SCHEDULE 4: O&M REQUIREMENTS

PART 2 : O&M WORKS

CONTENTS **Page No**

1. Routine and Cyclic Maintenance : Management

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PART 2 : O&M WORKS

1. ROUTINE AND CYCLIC MAINTENANCE: MANAGEMENT

1.1 Introduction

1.1.1 This Section of Part 2 of this Schedule 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 Site.

1.1.2 The said maintenance requirements and procedures include the management of and procedural requirements for a range of activities which shall generally be cyclical or short term in nature and necessary to keep the road in a reasonable and safe working condition and safeguard its environment.

1.1.3 There may be instances where the requirements shall require to be varied to take account of local conditions. Such local variations shall be subject to recommendation in writing by the Company and the prior written consent to such of ERC.

1.1.4 This Section of Part 2 of this Schedule does not cover major capital structural maintenance for the replacement or renewal of worn-out road pavements although the procedural requirements may assist pavement management.

1.1.5 This Section of Part 2 of this Schedule does not apply to the routine inspection of structural elements of bridges or ancillary structures falling within the scope of BD 63 of the DMRB Volume 3, Section 1, Part 4. The inspection by the Company of non-structural aspects of bridges or ancillary Structures shall be carried out at the same frequency as inspections for these aspects on the road under or over which they pass.

1.2 Routine and Cyclic Maintenance Management System

1.2.1 General

a) The Company shall implement and monitor and record procedures for the routine maintenance of the roads using a Routine Maintenance and Management System (RMMS) consented to by ERC. Data shall be collected using electronic data capture devices.

b) The Company shall provide and maintain facilities as necessary which shall allow ERC and the Scottish Ministers to access and interrogate the RMMS remotely at any time.

1.2.2 RMMS Requirements

a) The requirements of an RMMS shall include but not be limited to the following facilities

(i) to hold and be capable of updating records of the road network definition as specified at 1.4 of Part 1 of this Schedule

(ii) to record and manage inventory data

(iii) to record road network information for the O & M Site. All road network information for the O & M Site and inventory items shall be date stamped in order that a historic record can be maintained within the database

(iv) to take details of safety and detailed inspections and convert them into a programme of Operations. All Defects and inspections data shall be automatically date and time stamped by the data capture devices software

(v) the method of inspection (on foot or in vehicle) shall be recorded

(vi) to produce lists of outstanding Defects grouped together by date, category, activity or Defect

(vii) to record details of all inspections and operations including dates and locations

(viii) to have the facility to audit performance against all standards and timescales defined in Part 2 of this Schedule

(ix) to have an archiving feature to maintain records

(x) to have the ability to accept historical data in a standard format (for example American Standard Code for Information Interchange or comma separated files) at the Restricted Services Commencement Date and to download such data in a standard format at the Agreement Expiry Date

(xi) to have the facility to allow Defects to be recategorised by the Company

(xii) to allow the RMMS software to operate on a multi-user basis which shall be configured to allow unrestricted access by ERC and the Scottish Ministers at any time

(xiii) to have a report writing and viewing facility of both the standard reports included in Annex 1.2/A to Part 2 of this Schedule and ad-hoc reports

b) A number of RMMS packages are commercially available for use on a range of hardware platforms. Any such system shall be acceptable to ERC if it shall comply with the other provisions of Part 2 of this Schedule and shall satisfy an independent data storage and retrieval integrity audit. It shall be for the Company to sponsor the testing of any RMMS and data capture device package to the satisfaction of ERC. Data capture device software shall be fully compatible with the RMMS software and shall take into account any adaptions to standard RMMS software to meet the requirements of this Part 2 of this Schedule.

c) Any RMMS software proposed by the Company shall be capable of outputting all RMMS data obtained during the Services Period in a recognised standard electronic format (for example American Standard Code for Information Interchange or comma separated files). This data, shall on the Agreement Expiry Date and at such other times as required by ERC, be downloaded by the Company and passed to ERC.

d) Features and functions designed into the RMMS database by the Company shall allow assessment of the Company's performance by means of audit reports as specified in Annex 1.2/A to Part 2 of this Schedule.

e) The Company shall validate all data for correctness and completeness before it shall be loaded into the RMMS.

f) The Company shall ensure that the RMMS shall support evidence for fatal accident inquiries and for the consideration of damages claims by third parties which shall arise as a result of an alleged Defect on the O & M Site.

g) Subject to the other provisions of the Agreement the RMMS shall be maintained by the Company such that any data collected shall be incorporated within the RMMS no later than 4 days after collection.

h) The data from RMMS shall be accessible by ERC and the Scottish Ministers at any time and when requested in writing by ERC reports from the database shall be prepared by the Company and forwarded within 7 days to ERC.

1.2.3 RMMS Software Principal Modules

The RMMS software shall have 6 principal modules as follows

(1) Network
(2) Inventory
(3) Frequency of Inspections
(4) Inspections
(5) Cyclic Maintenance
(6) Operatives Instruction Interface

a) Network

The O & M Site network that shall be managed by the Company shall be defined to enable unique identification of any location. The RMMS shall use the Computerised System for Highway Maintenance Assessment by Ratings and Treatments (CHART) location referencing system which defines any position on the O & M Site network by link identifier section number chainage and cross-sectional position.

b) Inventory

(i) An inventory of items of road infrastructure and furniture is part of the RMMS. The inventory items that shall be collected and stored by the Company shall be as specified in Annex 1.2/B to Part 2 of this Schedule.

(ii) Prior to the Restricted Services Commencement Date, the Company shall input the inventory for the O & M Site into the RMMS database

(iii) Additional inventory shall be added by the Company if the range of infrastructure changes. The Company shall record and maintain within the RMMS any changes to the inventory excluding items installed by the Statutory Undertakers operating within the NRSWA. All such inventory change shall be recorded within 7 days of them occurring and then shall be logged on to the RMMS within 28 days.

c) Frequency of Inspections

(i) Safety inspections shall be carried out on a 7 day cycle and detailed inspections shall be governed by the particular maintenance activity. Detailed inspections shall be undertaken within 14 days of the due inspection date.

(ii) At least 8 weeks prior to the Restricted Services Commencement Date the Company shall submit an inspection programme for the following calendar year and thereafter at annual intervals for the O & M Site to ERC.

d) Inspections

The Company shall ensure the RMMS shall use standardised records of inspections which also register subsequent decisions and actions. The same type of record shall be used for reports and complaints from third parties. Data capture devices shall use adapted standard data capture programs which shall enable consistent recording of inspections using check lists derived from those given in Annex 1.2/B to Part 2 of this Schedule which specifies the items to be inspected and Defects to be reported. The data capture programs shall also enable all relevant factors to be recorded including, but not limited to, the initials of the inspector, weather conditions, road surface conditions and the manner of inspection. Safety inspection data shall be downloaded by the Company on to the RMMS database within 24 hours of the survey having been completed and detailed inspection data including nil returns shall be entered on to the RMMS within 4 days of the inspection having been undertaken.

e) Cyclic Maintenance

The RMMS shall be used to record cyclic maintenance inspection reports together with the actual programme of remedial works when these reports prompt the undertaking of Operations and maintenance works. All cyclic maintenance activities shall be located by the Company using the network referencing system.

f) Operations Instruction Interface

(i) The Company shall ensure that their operations instruction interface shall provide the facility to review recorded Defects periodically to group them together according to the appropriate programs of operations and to interact with a system for instructing Defect repairs. Details of operations instructions issued (including the RMMS Defect number) and subsequently completed, dates and locations shall be held in the RMMS.

(ii) The Company shall actively monitor its performance in relation to the operations instructions issued and the time taken to complete such instructions. Notwithstanding any other provisions of the Agreement a summary of these findings shall be submitted in each of the Company's monthly reports to ERC.

1.2.4 RMMS Access Facilities

a) The Company shall provide direct links from its RMMS, to a stand alone personal computer terminal at ERC's office and the Scottish Ministers office 28 days prior to the Restricted Services Commencement Date. The Company shall provide and maintain 2 functional personal computers exclusively for this function. This system shall be configured in such a way that access shall be available on a read only basis to ERC and the Scottish Ministers to all elements/modules of the RMMS at any time without prior notice. ERC and the Scottish Ministers shall be able to create and save reports from the system.

b) The links specified in paragraph 1.2.4 (a) of Part 2 of this Schedule shall use ISDN lines but without the need for specialist routers or bridges. The Company shall provide communications hardware and software for the links including that required at the terminals. The links may make use of dial-up networking, extranets (virtual private networks) or other such protocols. At least 8 weeks prior to the Restricted Services Commencement Date, the Company shall submit such proposals to ERC for written consent. The Company shall ensure that any breakdown or failure of the links at either terminal shall be rectified within 10 days. Such responsibility shall not extend to the personal computer terminals not provided by the Company.

c) The links shall include facilities to print reports at the terminals. All reports shall be capable of being exported in standard comma separated files together with textual reports formats.

1.2.5 Defect Categories and Response Times

Defects shall fall into one of the following categories

a) Category 1 Defects

(i) Those Defects that shall require prompt attention because they represent an immediate or imminent hazard shall be classified as Category 1.1. Those which present a potential hazard or where there is risk of rapid structural deterioration shall be classified as Category 1.2. When classifying Defects, the Company shall give consideration to the potential impact upon all road users including but not limited to pedestrians, cyclists and motorcyclists.

(ii) Category 1.1 Defects shall be made safe at the time of inspection if practicable. Making safe shall as a minimum constitute displaying warning signs, coning or fencing off or other measures to protect the public and other users of the O & M Site. Where a Category 1.1 Defect cannot be effectively barriered off by the Company, its inspection team shall use the vehicle communication system to issue an operations instruction for work to be carried out as an emergency. The Company shall carry out temporary or permanent repairs within 24 hours of the identification of the Defect to all Category 1 Defects.

(iii) All Category 1.1 and Category 1.2 Defects shall be permanently repaired within 28 days of the identification of the Defect on the O & M Site unless otherwise specified in Part 2 of this Schedule.

(iv) The Company shall not be permitted to recategorise Category 1.1 or 1.2 Defects as Category 2 after the completion of a temporary repair. Category 1 Defects shall remain within that category until the permanent repair shall have been carried out or shall not be required.

b) Category 2 Defects

(i) Category 2 Defects are those which are not Category 1 Defects but

(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
(E) constitute an environmental threat

The Company shall assign levels of priority to all Category 2 Defects – high, medium or low. Defects shall be categorised as 2.1, 2.2 or 2.3

High – Category 2.1	Defects shall be permanently repaired within 28 days
Medium – Category 2.2	Defects shall be permanently repaired within 24 weeks
Low – Category 2.3	Defects shall be noted and incorporated within planned programme of operations.

(ii) Category 2 Defects shall be repaired by the Company within planned programmes of operations where possible taking account of the relevant priority for repair (which shall be recorded within the RMMS).

(iii) Identified maintenance activities shall be carried out by the Company within the stated response times unless separately specified in Section 2 of Part 2 of this Schedule.

1.3 Inspections

1.3.1 Inspections shall commence during the first month of the Restricted Services Commencement Date.

1.3.2 The Company shall carry out the following types of inspections

a) Safety Patrols
b) Safety Inspections
c) Detailed Inspections
d) Night Inspections

The Company shall operate procedures whereby any of its staff and employees travelling within the O & M Site shall report any Defects observed.

1.3.3 Table 1.3 details the requirements for each Inspection Category.

Safety Patrol Frequency	Every 7 days midway between Safety Inspections
Safety Inspection Frequency	Every 7 days
Night Inspections	April to Sept – Every 28 days Oct to March – Every 14 days (Also as paragraph 1.7.2)
Detailed Inspections	As Schedule 4 Part 2 Section 1 Annex 1.2/B Paragraph 4.2.1

Table 1.3 Safety Inspection and Patrol Frequencies

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 1.1 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. It may be appropriate in certain instances for safety patrols to be undertaken on foot.

1.4.3 Any debris less than 25kg shall be removed immediately by the Company. Other hazards which shall be observed shall be removed or corrected immediately or protected and reported in the same manner as Defects discovered by a safety inspection. These shall be recorded on the RMMS database as Category 1.1 Defects within 24 hours of the patrol having being 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. Entry on to the RMMS database (except in the reporting of Category 1 Defects) shall be required.

1.5 Safety Inspection

1.5.1 Programmed safety inspections shall be designed primarily to identify Category 1 Defects. Safety inspections which shall include inspections of both carriageways and adjoining footways shall be except as specified in paragraph 1.5.2 of Part 2 of this Schedule mobile inspections carried out from slow moving vehicles. Safety inspections shall be carried out by

the Company using trained personnel operating as a two man team. Personnel undertaking safety inspections shall deal with debris and hazards as specified in paragraph 1.4.3 of Part 2 of this Schedule.

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 working day.

1.5.4 Category 1 Defects encountered by the Company shall be dealt with as set out in paragraph 1.2.5 (a) of Part 2 of this Schedule. Safety inspection personnel shall also record other obvious Defects. Annex 1.2/B of Part 2 of this Schedule gives a schedule of examples of Defects that should be recorded by the Company.

1.5.5 The vehicle that should be used for safety inspections shall as a minimum meet the following requirements:

a) it shall be conspicuously coloured with a sign attached at the rear stating "ROAD SURVEY"

b) it shall be fitted with roof mounted light bars or at least two amber flashing beacons

c) it shall be fitted with an automatic distance recorder reading to 1m intervals and accurate to 1 percent.

d) it shall be fitted with a communication system which allows immediate contact to be made with the appropriate depot

e) it shall carry signs and cones, to allow 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 Part 2 of this Schedule 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 carriageway of the O & M Site.

1.6 Detailed Inspection Requirements

1.6.1 Detailed inspections shall be walking inspections which shall be carried out at less frequent intervals than safety inspections and shall be designed to establish programmes of routine maintenance tasks not requiring urgent execution.

1.6.2 Requirements for the detailed inspection of each activity are as specified in Section 2 of Part 2 of this Schedule and the standards referred to therein. Except where stated in paragraph 4 of Annex 1.2/B to Part 2 of this Schedule hereafter inspections shall take place at intervals of 1 year no later than 14 days after of anniversary of the previous inspection.

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 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 hardshoulder grass verge or nearside lane as appropriate.

1.6.5 Additional detailed inspections by the Company shall be carried out from the central reserve with 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 the offside lanes of the carriageway including the roadmarkings and road studs of such lanes, shall be inspected.

1.6.6 Annex 1.2/B of Part 2 of this Schedule 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 inspections 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 requirements following a detailed inspection shall be stated in paragraph 1.2.5 of Part 2 of this Schedule and any additional maintenance requirements identified under each appropriate activity heading set out in paragraph 4 of Annex 1.2/B to Part 2 of this Schedule or paragraph 2 of Part 2 of this Schedule.

1.7 Night Inspections

1.7.1 The Company shall carry out night inspections along illuminated sections of the O & M Site from moving vehicles after dark at intervals not exceeding 28 days during April to September inclusive and 14 days during October to March inclusive of each annual period. 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 Site to report on the condition of road studs and subjectively assess the retroreflectivity of signs and road markings during darkness.

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 that shall be used shall as a minimum, meet the requirements specified in the Specification : Part 5 of this Schedule.

1.7.4 Night inspection data shall be downloaded by the Company onto the RMMS within 24 hours of the survey having being 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 Hazards and Observations Identified by ERC

1.8.1 General

a) ERC may observe situations within the O & M Site which are immediately hazardous. In such circumstances a 'hazard notice' will be issued to the Company.

b) ERC may also identify other circumstances where the observations require an action by the Company. In such circumstances an 'observation resulting from inspection' will be issued. These observations resulting from inspection shall be intended to improve the flow of information from ERC to the Company.

c) The aim of both the hazard notice and the observations resulting from inspection is to provide information to the Company as quickly as possible, raising standards of Operations.

d) Hazard notices and observations resulting from inspections shall not be deemed as instructions from ERC to the Company.

e) Hazard notices and observations resulting from inspections are a method of formally identifying issues on the network and requesting a response from the Company.

f) The Company shall ensure they address and respond timeously to any hazard notice or observations resulting from inspections.

1.8.2 Hazard Notifications

a) If a hazardous situation shall be related to traffic management then the following shall apply

(i) If the Company shall be responsible for the O&M Works a verbal report may be given by ERC to personnel on site and to the Company office.

OR

(ii) If the Company shall not be directly responsible for the traffic management then a verbal report shall be made to the Company office.

b) In the case of road Defects, a report shall be made to the Company Office.

c) Written confirmation of the hazard shall be issued by the ERC on the same day as the observation on the hazard notification pro forma. This shall be sent directly to the Company by e-mail, unless this shall not be available.

d) Each such written confirmation shall be given a unique reference number.

e) Each such written confirmation shall include details of the hazard and to whom and when the verbal report was given. Link section and chainage shall be given for road Defect and traffic management hazards if available, together with a textual location description.

f) Where possible a photograph shall be sent with each hazard notification pro forma.

1.8.3 Reporting of Observations Resulting From Inspections

a) Observations resulting from inspections may be issued if the following or other circumstances are identified:

(i) Poor traffic management

(ii) Poor maintenance

(iii) Poor workmanship or significant Specification non-compliance

(iv) Significant Defects other than hazards

(v) Significant events (e.g. unexpected road closures unusual traffic congestion etc)

1.8.4 Actions by the Company

a) Once the Company shall have received a hazard notice or observations resulting from inspection the Company shall respond directly to ERC in the timescale specified in the hazard notice or observations resulting from inspection with their proposals to address the hazard or observation resulting from inspection.

b) The response from the Company shall generally be requested within 7 days. 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. If the situation warrants faster action a hazard notice may be issued.

c) Such response time shall not be related to the time taken for action by the Company in dealing with an observations resulting from inspection. 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 the Agreement.

1.8.5 Monitoring of Hazard Notices and Observations Resulting from Inspections

a) A record of each hazard notice and observations resulting from inspections issued including the date of issue, required reply date and response from the Company shall be maintained by the Company.

SCHEDULE 4 PART : O&M REQUIREMENTS

PART 2 : O&M WORKS

ROUTINE AND CYCLE MAINTENANCE: MANAGEMENT

ANNEX 1.2/A

RMMS Fixed Reports

SCHEDULE 4 PART : O&M REQUIREMENTS

PART 2 : O&M WORKS

ROUTINE AND CYCLE MAINTENANCE: MANAGEMENT

ANNEX 1.2/A

RMMS Fixed Reports

The RMMS shall have the facility to generate the following reports to demonstrate compliance with the requirements of the Agreement.

a) Report on the total number and percentage of any category 1 Defects not temporarily or permanently repaired within the required timescale. The report shall be capable of producing separate values for each range of sections or Defects. The report shall also be capable of grouping late inspections into the number of days late.

b) Report on the percentage of safety inspections and safety patrols not completed at the required frequency. The report shall be capable of producing separate values for each link or range of links. The report shall also be capable of grouping late inspections into the number of days late.

c) Report on the number of detailed inspections not completed at the required frequency. The report shall include the percentage length of any specific route not inspected for any specific activity at the time the report is run (for example, "M77 – 29 percent not inspected – activity MC – annual inspection") and shall also be capable of grouping late inspections into the number of days late.

d) Report on the number and percentage of night inspections not completed at the required frequency. The report shall be capable of producing separate values for 14 or 28 day frequencies. The report shall also be capable of grouping late inspections into the number of days late

e) Report on cyclic maintenance completed including day and activity undertaken. The report shall be capable of producing separate data for different activities, routes or sections and length if a whole section is not completed.

f) Defect Listings - List all Defects by Defect category, route, link, section, date range, type of Defect or treatment, depot area or any combination thereof. The report shall include all of the foregoing data and inspection date, Defect target and actual repair date, treatment description and location description as a minimum. The report shall also be capable of grouping late inspections into the number of days late.

g) Network – List route, link, section and section description as required.

h) Inventory – List inventory items by route, link, section, type of item or any combination thereof. The reports should include all of the foregoing data as well as chainage and attribute information as a minimum.

List summary quantity information by route, link section or item type.

SCHEDULE 4 : O&M REQUIREMENTS

PART 2 : O&M WORKS

ROUTINE AND CYCLE MAINTENANCE: MANAGEMENT

Annex 1.2/B

DETAILED INVENTORY AND INSPECTION PROCEDURES

SCHEDULE 4 : O&M REQUIREMENTS

PART 2 : O&M WORKS

ROUTINE AND CYCLE MAINTENANCE: MANAGEMENT

Annex 1.2/B

DETAILED INVENTORY AND INSPECTION PROCEDURES

Annex 1.2/B to Part 2 of this Schedule 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.

1.0 GENERAL SURVEY RULES (INVENTORY AND INSPECTION)

1.1 Network Node Points

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:

a) For dual carriageways the start and end of a section must be specified in the direction of traffic flow.

b) On single carriageway roads the normal survey direction shall be that of increasing section numbers.

c) Inventory items or Defects lying outside the node positions must be recorded at the chainage of the node, eg at approaches to roundabouts.

1.2 Cross-Sectional Position

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 is defined using a single character code which shall be entered by the Company's survey team at the time of data collection. The following list of codes shall be used:

KEY	POSITION
1	Left Outside Verge (including side slopes)
2	Left Footway
3	Left Verge
4	Lane 1 (hard shoulder on motorway)
5	Lane 2 (left lane on motorway)
6	Lane 3 (middle lane on motorway)
7	Lane 4 (right lane on motorway)
8	Right Verge
9	Right Footway
0	Right Outside Verge (including side slopes)
Q	Acceleration splay
W	Lane for left turning traffic*

KEY	POSITION
E	Lane for right turning traffic* or lane 5 on motorway
R	Bus lane – other traffic prohibited at all times* Or Lane 6 on motorway
T	Crawler lane*
Y	Other*

* To be used where extra width is created (not where existing lane use is redesignated).

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.

1.3 Survey Procedure

The Company shall apply the following rules and conditions when conducting surveys:

a) It is recommended 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 (eg 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, ie 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).

b) The Company's inspection team shall be informed of the survey direction indicated by the RMMS database before starting his measurements.

c) In general, all chainage measurements shall be made along the left-hand edge of the carriageway (hard shoulder on motorways) from start note to end node as specified in the RMMS database, in the direction of the traffic flow.

d) 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.

e) 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).

f) An item or Defect on the left road boundary shall be recorded in the cross-sectional position immediately to its right (ie cross-sectional position 1).

g) 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:

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

h) For items which require an identity code, an asterisk (*) shall be entered if the identity code is not present or is unreadable.

i) A large roundabout (not mini) is 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.

j) Side junctions, bellmouth junctions and roundabouts shall be defined as separate sections. Similarly, service roads and some redundant road laybys may need to be treated as separate sections.

k) An item outside the road boundary, but adversely affecting the carriageway (eg overhanging trees) shall be recorded under cross-sectional position 1 if on the left and cross-sectional position 0 if on the right.

l) 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.

m) On all but obvious 'constant cross section' roads such as motorways, widths shall be checked at least every 100m and changes recorded. At 10m 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 20m intervals.

n) 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.

o) Some inventory items have an off-site entry to denote ownership. This entry may be either Scottish Ministers, local authority or other.

1.4 Standard Procedures and Consistency

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:

a) The start and end of the section.
b) Reverse direction.
c) Working systematically from left to right.
d) Following the inventory rules exactly
e) The maintenance requirements.

The following points shall be considered when an inspection survey is undertaken:

a) Identify the activity first and then select the appropriate Defect code.
b) Record the Defect as seen, not the cause.
c) When deciding the Defect category, cyclists, pedestrians and local circumstances shall not be forgotten.
d) Record sufficient information for the repair to be carried out.

1.5 Data Capture Device and Data Collection Software

It shall be noted that Annex 1.2/B to Part 2 of this Schedule revises some of the codes in previous SRMMS Inventory and Inspection Manuals with regard to inventory attributes and inspections.

A range of data capture devices and data collection software is commercially available. Any device and associated software package shall be acceptable to ERC if it shall be suitably adapted to comply with all the requirements of this Annex**.** The Company shall be required to demonstrate to ERC prior to the Restricted Services Commencement Date that the data capture hardware and software he intends to utilise during the Agreement complies with this Annex and is compatible with the chosen RMMS database.

2.0 INVENTORY COLLECTION

2.1 Schedule of Inventory Items to be Collected by the Company

ITEM	MNEMONIC	TYPE
BALANCING POND	BP	P
BOLLARDS (safety)	SB	P
CARRIAGEWAY	CW	C
CATCHPIT	CP	P
CENTRAL ISLAND	CI	C
CENTRAL RESERVE	CR	C
CHANNEL	CH	C
COMMUNICATON CABINET	CC	P
COUNTERFORT DRAIN	CD	C
CROSSOVER	XO	P
CULVERT	CV	C
DITCH	DI	C
EMBANKMENTS AND CUTTINGS	EC	C
EMERGENY TELEPHONE BOX	TB	P
FENCES AND BARRIERS	FB	C
FOOTWAY	FW	C
FILTER DRAIN	FD	C
GRIP	GP	P
GULLY	GY	P
HARD SHOULDER	HS	C
HEDGE	HG	C
ICE SENSOR	IS	P
INTERCEPTOR	IN	P
KERB	KB	C

ITEM	MNEMONIC	TYPE
LIGHTING POINT	LP	P
LAYBY	LB	C
MANHOLE	MH	P
OVERBRIDGE	BO	C
PEDESTRIAN CROSSING	PX	P
PEDESTRIAN GUARDRAIL	PR	C
PIPED GRIP	PG	P
REFERNCE MARKER POINT	RF	P
RETAINING WALL	RW	C
ROAD MARKINGS (hatched)	LH	C
ROAD MARKINGS (longitudinal)	LL	C
ROAD MARKINGS (transverse and special)	RM	P
ROAD STUDS	RS	C
SAFETY FENCE	SF	C
SIGNS	SG	P
TRAFFIC CONTROL BARRIER	CB	P
TRAFFIC SIGNALS	TS	P
TREE	TR	P
UNDERBRIDGE	BU	C
VERGE	VG	C

Notes:

1. All inventory items shall be categorised as either ‘point’ (P) or ‘continuous’ (C).

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

2. AI – Ancillary Items. Record using Notebook facility (NT).

2.2 Notebook Facility

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.

2.3 Sign Dimensions

To simplify the entry of sign sizes a set of default dimensions, ie 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 $\pm$0.05m 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 road level.

2.4 Item Length

The inventory items in this section are categorised a either 'Point' or 'Continuous'.

a) 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, its chainage from the start of the section and its section identifier.

b) 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 eg transverse culverts, carriageways, bridges etc).

2.5 Double Counting

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 (eg at the O & M Site boundary or on the exits from roundabouts).

Care shall be taken to avoid double counting of other inventory items at start and end sections eg carriageway, lighting points, signs etc.

2.6 Intermediate

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.

3.0 INVENTORY ITEMS IN DETAIL

3.1 Introduction

This section of the Annex describes in detail those items on the O & M 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. Items identified during the inventory survey shall be entered into the data capture device and then downloaded on to the RMMS database.

A detailed description of each inventory item follows together with the information on each item, which the Company is required to observe and record:

a) A definition or description of each item.

b) A schedule of details to be entered into the data capture device, including details of units of measurement and ranges for data input.

c) Details of conventions which shall be adopted in defining the item.

d) Rules which shall be adhered to in defining the item.

3.2 Carriageway

3.2.1 Carriageway

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

a) Input Details

Site Entries:

Item Code	{CW}		
Chainage	{----}	(To nearest metre)	
Surface	{--}	1 = Hot Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete	4 = Surfaced Dressed 10 = Other
Width	{----}	(To nearest 0.1 metre [0.0 < W < 99.9])	

b) Convention

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

c) Rules

(i) Intermediate – use this entry when surface type or width changes but the carriageway continues.

(ii) Widths shall be checked at least every 100m and changes recorded at 20m intervals when they 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 is measured from the intersection of the slip road at right angle across its lane.

(iv) Areas of high skid resistant surfacing shall be recorded using the notebook facility (NT).

3.2.2 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.

a) Input Details

Site Entries

Item Code	{HS}	
Cross-Sectional	Position	Functional Keys

Chainage	{----}	(To nearest metre)	
Surface	{--}	1 = Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete	4 = Surfaced Dressed 10 = Other
Width	{----}	(To nearest 0.1 metre [0.0 < W < 99.9])	

b) Convention

A hard shoulder is defined as a continuous item.

c) Rules

(i) A hard shoulder is usually recorded in cross-sectional position 4.

(ii) Intermediate – use this entry when surface type or width changes but the hard shoulder continues.

3.2.3 Layby

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

a) Input Details

Site Entries

Item Code	{LB}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Surface	{--}	1 = Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete	4 = Surfaced Dressed 8 = Block Paving 10 = Other
Width	{----}	(To nearest 0.1 metres [0.5 < W < 10.0])	

b) Convention

A layby is defined as a continuous item.

c) Rules

(i) A layby on the left shall be recorded in the cross-sectional position of the verge, ie 3. A layby 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 layby changes but the layby continues.

(iii) If the verge or footway terminates over the length of the layby, these items shall be 'clocked off' and re-started on the other side of the layby if they are present.

3.2.4 Crossover

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

a) Input Details

Site Entries

Item Code	{XO}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Surface	{--}	1 = Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete 4 = Surfaced Dressed	5 = Grass 6 = Gravel 10 = Other
Width	{----}	(To nearest 0.1 metre [0.1 < W < 99.9])	
Text	{--------}	(20 characters maximum)	
Sweeping Method	{-}	1 = Machine 2 = Hand 3 = No Sweeping	

b) Convention

A crossover is defined as a point item.

c) 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, ie the verge, footway etc

(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 (eg factory 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 (see 3.2.1 of Annex 1.2/B to Part 2 of this Schedule).

3.2.5 Central Island

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

a) Input Details

Site Entries

Item Code	{CI}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Surface	{--}	1 = Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete 5 = Grass	6 = Gravel 8 = Blocks 10 = Other
Width	{----}	(To nearest 0.1 metre [0.1 < W < 99.9])	

b) Convention

A central island is defined as a continuous item.

c) 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 exist. 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 (eg 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).

3.2.6. Central Reserve

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

a) Input Details

Site Entries

Item Code	{HS}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Surface	{--}	1 = Rolled Asphalt	5 = Grass
		2 = Bitumen Macadam	6 = Gravel
		3 = Concrete	8 = Blocks
		4 = Surfaced Dressed	10 = Other
Width	{----}	(To nearest 0.1 metre [0.0 < W < 99.9])	

b) Convention

A central reserve is defined as a continuous item.

c) 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 must be recorded in the nominated section **ONLY**, for example safety fence with a shared post. An item distinctly associated with both directions (eg single safety fences with separate posts) shall be recorded in the section to which it applies.

(vi) Hatched road markings associated with a central reserve are a separate inventory item.

(vii) When the central reserve is crossed by a crossover it is allowed to continue and not 'clocked off' by the inventory program. Thus crossover is used to record a change of surface which avoids termination and re-commencement of the central reserve.

(viii) The maintainable grass width of a central reserve (if required) can be recorded using the verge item (VG).

3.3 Pedestrian and Cycle Facilities

3.3.1 Footway

a) Input Details

Site Entries

Item Code	{FW}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Surface	{--}	1 = Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete 4 = Surfaced Dressed	7 = Concrete Flags 8 = Block Paving 10 = Other
Width	{----}	(To nearest 0.1 metre [0.5 < W < 99.9])	

b) Convention

A footway is defined as a continuous item.

c) Rules

(i) A footway is usually recorded in cross-sectional position 2 when on the left and position 9 when on the right of the carriageway.

(ii) Intermediate – use this entry when surface type width or the sweeping type changes but the footway continues.

(iii) When a footway is crossed by a crossover (XO) it is allowed to continue and not 'clocked off' by the inventory program. Thus crossover is used to record a change of surface which avoids termination and re-commencement of the footway.

(iv) When a footway and cycle facility occur together, the item which has the principal use takes priority, and no entry is required for the other item. If in doubt, the entry for FW takes priority.

3.3.2 Cycle Facility

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

a) Input Details

Site Entries

Item Code	{CT}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)

Surface	{--}	1 = Rolled Asphalt 2 = Bitumen Macadam 3 = Concrete	4 = Surfaced Dressed 10 = Other
Width	{----}	(To nearest 0.1 metre [1.0 < W < 10.0])	

b) Convention

A cycle facility is defined as a continuous item.

c) 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.

3.4 Covers, Gratings, Frames and Boxes

3.4.1 General

The inventory items relating to covers, gratings, frames and boxes are described within Section 3.6 of Annex 1.2/B of Part 2 of this Schedule, Road Drainage, in the following sections**:**

Item	Section
Gully	3.6.1
Interceptor	3.6.2
Catch[it	3.6.3
Manhole	3.6.4
Piped Grip	3.6.5

3.5 Kerbs, Edgings and Preformed Channels

3.5.1 Kerb

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

a) Input Details

Site Entries

Item Code	{KB}

Cross-Sectional	Position	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

b) Convention

A kerb is defined as a continuous item.

c) 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).

3.5.2 Channel

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

a) Input Details

Site Entries

Item Code	{CH}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Block Type	{-}	1 = Continuous Concrete 2 = Preformed Concrete Blocks 3 = Natural Stone	4 = Metal Grating 5 = Combined Kerb & Channel 6 = Other

b) Convention

A channel is defined as a continuous item.

c) Rules

(i) Channels shall always be recorded in cross-sectional position 3 if they are along the left-hand edge of the carriageway and cross-sectional position 7 if they are on the right for up to 4 lanes. Cross-sectional positions E or R are used for 5 and 6 lanes respectively.

(ii) Intermediate – use this entry when the channel type changes but the channel continues.

(iii) A lined channel not running parallel to the carriageway is recorded under the inventory item Grip (GP).

3.6 Road Drainage

3.6.1 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.

a) Input Details

Site Entries

Item Code	{GY}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Type	{-}	1 = Top Entry 2 = Side Entry	3 = Other

b) Convention

A gully is defined as a point item.

c) 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 (eg 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 (ie 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 (eg side entry gullies in a central reserve).

3.6.2 Interceptor

A structure similar to a catchpit (see Annex 1.2/B of Part 2 of this Schedule*)* at the point where the surface water enters a drainage system and designed to prevent unwanted material entering the system.

a) Input Details

Site Entries

Item Code	{IN}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)

b) Convention

An interceptor is defined as a point item.

c) 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.

3.6.3 Catchpit

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

a) Input Details

Site Entries

Item Code	{CP}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)

b) Convention

A catchpit is defined as a point item.

c) 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.

3.6.4 Manhole

a) Input Details

Site Entries

Item Code	{MH}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)

Off Site Entries

See Rules (i)

b) Convention

A manhole is defined as a point item.

c) 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 (indistinguishable) sewer authority manholes, but **NOT** BT or other Statutory Undertaker's 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**.

3.6.5 Piped Grip

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

a) Input Details

Site Entries

Item Code	{PG}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)
Length	{----}	(To nearest metre [1 < L < 30])

b) Convention

A piped grip is defined as a point item.

c) 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 (ie gully inlet with no pot).

3.6.6 Grip

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

a) Input Details

Site Entries

Item Code	{GP}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)
Width	{----}	(To nearest 0.1 metre [0.0 < W < 99.9])
Length	{----}	(To nearest 0.1 metre [0.1 < L < 9.9])
Type	{-}	1 = Lined 2 = Unlined

b) Convention

A grip is defined as a point item.

c) 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.

3.6.7 Ditch

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

a) Input Details

Site Entries

Item Code	{DI}

Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Type	{-}	1 = Lined	= Unlined

b) Convention

A ditch is defined as a continuous item.

c) 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.

3.6.8 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.

a) Input Details

Site Entries

Item Code	{FD}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)

b) Convention

A filter drain is defined as a continuous item.

c) Rules

(i) Filter drains which occur in the central reserve of dual carriageways and motorways and which are not common to both sections **MUST** 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 (see section 3.6.9).

3.6.9 Counterfort Drain

a) Input Details

Site Entries

Item Code	{CD}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)

b) Convention

A counterfort drain is defined as a continuous item.

c) 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.

The end chainage occurs when the measuring wheel is level with the point at which the drain is last encountered.

3.6.10 Culvert

An enclosed channel or large pipe (between two and three metres inclusive in diameter) for conveying water below ground, usually under a road.

a) Input Details

Site Entries

Item Code	{CV}	
Chainage	{----}	(To nearest metre)

Off site Entries

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

b) Convention

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

c) Rules

(i) Culverts parallel to the carriageway shall be recorded at their mid-point (a written note of their length and diameter shall be taken).

(ii) Culverts which occur in the central reserve of dual carriageways and motorways and which are common to both sections must be recorded in the nominated section ONLY.

3.6.11 Balancing Pond/Lagoons/Storage Ditches

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

a) Input Details

Site Entries

Item Code	{BP}	
Cross-Sectional Position	Functional Keys	
Chainage	{----}	(To nearest metre)
Distance From Carriageway	{----}	(To nearest metre [1<D<<9999])

Off-Site Entries

Outflow Control	{-}	1 = No Outflow Control 2 = Outfall Flow Regulating Device

b) Rules

(i) Balancing ponds/lagoons/storage ditches 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.

3.7 Communication and Miscellaneous Equipment

3.7.1 Communication Cabinet

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

a) Input Details

Site Entries

Item Code	{CC}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)
Identity Code	{--------}	(Optional)
Type code	{----}	

b) Convention

A communication cabinet is defined as a point item.

c) Rules

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

(ii) CCTV, speed cameras, fog detectors, weather stations etc shall also be recorded under this item. Type codes can be utilised if desired.

3.7.2 Emergency Telephone Box

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

a) Input Details

Site Entries

Item Code	{TB}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)
Identity Code	{--------}	

b) Convention

An emergency telephone box is defined as a point item.

c) 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.

3.8 Embankments and Cuttings

3.8.1 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.

a) Input Details

Site Entries

Item Code	{EC}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)
Angle	{--}	(To nearest 5 degrees [-90 <?<90])
Height	{---}	(To nearest 5 metres [0<H<100])

b) Convention

An embankment or cutting is defined as a continuous item.

c) Rules

(i) Intermediate – use this entry when either the angle or height of the embankment/cutting changes but the embankment/cutting continues.

(ii) When an embankment/cutting is crossed by a crossover (XO) it is allowed to continue and not 'clocked off' by the inventory program.

(iii) To distinguish between an embankment and a cutting, the angle shall be recorded as positive for an embankment (eg 30) and negative for a cutting (eg –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) The maintainable grass width of an embankment/cutting if required, can be recorded using the verge item (VG).

3.9 Landscape Areas

3.9.1 Verge

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

a) Input Details

Site Entries

Item Code	{VG}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)
Actual Width	{----}	(To nearest 0.1 metre [0.0<W<99.9])
Maintained Width	{----}	(To nearest 0.1 metre [0.0<W<99.9])
Angle	{-}	1 = Level 3 = Steep 2 = Inclined

b) Convention

A verge is defined as a continuous item.

c) Rules

(i) The maintained verge width is the 'maintainable' width including visibility splays and if in doubt shall be regarded as 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.

3.9.2 Hedge

A fence consisting of bushes or small trees.

a) Input Details

A hedge is defined as a continuous item.

b) 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.

3.9.3 Tree

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

a) Input Details

Site Entries

Item Code	{TR}	
Cross-Sectional	Position	Functional Keys
Chainage	{----}	(To nearest metre)
Number	{----}	
Length	{----}	(To nearest metre)

b) Convention

A tree is defined as a point item.

c) Rules

(i) Only trees with a diameter and height greater than 0.2 metre and 1 metre respectively shall be recorded.

(ii) 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.

(iii) To record an individual tree, enter

Number 1 Length (m) 0

(iv) To record a group of trees eg 20 trees over a 60m length, enter

Number	20
Length (m)	60

(v) To record a forest over eg 120m, record one tree per metre, and enter

Number	120
Length (m0	120

3.10 Sweeping and Cleansing of Roads

3.10.1 General

There is no inventory item relating to sweeping and cleansing operations.

3.11 Safety Fences and Barriers

3.11.1 Safety Fence

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

a) Input Details

Site Entries

Item Code	{SF}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Type	{-}	1 = Tensioned 2 = Untensioned	3 = Concrete 4 = Wire
Shape	{-}	1 = Single Sided	2 = Double Sided
Post	{-}	1 = Wood 2 = Metal	3 = Other
Beam Profile	{-}	1 = Corrugated 2 = Box	3 = Other

b) Convention

A safety fence is defined as a continuous item.

c) Rules

(i) Intermediate – use this entry when the type, shape or post type of the fence change but the fence continues.

(ii) Safety fences which occur in he central reserve of dual carriageways and motorways and which are common to both sections must be recorded in the nominated section **ONLY**.

(iii) A safety fence with separate posts shall be recorded in the section to which it applies.

3.11.2 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.

a) Input Details

Site Entries

Item Code	{PR}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Material	{-}	1 = Steel 2 = Alloy	3 = Timber Other

b) Convention

A pedestrian guardrail is defined as a continuous item.

c) 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.

3.12 Fences, Walls, Screens and Noise Barriers

3.12.1 Fences and Barriers

Site Entries

Item Code	{FB}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	Q
Function	{-}	1 = Anti-glare 2 = Noise	3 = Boundary 4 = Other
Material	{-}	1 = Timber 2 = Timber Post & Wire 3 = Metal Post & Wire	4 = Mesh 5 = Vane 6 = Other

b) Convention

A fence or barrier is defined as a continuous item.

c) Rules

(i) A fence along the left-hand road boundary shall be recorded in cross-sectional position 1 (ie 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 Roads Authorities is responsible shall be recorded (not private). If there is any doubt of their ownership, they shall be included.

(iv) Crash 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 must be recorded in the nominated section ONLY.

3.12.2 Retaining Wall

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

a) Input Details

Site Entries

Item Code	{FD}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Type	{-}	1 = Mass Concrete 2 = Reinforced Concrete 3 = Reinforced Earth 4 = Stone	5 = Brick 7 = Sheet Piles 8 = Other
Height	{----}	(To nearest 0.1 metre [0.0<H<99.9])	
Position	{-}	1 = Above Road Level 2 = Below Road Level	

b) Convention

A retaining wall is defined as a continuous item.

c) 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 (ie to its right) and in cross-sectional position 0 if it is on the right-hand road boundary.

3.12.3 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.

a) Input Details

Site Entries

Item Code	{CB}		
Chainage	{----}	(To nearest metre)	
Location	{-}	1 = Rail Crossing 2 = Canal Crossing 3 = Toll Barrier	4 = Snow Gate 5 = Other
Type	{-}	1 = Barrier 2 = Gate 3 = Other	
Arrangement	{-}	1 = Full Width/Single 2 = full Width/Double	3 = Half Width 4 = Other
Control	{-}	1 = Automatic/Local 2 = Automatic/Remote 3 = Manual/Attended	4 = Manual/User Operated 5 = Other

b) Convention

A traffic control barrier is defined as a point item.

c) 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.

3.13 Road Studs

3.13.1 Road Studs

A stud placed in the carriageway to guide traffic.

a) Input Details

Site Entries

Item Code	{RS}		
Cross-Sectional	Position	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 [0.1 < S < 25.01])	
Colour	{-}	1 = White 3 = Red = Amber	5 = Green 6 = Other

b) Convention

Road studs are defined as a continuous item.

c) 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.

3.14 Road Markings

3.14.1 Road Markings (Hatched)

Road markings on the carriageway with a distinctive hatched design.

a) Input Details

Site Entries

Item Code	{LH}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
Width	{----}	(To nearest 0.1 metres [0.1<W<99.9])	
Material	{-}	1 = Thermoplastic Spray 2 = Thermoplastic Screed	4 = Other
Pattern	{-}	1 = Diagonal 2 = Chevron 3 = Cross	4 = Solid 5 = Bars 6 = Other
Type of Edge Line	{-}	1 = Prohibitory 2 = Warning/Informatory	3 = None

Off-Site Entries:

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

b) Convention

Hatched road markings are defined as a continuous item.

c) Rules

(i) Intermediate – use this entry when the width, material or pattern changes but the markings continue.

(ii) The cross-sectional position OTHER (Y on the keyboard) shall be used to indicate that bars (transverse yellow bar markings) or cross hatching (eg 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. If distinct changes in width occur, rule (I) applies.

(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 he left-hand side.

(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, see Section 3.13 of Annex 1.2/B to Part 2 of this Schedule.

(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.

3.14.2 Road Markings (Longitudinal)

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

a) Input Details

Site Entries

Item Code	{LL}		
Cross-Sectional	Position	Functional Keys	
Chainage	{----}	(To nearest metre)	
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 & Unbroken	4 = Zig Zag 5 – Other
Material	{-}	1 = Thermoplastic Spray 2 = Thermoplastic Screed	4 = Other 7 = Raised Edge Rib
Length	{----}	(To nearest 0.1 metre [0.0<L<10.0])	

Gap	{----}	(To nearest 0.1 metre [0.0<G<25.0])
Width	{----}	(To nearest 0.1 metre [0.0<W<9.99])
Off-Site Entries		
Diagram Number	{----}	Alphanumeric (Optional)

b) Convention

A longitudinal road marking is defined as a continuous item.

c) 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 zig-zag 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.

3.14.3 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.

a) Input Details

Item Code	{RM}	
Cross-Sectional	Position	Functional Keys

Chainage	{----}	(To nearest metre)	
Class	{-}	1 = Stop 2 = Give-way 3 = Words 4 = Roundabout	5 = Arrow 6 = Loading 7 = Other
Colour	{-}	1 = White 2 = Yellow	3 = Red 7 = Conservation Yellow
Material	{-}	1 = Thermoplastic Spray 2 = Thermoplastic Screed	6 = Other
Width	{----}	(To nearest 0.1 metre [0.1<W<99.9])	

Off-Site Entries

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

b) Notes

'1 = STOP' is a continuous line.
'2 = GIVE WAY' is a broken line.
'3 = WORDS' – eg BUS STOP, STOP SLOW, TURN LEFT.

c) Convention

Transverse and special road markings are defined as **POINT** items.

d) 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 eg 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, eg 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.

3.15 Road Traffic Signs

3.15.1 Signs

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

a) Input Details

Site Entries:

Item Code {SG}

Cross-Sectional Position Function Keys

Chainage {----} (To nearest metre)

Identify Code {--------} (Alphanumeric)

Category {-}
1 = Warning
2 = Regulatory
3 = Informatory
4 = Bus, Tram & Cycle
5 = Hazard Warning
6 = Matrix
7 = VMS
8 = Hidden Message
9 = Other

Illuminated {-}
2 = Internal
3 = External
4 = Remote
5 = Reflectorised

Diagram Number {------}

Mounting Height {----} (To nearest 0.5 metres [0.1 <H <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*

R1 R2 R3

C1 C2 C3 C4

(see Section 3.15.1(d) for details)

Or enter ACTUAL width and height

Width {----} (To nearest 0.1 metres [0.1 <W <200.0])

Height {----} (To nearest 0.1 metres [0.1 <H <10.0])

Ownership {-}
1 =
2 = Local Authority

Off-Site Entries:

Photograph Number	{--------}	(Alphanumeric)
Installation Date	{DD/MM/YY}	
Regional Electricity Company	{-}	1 = Scottish Power 2 = Scottish & Southern Energy
Electricity Billing Company	{-}	1 = Scottish Power 2 = Scottish & Southern Energy [Company may wish to extend this list of options]
Operating Hours	{-}	1 = Continuous 5 = Other 2 = Dusk to Dawn

Refer to 3.21 of Annex 1.2/B to Part 2 of Schedule 4 for details of additional off-site attributes to be stored.

b) Convention

A sign is defined as a point item.

c) 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.

(iv) 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)

(v) 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.

(vi) The mounting height is the distance from the lower edge of the sign to the road surface.

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

(viii) 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:

HAZARD – hazard warning light
MATRIX – matrix sign

CLOSE – 'Following too close' message
HEIGHT – low bridge warning sign

(ix) 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.

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

(xi) If the sign dimensions do not conform to the pre-defined 'standard' values, enter the width and height directly.

(xii) 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.

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

(xiv) 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 rule (vii) will apply.

d) Guidance on Sign Dimensions

	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 ±0.5m from the value stated. If a size does not conform to the above values enter the width and height directly.

3.15.2 Bollards (Safety)

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

a) Input details

Site Entries:

Item Code	{SG}		
Cross-Sectional Position		Function Keys	
Chainage	{----}	(To nearest metre)	
Identify Code	{--------}	(Alphanumeric)	
Illuminated	{-}	1 = No 2 = Internal	3 = Reflectorised 4 = Other
Type	{----}	(Alphanumeric – See Rule (vi))	
Sign Diagram Number	{------}	(Alphanumeric)	

Off-Site Enteries:

Installation Date	{DD/MM/YY}	
Regional Electricity Company	{-}	1 = Scottish Power 2 = Scottish & Southern Energy
Electricity Billing Company	{-}	1 = Scottish Power 2 = Scottish & Southern Energy [Company may wish to extend this list of options]
Operating Hours	{-}	1 = Continuous 5 = Other 2 = Dusk to Dawn

Refer to 3.21 of Annex 1.2/B to Part 2 of this Schedule for details of additional off-site attributes to be stored.

b) Convention

A bollard is defined as a point item.

c) 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.

(A) Where a bollard is placed to warn drivers of an obstruction, the preferred codes for the following common types may be used:

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

(B) Where bollards are installed to prevent the passage of vehicles or for any other reason than for (a) above, the following suggested codes may be used:

Type	**Code**
Concrete	CONC
Metal	METL
Wooden	WOOD
Plastic	PLAS

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

(vii) Plastic bollards permanently installed on Emergency Crossover Points shall be recorded under this item using type ECP and Diagram No.578.

3.15.3 Reference Marker Point

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

a) Input Details

Site Entries:

Item Code {RF}

Cross-Sectional Position Function Keys

Chainage	{----}	(To nearest metre)	
Type	{-}	1 = Marker Post 2 = Metal Studs (2 nodes) 3 = Metal Studs (3 nodes) 4 = Thermoplastic Cores	5 = Thermoplastic Cores 6 = Bar Code 7 = Other
Identity Code	{-------}	(Alphanumeric)	

b) Convention

A marker point is defined as a point item

c) Rules

(i) Only marker points which refer to the O & M Site network shall be recorded.

(ii) If an identity code is not present or is unreadable, an asterisk (*) shall be entered.

(iii) In general when collecting inventory data, only the position of the end node shall be recorded in the data capture device to avoid double counting. However, it may be necessary to record the position of the start node if it would not otherwise be recorded (e.g. at the O & M Site boundary or on the exits from roundabouts).

3.16 Road Traffic Signals

3.16.1 Traffic Signals

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

a) Input Details

Site Entries:

Item Code	{TS}		
Cross-Sectional Position		Function Keys	
Chainage	{----}	(To nearest metre)	
Identify Code	{--------}	(Alphanumeric)	
Manufacturer	{-}	1 = Plessey 2 = GEC	3 = Other
Number of Lamp Units	{--}	(Numeric [0 <N < 25])	
Mounting Method	{-}	1 = Post 2 = Arm	3 = Wall 4 = Other
Type	{-}	1 = Traffic Controlled Junction 2 = Pelican	3 = Other
Ownership	{-}	1 = Scottish Ministers	

2 = Local Authority

Off-Site Entries:

Installation Date {DD/MM/YY}

Layout {---} (See Figures 1 & 2 below)

Regional Electricity Company	{-}	1 = Scottish Power 2 = Scottish & Southern Energy
Electricity Billing Company	{-}	1 = Scottish Power 2 = Scottish & Southern Energy [Company may wish to extend this list of options]
Operating Hours	{-}	1 = Continuous 5 = Other 2 = Part Time

Refer to 3.21 of Annex 1.2/B to Part 2 of this Schedule for details of additional off-site attributes to be stored.

b) Convention

A traffic signal is defined as point item.

c) 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) Control cabinets associated with a set of traffic signals are a separate inventory item. They shall be recorded as a communication cabinet (CC).

(vi) Lights associated with a pelican crossing are recorded under this inventory item.

3.17 Pedestrian Crossing

3.17.1 Pedestrian Crossing

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

a) Input Details

Site Entries:

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

b) Convention

A pedestrian crossing is defined as p point item.

c) 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. See 3.18, of Annex 1.2/B to Part 2 of this Schedule.

(iv) Any associated control boxes shall be recorded separately under communications cabinet (CC).

3.18 Road Lighting

3.18.1 Lighting Point

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

a) Input Details

Site Entries:

Item Code	{LP}	
Cross-Sectional Position		Function Keys
Chainage	{----}	(To nearest metre)

Identify Code {--------} (Alphanumeric)

Column Type {-}
1 = Concrete
2 = Steel
3 = Aluminium
4 = None
5 = High Mast
6 = Other

Height {----} (to nearest 0.1 metres [0.0 <H <50.0])

Mounting Bracket
1 = Single
2 = Double
3 = Triple
4 = Cantenary
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

Off-Site Entries:

Installation Date {DD/MM/YY}

Regional Electricity Company {-}
1 = Scottish Power
2 = Scottish & Southern Energy

Electricity Billing Company {-}
1 = Scottish Power
2 = Scottish & Southern Energy
[Company may wish to extend this list of options]

Operating Hours {-}
1 = Continuous
2 = Part Time
5 = Other

Refer to 3.21 of Annex 1.2/B to Part 2 of this Schedule for details of additional off-site attributes to be stored.

b) Convention

A lighting point is defined as a point item.

c) Rules

(i) If an identify code is not present or is unreadable, an asterisk (*) shall be entered.

(ii) Posts made of more than one material shall be entered as type 6 = OTHER

(iii) 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.

3.19 Road Structures

3.19.1 Overbridge

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

a) Input Details

Site Entries:

Item Code	{BO}		
Chainage	{----}		(To nearest metre)
Identify Code	{--------}		(Alphanumeric)
Type	{-}	1 = Road	5 = Gantry
		2 = Rail	6 = Tunnel
		3 = Canal	7 = Other
		4 = Footway	

b) Convention

An overbridge is defined as a continuous item.

c) 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.

3.19.2 Underbridge

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

a) Input Details

Site Entries:

Item Code	{BU}		
Chainage	{----}	(To nearest metre)	
Identify Code	{--------}	(Alphanumeric)	
Type	{-}	1 = Road 2 = Rail 3 = River 4 = Canal	5 = Footway 6 = Ravine 7 = Other

b) Convention

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.

c) 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.

3.20 Ice Sensors

3.20.1 Ice Sensor

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

a) Input Details

Site Entries:

Item Code	{IS}		
Cross-Sectional Position		Function Keys	
Chainage	{----}		
Identify Code	{--------}		
Manufacturer	{-}	1 = Findlay Irvine 2 = Vaisala	3 = Other
Model	{------}	Alphanumeric (optional)	
Power Source	{-}	1 = Mains Electricity 2 = Solar	
No. of Road Surface Sensors	{-}	1 = Sensor 2 = 2 Sensors 3 = 3 Sensors 4 = Other	
Year Installed	{----}		

b) Convention

An ice sensor is defined as a point item.

c) 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.

3.21 Electrical Inventory Requirements

For those inventory items with electrical details i.e.

SB - Bollard (Safety)
LP - Lighting Point
SG - Sign
TS - Traffic Signal

Additional attributes list in TD23/99, 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 ERC .

The Company shall also ensure that all relevant data required to be collected under 1.14 of Part 1 of this Schedule is held in the database.

4.0 INSPECTION DETAILS

4.1 Introduction

4.1.1 General

ERC requirements for routine maintenance of the O & M Site are incorporated in Part 2 of this Schedule. The requirements call for inspections to be carried out on a regular basis and set out procedures for and frequencies of inspections to determine what routine maintenance tasks are required.

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**.**

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. 4.1.3 of Annex 1.2/B of Part 2 of this Schedule contains a Schedule of the information required when the Company is undertaking detailed and safety inspections.

This section includes general information on the recording of inspection surveys. 4.2 below summarises, in tabular format, the inspection intervals / frequencies to be set in the RMMS database.

4.3 to 4.20 of Annex 1.2/B of Part 2 of this Schedule inclusive, 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)

(e) General notes on Defects. (where applicable)

4.1.2 Treatment Category Codes

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

4.1.3 Entries to be made during Inspections

a) 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.

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)
Road Traffic Signs, Road Lighting and Communications Equipment Only

DIAGRAM NUMBER: {-----} (Up to 6 alphanumeric characters)
Road Markings and Traffic Signs only

ROAD STUDS CLASS: {-} (1,2 or 3)
Road Studs only

ii) Defects

DEFECT CODE: {----} (4 alphanumeric characters)

ATTRIBUTE (if appropriate): {--} (Numeric between 0 and 999)
(e.g. area / length / number)

iii) Decisions

Depending upon the nature of the Defect, one or more of the following shall be recorded.
Does the Defect require 24 hour action {-} (Y/N)

ACTION	1 = Immediate 2 = Temporary 3 = Permanent	{-}	(1, 2 or 3)
ACTION	1 = Temporary 2 = Permanent	{-}	(1 or 2)
ACTION	1 = Immediate 2 = Permanent	{-}	(1 or 2)
CAT2 Priority (Permanent Action)	1 =High Priority 2 = Medium Priority 3 = Low Priority	{-}	(1, 2 or 3)

Is temporary repair being undertaken at time of survey? {-} (Y or N)
Is permanent repair being undertaken at time of survey? {-} (Y or N)

iv) 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)

DATE and TIME shall be automatically recorded from the Data Capture Device's calendar / clock for actions taken at the time of inspection.

b) Safety Inspections

(i) Section Header

REVERSE DIRECTION: {-} (Y or N)

INSPECTOR: {---} (Up to 3 alphanumeric characters)

INITIATION: {---} (NRM, PAT, POL, PBL, DUM,OTH)

(Normal Routine Maintenance, Patrol, Police, Public Complaint, Other)

WEATHER: {---} (FINE, RAIN, SNOW or ICE)

ROAD CONDITION: {---} (DRY, WET, SNOW or ICE)

START OF SECTION {-} (Y or N)

FULL: {-} (F) (Full activity code list)

LINK IDENTIFIER: {--------} (Up to 10 alphanumeric characters)

SECTION NUMBER: {--} (Numeric between 0 and 99)

(ii) Activities

ACTIVITY CODE: {--} (2 alphanumeric from list provided)

INVENTORY CODE: {--} (2 Alphanumeric from list provided)

CROSS SECTIONAL POSITION: {-} (Any digit and Q, W, E, R, T, Y)

CHAINAGE: {----} (Numeric between 9 and 9999)

LOCATION (Optional) {----------} (Up to 40 alphanumeric characters)

IDENTITY CODE: {-------} (Up to 40 alphanumeric characters)
Road Traffic Signs, Road Lighting and Communications Equipment Only

DIAGRAM NUMBER: {------} (Up to 6 alphanumeric characters)
Road Traffic Signs only

ROAD STUDS CLASS: {-} (1, 2 or 3)
Road Studs only

(iii) Defects

DEFECT CODE: {----} (4 alphanumeric characters)

ATTRIBUTE (if appropriate): {---} (Numeric between 0 and 999)

(e.g. area / length / number)

(iv) 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)

Is permanent repair being undertaken at time of survey? {-} (Y or N)

(v) 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)

4.2 Intervals and Frequencies

4.2.1 General

The following tables provide a summary of the inspection intervals and frequencies to be set in the RMMS database.

In a number of instances, the RMMS database shall define only a single inspection interval / frequency (e.g. 6 months for balancing 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.

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/intercptor	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
BP	Balancing ponds	Int	6 months		24 hrs	28 days
AI	Headwall / aprons etc.	Int	1 or 2 years		24 hrs	28 days
AS	Sluices / tidal flaps etc.	Int	6 months		24 hrs	28 days
AP	Pumps / special equipment	Int	As specified		24 hrs	28 days
FL	Flooding	Int	None		N/A	N/A
FB	Safety Fencing 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	Safety fencing steel – tension	Int	2 years		24 hrs	28 days
SN	Snow gates	Int	12 months		N/A	N/A
GA	Grassed Areas	Int	None		N/A	N/A
HT	Hedges & trees (Roads Auth)	Int	12 months		24 hrs	28 days
HN	Hedges & trees(Non Roads Auth)	Int	12 months		24 hrs	28 days
HX	Hedges & trees (soundness)	Int	12 months		24 hrs	28 days
RS	Road studs	Int	12 months		24 hrs	28 days
RC	Road studs conspicuity	Int	6 months		24 hrs	28 days
RM	Road Markings	Int	2 years		24 hrs	28 days
SG	Sign face / struct / fixing	Int	12 months		24 hrs	28 days
TS	Traffic signals	Int	6 months		24 hrs	28 days
LP	Lamp Columns	Int	12 months		24 hrs	28 days
LE	Road lighting (Electrical)	Int	12 months		24 hrs	28 days
SL	Road lighting (Lamps)	Int	12 months		24 hrs	14 days
CI	Motorway Communications Installations	Int	12 months		24 hrs	14 days
CX	Comms Equip. (Emgncy phones)	Int	14 days		N/A	N/A
CB	Comms Equip (Cable ducts)	Int	N/A		N/A	N/A
CS	Comms Equip (Matrix & 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

Table 4.2.1 – Non Specialist Inspections

Activity Code	Text	Int or Freq	Inspection Interval/ Frequency	Local Variation Allowed	Cat 1 – Repair Time Allowed	
					Temp	Perm
BP	Balancing Ponds – no outflow control		2 years	Y	24 hours	28 days
BP	Balancing 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 rcmddd		24 hours	28 days
FN	Tension of safety fences		2 years		24 hours	28 days
HX	SE Hedges and trees: soundness		5 years		24 hours	28 days
HN	Non SE Hedges and trees: soundness		5 years		24 hours	28 days
RC	RS conspicuity (prohibitory)		12 months		24 hours	28 days
RC	RS conspicuity (warn & advisory)		12 months		24 hours	28 days
					Temp	Perm
SR	Road markings skid resistance		2 years		24 hours	28 days
RR	Road markings retro-reflectivity		2 years		24 hours	28 days
SM	Signs : moving parts		12 months		24 hours	28 days
SE	Signs: electrics		12 months		24 hours	28 days
SV	Signs: visibility		12 months		24 hours	28 days
TM	TS: electro mechanical parts		6 months		24 hours	28 days
TE	TS: electrical		12 months		24 hours	28 days
LE	Lamp columns: 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 4.2.2 – Specialist 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

Table 4.2.3 – Lamp Scout Inspections

4.3 Carriageway

4.3.1 Minor Carriageway Repairs – Flexible

The following inspection code relation to this activity:

Minor Carriageway Repairs	MC

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

a) Note

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.

b) 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	Sq. metres	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	Sq. metres	1	200
Patch – adjacent cracking	PACK	Area	Sq. metres	1	200
Patch – loss of material (fretting)	PLMT	Area	Sq. metres	1	200
Patch – difference in level *Difference in level of a patch with the surrounding carriageway*	PDLV	Area	Sq. metres	1	200
Trench RI – adjacent cracking *Cracking around reinstated trench*	TACK	Area	Sq. metres	1	200
Trench RI – loss of material *Loss of material (fretting) from a reinstated trench*	TLMT	Area	Sq. metres	1	200
Trench RI – difference in level *Difference in level between a reinstated trench and the surrounding carriageway*	TDLV	Area	Sq. metres	1	200
Pothole	POTH	Area	Sq. metres	1	50
Single crack	CRCK	Area	Sq. metres	1	50
Patch – material cracking Cracking of the material used for patching	PMCK	area	Sq. metres	1	200
Trench R1 – material cracking Cracking of the material used to reinstate the trench	TMCK	Area	Sq. metres	1	200
Blacktop fretting	BFRT	Area	Sq. metres	1	200

Description	Code	Attribute	Units	Min	Max
Loss of material from the carriageway surface					
Other	OTHR				
None	NONE				

c) 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 Part 1 of this Schedule., 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.

4.3.2 Minor Carriageway Repairs – Concrete

The following inspection code relates to this activity

Minor carriageway repairs – Concrete CM

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

a) Convention

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.

b) 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	Sq metres	1	250
Cracking	CRCK	Area	Sq metres	1	250

Description	Code	Attribute	Units	Min	Max
Failed overbanding / sealed cracks	OVSD				
Surface crazing	SRCZ	Area	Sq metres	1	100
Scaling	SCAL	Area	Sq metres	1	100
Miscellaneous surface Defects	MSRF	Area	Sq metres	1	100
Surface texture work	SRTX	Area	Sq metres	1	250
Initiate skid test	SKID	length	metres	1	30
Failed repair	RFAL				
Other	OTHR				
None	NONE				

c) General Notes (see also 4.3.1(c))

(i) Detailed inspections shall be the 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 Part 1 of this Schedule,. 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.

4.4 Pedestrian and Cycle facilities

The following inspection code relates to this activity:

Pedestrian and Cycle Facilities FC

The following inventory items are applicable to this inspection activity:

Footway FW Cycle Facilities CT

4.4.1 Non-Specialist Defects

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

4.4.2 Notes on Defects

a) BKPF Includes ridges, projections, sharp edges (trips), cracks and gaps which are greater than 20mm.

b) DPOT Includes potholes and small area depressions greater than 25mm in depth which are creating a hazard.

c) FDLV Includes ridges, projections, sharp edges (trips), cracks and gaps which are greater than 20mm and also depressions greater than 25mm in depth which are creating a hazard.

d)	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.
e)	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 20mm and also depressions greater than 25mm in depth which are creating a hazard.

4.4.3 General Notes

a) When interpreting Defects recorded during an inspection survey, the Company shall differentiate between those relating to routine maintenance and those applicable to structural maintenance.

b) Correction of Defects arising from the activities of Public Utilities shall not be charged to the owner if they are still within the timescale of the New Roads and Street Works Act 1991.

c) The Company shall pay particular consideration to Defects, such as trips, which may constitute an immediate danger to pedestrians and/or cyclists.

d) Where there is more than one inspection interval defined for this inspection activity in Part 1 of this Schedule, 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.

4.5 Covers, Gratings, Frames and Boxes

The following inspection code relates to this activity:

Covers, Gratings, Frames and Boxes	CG

The following inventory items are applicable to this inspection activity:

Catchpit	CP	Manhole	MH
Gully	GY	Piped Grip	PG
Interceptor	IN		

4.5.1 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 Roads Authorities.

4.5.2 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 20mm.	IDLV				
Difference in components levels. *Differential levels between different components exceeding 20mm.*	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				

4.5.3 Notes on Defects

a) MISS Attention shall be paid to missing items, which are likely to constitute a hazard.

b) PARL Gullies and other gratings in carriageways and cycle tracks which have gaps more than 20mm wide parallel to the normal line of movement of pedal and motor cycles shall be classed as Defects.

c) SMTH Worn covers which may cause pedal motor cycle users to skid in wet conditions shall generally be considered to constitute an immediate hazard.

4.5.4 General Notes

a) The Company shall not ignore covers situated in verges which are not traversed by pedestrians.

b) 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.

4.6 Kerbs, Edgings and Pre-formed Channels

The following inspection code relates to this activity:

Kerbs, Edgings and Pre-formed Channels: KC

The following inventory items are applicable to this inspection activity:

Channel CH Kerb KC

4.6.1 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 ERC**.**

4.6.2 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Vertical projection > 20mm *Vertical projections greater than 20mm.*	EVPJ	Length	Metres	1	50
Horizontal projection > 50mm *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				

4.6.3 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 overedge 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.

4.6.4 General Notes

a) Where there is more than one inspection interval defined for this inspection activity in Part 1 of Schedule 4 to this Agreement, 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.

4.7 Road Drainage

4.7.1 Piped Drainage Systems

The following inspection code relates to this activity:

Piped Drainage Systems	PD

The following inventory items are applicable to this inspection activity;

Counterfort Drain	CD	Gully	GY
Filter Drain	FD	Piped Grip	PG

a) Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Blockage	BLOK	Length	Metres	1	100
Other malfunction	OMAL				
Flooding	FLOD	Area	Sq metres	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	Sq metres	1	200
Deformation	DEFM	Percentage	Per cent	1	100
Collapsed	COLP				
Alignment irregular	LINE				
Standing water	STWT	Length	Metres	1	100
Scour	SCOR				
Other	OTHR				
None	NONE				

b) 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.

4.7.2 Gullies, Catchpits and Interceptors

The following inspection code relates to this activity:

Road Drainage:	Gullies, Catchpits and Interceptors	GC

The following inventory items are applicable to this inspection activity;

Catchpit	CP	Interceptor	IN
Gully	GY		

a) 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.

b) Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Damaged	DAMG				
Collapsed	COLP				
Silted	SILT	Length	Metres	1	100
Blockage	BLOK	Percentage	Per cent	1	100
Shaft defective	SHFT				
Chamber / benching / pot defective	CHAM				
Invert / sump defective	INVT				
Ancillaries defective	ANCS				
Other	OTHR				
None	NONE				

c) General Notes

(i) This section does **NOT** relate to ironwork associated with gullies, catchpits and interceptors. Ironwork is considered in Section 4.5 (Covers, Gratings, Frames and Boxes).

4.7.3 Piped grips

The following inspection code relates to this activity:

Road Drainage: Piped Grips PG

The following inventory item is applicable to this inspection activity:

Piped Grip PG

a) 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				

b) General Notes

(i) Gratings where fitted shall be dealt with under Section 4.5 of this Annex (covers, gratings, frames and boxes.)

4.7.4 Grips

The following inspection code relates to this activity:

Road Drainage: Grips GP

The following inventory item is applicable to this inspection activity:

Grip GP

a) 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	Sq metres	1	500
Other	OTHR				
None	NONE				

4.7.5 Ditches

The following inspection code relates to this activity:

Road Drainage: Ditches DI

The following inventory item is applicable to this inspection activity:

Ditch DI

a) 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	Sq metres	1	500
Other	OTHR				
None	NONE				

4.7.6 Filter Drains

The following inspection code relates to this activity:

Road Drainage: Filter Drain FD

The following inventory item is applicable to this inspection activity:

Counterfort Drain CD Filter Drain FD

a) Convention

This inspection item includes both filter and counterfort drains.

b) Non-Specialist Defects

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

c) 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 ERC as part of their normal planned programme of works.

4.7.7 Culverts

The following inspection code relates to this activity:

Road Drainage: Culverts CV

The following inventory item is applicable to this inspection activity:

Culvert CV

a) Definition

This section relates only to the maintenance of free flow of water through culverts and small span bridges with spans or diametres between 2 and 3 metres inclusive, multi-cell culverts where the cumulative span or diametre is less than 5 metres and corrugated metal structures 0.9 metres or more on span not falling within the scope of BD63 (DMRB 3.1.4).

b) Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Scour	SCOR				
Free flow impeded. *Inadequate flow of water through the culvert.*	FRFL				
Silted	SILT	Length	Metres	1	100
Roots present	ROOT				
Cracking	CRCK	Area	Sq metres	1	200
Deformation	DEFM	Percentage	Per cent	1	100

Description	Code	Attribute	Units	Min	Max
Collapsed	COLP				
Alignment irregular	LINE				
Standing water	STWT	Length	Metres	1	100
Other	OTHR				
None	NONE				

c) 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 Part 2 of Schedule 4 to this Agreement.

4.7.8 Balancing Ponds

The following inspection code relates to this activity:

Road Drainage: Balancing Ponds BP (specialist)

The following inventory item is applicable to this inspection activity:

Balancing Pond BP

a) 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 *Silting in the pond causing a loss of storage capacity.*	SILT	Length	Metres	1	100
Erosion of banks / walls / bunds. *Damage or erosion to the pond banks, walls, bunds.*	ERSN				
Surcharge *Excess water overflowing from the balancing pond.*	SURC				
Other	OTHR				
None	NONE				

b) General Notes

(i) Balancing ponds may sometimes be situated some distance from the Road.

(ii) Where there is more that one inspection interval defined for this inspection activity in Part 1 of this Schedule, 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.

4.7.9 Ancillary Items

The following inspection codes relates to this activity:

Road Drainage: Headwalls and Aprons	AI
Road Drainage: Sluices and Tidal Flaps	AS (Specialist)
Road Drainage: Pumps and Specialised Equipment	AP (Specialist)

There are no inventory items applicable to this inspection activity:

Balancing Pond BP

a) Definition

This section includes headwalls, aprons, sluices, tidal flaps and pumps.

b) 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				

c) Specialist Defects

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

d) General Notes

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

4.7.10 Flooding

The following inspection codes relates to this activity:

Road Drainage: Flooding FL

There following inventory items are applicable to this inspection activity:

Balancing Pond 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

a) Definition

Flooding of the Project Roads caused by the inadequate provision or operation of the Road Drainage facilities.

b) Non-Specialist Defects

Description	**Code**	**Attribute**	**Units**	**Min**	**Max**
Flooding	FLOD	Area	Sq metres	1	500
		Cause	Characters	1	40
Other	OTHR				
None	NONE				

c) General Notes

(i) The cause of flooding shall be ascertained by the Company and if necessary proposals for action submitted to ERC.

(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.

4.8 Communication and Miscellaneous Equipment

The following inspection codes relates to the activity Communications Equipment:

Communications Equipment:	Hardware	CI	[CC,SG,TB]
Communications Equipment:	Emergency phones	CX	[CC,TB]
Communications Equipment:	Alignment	CA	[CC]
Communications Equipment:	Transmission Stations	CZ	[CC]
Communications Equipment:	Cable Ducts	CB (Specialist)	[CC,TB,SG]
Communications Equipment:	Electrical	CE (Specialist)	[CC,TB,SG]
Communications Equipment:	Bolts & Hinges	CF	[CC,TB,SG]
Communications Equipment:	Operations	CO	[CC,TB,SG]
Communications Equipment:	Matrix Signs	CS	[SG]
Communications Equipment:	M/way Warning Unit	CY	[SG]

There following inventory items are applicable to this inspection activity:

Communication Cabinet	CC	Emergency Telephone Box	TB
Signs	SG		

4.8.1 Definition

This section includes telephones, matrix signals, loop detectors, surveillance equipment, cabinets, power distribution equipment, communication cables and ancillary equipment. It does **NOT** include specialised electrical / electronic plant.

4.8.2 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Not watertight *Housing or surroundings are not watertight.*	WTGT				
Damaged	DAMG				
Difficult access to cabinet / security impaired.	ACES				
Physical condition of cabinet	PHCD				
Breakdown / poor communications.	BCOM				
Illegibility of Identity numbers	VISN				
Impaired visibility	VISA				
Inadequately drained	INDR				
Other	OTHR				
None	NONE				

4.8.3 General Notes

a) The Company shall categorise defective communication equipment which is either by its condition or lack of operation constitutes an immediate or imminent hazard as a Category 1 Defect.

4.9 Embankments and Cuttings

The following inspection codes relates to this activity:

Embankments and Cuttings: EC
Embankments and Cuttings: ES (Specialist)

The following inventory item is applicable to this inspection activity:

Embankments and Cuttings: EC

4.9.1 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.

4.9.2 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

Description	Code	Attribute	Units	Min	Max
Slide (non-rock) *Surface sliding of material down an embankment or cutting.*	SLID	Length	Metres	1	50
Rock slide	RSLI	Length	Metres	1	50
Seepage	SEEP	Length	Metres	1	50
Inadequately drained	INDR	Length	Metres	1	50
Foundation failure	FOUN	Length	Metres	1	50
Other	OTHR				
None	NONE				

4.10 Grassed Areas

The following inspection code relates to this activity

Grassed Areas: GA

The following inventory items are applicable to this inspection activity:

Central Island	CI	Embankment and Cuttings	EC
Central Reserve	CR	Verge	VG

4.10.1 Definition

This section relates to the maintenance of grassed verges, central reserves, roundabout islands and cutting and embankment slopes..

4.10.2 Non-Specialist Defects

Description	Code	Attribute	Units	Min	Max
Inadequate visibility	IVIS	Length	Metres	1	200
		Area	Sq metres	1	500
Risk to pedestrians	RPED	Length	Metres	1	50
Overgrown footway / carriageway	OVER	Length	Metres	1	50
Injurious weeds	IWED	Area	Sq metres	1	50
Other	OTHR				
None	NONE				

4.11 Hedges and Trees

The following inspection codes relates to this activity:

Hedges and Trees:	General	HT	[HG,TR]
Hedges and Trees (SEDD):	Soundness	HN (Specialist)	[HG,TR]
Hedges and Trees (Non-SEDD):	Soundness	HX (Specialist	[HG,TR]

The following inventory item is applicable to this inspection activity:

Hedge HG Tree TR

4.11.1 Definition

This section relates to the maintenance of hedges and trees which are the responsibility of the Roads Authorities or which, although the responsibility of others are causing nuisance or obstruction to the Project Roads.

4.11.2 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	OVER	Length	Metres	1	25
Branches / trees overgrown or overgrowing onto the carriageway		Height	Metres	1	25
Other	OTHR				
None	NONE				

4.11.3 Notes on Defects

a) **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 of Part 2 of this Schedule.

4.11.4 General Notes

a) 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.

b) 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.

4.12 Sweeping and Cleansing

The following inspection code relates to this activity:

Sweeping and Cleansing SC

The following inventory items are applicable to this inspection activity:

Channel	CH	Footway	FW
Central Island	CI	Hard Shoulder	HS
Central Reserve	CR	Lay-By	LB

Cycle Track	CT	Verge	VG
Carriageway	CW	Crossover	XO
Embankments & Cuttings	EC	Kerb	KB

4.12.1 Non-Specialist Defects

Description	**Code**	**Attribute**	**Units**	**Min**	**Max**
Litter Grade C	LITC	Area	Sq metres	1	500
Litter Grade D	LITD	Area	Sq metres	1	500
Excessive muck *Need for sweeping / cleansing in Road channels, motorway hardshoulders, traffic lanes, central reserves, footways and cycle facilities.*	MUCK	Length	Metres	0	500
		Area	Sq metres	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	Sq metres	1	200
Debris in traffic lane	DBTL	Length	Metres	0	200
		Area	Sq metres	1	500
Debris in hard shoulder	DBHS	Length	Metres	0	200
		Area	Sq metres	1	500
Other	OTHR				
None	NONE				

4.12.2 General Notes

a) The Company shall not carry out detailed inspections but shall report on the basis of regular safety inspections

b) The four levels of cleanliness are detailed below:

Grade A: no litter or refuse
Grade B: area predominately free, apart from small items such as cigarette ends and ring pulls.
Grade C: widespread distribution of small items (as Grade B) and larger items including beverage containers, fast food packs, animal faeces etc
Grade D: heavily littered with small and large items, with accumulations along Edges

c) On the O & M Site the Company shall achieve, after cleaning, the following levels of cleanliness, Grade A (paved areas) and Grade B (verges).

4.13 Safety Fences and Other Barriers

The following inspection codes relate to the activity fences and Barriers:

Boundary Fences:	Metal / Concrete	BF [FB, PR, RW]
Boundary Fences:	Timber	BT [FB, PR, RW]
Safety Fences:	Metal Concrete	FB [SF, PR, RW]
Safety Fences:	Steel – Tension	FN (Specialist) [SF]
Snow Gates:		SN

The following inventory items are applicable to this inspection activity:

Fences and Barriers	FB	Retaining Wall	RW
Pedestrian Guard rail	PR	Safety Fence	SF
Traffic Control Barrier	CB		

4.13.1 Definition

All types of boundary fences and walls, anti-glare screen fences, noise barriers, snow gates, pedestrian guard rails and fences, and tensioned / untensioned vehicle safety fences and other barriers. Does **NOT** include parapets and guard rails on bridges and other structures or the structural elements of noise barriers.

4.13.2 Non-Specialist Defects

Description	**Code**	**Attribute**	**Units**	**Min**	**Max**
Rotten – wood fence	RWDF	Length	Metres	1	50
Rotten – wood post (fence / barrier)	RWDP				
Corroded – metal (fence / barrier)	CMTF	Length	Metres	1	50
Corroded - metal post (fence / barrier)	CMTP				
Corroded – concrete fence	CCTF	Length	Metres	1	50
Corroded – concrete post	CCTP				
Missing – section of fence / barrier	MISS	Length	Metres	1	50
Accident damage	ACCD	Length	Metres	1	100
		Height	Metres	1	25
Damaged / deformed – fence / barrier	DAMM	Length	Metres	1	50
Loose panel	LOSP	Number			
Loose anchor	LOSA	Number			
Loose bolt	LOSB	Number			
Loose tension bolt	CORT	Length	Metres	1	50
Incorrect or no tension(metal fence)	NTEN	Length	Metres	1	50
No stockproof	NSTK	Length	Metres	1	50
Safety fence – too high	SBTH	Length	Metres	1	999
		Height	Millimetres	0	
Safety fence – too low	SBTL	Length	Metres	1	999
		Height	Millimetres	0	
Snow Gate – mechanical fault	SNGA				
Other	OTHR				
None	NONE				

4.13.3 Specialist Defects

Description	**Code**	**Attribute**	**Units**	**Min**	**Max**
Loose tension bolts	LTEN				
Incorrect tension	CORT				
Other	OTHR				
None	NONE				

4.13.4 General Notes

(i) Whilst undertaking the specialist inspection activity FN, the Company shall reset the tension of all lose bolts.

(ii) The Company shall check the operation of snow gates in September of each year of the Agreement.

4.14 Fences, Walls, Screens and Environmental Barriers

All types of boundary fences and walls, anti-glare screen fences, noise barriers, etc. are included under paragraph 4.13 of Annex 1.2/B to Part 2 of this Schedule (Safety Fences and Barriers).

4.15 Road Studs

The following inspection codes relate to this activity:

Road studs:	General	RS
Road studs:	Conspicuity	RS (Specialist)

The following inventory items are applicable to this inspection activity:

Road stud	RS

4.15.1 Definition

This section relates to reflective and non-reflective road studs of all types and colours including depressible road studs

4.15.2 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				

4.15.3 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				

4.15.4 Notes on Defects

a) REFC & REFS Measurement of road stud conspicuity shall not normally be carried out at the time of normal inspections.. This code shall be used to indicate the need for a specialist inspection.

4.15.5 General Notes

a) The Company shall immediately remove displaced road studs lying on the carriageway, hard shoulder or in lay-bys

b) The Company shall immediately remove loose road studs

c) All depressible road studs shall be considered as "catseyes" for inspection purposes.

4.16 Road Markings

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)

The following inventory items are applicable to this inspection activity:

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

4.16.1 Definition

This section relates to all road markings in thermoplastic materials.

4.16.2 Non-Specialist Defects

Description	**Code**	**Attribute**	**Units**	**Min**	**Max**
Wear (e.g erosion)	WEAR	Length	Metres	1	999
		% remaining	Per cent	1	100
Spread	SPRD	Length	Metres	1	30
		% of original	Per cent	1	100
Colour	COLR	Length	Metres	1	100
		Percentage	Per cent	1	100
Initiate skid test	SKID	Length	Metres	1	30
Initiate retro-reflectivity measurement	RETR	Length	Metres	1	100
Missing node marker	MIRF				
Other	OTHR				
None	NONE				

4.16.3 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				

4.16.4 Notes on Defects

a) WEAR The Company shall take action when % remaining is less than 70%.
b) SPRD The Company shall take action when spread exceeds +10% of original dimension.
c) COLR Thermoplastic markings shall have a luminance factor greater than 45%.
d) 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.
e) 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.
f) SKIT Skidding resistance measurements.

4.16.5 General Notes

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

4.17 Road Traffic Signs

The following inspection codes relate to this activity:

Signs:	Face/structure/fixings	SG [RF,SB,SG]
Signs:	Lamp Failures	SV (Specialist) [SG]
Signs:	Visibility Inspection	SS (Specialist) [SG]
Signs:	Moving Parts	SM (Specialist) [SG]
Signs:	Electrical	Se (Specialist) [SB,SG]

The following inventory items are applicable to this inspection activity:

Reference Marker Point	RF	Sign	SG
Safety Bollard	SB		

4.17.1 Definition

This section relates to all road traffic signs including permanent bollards

4.17.2 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				

Description	Code	Attribute	Units	Min	Max
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	OBSG				
Dirty sign	DIRT				
Missing	MISS				
Damaged *Damage other than accident damage*	DAMG				
Pointing wrong way	RWAY				
Other	OTHR				
None	NONE				

4.17.3 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 *Inadequate retro-reflectivity*	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				

4.17.4 General Notes

a) 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.

b) The Company shall treat missing cylinders from emergency crossings as Category 1 Defects.

c) 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.

d) 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.

4.18 Road Traffic Signals

The following inspection codes relate to this activity:

Traffic Signals: Hardware	TS [DL,TS]
Traffic Signals: TSC & AUX equipment	TA (Specialist) [CC,TS]
Traffic Signals: Electro-Mechanical Parts	TM (Specialist) [TS]
Traffic Signals: Electrical	TE (Specialist) [CC,DL,TS]

The following inventory items are applicable to this inspection activity:

Communication Cabinet	CC	Traffic signal	TS
Detector Loop	DL		

4.18.1 Definition

This section relates to the routine maintenance of permanent traffic signals at junctions or outside emergency vehicle stations and at controlled pedestrian crossings.

4.18.2 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				
Other	OTHR				
None	NONE				

4.18.3 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				

4.18.4 General Notes

a) The Company shall pay particular attention to damaged, defective, displaced or missing traffic signals, which will constitute a Category 1 Defect.

b) The Company shall treat dirty or obscured signals as a category 1 Defect.

4.19 Road Lighting

The following inspection codes relate to this activity:

Road Lighting:	Columns	LP
Road Lighting:	Lamp Failures	SL
Road Lighting:	Electrical	LE (Specialist)

The following inventory item is applicable to this inspection activity:

Lighting Point	LP

4.19.1 Definition

This section relates to the routine maintenance of road lighting installations

4.19.2 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				

Description	Code	Attribute	Units	Min	Max
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				

4.19.3 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				

4.19.4 General Notes

a) The Company shall pay particular attention to damaged or defective lighting equipment which shall often constitute a Category 1 Defect.

4.20 Ice Sensors

The following inspection codes relate to this activity:

Ice Sensors:	Cabinets, Poles etc	IC
Ice Sensors:	Electronic equipment	IE (Specialist)

The following inventory item is applicable to this inspection activity:

Ice Sensors: IS

4.20.1 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				

4.20.2 Specialist Defects

Description	Code	Attribute	Units	Min	Max
Road sensor failure	ROSE				
Other sensor failure	OTSE				
Processor failure	PROC				
Other	OTHR				
None	NONE				

4.20.3 General Notes

a) The Company shall recalibrate the ice sensor equipment using specialist sub-contractors during the months of September and January each year.

NOTES FOR GUIDANCE

1. Category 1 Defects

The following Defects are examples of the type which should be reported if they represent an immediate or imminent hazard and constitute a Category 1 Defect. The list should not be regarded as exhaustive.

a) potholes and other local Defects in the carriageway, including defective ironware;

b) excessive standing water and water discharging on to and/or flowing across the road;

c) damaged safety fences and other barriers;

d) debris and spillage in traffic lanes or on hardshoulders;

e) kerbing, edging or channel Defects;

f) damaged lighting columns and other street furniture;

g) damaged, defective, displaced or missing traffic signs or signals;

h) dirty or otherwise obscured traffic signs and signals;

i) trees, shrubs and hedges which by virtue of their position or condition constitute a hazard to road users;

j) displaced roadstuds (particularly the "catseye" type) lying in the carriageway, hardshoulder or lay-bys;

k) defective, missing or loose roadstuds;

l) faults in road structures e.g. impact damage to superstructures, supports or parapets, flood damage, insecure expansion joint parts;

m) difference in level (exceeding 20mm) between abutting concrete slabs at transverse or longitudinal joints;

n) rocking gratings or covers in urban areas causing intrusive noise;

o) damaged boundary fences where animals or children could gain access;

p) defective road and sign lighting;

q) overhead wires in a dangerous condition;

r) blocked gully and piped grip gratings and obstructed channels, grips and slot drains;

s) earthslips where debris has encroached or is likely to encroach on to the road;

t) rock or rock faces constituting a hazard to road users;

u) TD26 of the DMRB gives Category 1 criteria for road markings;

v) TD25 of the DMRB gives Category 1 criteria for traffic signs;

w) TD24 of the DMRB gives Category 1 criteria for traffic signals;

x) TD23 of the DMRB gives Category 1 criteria for road lighting;