inspection Procedures

		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

Appendix A Detailed Inventory and Inspection Procedures

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.

Appendix A Detailed Inventory and Inspection Procedures

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)

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

- 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

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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.

Appendix A Detailed Inventory and Inspection Procedures

- (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)

Appendix A Detailed Inventory and Inspection Procedures

		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

Appendix A Detailed Inventory and Inspection Procedures

(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.

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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)

Appendix A Detailed Inventory and Inspection Procedures

- | | | |
|------------------|-----|---|
| 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

Appendix A Detailed Inventory and Inspection Procedures

- (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.

Appendix A Detailed Inventory and Inspection Procedures1.62. **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 Diagram	{----	(Alphanumeric)
	{-----}	(Alphanumeric)
		2 = Internal
		1 = No
		4 = Other
		3 = Reflectorised
		4 = Other
Type	{----	(Alphanumeric – See Rule (vi)) HALD = Haldo MORR = Morrison CLAU = GEC/Claudgen BERG = Bergo FORC = Forest City FRAN = Franco HALE = Hale and Hale PGOW = Pearce Gowshall CONC = Concrete METL = Metal WOOD = Wood PLAS = Plastic OTHR = Other
Sign Diagram Number	{-----}	(Alphanumeric)

(ii) Off-Site Entries:

Installation Date	{DD/MM/YY}
--------------------------	------------

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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 nodes) 5 = Thermoplastic Cores (3 nodes) 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.

Appendix A Detailed Inventory and Inspection Procedures

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

- (ii) Off-Site Entries:

Installation Date	{DD/MM/YY}
--------------------------	------------

Appendix A Detailed Inventory and Inspection Procedures

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

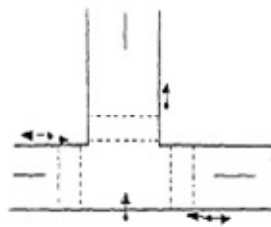
1.64.2. Convention

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

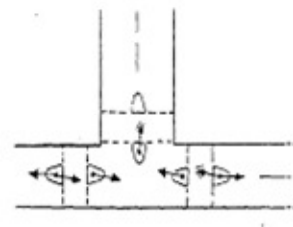
1.64.3. Rules

- (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.

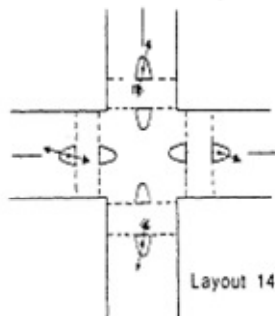
Traffic Signal Layout Diagrams



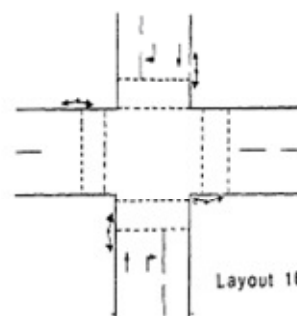
Layout 100



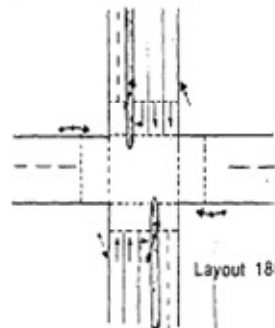
Layout 120



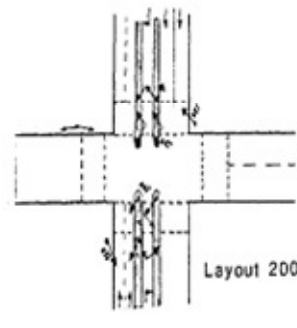
Layout 140



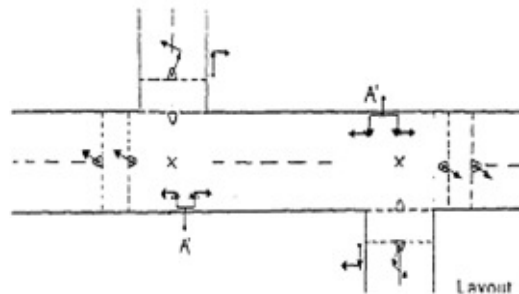
Layout 160



Layout 180

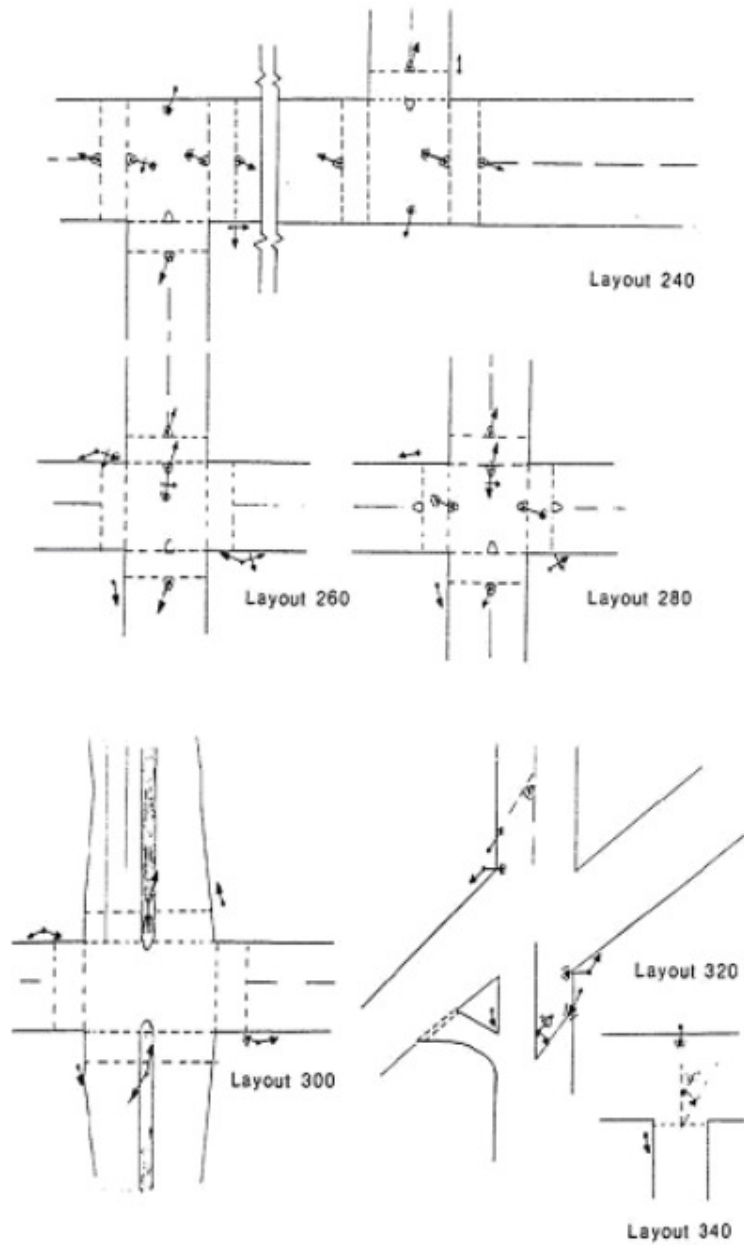


Layout 200



Layout 220

Traffic Signal Layout Diagrams



Appendix A Detailed Inventory and Inspection Procedures1.65. **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.

Appendix A Detailed Inventory and Inspection Procedures1.66. **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

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

= OTHER

- (iii) Catenary lighting 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

Appendix A Detailed Inventory and Inspection Procedures

7 = Tunnel

8 = Other

Convention

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

1.68.2. 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

Appendix A Detailed Inventory and Inspection Procedures

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** - Ice Sensor

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

Appendix A Detailed Inventory and Inspection Procedures

		3 = Other	
Model	{-----}	Alphanumeric (optional)	
Power Source	{-}	1 = Mains Electricity	
		2 = Solar	
Number of Road Surface Sensors	{-}	1 = Sensor	
		2 = 2 Sensors	
		3 = 3 Sensors	
		4 = Other	
Deep Sensor	{-}	Y = Yes	N = No
Air Sensor	{-}	Y = Yes	N = No
Dew/RH Sensor	{-}	Y = Yes	N = No
Wind Sensor	{-}	Y = Yes	N = No
Precipitation Sensor	{-}	T = Yes	N = No
Year Installed	{----}		

1.70.2. Convention

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

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)

Appendix A Detailed Inventory and Inspection Procedures

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 Position	{-}	See Section 1.2 of this Appendix A
Chainage	{----	(To nearest metre)
Length	{----	To the nearest 0.1 metre between 0.1 and 100.0
Width	{----	To the nearest 0.1 metre between 0.1 and 20.0

1.72.2. 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 Director 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. 3.1.3 to 3.1.7 inclusive and 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 3.32 inclusive of this Appendix contain for each maintenance activity the relevant details required by the Company's inspector to undertaken 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

Appendix A Detailed Inventory and Inspection Procedures

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 treat 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)

Appendix A Detailed Inventory and Inspection Procedures

(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

Appendix A Detailed Inventory and Inspection Procedures

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)

Appendix A Detailed Inventory and Inspection Procedures

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 undertaken at time of survey?	(Y or N)

Appendix A Detailed Inventory and Inspection Procedures

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.

Appendix A Detailed Inventory and Inspection Procedures**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

Appendix A Detailed Inventory and Inspection Procedures

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
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 / conc	Int	2 years		24 hrs	28 days
BT	Barriers and fencing timber	Int	2 years		24 hrs	28 days
FN	Road Restraint Systems steel – tension	Int	2 years		24 hrs	28 days
SN	Snow gates	Int	12 months		N/A	N/A
GA	Grassed Areas	Int	12 Months		N/A	N/A
HT	Hedges & trees (Roads Auth)	Int	18 months		24 hrs	28 days
HN	Hedges & trees(Non Roads Auth)	Int	18 months		24 hrs	28 days
HX	Hedges & trees (soundness)	Int	18 months		24 hrs	28 days
RS	Road studs	Int	12 months		24 hrs	28 days
RC	Road studs conspicuity	Int	6 months		24 hrs	28 days
RM	Road Markings	Int	2 years		24 hrs	28 days
SG	Sign face / struct / fixing	Int	12 months		24 hrs	28 days
TS	Traffic signals	Int	6 months		24 hrs	28 days
LP	Lamp Columns	Int	12 months		24 hrs	28 days
LE	Road lighting (Electrical)	Int	12 months		24 hrs	28 days
SL	Road lighting (Lamps)	Int	12 months		24 hrs	14 days

Appendix A Detailed Inventory and Inspection Procedures**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
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 & signals)	Int	3 months		N/A	N/A
CF	Comms Equip (Bolts & hinges)	Int	12 months		N/A	N/A
CY	Comms Equip (M/way warning)	Int	12 months		N/A	N/A
CA	Comms Equip (Alignment)	Int	12 months		N/A	N/A
CE	Comms Equip (Electrical)	Int	N/A		N/A	N/A
CO	Comms Equip (Operations)	Int	N/A		N/A	N/A
EC	Embankments and cuttings	Int	12 months		24 hours	N/A
IS	Ice Sensors	Int	6 months		N/A	N/A

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures**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
TE	TS: electrical		12 months		24 hours	28 days
LE	Lamp columns: electrical		12 months		24 hours	28 days
CB	Comms cabinet: electrical		N/A		N/A	N/A
CE	Comms cabinet: electrical		N/A		N/A	N/A
ES	Embankment / cutting condition		12 months		24 hours	28 days

Table 3.3.1(c) – Lamp Scout Inspections

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

3.4 Minor Carriageway Repairs – Flexible

3.4.1 The following inspection code relation to this activity:

Minor Carriageway Repairs MC

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

Central Island CI

Hard Shoulder HS

Appendix A Detailed Inventory and Inspection Procedures

Central Reserve	CR
Lay-by	LB
Carriageway	CW
Crossover	XO

Note

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

3.4.4 Non-Specialist Defects

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

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
Cracking of the material used for patching					
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
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

Appendix A Detailed Inventory and Inspection Procedures

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

3.5.5 General Notes (see also 5.3.1)

- (i) Detailed Inspections shall only record those types of defect likely to require routine maintenance rather than to establish general structural condition.
- (ii) Some defects recorded may be repaired within structural maintenance work due to be carried out within the timescale of the Detailed Inspection frequencies.
- (iii) Where there 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

Appendix A Detailed Inventory and Inspection Procedures

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
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				

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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				
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.

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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				

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
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				

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
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 5.6 of this Appendix (Covers, Gratings, Frames and Boxes).

3.11 Piped grips

3.11.1 The following inspection code relates to this activity:

Piped Grips PG

3.11.2 The following inventory item 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 5.6 of this Appendix (Covers, Gratings, Frames and Boxes.)

3.12 Grips

3.12.1 The following inspection code relates to this activity:

Grips GP

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

Grip GP

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

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

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
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. See paragraph 2.5.8 to Part 2 of these O&M Works Requirements.

3.16 Settlement, Attenuation and Storage Ponds and Otherwise

3.16.1 The following inspection code relates to this activity:

Settlement, Attenuation and Storage
Ponds and Otherwise BP (specialist)

3.16.2 The following inventory item 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 rate of discharge.	OUTF				
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

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
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 that 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 relates 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				

Appendix A Detailed Inventory and Inspection Procedures

3.17.5 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Pump malfunction	PUMP				
Sluice malfunction	SLUI				
Penstock malfunction	PSTK				
Other	OTHR				
None	NONE				

3.17.6 General Notes

- (i) The Company shall maintain a schedule of ancillary items, including all sluices, tidal flaps and pumps.

3.18 Flooding

3.18.1 The following inspection codes relates to this activity:

Flooding FL

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

Settlement, Attenuation and Storage Ponds and Otherwise BP

Filter Drain FD

Counterfort Drain CD

Grip GP

Channel CH

Gully GY

Catchpit CP

Interceptor IN

Culvert CV

Manhole MH

Ditch DI

Piped Grip PG

3.18.3 Definition

Flooding of the Project Roads caused by the inadequate provision or operation of the road drainage facilities.

3.18.4 Non-Specialist Defects

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

3.18.5 General Notes

- (i) The cause of flooding shall be ascertained by the Company and

Appendix A Detailed Inventory and Inspection Procedures

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				

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
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				

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
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

Appendix A Detailed Inventory and Inspection Procedures

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 2.8 to Part 2 of these O&M Works Requirements.

3.22.6 General Notes

- (i) Any defects associated with dead or dying trees / branches or diseased trees shall be referred by the Company to a qualified landscape architect or other competent person.
- (ii) The Company shall pay particular attention to trees, shrubs and hedge, which by virtue of their position or condition constitute a hazard to road users.

3.23 Sweeping and Cleansing

3.23.1 The following inspection code relates to this activity:

Sweeping and Cleansing SC

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

Appendix A Detailed Inventory and Inspection Procedures

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:

Appendix A Detailed Inventory and Inspection Procedures

- (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

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
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

Appendix A Detailed Inventory and Inspection Procedures

(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

Appendix A Detailed Inventory and Inspection Procedures

not normally be carried out at the time of normal inspections. This code shall be used to indicate the need for a specialist inspection.

3.26.7 General Notes

- (i) The Company shall immediately remove displaced road studs lying on the carriageway, hard shoulder or in lay-bys.
- (ii) The Company shall immediately remove loose road studs.
- (iii) All depressible road studs shall be considered as “cats eyes” for inspection purposes.

3.27 The following inspection codes relate to this activity:

Road Markings:	RM[PX, RM, RF, LH, LL]
Road Markings: (skid resistance)	SR(Specialist)
Road Markings: (reflectivity)	RR(Specialist)

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

Pedestrian Crossing	PX
Reference Marker Point	RF
Transverse and Special	RM
Hatched Road Markings	LH
Road Markings	
Longitudinal Road Markings	LL

3.27.2 Definition

This section relates to all road markings in thermoplastic materials.

3.27.3 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Wear (e.g. erosion)	WEAR	Length	metres	1	999
		% remaining	Per cent	1	100
Spread	SPRD	Length	metres	1	30
		% of original	Per cent	1	100
Colour	COLR	Length	metres	1	100
		Percentage	Per cent	1	100
Initiate skid test	SKID	Length	metres	1	30

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
Initiate retro-reflectivity measurement	RETR	Length	metres	1	100
Missing node marker	MIRF				
Other	OTHR				
None	NONE				

3.27.4 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Skid resistance test failure	SKIT	Length	metres	1	30
		SRV		0	99
Retro-reflectivity test failure	RETT	Length	metres	0	30
Other	OTHR				
None	NONE				

3.27.5 Notes on Defects

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

3.27.6 General Notes

- (i) The appropriate values of wear, spread, colour and retro-reflectivity can be estimated by visual inspection or measured.

3.28 Road Traffic Signs

3.28.1 The following inspection codes relate to this activity:

Face/structure/fixings	SG	[SG]
Lamp Failures	SV (Specialist)	[SG]
Visibility Inspection	SS (Specialist)	[SG]
Moving Parts	SM (Specialist)	[SG]

Appendix A Detailed Inventory and Inspection Procedures

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				
Loss of surface /paint covering	LOPT				
Obscured sign	OB SG				
Dirty sign	DIRT				
Missing	MISS				
Damaged Damage other than accident damage	DAMG				
Pointing wrong way	RWAY				

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
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.

Appendix A Detailed Inventory and Inspection Procedures

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				
Condition poles / caps / heads / boards	PLCD				
No data sheets	NDTA				
Difficult access to cabinet	ACES				
Faulty mast arm assembly	MAST				

Appendix A Detailed Inventory and Inspection Procedures

Description	Code	Attribute	Units	Min	Max
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
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3.30.3 Definition

This section relates to the routine maintenance of road lighting installations

Appendix A Detailed Inventory and Inspection Procedures

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				

Appendix A Detailed Inventory and Inspection Procedures

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 Ice Sensors

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:

Ice Sensors: 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;

Appendix A Detailed Inventory and Inspection Procedures

- (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

APPENDIX B

WEATHER FORECAST AND ROAD CONDITION STATUS

Appendix B Weather Forecast and Road Condition Status**Table 1**

This table sets out the forecast weather and road condition status codes used in Table 2 of this Appendix B.

Forecast Weather	
A Road surface temperature \leq plus 1 °C	G Road surface temperature below minus 5 °C following rain
B Road surface temperature between plus 1 °C and minus 2 °C	H Hoar Frost
C Road surface temperature between minus 2 °C and minus 5 °C	I Freezing fog
D Road Surface temperature below 5 °C	J Freezing rain
E Road surface temperature between plus 1 °C and minus 2 °C following rain	K Snow accumulations up to 30 millimetres
	L Snow accumulation over 30 millimetres
F Road surface temperature between plus 2 °C and minus 5 °C following rain	M Hard packed snow/ice
Road Conditions Status	
1. Road surface dry	
2. Frost susceptible area/known surface water run-off	
3 Road surface wet	
4 Road surface temperatures \leq plus 1 ° and relative humidity \leq 80%	

Appendix B Weather Forecast and Road Condition Status

Table 2

This table gives the criteria for precautionary treatment and minimum salt spreading rates. The forecast weather and road conditions status codes are defined in Table 1 of this Appendix B.

Forecast Weather	Road Conditions Status			
	1 Dry Road Surface (grammes per square metre)	2 Frost susceptible /surface water run off area (grammes per square metre)	3 Road Surface Wet (grammes per square metre)	4 Road Surface Temperatures less than or equal to plus 1 °C and relative humidity less than or equal to 80%
A	0	20	0	0
B	0	10 to 20	10 to 20	Salt moisture content shall be increased to 5% at relevant spread rates in Road Conditions Status 1-3
C	0	10 to 20	10 to 20	
D	0	20	20	
E	0	20	30	
F	0	30	40	
G	0	40	40	
H	10	20	20	
I	10	10	20	
J	10	40	40	
K	10	30	40	
L	10	40	40	
M	10	40	40	

Appendix B Weather Forecast and Road Condition Status

Table 3

This table gives the minimum requirements for salt spreading rates for snow and ice clearance.

ROAD SURFACE CONDITION	AIR TEMP	TREATMENT			
		Spreading (grammes per square metres)		Ploughing	Blowing
		Salt			
Ice Formed	Less than or equal to minus 5°C and stable	20 to 40		No	No
Snow covering exceeds 30 millimetres	Less than or equal to minus 5°C and stable	20		Yes	No
Snow covering exceeds 30 millimetres	Less than or equal to minus 5°C and dropping	20 to 40		Yes	Yes
Snow accumulating due to prolonged falls	Less than or equal to minus 5°C and stable	20 to 40		Yes (continuous)	Where applicable
Hard packed snow/ice less than 20 millimetres thick	greater than or equal to minus 5°C	20 to 40 (successive treatments)		No	No

Table 4

This table gives the minimum spreading rates for ethylene glycol for precautionary treatments.

CONDITIONS FORECAST	SPREAD RATE (litres/metre ²)
Frost and Road Surface Temperature (RST) at or above -2°C	0.01 (effective to -4°C)
Frost and Road Surface Temperature below -2°C or Freezing conditions after rain.	

APPENDIX C

WINTER SERVICE PLAN

Appendix C - Winter Service Plan

APPENDIX C

Winter Service Plan

Refer to Schedule 3B

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.

Appendix C - Winter Service Plan

WINTER SERVICE PLAN SPECIFICATION

M80 Stepps to Haggs 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

Appendix C - Winter Service Plan

M80 Stepps to Haggs 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
- 2.5. 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

Appendix C - Winter Service Plan

- 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. Proposals for precautionary and additional de-icing treatments when low confidence forecasts shall be issued for variable road and weather conditions
 - 5.2.2. Proposals for monitoring the effectiveness of de-icing materials
 - 5.2.3. Road closure and snow gate operational procedures
 - 5.2.4. 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 Management Unit and South West Management Unit and
 - 6.1.6. Network Rail

Appendix C - Winter Service Plan**7. Precautionary Treatment Routes**

7.1. Precautionary Treatment Routes

7.1.1. The Company shall provide in Annex WSP 2 to Appendix D information therein required including the following information:

- (i) precautionary treatment routes;
- (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.

7.1.2. The Company shall provide in Annex WSP 2 to Appendix D details of cycling facilities in urban areas.

8. Snow and Ice Clearance

8.1. Snow Clearing

8.1.1. Description of arrangements and resources for snowfall

8.1.2. Road closure procedure including use of snow gates

8.1.3. Prolonged snowfall strategy

8.1.4. Arrangements for safe clearance of snow and ice from wide single carriageways

8.1.5. Treatment strategy for footways, footpaths and cycle facilities to be detailed including location of salt bins where applicable

8.1.6. Plans showing the location of the footways footbridges and cycle facilities in usage / location categories

9. De-Icing Materials

9.1. Details

9.1.1. For each type of de-icing material provide details of:

- (i) Specification;
- (ii) storage and testing methods;
- (iii) suppliers; and
- (iv) stock levels.

9.1.2. 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.

10. Winter Constructional Plant

10.1. Front Line Winter Constructional Plant

Appendix C - Winter Service Plan

- 10.1.1. Details of the Company's front line Winter Constructional Plant permanently available within the O&M Works Site for the Winter Service for carriageways shall be as referred to in Annex WSP 5 of Appendix D.
- 10.1.2. Details of the Company's front line Winter Constructional Plant permanently available within the O&M Works Site for the Winter Service for footways footbridges and cycling facilities shall be as referred to in Annex WSP 5 of Appendix D.
- 10.2. Reserve Winter Constructional Plant
 - 10.2.1. Details of the reserve Winter Constructional Plant shall be as referred to in Annex WSP 5 of Appendix D.
- 10.3. Additional Winter Constructional Plant

Details of the additional Winter Constructional Plant shall be as referred to in Annex WSP 5 to Appendix D. Mobilisation arrangements for additional Winter Constructional Plant available through contingency arrangements for the Winter Service for carriageways, footways, footbridges and cycling facilities.
- 10.4. Loading Winter Constructional Plant
 - 10.4.1. Loading Winter Constructional Plant available within the O&M Works Site for loading:
 - (i) front line;
 - (ii) reserve; and
 - (iii) additional.
 - 10.4.2. Winter Constructional Plant shall be as referred to in Annex WSP 5 of Appendix D.
- 10.5. Calibration of Constructional Plant
 - 10.5.1. Calibration arrangements and procedures for front line and reserve Winter Constructional Plant.
 - 10.5.2. The Winter Service Plan shall describe how the requirements of paragraph 3.13.8 of this Part 2 shall be met and where and how the calibration certificates shall be held.

11. Maps Drawings and Graphical Information**11.1. Maps**

- 11.1.1. The Winter Service Plan shall include scale maps showing:
 - (i) precautionary treatment routes for carriageways including depots;
 - (ii) precautionary treatment routes for footways footbridges and cycling facilities;
 - (iii) road sensors including sensor types;
 - (iv) snow gates;
 - (v) snow fences;

Appendix C - Winter Service Plan

- (vi) shelter belts;
- (vii) snow ice and hidden message signs;
- (viii) salt bins and self help salt heaps; and
- (ix) other facilities.

12. Compiling and Maintaining Records

12.1. Snow poles

- (i) maintenance
- (ii) replacement of damaged or missing snow poles
- (iii) refurbishment and
- (iv) reserve stocks

12.2. Snow gates

- (i) maintenance
- (ii) operation and
- (iii) liaison

13. Variable Message Snow Ice and Hidden Message Signs

13.1. Operating and liaison procedures

14. Salt Bins and Self Help Salt Heaps

14.1. Stock level monitoring and replenishment procedures

15. Salt Measurement Apparatus

15.1. Details of equipment and locations and recording methods

APPENDIX D

WINTER SERVICE PLAN APPENDICES

Refer to Schedule 3B

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.

Appendix D - Winter Service Plan Appendices**WINTER SERVICE PLAN APPENDICES SPECIFICATION****ANNEX WSP 1: NOT USED****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: SALT STOCKS

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

Table 1: Minimum Salt Stock Levels

O&M Works Site	
Minimum stock level between 1 st October and 15 th December (tonnes)	600

Appendix D - Winter Service Plan Appendices

Minimum stock level between 15 th December and 1 st March (tonnes)	800
Minimum stock level at 1st March (tonnes)	400

ANNEX WSP 4: NOT USED

ANNEX WSP 5: WINTER SERVICE CONSTRUCTIONAL PLANT

Front line winter Constructional Plant permanently available and located in the O&M Works Site for the Winter Service for carriageways shall be as Table 1.

Table 1

Type of Winter Constructional Plant and registration number	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use

Under plant use identify separately plant for:

1. precautionary treatment;
2. snow clearance up to 100 millimetres; and
3. arrangement to comply with Section 3 of this Part 2 of these O&M Works Requirements.

Front line winter Constructional Plant permanently available and located in the O&M Works Site for the Winter Service for non motorised user facilities shall be as Table 2.

Table 2

Type of Winter Constructional Plant and registration number	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use

Under plant use, identify separately plant for:

1. precautionary treatment; and
2. snow clearance.

Reserve winter Constructional Plant permanently available and located in the O&M Works Site for Winter Service for carriageways, non motorized user facilities and shall be as Table 3.

Appendix D - Winter Service Plan Appendices

Table 3

Type of Winter Constructional Plant and registration number	Depot Location	Vehicle Capacity	Number of Vehicles	Plant Use

Under plant use identify separately plant for:

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

Additional winter Constructional 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 Constructional Plant and registration number	Depot Location and Operator	Vehicle Capacity	Number of Vehicles	Provider name and mobilisation arrangement details where third party provider

Loading winter Constructional Plant permanently available and located in the O&M Works Site at each loading point shall be as Table 5.

Table 5

Type of Winter Constructional Plant and registration number	Depot Location and Operator	Vehicle Capacity	Number of Vehicles

ANNEX WSP 6: LOCATION OF EXISTING ROAD / ICE SENSORS AND WEATHER STATIONS

TO BE INSERTED

Appendix D - Winter Service Plan Appendices

Inserted in Schedule 3B

Appendix E: Non Motorised User Facilities

APPENDIX E

NON MOTORISED USER FACILITIES

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 incorporated.

APPENDIX F

Technical Approval Procedures for Assessment of Structures in Scotland

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

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

Appendix F Technical Approval Procedures for Assessment of Structures in Scotland

Technical Approval Procedures for Assessment of Structures in Scotland

strengthening and/or improvement Operations.

Schedule

AIP = Approval in Principle

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

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

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;

Appendix G Mobile Lane Closure Risk Assessment Checklist

- (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.

Appendix G Mobile Lane Closure Risk Assessment Checklist**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

Appendix G Mobile Lane Closure Risk Assessment Checklist

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

Appendix G Mobile Lane Closure Risk Assessment Checklist

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

Appendix G Mobile Lane Closure Risk Assessment Checklist

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

Appendix G Mobile Lane Closure Risk Assessment Checklist

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:

Appendix G Mobile Lane Closure Risk Assessment Checklist

- 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.

Appendix G Mobile Lane Closure Risk Assessment Checklist**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?			

Appendix G Mobile Lane Closure Risk Assessment Checklist

Number	Question	Yes	No	Comments
17	Can you confirm that signs can/will be covered or removed from view when not 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			

Appendix G Mobile Lane Closure Risk Assessment Checklist

Number	Question	Yes	No	Comments
	provided and work?			
28	Can all advance sign display and covering for mobile Lane closure be carried out on the hard shoulder (if available)?			NB. The establishment or covering of vehicle mounted signs 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

APPENDIX H

Roadworks Information Forms A and B

Appendix H Roadworks Information Forms A and B

Roadworks Information Form A

VMS	YES	NO
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Weekly Programme of Intent and Notification of Carriageway Occupations

			PROGRAMME PERIOD – WEEK COMMENCING : <i>Date</i>													
LOCATION			ACTIVITY DETAILS					DAYS			DURATION		CARRIAGEWAY OCCUPATION DETAILS			
ROUTE Junction Number/name DIRECTION			Insert Activity Detail in Order of: LOCATION/DESCRIPTION/REASON DIVERSION									CLOSURE TYPE A,B OR C (SPEED LIMIT)	ESTIMATED DELAY*	CONING BY	MAIN CONTRACTOR	
Route	From	To	M	T	W	T	F	S	Su	Start	End					

Appendix H Roadworks Information Forms A and B

* CODING FOR USE IN "ESTIMATED DELAY" DIRECTIONS COLUMN

The first digit indicates the extent of the delay

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

- 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

Appendix H Roadworks Information Forms A and B

ROADWORKS INFORMATION FORM B

VMS	YES	NO
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WEEKLY RECORD OF ACTUAL CARRIAGEWAY OCCUPATIONS OCCURRING IN THE O&M WORKS SITE

			PROGRAMME PERIOD – W/B : <i>Date</i>													
LOCATION			ACTIVITY DETAILS				DAYS				DURATION		CARRIAGEWAY OCCUPATION DETAILS			
ROUTE			Insert Activity Detail in Order of: LOCATION/DESCRIPTION/REASON DIVERSION										CLOSURE	REPORTED	CONING	MAIN
Junction Number/name DIRECTION													TYPE	DELAY*	BY	CONTRA
Route	From	To	M	T	W	T	F	S	Su	Start	End	(SPEED LIMIT)				C-TOR

Appendix H Roadworks Information Forms A and B

* CODING FOR USE IN "REPORTED DELAY" DIRECTIONS COLUMN

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

- O/S: OFFSIDE
- C/L: CENTRE LANE
- RL: ROUNDABOUT
- TL: TURNING LANE
- SL: SLIP LANE

The second digit indicates the time the delay is expected

- 2 PEAK HOURS
- 3 OFF PEAK HOURS

- NB: NORTHBOUND
- SB: SOUTHBOUND
- EB: EASTBOUND
- WB: WESTBOUND

Signed NAME Position

- SCT: SINGLE CARRIAGEWAY TEMP LIGHTS
- SCM: SINGLE CARRIAGEWAY MOBILE LIGHTS

Appendix I : Planned Maintenance Guidelines

Appendix I

**Traffic Scotland Equipment
Planned Maintenance Guidelines**

Appendix I : Planned Maintenance Guidelines

Traffic Scotland Equipment

1. Introduction	254
2. Carrying out the work including warnings and cautions	254
3. Emergency Procedures.....	254
4. Standard Procedures	255
5. General Notes on Work as Part of Planned Maintenance Guidelines	256
6. The Planned Maintenance Guidelines.....	259

Appendix I : Planned Maintenance Guidelines**1 Introduction**

- 1.1 This Appendix shall be considered as providing additional detail regarding standard aspects of work included in the planned maintenance guidelines.
- 1.2 The planned maintenance guidelines shall be read in conjunction with paragraphs 1 to 5 of these guidelines.

2 Carrying out the work including warnings and cautions

- 2.1 At Traffic Scotland equipment sites, before carrying out any work in accordance with this Agreement, the Company shall:
 - 2.1.1 ensure all personnel involved are familiar with the site type, equipment installed, any modifications/change in configuration of equipment and the layout of mains power i.e. termination/ distribution pillars, mains isolators etc;
 - 2.1.2 confirm that appropriate traffic management measures and any special access has been arranged;
 - 2.1.3 ensure the location of the designated safe parking for the site is known;
 - 2.1.4 check for any special equipment or site specific health and safety precautions required including the possession of any required permit to work certificate has been obtained. Special attention should be given to the adequacy of precautions with regard to possible infections arising from the site conditions e.g. Weils disease;
 - 2.1.5 ensure any downtime has been agreed with the Transport Scotland Network Operations Manager and an any appropriate third parties;
 - 2.1.6 ensure all necessary personal protection equipment required is clean and functional;
 - 2.1.7 confirm that all required tools, access equipment, keys and fully functional test equipment is to hand;
 - 2.1.8 confirm that vehicle lighting and beacons are operational and that required coning, signing etc, is either included in vehicle or already installed at the site;
 - 2.1.9 ensure all personnel in attendance are fully aware of the consequential effects that could arise from mal-function of any equipment at the site;
 - 2.1.10 confirm all the appropriate Relevant Authority and organisations have been notified;
 - 2.1.11 ensure the personnel are aware of any hazards arising from poor or limited access; and
 - 2.1.12 confirm personnel are aware of the consequences of the failure to conform with all relevant environmental regulations.

3 Emergency Procedures

- 3.1 Where immediate danger exists, warning tape and notices shall be placed at

Appendix I : Planned Maintenance Guidelines

the Traffic Scotland equipment site. The Transport Scotland Network Operations Manager and the Police shall be informed at the earliest opportunity. These precautions shall remain in place until the site is declared safe by an appropriately qualified and competent person.

4 Standard Procedures

4.1 In the following, any reference to BS7671:1992 and the associated guidance notes shall be considered as referring to the current version of BS7671 and associated guidance notes.

4.2 Routine Electrical Checks

4.2.1 Routine electrical checks shall consist of work as detailed in BS 7671:1992 Guidance Note 3, Part 2, paragraph 2.1.4.

4.3 Periodic Electrical Inspection and Testing to BS7671:1992

4.3.1 To carry out periodic electrical inspection - see the associated notice affixed as required by BS7671:1992 Regulation 514-12-01. For a detailed description of the inspection and testing required reference shall be made to BS7671:1992 Section Guidance Note 3 Part 2:

- (i) Initial Electrical Installation Certificate (Forms F1-4);
- (ii) any relevant Minor Electrical Installation Works Certificates describing modifications to the installation (Form F5);
- (iii) chapters 73 and 74;
- (iv) all associated Notes and Guidance Notes for Recipients in Appendix 6;
- (v) any relevant Regulations contained in Section 611, Highway Power Supplies and Street Furniture, relating to the installation;
- (vi) Complete Form F6, F3 and where required Form F4.

4.3.2 Note: Where equipment forming part of the installation, being inspected and tested, is connected to the mains supply by flexible cable and could be considered as portable or transportable, such equipment shall be tested, in conjunction with the periodic electrical inspection and testing, using the appropriate PAT Test Equipment. These and other parts of the installation to be included / excluded from the BS7671 testing shall be defined by the Company, and agreed with the Transport Scotland Network Operations Manager in the 'Extent and Limitations' section in accordance with BS7671 and Guidance Note 3.

4.4 Physical Inspection, assessment and general non-electrical maintenance

4.4.1 This shall include inspection, assessment and general maintenance of all locks, external surfaces, doors, hinges, fixings, seals, footing and general enclosure/structural aspects of cabinets, masts, poles, posts, gantries and other enclosure/support structures.

4.4.2 The inspection shall include:

- (i) a visual inspection shall be required for any evidence of the

Appendix I : Planned Maintenance Guidelines

breakdown of the protective coating on external surfaces with particular attention to doors and door opening, hinges, locks, welds and corrosion particularly at, near or below ground level. Evidence of such a breakdown shall include discolouration, corrosion, surface flaking, surface blistering, cracking of surface coat, powdering, efflorescence etc. Such damage shall be notified to the Transport Scotland Network Operations Manager in writing within 7 days and remedial work shall be undertaken within 1 month of inspection. Any remedial work required shall be in accordance with this Agreement, the manufacturers' instructions and the Quality Plan.

- (ii) a visual inspection shall be required for evidence of any loss of:
 - (a) mechanical or structural integrity including misalignment;
 - (b) mechanical damage or wear;
 - (c) looseness of fittings;
 - (d) deterioration of seals;
 - (e) corrosion;
 - (f) cracking of welds; and
 - (g) security of retaining bolts, glands, door mechanisms and structural support frames.
- (iii) Repairs, adjustments, re-rieveting, structural replacement and re-welding shall be in accordance with the manufacturers' instructions. Unless such damage constitutes an immediate hazard or danger to the public or maintenance personnel it shall be notified to the Transport Scotland Network Operations Manager within 7 days and remedial work shall be undertaken within 1 month of inspection. For damage that requires immediate attention, temporary measures shall be implemented until final repairs can be carried out. All remedial work shall conform to the requirements of the Quality Plan. Lubrication of hinges, fixings, locks, and other such threaded or moveable items shall be carried out, where appropriate at the time of inspection and otherwise as required.

5 General Notes on Work as Part of Planned Maintenance Guidelines**5.1 Good Working Practice**

- 5.1.1 The Company shall at all times follow requirements of Clause 1503SR to Part 5 of these O&M Works Requirements.

5.2 Leaving a Transport Scotland equipment site safe

- 5.2.1 Maintenance procedures shall include detailed instructions with regard to leaving the work site safe in all aspects, which shall include, but shall not be limited to:
 - (i) all internal electrical barriers in place and locked;

Appendix I : Planned Maintenance Guidelines

- (ii) all cabinets locked;
 - (iii) electrical supplies in correct and safe condition; and
 - (iv) site clear of trip hazards.
- 5.2.2 Before leaving the site, personnel shall also carry out any required final checks on any emergency systems that shall be left functional and ensure any driver information system shall be left in the correct mode agreed with personnel within the TSCC.
- 5.2.3 The Company shall ensure that all tools and keys are accounted for and removed from the Traffic Scotland equipment site and shall inspect the carriageway for debris and any significant road surface irregularities before removing any traffic management measures.
- 5.3 Maintenance management, completion of records of planned maintenance and asset management
 - 5.3.1 The Company shall utilise FMS for recording and management of all maintenance works associated with Traffic Scotland maintained equipment.
 - 5.3.2 The Transport Scotland Network Operations Manager will provide the initial training to the Company's maintenance team dedicated to maintenance works for Traffic Scotland.
 - 5.3.3 The Company shall develop and implement methods of recording the works that cannot be recorded and managed via FMS.
 - 5.3.4 The Company shall consult and comply with the Transport Scotland Network Operations Manager for the management and maintenance works associated with Traffic Scotland maintained equipment.
 - 5.3.5 The Company shall operate asset evaluation and management within FMS as follows:
 - (i) the condition of the Traffic Scotland equipment shall be assessed by trained staff and in accordance with the specific requirements of the system in use;
 - (ii) assessors shall always consider any access difficulties e.g. paving, slabbing / steps and the general conditions relating to the site on which the equipment is installed when making an evaluation;
 - (iii) the list of categories, classifications, types, variants etc. shall include all equipment that shall be assessed during the visit. All required equipment checklists shall be at hand prior to visiting the site; and
 - (iv) where bar-coding is included as part of the identifier for the equipment, collection onto a lap-top or similar shall be required using a bar-code reader.
- 5.4 Remedial Work
 - 5.4.1 It is at the discretion of the Company and the TSM&GW Contractor as to which items of remedial work, identified as being required during the

Appendix I : Planned Maintenance Guidelines

planned maintenance visit, can be undertaken during the visit and which require a subsequent visit(s). The basic ground rules for carrying such work shall include:

- (i) the personnel undertaking the planned maintenance shall be fully trained to carry out the work, shall have with them all required tools, material, personal protective equipment, and shall be fully familiar with the procedures, processes and be competent in all aspects of the work which shall be undertaken; and
- (ii) a written report, using the computer based maintenance management system, detailing all work carried out shall form part of the reporting procedure.

Appendix I : Planned Maintenance Guidelines**6 The Planned Maintenance Guidelines**Equipment Record Number: **ER1002**

Equipment Type: Equipment cabinet (with electrical equipment) in one of the following arrangements:

Configuration 1 - mains power distribution unit (PDU), heater, thermostat and cable terminations only;

Configuration 2 as Configuration 1 but containing Traffic Scotland equipment.

Manufacturer: Various

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) with the exception of any 'specialist equipment' within equipment cabinets, the Company has full responsibility with respect to the equipment cabinets, which includes the integrity of the cabinet itself and all equipment mounting infrastructure, power distribution unit, heaters, thermostat and all internal electrical circuits and electrical cabling to other equipment within the cabinet;
- (ii) responsible for the associated external cabling including cables/local ducting connected to other cabinets;
- (iii) soft and hard landscaping at the equipment site;
- (iv) infrastructure providing access at the equipment site;
- (v) the cabinet foundation and any infrastructure providing support to the cabinet;
- (vi) reporting faults for which the TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) responsible only for the electronic equipment contained i.e. 'Specialist Equipment' in those cabinets configured as in Configuration 2 above. All electrical equipment and associated cabling outwith and all cabling/ducting connecting to any other cabinets are the responsibility of the

Appendix I : Planned Maintenance Guidelines

- Company together with all Configuration 1 cabinets;
- (ii) reporting all faults, for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At each visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	6	Inspect the external labels, including warning signs (DANGER 230V), and clean or replace if not readily operationally visible.	Company
4	6	Carry out the following on the overall enclosure externally and internally up to the final enclosures housing the electronic equipment: <ul style="list-style-type: none"> (i) clean and wash/wipe dirt/dust from equipment - ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved; (ii) examine the operation of all locks and hinges and where required, lubricate. Repair or replace any faulty locks or hinges; (iii) check that bitumen seal in base is still intact; (iv) inspect door seals for waterproofing and repair or replace any that are faulty; (v) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose; (vi) check cabling for satisfactory anchorage and external condition of insulation. Repair or replace any defective anchorages or 	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		lengths of cable; (vii) check structural condition and surface protective finish of cabinet. Record signs of damage/corrosion.	
5	6	Inspect the internal condition of the cabinet, up to the final enclosures housing the electronic equipment, to ensure that there is no obvious water, vegetation or vermin ingress. Also inspect for signs of current or indication of previous internal condensation. Report faults to the TSM&GW Contractor then carry out repair.	Company
6	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
7	-	Complete records for all above inspections and testing in the planned maintenance database. This database shall include details of revised asset evaluation and all faults reported including those passed to others.	Company
8	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. All faults shall be reported to the Company who shall then carry out all repairs to make good.	TSM&GW Contractor
9	-	At each visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	TSM&GW Contractor
10	6	Inspect the internal labels, including warning signs (DANGER 230V) and clean or replace if not readily operationally visible.	TSM&GW Contractor
11	6	Carry out the following on and within the final enclosures housing the electronic equipment: (i) clean and wash/wipe dirt/dust from equipment – ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved; (ii) examine the operation of all locks and	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		<p>hinges and where required lubricate using lithium based grease or similar. Repair or replace any faulty locks or hinges;</p> <p>(iii) inspect external door seals for waterproofing and repair or replace any that are faulty;</p> <p>(iv) check cabling for satisfactory anchorage and external condition of insulation replace any defective anchorages or lengths of cable; and</p> <p>(v) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose.</p>	
12	6	Check the operation of cabinet heater and/or cooling equipment and adjust if required. Repair or replace any cabinet heater and/or cooling equipment that is not functioning.	TSM&GW Contractor
13	3	Check miniature circuit breakers (MCBs) are labelled and set to correction position – as system requirements for that cabinet.	TSM&GW Contractor
14	3	Carry out RCD test using the RCD integral TEST push button quarterly or as otherwise stated by the associated notice. See BS7671:1992 Regulation 514-12-02. Record the date and result of the test.	TSM&GW Contractor
15	12	Carry out routine checks as BS7671:1992, Guidance Note 3 Table 2.1.4 and interim electrical inspection with no dismantling as Inspection Checklist Form F3 in BS7671:1992. Reference should still be made to BS7671:1992 Chapters 73 and 74 together with the appropriate paragraphs of BS7671:1992, Appendix 6.	TSM&GW Contractor
16	60	Carry out the periodic electrical inspection and testing as per the latest version of the IEE Wiring Regulations.	TSM&GW Contractor
17	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.9 and update the records accordingly as required in these O&M Works Requirements.	TSM&GW Contractor
18	-	Complete records for all above inspections and testing in the planned maintenance database. This database shall include details of revised asset evaluation and all faults reported including those passed to others.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1007**

Equipment Type: Monitoring Loops

Manufacturer: Various

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) soft and hard landscaping at equipment site;
- (ii) has full responsibility with respect to loops including loop tail to feeder cable joints and feeder cable/local ducts to termination point.
Note: where loops are not connected to traffic detection equipment then no maintenance regime applies;
- (iii) full responsibility for small chamber (roadside chamber) which houses the loop tail to feeder cable joint;
- (iv) infrastructure providing access at equipment site;
- (v) road surface integrity;
- (vi) reporting any maintenance or resurfacing works to the TSM&GW Contractor, i.e. when damage to the loop may occur; and
- (vii) reporting faults for which TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) reporting all faults, for which the Company is responsible.

General Note: It is the policy of the Scottish Ministers to install monitoring loops at 500 metre centres in new motorway construction or resurfacing works. Where these monitoring loops are not connected to any other Traffic Scotland infrastructure no planned maintenance regime applies.

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
1	6	Carry out visual inspection of loops in road surface, noting any loop damage to loop or road surface and report any defects.	Company
2	-	Undertake testing on replacement loops during/after installation in accordance with MCH1540 and the Specification and complete Commissioning Test Results Sheet as Table G5 of SHW.	Company
3	12	Undertake asset evaluation and update the records accordingly as required in these O&M Works Requirements.	Company

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1010**

Equipment Type: Camera Mast

Manufacturer: Various

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) soft and hard landscaping at equipment site;
- (ii) infrastructure providing access at equipment site;
- (iii) all foundation and structural aspects of the mast;
- (iv) the winch mechanism;
- (v) the security of the cradle and CCTV equipment mounted on it; and
- (vi) reporting faults for which the TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) reporting all faults, for which the Company is responsible.

General Note: The Company shall ensure that its personnel have satisfactorily completed the "Specialist Training" essential for winch mechanism routine maintenance. The majority of cameras are mounted on camera masts with winch mechanisms and have pan and tilt units. In some instances, cameras are mounted on brackets. In some instances, they do not have pan and tilt units.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or 	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		<p>within the vicinity of, the equipment;</p> <p>(ii) the general public; and</p> <p>(iii) the driver information equipment itself or the surrounding infrastructure.</p>	
3	12	Visually inspect and base of mast externally for damage, corrosion, vegetation etc. Check identity label and warning 'flash' are in place and secure. Clean or replace if required. Ensure clearance from access paving/concrete is sufficient to open access doors. Inspect mast fixings to foundations for corrosion or damage. Repair where required.	Company
4	6	<p>Carry out the following:</p> <p>(i) clean and wash/wipe dirt/dust from equipment – ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved;</p> <p>(ii) examine the operation of all locks and hinges and where required lubricate. Repair or replace any faulty locks or hinges;</p> <p>(iii) inspect door seals for waterproofing and repair or replace any that are faulty;</p> <p>(iv) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose; and</p> <p>(v) check cabling for satisfactory anchorage and external condition of insulation. Repair or replace any defective anchorages or lengths of cable.</p>	Company
5	12	Inspect the internal condition of the mast to ensure that there is no obvious water, vegetation or vermin ingress. Also inspect for signs of current or indication of previous internal condensation.	Company
6	12	Carry out visual inspection of incoming cables and that the duct ends are sealed with expanded foam. Check base chamber infill. Ensure earth-bonding terminals within mast base compartment are secure and free from corrosion.	Company
7	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
8	-	Complete records for all above inspections and testing in the planned maintenance database. This database shall include details of revised asset evaluation and all faults reported including those passed to others	Company
<u>Type 1: Philips Mast (winch mechanism - Fellows Stringer)</u>			
9	12	Check winch in accordance with maintenance instructions.	Company
10	12	Grease winch mechanism.	Company
11	48	Undertake drop test.	Company
<u>Type 2: Philips Mast (winch mechanism - Install and Elder)</u>			
12	12	Check winch in accordance with maintenance instructions.	Company
13	12	Grease winch mechanism.	Company
14	48	Undertake drop test.	Company
<u>Type 3: Concrete Utilities</u>			
15	12	Check winch in accordance with maintenance instructions.	Company
16	12	Grease winch mechanism.	Company
17	48	Undertake drop test.	Company
<u>Type 4: Hinged Mechanism</u>			
18	12	Check operation of hinged mechanism.	Company
19	12	Lubricate hinge mechanism.	Company
<u>Type 5: Fixed Mechanism</u>			
20	12	Check security of camera mounting.	Company
<u>Type 6: Erskine Bridge (wind down)</u>			
21	12	Check winch in accordance with maintenance instructions.	Company
22	12	Grease winch mechanism.	Company
23	48	Undertake drop test.	Company

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1011**

Equipment Type: Electrical Distribution Pillar

Manufacturer: Various

Responsibilities: The Company has full responsibility with respect to this equipment.

General Note: Cabinets covered include Lucy, Haldo, JLT, Lounsdale.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	6	Inspect the external and internal labelling, including warning signs (DANGER 230V), and clean or replace if not readily operationally visible.	Company
4	6	Carry out the following: <ul style="list-style-type: none"> (i) clean and wash/wipe dirt/dust from equipment - ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved; (ii) examine the operation of all locks and hinges and where required lubricate. Repair or replace any faulty locks or hinges; (iii) inspect door seals for waterproofing and repair or replace any that are faulty; (iv) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose; (v) check cabling for satisfactory anchorage and external condition of insulation. Repair or replace any defective anchorages or 	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		lengths of cable. (vi) check structural condition and surface protective finish of cabinet and make good where faulty.	
5	6	Inspect the internal condition of the cabinet to ensure that there is no obvious water and vermin ingress. Also inspect for signs of current or indication of previous internal condensation. Report faults to the TSM&GW Contractor and repair where required.	Company
6	3	Carry out RCD test using the RCD integral TEST push button quarterly or as otherwise stated by the associated notice. See BS7671:1992 Regulation 514-12-02. Record the date and result of the test.	Company
7	12	Carry out routine check as BS7671:1992, Guidance Note 3 Table 2.1.4 and interim electrical inspection with no dismantling as inspection checklist Form F3 BS7671:1992. Reference should still be made to BS7671:1992 Chapters 73 and 74 together with the appropriate paragraphs in BS7671:1992, Appendix 6.	Company
8	60	Carry out the periodic electrical inspection and testing to the latest version of the IEE Wiring Regulations.	Company
9	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
10	-	Complete records for all above inspections and testing in the planned maintenance database. This database shall include details of revised asset evaluation and all faults reported including those passed to others.	Company

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1029**

Equipment Type: Motorway Access Control (MAC)

Manufacturer: Dambach

Responsibilities: In this Equipment Record (ER1029), the term "Maintained Equipment" shall mean Motorway Access Control (Dambach) and any components within and connected to the Motorway Access Control.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) soft and hard landscaping at the Works Site;
- (ii) infrastructure providing access at the Works Site; and
- (iii) reporting Faults and defects for which the TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) the Maintained Equipment unit;
- (ii) the supporting post and foundation;
- (iii) data and electrical cabling and internal electrical circuits;
- (iv) associated external cabling including cables/local ducting connected to other Maintained Equipment cabinets; and
- (v) reporting faults and defects, which the Company is responsible for.

Task Number	Frequency (months)	Description	Responsibility
1	-	At every visit to the Works Site of the Maintained Equipment, examine the condition of the general access to the Maintained Equipment cabinets and structures and report any faults and defects found to the Company where they would be responsible for such faults and defects, such as cracked paving, vegetation, debris, broken steps and the like.	TSM&GW Contractor
2	-	At every visit to the Maintained Equipment, report any Faults and defects found, physical or electrical, which could have an adverse effect on the safety of: (i) the personnel requiring to work within, on,	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		<p>or within the vicinity of, the Maintained Equipment;</p> <p>(ii) the general public; and</p> <p>(iii) the Maintained Equipment itself or the surrounding infrastructure.</p>	
3	6	<p>Carry out the following:</p> <p>(i) clean and wash/wipe dirt/dust from Maintained Equipment and ensure that any special instructions detailed in the Manufacturer's Documentation that relates to cleaning materials and the like are followed, especially where plastic surfaces are involved;</p> <p>(ii) examine the operation of all locks and hinges and lubricate where required; also repair or replace any locks or hinges that has a defect;</p> <p>(iii) inspect door seals for waterproofing and repair or replace any that has a defect;</p> <p>(iv) check the condition of the equipment earthing and bonding connections; also repair any that are has a defects;</p> <p>(v) check cabling for satisfactory anchorage and external condition of insulation; also repair or replace any anchorages or lengths of cable that has a defect; and</p> <p>(vi) inspect Maintained Equipment to ensure there is no indications of physical defect and that all lenses are in place.</p>	TSM&GW Contractor
4	6	Check address plug is fitted to Maintained Equipment.	TSM&GW Contractor
5	12	Inspect the internal condition of the Maintained Equipment to ensure that there is no obvious water, vegetation or vermin ingress. Also inspect for indications of current or previous internal condensation. Report Faults to the NADICS Fault Management System (FMS).	TSM&GW Contractor
6	6	Replace main Maintained Equipment lamps and standby Maintained Equipment lamps, if used.	TSM&GW Contractor
7	6	Interrogate Maintained Equipment Fault log to see if any matrix Faults have been recorded. If so, replace defect Maintained Equipment part to rectify.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
8	6	Operate Maintained Equipment from TSCC and ensure that the correct Maintained Equipment operates.	TSM&GW Contractor
9	6	Check heater switch in the controller and inside the Maintained Equipment, and set the Maintained Equipment to the correct settings. Also check the operation of the Maintained Equipment heater and adjust if required. Repair or replace any heater that has a defect. Then set the switches of the Maintained Equipment back to normal on completion of the test.	TSM&GW Contractor
10	12	Carry out Routine Checks as Guidance Note 3 to IEE Wiring Regulations of BS7671 and Interim Electrical Inspection with no dismantling as BS7671 1992 Appendix 6 Schedule of Inspections. Reference shall still be made to BS7671 1992 Regulations Chapters 73 and 74 together with the appropriate paragraphs in BS7671 1992 Regulations Appendix 6.	TSM&GW Contractor
11	60	Carry out the Periodic Electrical Inspection and Testing as detailed in the Latest version of IEE Wiring Regulations	TSM&GW Contractor
12	6	Check that the system clock is set to the correct time.	TSM&GW Contractor
13	24	Set legend on Maintained Equipment and carry out a drive past check to ensure the visibility of the Maintained Equipment.	TSM&GW Contractor
14	12	Undertake Asset Evaluation and update the records accordingly.	TSM&GW Contractor
15	-	Complete records for all above Inspections and Testing in the Asset Management System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1034**

Equipment Type: Copper termination pillar, fibre optic termination pillar and BT termination pillar (line power only).

Manufacturer:

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) has full responsibility with respect to this equipment which in addition to the cabinet includes all equipment mounting infrastructure;
- (ii) the multipair cable connecting infrastructure and fibre optic jointing infrastructure;
- (iii) the foundation of the cabinet in normal self supporting situation;
- (iv) soft and hard landscaping at equipment site;
- (v) infrastructure providing access at equipment site;
- (vi) infrastructure providing support to cabinet;
- (vii) reporting faults which the TSM&GW Contractor is responsible for.

The TSM&GW Contractor:

- (i) reporting all faults, for which the Company is responsible; and
- (ii) reporting all faults for which BT is responsible.

Communications Supplier (BT):

- (i) reporting faults for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At each visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of: (i) personnel requiring to work within, on or	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		<p>within the vicinity of, the equipment;</p> <p>(ii) the general public; and</p> <p>(iii) the driver information equipment itself or the surrounding infrastructure.</p>	
3	6	<p>Carry out the following:</p> <p>(i) clean and wash/wipe dirt/dust from equipment - ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved;</p> <p>(ii) examine the operation of all locks and hinges and where required lubricate. Repair or replace any faulty locks or hinges;</p> <p>(iii) check that the bitumen seal in base is still intact;</p> <p>(iv) inspect door seals for waterproofing and repair or replace any that are faulty;</p> <p>(v) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose; and</p> <p>(vi) check cabling for satisfactory anchorage and external condition of insulation. Repair or replace any defective anchorages or lengths of cable.</p>	Company
4	12	<p>Inspect the internal condition of the cabinet to ensure that there is no obvious water and vermin ingress, or current or indication of previous as well as internal condensation.</p> <p>Note: Where inductors and/or capacitors and/or 'solder through' connections are present these should be thoroughly inspected for secure fixings and wire jointing – all to conform to the 1500 Specification Series.</p>	Company
5	12	Check the condition of the equipment earthing and bonding connections.	Company
6	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
7	-	Complete records for all above inspections and testing in the planned maintenance database. This database shall include details of revised asset evaluation and all faults reported including those passed to others	Company

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1050**

Equipment Type: OTN Equipment at Node Site

Manufacturer:

Responsibilities: In this Equipment Record (ER1050), the term "Maintained Equipment" shall mean OTN Equipment at Node Site and any components within and connected to the OTN Equipment within Node Sites. This includes both OTN36 and OTN600.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) soft and hard landscaping at equipment site;
- (ii) infrastructure providing access at equipment site;
- (iii) all foundation and structural aspects of the equipment cabinet up to the final enclosure housing the electronic equipment;
- (iv) reporting faults for which the TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) all Maintained Equipment which includes all data cabling to other Maintained Equipment in the Maintained Equipment cabinet;
- (ii) reporting faults which the Company are responsible for.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment. (ii) the general public. (iii) the driver information equipment itself or 	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		the surrounding infrastructure	
3	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in Part 2 of Schedule 4 and update the records accordingly as required in Schedule 4 of the Agreement.	Company
4		Complete records for all above Inspections and Testing in the Asset Management System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Company
5		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	TSM&GW Contractor
6		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	TSM&GW Contractor
7	6	Check the Maintained Equipments are operating in accordance with Manufacturer's Documentation.	TSM&GW Contractor
8	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	TSM&GW Contractor
9	-	Complete records for all above Inspections and Testing in the Asset Management System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1061**

Equipment Type: Multi-pair copper cable

Manufacturer:

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company has full responsibility for this equipment.

The TSM&GW Contractor is responsible for reporting all faults, for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
4	-	Complete records for all above inspections and testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1062**

Equipment Type: Fibre Optic cable

Manufacturer:

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company has full responsibility for this equipment.

The TSM&GW Contractor is responsible for reporting all faults, for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
4	-	Complete records for all above inspections and testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1063**

Equipment Type: Ducting and Chambers

Manufacturer:

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) has full responsibility for all chambers and longitudinal / road crossing ducting; and
- (ii) has full responsibility for local ducting between Traffic Scotland equipment and Traffic Scotland cabinets.

The TSM&GW Contractor:

- (i) reporting faults, for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
4	-	Complete records for all above inspections and testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1069**

Equipment Type: ANPR Equipment

Manufacturer:

Responsibilities: In this Equipment Record (ER1069), the term "Maintained Equipment" shall mean Equipment at the Site and any components within the associated cabinet connected to the ANPR Equipment.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) soft and hard landscaping at equipment site;
- (ii) infrastructure providing access at equipment site;
- (iii) all foundation and structural aspects of the equipment cabinet up to the final enclosure housing the electronic equipment; and
- (iv) reporting faults for which the TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) all Maintained Equipment which includes all data cabling to other Maintained Equipment in the Maintained Equipment cabinet.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in Schedule 4 part 2 and update the records accordingly as required in	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		Schedule 4 of the Agreement.	
4		Complete records for all above Inspections and Testing in the Asset Management System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Company
5		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	TSM&GW Contractor
6		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	TSM&GW Contractor
7	6	Check the Maintained Equipments are operating in accordance with Manufacturer's Documentation.	TSM&GW Contractor
8	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	TSM&GW Contractor
9	-	Complete records for all above Inspections and Testing in the Asset Management System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1073**

Equipment Type: Road Restraint Systems

Manufacturer: -

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) has full responsibility for road restraint systems, fixings, connections and the earth electrode associated with the earthing of the road restraint system.

The TSM&GW Contractor:

- (i) reporting faults, for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an adverse effect on the safety of: <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	Company
3	6	Inspect the earth electrode and barrier fixing labelling and clean or replace if not readily operationally visible.	Company
4	6	Carry out the following: <ul style="list-style-type: none"> (i) check the condition of the road restraint system earth bonding connections. Repair any that are faulty/loose. Ensure connections are protected by Denso paste or similar. 	Company
5	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
6	-	Complete records for all above inspections and	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1074**

Equipment Type: Journey Time equipment Mast

Manufacturer: Various

Responsibilities: There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) soft and hard landscaping at equipment site;
- (ii) infrastructure providing access at equipment site;
- (iii) all foundation and structural aspects of the mast;
- (iv) any winch mechanism;
- (v) the security of the cradle and equipment mounted on it;
- (vi) reporting faults for which the TSM&GW Contractor is responsible;
- (vii) associated cabling within the Maintained Equipment together with any cabling/ducting connecting to any associated Maintained Equipment cabinets;
- (viii) all other fixed components of the and foundation; and
- (ix) the electrical distribution pillar where this is for the sole use of the equipment.

The TSM&GW Contractor:

- (i) reporting faults, for which the Company is responsible.

General Note: The Company shall ensure that their personnel have satisfactorily completed the "Specialist Training" essential for this maintenance.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At every visit to the equipment, report any fault found, physical or electrical, which could have an	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		adverse effect on the safety of: (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	
3	6	Carry out the following on the overall enclosure externally and internally up to the final enclosures housing the electronic equipment: (i) clean and wash/wipe dirt/dust from equipment – ensure that any special manufacturers instructions relating to cleaning materials etc are followed, especially where plastic surfaces are involved; (ii) examine the operation of all locks and hinges and where required lubricate using lithium based grease or similar. Repair or replace any faulty locks or hinges; (iii) inspect external door seals for waterproofing and repair or replace any that are faulty; (iv) check cabling for satisfactory anchorage and external condition of insulation. Report faults to the TSM&GW Contractor then replace any defective anchorages or lengths of cable; and (v) check the condition of the equipment earthing and bonding connections. Repair any that are faulty/loose.	Company
4	12	Visually inspect cabinets externally for defect, corrosion, vegetation and the like. Check identification label and warning 'flash' are in place and secure. Clean or replace if required. Ensure clearance from access concrete is sufficient to open cabinet door and check cabinet is stable and is secured to foundation. Repair as required.	Company
5	12	Inspect the internal condition of the mast to ensure that there is no obvious water, vegetation or vermin ingress. Also inspect for signs of current or indication of previous internal condensation.	Company
6	12	Carry out visual inspection of incoming cables and that the duct ends are sealed with expanded foam. Check base chamber infill. Ensure earth-bonding terminals within mast base compartment	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		are secure and free from corrosion.	
7	6	Lubricate door hinges, check locks, hinges and etc. on all access doors and lubricate where required. Ensure surplus grease/oil is removed.	Company
8	6	Clean lenses.	Company
9	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
10	-	Complete records for all above inspections and testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1086**

Equipment Type: Advanced Motorway Indicator - Variable Message Sign – used as MAC unit for the M80 Stepps to Higgs DBFO Contract.

Manufacturer: VMS Ltd (or Techspan)

Responsibilities: In this Equipment Record (ER1086), the term “Maintained Equipment” shall mean Advanced Motorway Indicator (AMI) type Variable Message Sign – gantry mounted (VMS Ltd) and any components connected to the AMI.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) the soft and hard landscaping at the Works Site;
- (ii) the infrastructure providing access at the Works Site;
- (iii) the foundation, the post substructure and superstructure with sign enclosure of the Maintained Equipment; and
- (iv) reporting Faults and defects for which the TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) this Maintained Equipment, which in addition to the internal integrity of the Maintained Equipment itself, this includes all Maintained Equipment mounting infrastructure, power distribution unit, heaters, thermostat all internal electrical circuits and electrical cabling to other Maintained Equipment within the Maintained Equipment;
- (ii) the associated external cabling including local ducting connected to other Maintained Equipment cabinets; and
- (iii) reporting faults and defects for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		Company shall then carry out all repairs to make good.	
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	Company
3	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	Company
4		Complete records for all above Inspections and Testing in the Asset Management System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Company
5	-	At every visit to the Works Site of this Maintained Equipment, the Contractor shall examine the condition of the general access to the Maintained Equipment cabinets and structures, and report any faults and defects found to the relevant Road Operating Company where they would be responsible for such faults and defects, such as cracked paving, vegetation, debris, broken steps and the like.	TSM&GW Contractor
6	-	At every visit to this Maintained Equipment, the Contractor shall report any Faults and defects found, physical or electrical, which could have an adverse effect on the safety of: (i) the personnel requiring to work within, on or in the vicinity of the Maintained Equipment; (ii) the general public; and/or (iii) the Maintained Equipment itself or the surrounding infrastructure.	TSM&GW Contractor
7	6	Inspect the external and internal labelling and clean or replace if not readily visible.	TSM&GW Contractor
8	6	Carry out the following: (i) clean and wash/wipe dirt/dust from Maintained Equipment following all special instructions detailed in the manufacturer's documentation i.e. VMS Ltd Maintenance	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		<p>Procedure contained within Volume 2 Chapter 1);</p> <p>(ii) check cabling for satisfactory anchorage of external cables and external condition of insulation, also repair or replace any defects of anchorages or lengths of cable; and</p> <p>(iii) check the condition of the Maintained Equipment, earthing and bonding connections, also repair any that are defects and/or loose.</p>	
9	6	<p>Carry out the following:</p> <p>(i) check local operation and status of the Maintained Equipment using the instructions detailed in the Manufacturer's Documentation, an Multi-Purpose Controller, the Contractor's portable computer and specific Maintained Equipment checking software;</p> <p>(ii) replace or rectify any Maintained Equipment that has a defect;</p> <p>(iii) retest locally and remotely; and</p> <p>(iv) report repairs made by himself into the FMS.</p>	TSM&GW Contractor
10	24	<p>Set all Maintained Equipment characters and carry out a subjective inspection of the characters visibility, both daytime and night time. The Contractor shall report any poor segments/characters brightness and/or any lack of uniformity to the FMS. Should this test indicate some segments/characters are outwith the normal operation of this Maintained Equipment, then accurate light output/reflectivity measurements are required.</p>	TSM&GW Contractor
11	3	<p>Carry out quarterly Residual Current Device testing, using the RCD integral "TEST" push button or as otherwise stated in BS7671 1992 Regulation 514-12-02. Record the date and result of the test.</p>	TSM&GW Contractor
12	12	<p>Carry out Routine Checks as stated in Guidance Note 3 to the IEE Wiring Regulations BS7671 and Interim Electrical Inspection with no dismantling as in BS7671 1992 Appendix 6 Schedule of Inspection.</p> <p>Reference shall still be made to BS7671 1992 Chapters 73 and 74 together with the appropriate</p>	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		paragraphs in BS7671 1992 Appendix 6.	
13	60	Carry out the Periodic Electrical Inspection and Testing as detailed in the latest edition of IEE Wiring Regulations.	TSM&GW Contractor
14	-	During each visit to the Works Site of the Maintained Equipment, carry out the following: <ul style="list-style-type: none"> (i) the Contractor shall record the Maintained Equipment and/or components therein that are used up from Spares Holding, excluding the consumables; (ii) remove the Maintained Equipment and/or component that exhibits a Fault from Works Site for further processing in Contractor's depot.; and (iii) repair works of defect Maintained Equipment or the replenishment of the Spare stock in accordance with the requirements. 	TSM&GW Contractor
15	12	Undertake asset evaluation and update the records.	TSM&GW Contractor
16	-	Complete records for all above Inspections and Testing in the Contractor's asset management system. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1087**

Equipment Type: Variable Message Sign (MS4)

Manufacturer: Various

Responsibilities: In this Equipment Record, the term “Maintained Equipment” shall mean MS4 type Variable Message Sign – gantry mounted (VMS Ltd) and any components connected to it.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) the soft and hard landscaping at the Works Site;
- (ii) the infrastructure providing access at the Works Site;
- (iii) the foundation, the post substructure and superstructure with sign enclosure of the Maintained Equipment; and
- (iv) reporting Faults and defects for which the TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) this Maintained Equipment, which in addition to the internal integrity of the Maintained Equipment itself, this includes all Maintained Equipment mounting infrastructure, power distribution unit, heaters, thermostat all internal electrical circuits and electrical cabling to other Maintained Equipment within the Maintained Equipment;
- (ii) the associated external cabling including local ducting connected to other Maintained Equipment cabinets; and
- (iii) reporting faults and defects for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	
3	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	Company
4		Complete records for all above Inspections and Testing in the Asset Management System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Company
5	-	At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	TSM&GW Contractor
6	-	At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	TSM&GW Contractor
7	6	Inspect the external and internal labelling and clean or replace if not readily visible.	TSM&GW Contractor
8	6	Carry out the following:- (i) Clean and wash/wipe dirt/dust from Maintained Equipment following all special instructions detailed in the manufacturer's documentation i.e. VMS Ltd Maintenance Procedure contained within Vol.2 Chap.1; (ii) Check cabling for satisfactory anchorage of external cables and external condition of insulation, also repair or replace any defects of anchorages or lengths of cable; (iii) Check the condition of the Maintained Equipment, earthing and bonding	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		connections, also repair any that are defects and/or loose.	
9	6	Carry out the following: (i) check local operation and status of the Maintained Equipment using the instructions detailed in the Manufacturer's Documentation, an Multi-Purpose Controller, the Contractor's portable computer and specific Maintained Equipment checking software; (ii) replace or rectify any Maintained Equipment that has a defect; (iii) retest locally and remotely; and (iv) report repairs made by himself into the FMS.	TSM&GW Contractor
10	24	Set all Maintained Equipment characters and carry out a subjective inspection of the characters visibility, both daytime and night time. The Contractor shall report any poor segments/characters brightness and/or any lack of uniformity to the FMS. Should this test indicate some segments/characters are outwith the normal operation of this Maintained Equipment, then accurate light output/reflectivity measurements are required.	TSM&GW Contractor
11	3	Carry out quarterly Residual Current Device testing, using the RCD integral "TEST" push button or as otherwise stated in BS7671 1992 Regulation 514-12-02. Record the date and result of the test.	TSM&GW Contractor
12	12	Carry out Routine Checks as stated in Guidance Note 3 to the IEE Wiring Regulations BS7671 and Interim Electrical Inspection with no dismantling as in BS7671 1992 Appendix 6 Schedule of Inspection. Reference shall still be made to BS7671 1992 Chapters 73 and 74 together with the appropriate paragraphs in BS7671 1992 Appendix 6.	TSM&GW Contractor
13	60	Carry out the Periodic Electrical Inspection and Testing as detailed in the latest edition of IEE Wiring Regulations.	TSM&GW Contractor
14	-	During each visit to the Works Site of the Maintained Equipment, carry out the following: (i) the Contractor shall record the Maintained Equipment and/or components therein that	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		<p>are used up from Spares Holding, excluding the consumables;</p> <p>(ii) remove the Maintained Equipment and/or component that exhibits a Fault from Works Site for further processing in Contractor's depot.; and</p> <p>(iii) repair works of defect Maintained Equipment or the replenishment of the Spare stock in accordance with the requirements.</p>	
15	12	Undertake asset evaluation and update the records.	TSM&GW Contractor
16	-	Complete records for all above Inspections and Testing in the Contractor's asset management System. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1089**

Equipment Type: ANPR Camera Head

Manufacturer:

Responsibilities: In this Equipment Record (ER1089), the term "Maintained Equipment" shall mean ANPR Camera (PIPS) and any components within and connected to the Camera.

The Company has no responsibility for this equipment.

The TSM&GW Contractor is responsible for the following:

- (i) all electrical Maintained Equipment and associated cabling within and on the Maintained Equipment/mast structure together with any cabling/local ducting connecting to any other Maintained Equipment cabinets associated with the Maintained Equipment; and
- (ii) fixings of Maintained Equipment housing/assembly to wind down carriage.

General Note: As a general note, the Maintained Equipment masts associated with this Maintained Equipment are covered by Equipment Record ER1074.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	TSM&GW Contractor
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : <ul style="list-style-type: none"> (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure. 	TSM&GW Contractor
3	6	Using suitable access, check the following: <ul style="list-style-type: none"> (i) seals in good condition; 	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		(ii) Maintained Equipment lens is clean; (iii) where fitted focus and auto-iris operation; ensure correct operation of manual iris over-ride and an adequate video signal output from Maintained Equipment; and (iv) where fitted pan and tilt head operation; check bearings for excessive wear and ensure seals are in good condition.	
4	12	Check hinges, seals and the like on Maintained Equipment case access doors and lubricate or replace where required. Ensure surplus grease/oil is removed.	TSM&GW Contractor
5	12	Check that the fixings for the Maintained Equipment assembly are secure to mast wind down carriage.	TSM&GW Contractor
6	12	Carry out visual inspection of the cables/connectors to the Maintained Equipment case.	TSM&GW Contractor
7	12	Undertake asset evaluation and update the records.	TSM&GW Contractor
8	-	Complete records for all above Inspections and Testing in the Contractor's asset management system. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1090**

Equipment Type: AMI Controller

Manufacturer:

Responsibilities: In this Equipment Record (ER1090), the term "Maintained Equipment" shall mean AMI Controller Equipment at the AMI site and any components connected to the equipment.

The Company has no responsibility for this equipment

The TSM&GW Contractor is responsible for the following:

- (i) all Maintained Equipment which includes all data cabling to other Maintained Equipment in the Maintained Equipment cabinet.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	TSM&GW Contractor
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	TSM&GW Contractor
3	6	Check the Maintained Equipments are operating in accordance with Manufacturer's Documentation.	TSM&GW Contractor
4	12	Undertake asset evaluation and update the records.	TSM&GW Contractor
5	-	Complete records for all above Inspections and Testing in the Contractor's asset management system. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1091**

Equipment Type: MS4 Controller

Manufacturer:

Responsibilities: In this Equipment Record (ER1091), the term "Maintained Equipment" shall mean MS4 VMS Controller Equipment contained within the adjacent cabinet at MS4 VMS Sites and any components within and connected to the equipment.

The Company has no responsibility for this equipment.

The TSM&GW Contractor is responsible for the following:

- (i) all Maintained Equipment which includes all data cabling to other Maintained Equipment in the Maintained Equipment cabinet.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	TSM&GW Contractor
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	TSM&GW Contractor
3	6	Check the Maintained Equipments are operating in accordance with Manufacturer's Documentation.	TSM&GW Contractor
4	12	Undertake asset evaluation and update the records.	TSM&GW Contractor
5	-	Complete records for all above Inspections and Testing in the Contractor's asset management System. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1092**

Equipment Type: HA 354 Emergency Telephones

Manufacturer: Gai-Tronics Ltd

Responsibilities: In this Equipment Record (ER1092), the term "Maintained Equipment" shall mean HA 354 Emergency Telephones (Gai-Tronics Ltd) and any components within and connected to these Emergency Telephones. There are shared responsibilities with respect to this equipment, as outlined below:

The Company:

- (i) all Maintained Equipment which in addition to the integrity of the Maintained Equipment itself includes all Maintained Equipment mounting infrastructure, cabling to other Maintained Equipment within the Maintained Equipment;
- (ii) the foundation of the Maintained Equipment post in normal self supporting situation;
- (iii) the associated external cabling including cables/local ducting connected to other Maintained Equipment cabinets;
- (iv) soft and hard landscaping at the equipment site;
- (v) infrastructure providing access at the equipment site;
- (vi) infrastructure providing support to Maintained Equipment post/ Maintained Equipment; and
- (vii) reporting faults and defects which the TSM&GW Contractor is responsible for.

The TSM&GW Contractor:

- (i) reporting faults for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1	-	At each visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2	-	At each visit to the equipment, report any fault	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		found, physical or electrical, which could have an adverse effect on the safety of: (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	
3	1	Check that the equipment site identification and "SOS" external labels are in place and secure. Check internal instructions and internal identification labels are fitted. Clean labels or replace where required.	Company
4	1	Visually inspect the Maintained Equipment housing and handset Maintained Equipment such as curly cord, door seal, 'off hook' microswitch actuator, incoming quad cable termination and the like for defect, vandalism, wear and/or water/vermin ingress. Check that Maintained Equipment housing and support pole are secure.	Company
5	14 days	Make calls from all Maintained Equipment positions and receive calls from the Police control centre. When making calls, confirm the following with the operator in the Police control centre: (i) the identification number of the Maintained Equipment is correctly confirmed by the instation Maintained Equipment; (ii) the instation Maintained Equipment gives the correct visual/ audible indication for the incoming call; and (iii) the speech levels are satisfactory. Also, ensure that the Maintained Equipment, within the outstation housing, rings at an acceptable level during 'call-back' by the operator at the Police control centre, and that the outstation speech levels are adequate.	Company
6	1	Clean and disinfect Maintained Equipment housing interiors and handsets. Lubricate housing door hinges when required. The Company shall ensure no surplus lubricant is exposed.	Company
7	1	Confirm safe public access is provided to the Maintained Equipment, and check for broken/distorted slabs/concrete, debris, damaged barriers where fitted ensure no sharp edges/projections or similar, broken chamber covers, vegetation and the like.	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
8	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in paragraph 6.1.2 and update the records accordingly as required in these O&M Works Requirements.	Company
9	-	Complete records for all above inspections and testing in the asset management system. This database shall include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1094**

Equipment Type: All-Purpose Gantry Variable Message Sign (MS4)

Manufacturer: Techspan Ltd

Responsibilities: In this Equipment Record, the term "Maintained Equipment" shall mean MS4 type All-Purpose Gantry Variable Message Sign i.e. gantry mounted (Techspan Ltd) and any components connected to it.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) the soft and hard landscaping at the Works Site;
- (ii) the infrastructure providing access at the Works Site;
- (iii) the foundation, the post substructure and superstructure with sign enclosure of the Maintained Equipment; and
- (iv) reporting Faults and defects for which the TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) this Maintained Equipment, which in addition to the internal integrity of the Maintained Equipment itself, this includes all Maintained Equipment mounting infrastructure, power distribution unit, heaters, thermostat all internal electrical circuits and electrical cabling to other Maintained Equipment within the Maintained Equipment;
- (ii) the associated external cabling including local ducting connected to other Maintained Equipment cabinets; and
- (iii) reporting faults and defects for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	Company
3	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	Company
4		Complete records for all above Inspections and Testing in the Asset Management System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Company
5	-	At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	TSM&GW Contractor
6	-	At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	TSM&GW Contractor
7	6	Inspect the external and internal labelling and clean or replace if not readily visible.	TSM&GW Contractor
8	6	Carry out the following: (i) Clean and wash/wipe dirt/dust from Maintained Equipment following all special instructions detailed in the manufacturer's documentation i.e. VMS Ltd Maintenance Procedure contained within Vol.2 Chap.1; (ii) Check cabling for satisfactory anchorage of external cables and external condition of insulation, also repair or replace any defects of anchorages or lengths of cable; (iii) Check the condition of the Maintained	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		Equipment, earthing and bonding connections, also repair any that are defects and/or loose.	
9	6	Carry out the following:- (i) check local operation and status of the Maintained Equipment using the instructions detailed in the Manufacturer's Documentation, an Multi-Purpose Controller, the Contractor's portable computer and specific Maintained Equipment checking software; (ii) replace or rectify any Maintained Equipment that has a defect; (iii) retest locally and remotely; and (iv) report repairs made by himself into the FMS.	TSM&GW Contractor
10	24	Set all Maintained Equipment characters and carry out a subjective inspection of the characters visibility, both daytime and night time. The Contractor shall report any poor segments/characters brightness and/or any lack of uniformity to the FMS. Should this test indicate some segments/characters are outwith the normal operation of this Maintained Equipment, then accurate light output/reflectivity measurements are required.	TSM&GW Contractor
11	3	Carry out quarterly Residual Current Device testing, using the RCD integral "TEST" push button or as otherwise stated in BS7671 1992 Regulation 514-12-02. Record the date and result of the test.	TSM&GW Contractor
12	12	Carry out Routine Checks as stated in Guidance Note 3 to the IEE Wiring Regulations BS7671 and Interim Electrical Inspection with no dismantling as in BS7671 1992 Appendix 6 Schedule of Inspection. Reference shall still be made to BS7671 1992 Chapters 73 and 74 together with the appropriate paragraphs in BS7671 1992 Appendix 6.	TSM&GW Contractor
13	60	Carry out the Periodic Electrical Inspection and Testing as detailed in the latest edition of IEE Wiring Regulations.	TSM&GW Contractor
14	-	During each visit to the Works Site of the Maintained Equipment, carry out the following: (i) the Contractor shall record the Maintained Equipment and/or components therein that	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		<p>are used up from Spares Holding, excluding the consumables;</p> <p>(ii) remove the Maintained Equipment and/or component that exhibits a Fault from Works Site for further processing in Contractor's depot.; and</p> <p>(iii) repair works of defect Maintained Equipment or the replenishment of the Spare stock in accordance with the requirements.</p>	
15	12	Undertake asset evaluation and update the records.	TSM&GW Contractor
16	-	Complete records for all above Inspections and Testing in the Contractor's asset management system. This database must include details of revised asset evaluation and all Faults and defects reported.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1095**

Equipment Type: Multi-Purpose TMU Non-Paknet (MPTMU)

Manufacturer: Golden River

Responsibilities: In this Equipment Record (ER1035), the term "Maintained Equipment" shall mean Multi-Purpose TMU Non-Paknet (Golden River) and any components within and connected to the TMU Non-Paknet.

The Company has no responsibility with respect to this Maintained Equipment

The TSM&GW Contractor:

- (i) The Contractor has full responsibility with respect to this Maintained Equipment.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	TSM&GW Contractor
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	TSM&GW Contractor
3	6	Visually inspect Maintained Equipment for obvious indications of defect.	TSM&GW Contractor
4	6	Shall Check detector card LEDs for correct operation.	TSM&GW Contractor
5	12	Log on to Maintained Equipment using the Contractor's OSP+ and check Maintained Equipment status.	TSM&GW Contractor
6	12	Undertake asset evaluation and update the records.	TSM&GW Contractor
7	-	Complete records for all above Inspections and Testing in the Contractor's asset management system. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1096**

Equipment Type: Lane Control Unit (LCU) Variable Message Sign (MS4)

Manufacturer: Techspan Ltd

Responsibilities: In this Equipment Record, the term “Maintained Equipment” shall mean MS4 type LCU Variable Message Sign – gantry mounted (Techspan Ltd) and any components connected to it.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) the soft and hard landscaping at the Works Site;
- (ii) the infrastructure providing access at the Works Site;
- (iii) the foundation, the post substructure and superstructure with sign enclosure of the Maintained Equipment; and
- (iv) reporting Faults and defects for which the TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) this Maintained Equipment, which in addition to the internal integrity of the Maintained Equipment itself, this includes all Maintained Equipment mounting infrastructure, power distribution unit, heaters, thermostat all internal electrical circuits and electrical cabling to other Maintained Equipment within the Maintained Equipment;
- (ii) the associated external cabling including local ducting connected to other Maintained Equipment cabinets; and
- (iii) reporting faults and defects for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment: (ii) the general public: and (iii) the driver information equipment itself or the surrounding infrastructure.	Company
3	12	Undertake asset evaluation for the Traffic Scotland equipment detailed in Schedule 4 part 2 and update the records accordingly as required in Schedule 4 of the Agreement.	Company
4		Complete records for all above Inspections and Testing in the Asset Management System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	Company
5	-	At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	TSM&GW Contractor
6	-	At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	TSM&GW Contractor
7	6	Inspect the external and internal labelling and clean or replace if not readily visible.	TSM&GW Contractor
8	6	Carry out the following: (i) Clean and wash/wipe dirt/dust from Maintained Equipment following all special instructions detailed in the manufacturer's documentation i.e. VMS Ltd Maintenance Procedure contained within Vol.2 Chap.1; (ii) Check cabling for satisfactory anchorage of external cables and external condition of insulation, also repair or replace any defects of anchorages or lengths of cable; (iii) Check the condition of the Maintained	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		Equipment, earthing and bonding connections, also repair any that are defects and/or loose.	
9	6	Carry out the following:- (i) check local operation and status of the Maintained Equipment using the instructions detailed in the Manufacturer's Documentation, an Multi-Purpose Controller, the Contractor's portable computer and specific Maintained Equipment checking software; (ii) replace or rectify any Maintained Equipment that has a defect; (iii) retest locally and remotely; and (iv) report repairs made by himself into the FMS.	TSM&GW Contractor
10	24	Set all Maintained Equipment characters and carry out a subjective inspection of the characters visibility, both daytime and night time. The Contractor shall report any poor segments/characters brightness and/or any lack of uniformity to the FMS. Should this test indicate some segments/characters are outwith the normal operation of this Maintained Equipment, then accurate light output/reflectivity measurements are required.	TSM&GW Contractor
11	3	Carry out quarterly Residual Current Device testing, using the RCD integral "TEST" push button or as otherwise stated in BS7671 1992 Regulation 514-12-02. Record the date and result of the test.	TSM&GW Contractor
12	12	Carry out Routine Checks as stated in Guidance Note 3 to the IEE Wiring Regulations BS7671 and Interim Electrical Inspection with no dismantling as in BS7671 1992 Appendix 6 Schedule of Inspection. Reference shall still be made to BS7671 1992 Chapters 73 and 74 together with the appropriate paragraphs in BS7671 1992 Appendix 6.	TSM&GW Contractor
13	60	Carry out the Periodic Electrical Inspection and Testing as detailed in the latest edition of IEE Wiring Regulations.	TSM&GW Contractor
14	-	During each visit to the Works Site of the Maintained Equipment, carry out the following: (i) the Contractor shall record the Maintained	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Task Number	Frequency (months)	Description	Responsibility
		<p>Equipment and/or components therein that are used up from Spares Holding, excluding the consumables;</p> <p>(ii) remove the Maintained Equipment and/or component that exhibits a Fault from Works Site for further processing in Contractor's depot.; and</p> <p>(iii) repair works of defect Maintained Equipment or the replenishment of the Spare stock in accordance with the requirements.</p>	
15	12	Undertake asset evaluation and update the records.	TSM&GW Contractor
16	-	Complete records for all above Inspections and Testing in the Contractor's asset management System. This database must include details of revised asset evaluation and all faults and defects reported, including those passed to others.	TSM&GW Contractor

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER1097**

Equipment Type: Transmission Building

Manufacturer:

Responsibilities: In this Equipment Record (ER1097), the term “Maintained Equipment” shall mean Transmission Building and any components within.

There are shared responsibilities with respect to this Maintained Equipment, as outlined below:

The Company:

- (i) the soft and hard landscaping at the Works Site;
- (ii) the infrastructure providing access at the Works Site;
- (iii) reporting Faults and defects for which the TSM&GW Contractor is responsible.

The TSM&GW Contractor:

- (i) the structure and all equipment housed within this Maintained Equipment; and
- (ii) reporting all faults and defects for which the Company is responsible.

Task Number	Frequency (months)	Description	Responsibility
1		At every site visit to the equipment, examine the condition of the general access to the equipment cabinets and structures e.g. cracked paving, vegetation, debris, broken steps etc. The Company shall then carry out all repairs to make good.	Company
2		At every visit to the equipment, report any fault found , physical or electrical, which could have an adverse effect on the safety of : (i) personnel requiring to work within, on or within the vicinity of, the equipment; (ii) the general public; and (iii) the driver information equipment itself or the surrounding infrastructure.	Company
3	12	Undertake asset evaluation for the Traffic Scotland equipment.	Company
4		Complete records for all above Inspections and Testing in the asset management system. This database must include details of revised asset evaluation and all faults and defects reported including those passed to others.	Company

Appendix I : Planned Maintenance Guidelines

Equipment Record Number: **ER3013**

Equipment Type: Multi Purpose Controller (MPC)

Manufacturer: Traffic Scotland

Responsibilities: In this Equipment Record (ER3013), the term "Maintained Equipment" shall mean Multi Purpose Controller (NADICS) and any components within and connected to the Multi Purpose Controller.

The Company has no responsibility with respect to this maintained equipment.

The TSM&GW Contractor has full responsibility with respect to this Maintained Equipment, which includes all data cabling to other Maintained Equipment.

General Note: As a general note, this Maintained Equipment is also related to Equipment Record ER1003.

Task Number	Frequency (months)	Description	Responsibility
1	-	Undertake Planned Maintenance in accordance with the Manufacturer's Documentation.	TSM&GW Contractor
2	12	Check inter Maintained Equipment communication links.	TSM&GW Contractor
3	6	Visually check all cabling for labelling and any obvious external indication of a defect.	TSM&GW Contractor
4	36	Replace memory backup battery.	TSM&GW Contractor
5	12	Undertake Asset Evaluation and update records accordingly as required.	TSM&GW Contractor
6	-	Complete records for all above Inspections and Testing in the Asset Management System. This database must include details of revised Asset Evaluation and all Faults and defects reported including those passed to others, such as the Network Operations Manager.	TSM&GW Contractor

Appendix J : Specification of Requirements for Company's Dedicated Computer for Traffic Scotland Roadworks Diary and Special Events Diary

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

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Create NADICS Events Information

Commence Date: Commence Time:

Start Date: Start Time:

End Date: End Time:

Entered By: When:

Event Name:

Event Location:

Event Details:

300 characters remaining on your input limit

Event Contact Details:

Events Diary Summary Current : Future :

ID	Event Name	Start	End	Entered by	When	
62	Bennett's British Superbike Championship	15/07/06 00:01:00	16/07/06 00:59:00	Mhairi Kirk	Each Day	<input type="button" value="Review"/>
59	Golf - Barclay's Scottish Open	12/07/06 00:01:00	16/07/06 00:59:00	Mhairi Kirk	Each Day	<input type="button" value="Review"/>
45	T in the Park	08/07/06 00:01:00	09/07/06 00:59:00	Mhairi Kirk	Each Day	<input type="button" value="Review"/>