National Highways Company Limited

Scope

Technical Specification

Annex 18

in relation to a *service* for

Traffic Speed Structural Surveys 2022-2024

CONTENTS AMENDMENT SHEET

Issue No.	Amendments	Initials	Date
1.0	Tender issue	JM	May 2022
1.1	Table 3 updated to reflect year 1 survey period 5.2.5 inserted to clarify the ability for the Contractor to reclaim costs for travel to calibration sites	JM	12 July 2022

LIST OF CONTENTS

1 Introduction

1.1 Overall objectives

1.1.1 The *Contractor* uses the Equipment to carry out TRASS Surveys of the Network to collect and deliver the Survey Data. To meet this requirement the *Contractor*

- Achieves Accredited Equipment Operator status, and only undertakes surveys whilst having Accredited Equipment Operator Status (Appendix A)
- Undertakes Accreditation and Quality Assurance testing of the Equipment throughout the period of the Contract (Appendix A and Appendix B) and only undertakes surveys using Accredited Equipment.
- Maintains and Supports the Equipment whilst undertaking surveys, as summarised in (Appendix C).
- Carries out the Surveys according to sections 2 to 5.
- And hence provides the deliverables as summarised in Appendix E.

1.1.2 All activities within this contract shall be carried out in accordance with the current version of the SATTS Standard Operating Procedure (SOP)

- *The Client* or Technical Advisor will provide the current version of the SATTS SOP.
- The SOP may be updated from time to time during the period of the contract in the light of lessons learnt, refinements or improvements to the Equipment, or the QA procedure etc. The *Contractor* operates the Equipment and processes the Survey Data in accordance with any updates to the SOP.
- Changes to the SOP are treated as compensation events in accordance with section 60 of the contract terms.
- Where a change to the SOP is proposed, the *Service Manager* may instruct the *Contractor* to provide a quotation for the proposal in accordance with section 65 of the contract terms. The *Service Manager* will consider the proposed quotation in accordance with section 65. The proposed change is not implemented unless instructed by the *Service Manager*.
- Where a change to the SOP is to be implemented without consideration of a proposal, this is treated as a compensation event under clause 60.1(1) of the contract terms.
- Where the parties cannot reach agreement on the implementation of changes to the SOP, the *Client* reserves the right to issue no further Survey or Special Survey Tasks.

1.1.3 Notwithstanding the above, the *Contractor* shall carry out the Surveys in accordance with any requirements provided to it by the *Client* from time to time relating to safety and minimum disruption to other Road users.

1.2 The Equipment and its Operation

1.2.1 The Contractor will be provided with use of the Equipment for the purposes of undertaking the Surveys. During the period of the contract the Equipment will have the status of either:

- Equipment to *Contractor*
- Equipment to Technical Advisor

1.2.2 The status of the Equipment shall be defined using an Equipment Operation Notice issued to the *Contractor*. The *Contractor* uses the Equipment to carry out surveys when the Equipment is under an Equipment to *Contractor* notice.

1.2.3 Appendix C defines the requirements to be met by the Contractor in supporting the equipment when an Equipment to *Contractor* notice is in place.

1.2.4 To gain access to the Equipment the *Contractor* demonstrates how it will ensure the safety and security of the Equipment (both when being operated by the *Contractor* when undertaking surveys, and when being left unattended), according to the processes demonstrated by the *Contractor* to secure Accredited Equipment Operator Status, as defined in Appendix A.

2 The Surveys

2.1 The Network

2.1.1 The network consists of motorways and trunk (strategic) roads, which can be dual or single carriageway. The roads can be located in both rural and urban environments. Table 1 and Table 2 provide approximate network lengths.

			Approximate Carriageway Length (km)[1]
Main Carriageways (km)		**Dual 1 Lane**	52
		Dual 2 Lane	6,115
		Dual 3 Lane	4,243
		Dual 4 Lane	870
		Dual 5 Lane	11
		Dual 6 Lane	3
		Single 1 Way	35
		Single 2 Way	1,270
Slip Roads (km)	**Motorway**	**Dual or Single 1 Way**	1,368
		Single 2 Way	9
	All Purpose Trunk Road	**Dual or Single 1 Way**	1,325
		Single 2 Way	53

Notes:

1. Carriageway length is subject to change. It may reduce or increase as a result of changes of national policy concerning the strategic road network.

Table 1: Approximate network length, by type

Lane	Length (km)
Main Carriageway, Lane 1	13,867
Main Carriageway, Lane 2	11,241
Slips (100%)	2,817

Table 2: Approximate network length, by lane

3 Tasks

3.1.1 Surveys will be commissioned within Task Orders. Tasks will be either:

- Survey Task Orders
- Special Survey Task Orders.

3.2 Survey Task Orders

3.2.1 Each Survey Task Order will define:

- The extent of the Eligible Network to be covered (e.g. Lane 1).
- The timetable over which the survey is expected to be carried out, for the purposes of Survey Planning.
- The Survey Data that is to be collected, and its processing.
- The method of delivery of the Survey Data
- Any specific additional requirements that shall be met by the Contractor for that particular Survey Task

3.2.2 No Survey Data is required to be delivered from roundabouts or lay-bys, unless specifically stated in a Survey Task Order.

3.2.3 The *Client* may issue Survey Task Order(s) for Survey Tasks to be carried out before the agreed end date of the current Survey Task. Where this will affect the survey programme of the Task currently being executed the *Client* and the *Contractor* will agree a programme for the new Survey Task and a revised programme for the current Survey Task.

3.2.4 If the *Contractor* collects measurements on lengths where they will not be utilised by the *Client*, the *Contractor* is not required to remove those measurements from the RCD prior to delivery.

3.2.5 Table 3 shows the anticipated periods during which Survey Task orders may be commissioned. Appendix D presents an example Survey Task Order.

3.2.6 The information provided in Table 3 is provided only as indicative information to guide the approximate potential lengths that may require Surveys. The required Survey Tasks may change as a result of available budget, and changes in the requirement of the *Client* for condition information on the Strategic Road Network, in particular with respect to the lanes requiring surveys and the order in which lanes will require surveys.

3.2.7 The number and extent of Survey Task Orders may also be affected by the performance of the *Contractor* in delivering the services. Poor levels of performance, low coverage, late delivery etc. may result in a reduction in the

extent of surveys commissioned. This will be monitored during the period of the contract.

3.2.8 The following shall be noted:

- Whilst Table 3 indicates that there will be a requirement for surveys of 50% of slip roads, the proportion required may be increased or decreased with agreement with the *Client*. There may be a requirement in year 2 for these surveys to include slip roads not surveyed in the final year of the previous TRASS survey contract. It is anticipated that, in subsequent years, the surveys shall include the slip roads that were not surveyed in the previous year.
- The *Client* has observed that Survey Data collected in the winter period is likely to provide a lower level of consistency than that collected in summer months. There will be a survey shutdown period from the start of November to the end of February each year, within which no Survey Tasks are anticipated to be commissioned, or surveys undertaken. The shutdown period is included to reduce the risks of poor environmental conditions affecting Survey Data quality. However, the *Contractor* should not assume that Survey Tasks would commence immediately at the completion of the winter shutdown. The date of the commencement of surveys may be affected, for example, by the scope of any work required on the Equipment during the shutdown period (e.g., if extensive calibration, overhaul or repair is required at the conclusion of the previous season). At least 4 weeks' notice would be given of the start date of the first Survey Task Order in a survey year.

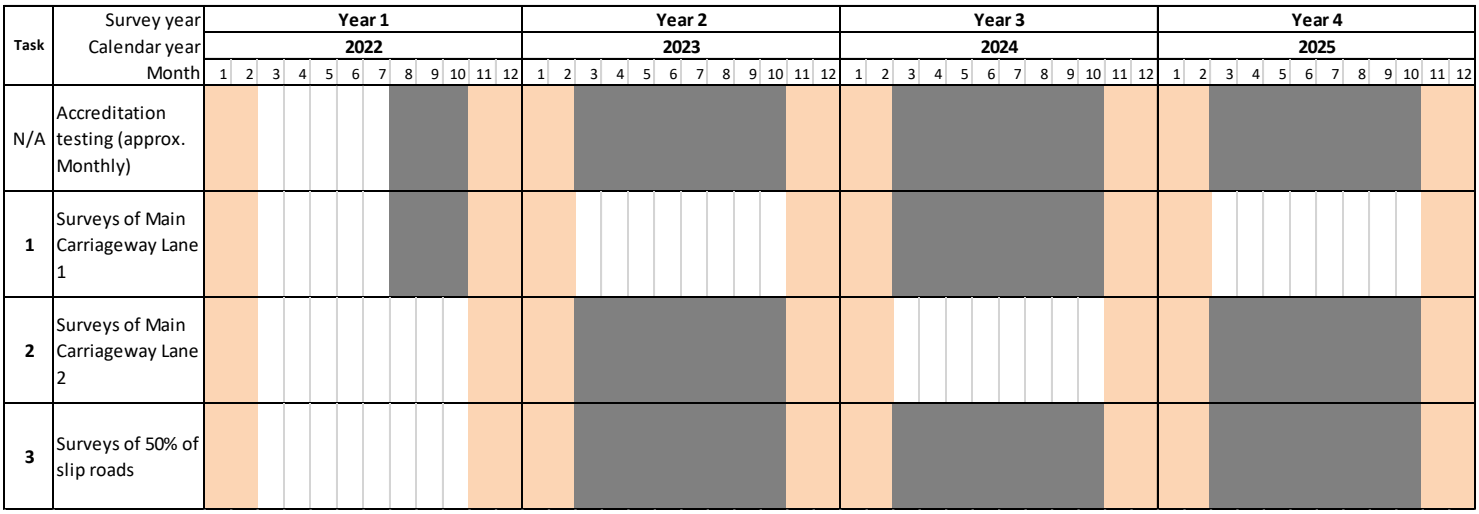

Table 3: Anticipated Programme – Survey Tasks Orders may be issued within the periods marked as grey

3.2.9 Survey Task Planning

3.2.10 At the start of each Survey Task, the extent of the Network to be surveyed during that Survey Task will be established. This will be referred to as the Eligible Network.

3.2.11 The Eligible Network will be provided as a list of Survey Lanes, defined using the network referencing with the *Client's* Database at a particular date. It shall

be recognised that Network referencing will change throughout the Survey Year. This is further discussed in 3.2.18 below.

3.2.12 At the start of each Survey Task (before commencement of surveys on that Task) the *Contractor* will provide a Survey Plan defining the approach to be taken to deliver the surveys to be undertaken on the Eligible Network under that Survey Task. The Survey Plan will include

- A programme describing how the Equipment will be applied to cover the required lengths within the available timescale.
- A review of any risks to delivery and the approach to be taken to mitigate these.

3.2.13 It is anticipated that the Equipment will be under an Equipment to *Contractor* Operation Notice for the period of a Task, and Survey Planning would normally be undertaken on this basis. However, the Equipment may be returned to the Technical Advisor (Equipment to the Technical Advisor notice), for example where issues have been identified with the Equipment that need attention by the Technical Advisor (e.g. repair of faults). This will be considered as Equipment Unavailability, as discussed in Appendix C.

3.2.14 An overview of the survey process is given in Figure 1.

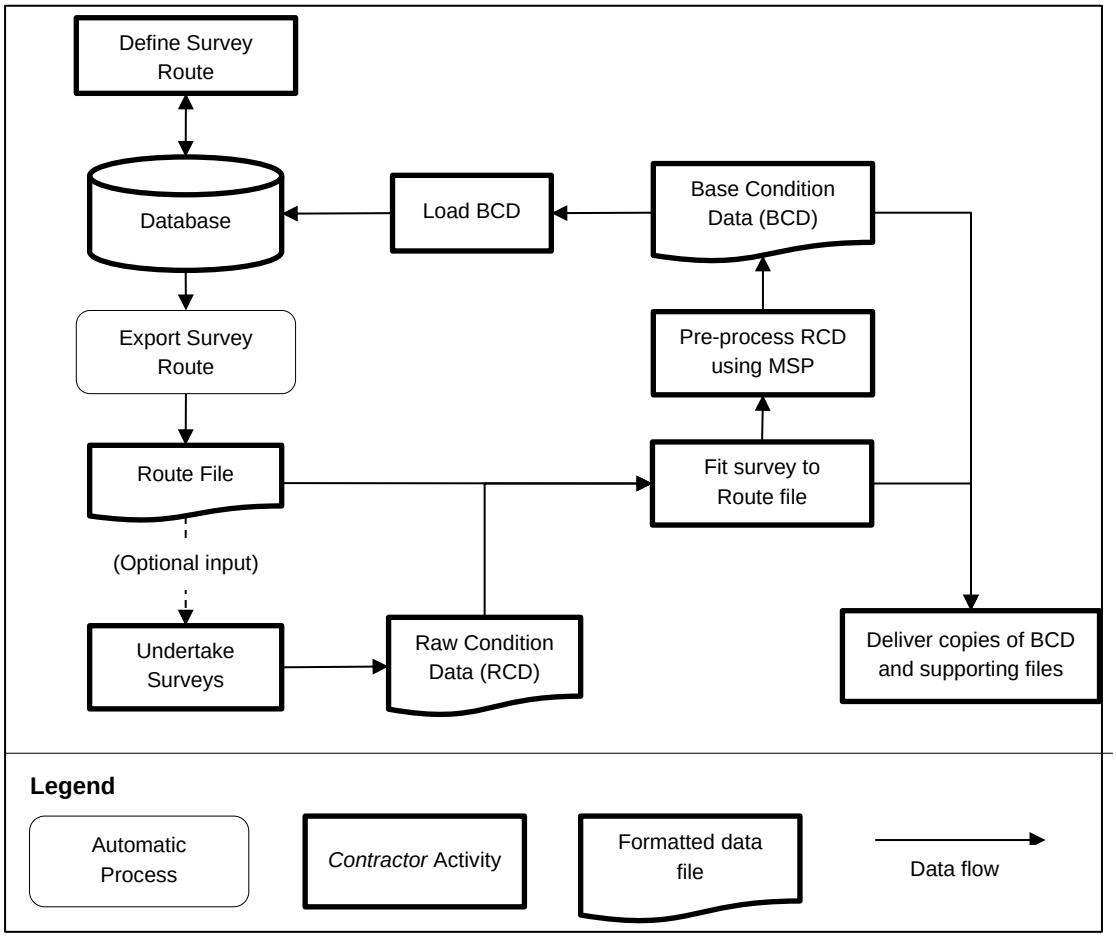

Figure 1: Overview of Survey Process (Data Flow)

3.2.15 A key component of Survey Task planning will be the preparation of Survey Routes. The *Contractor* shall be provided with access to the network

information stored in the *Client's* Database. From this information it shall be possible to construct, edit, store, export and delete planned Survey Routes.

3.2.16 Facilities will be provided to enable the *Contractor* to export selected Survey Routes from the *Client's* Database in the form of a Route file.

3.2.17 Note that constructing a Survey Route within the *Client's* Database need not be carried out prior to the Survey. However, the processes described in the following paragraphs assume this to be the case.

3.2.18 The *Contractor* shall note that the network information stored in the *Client's* Database is "live", in the sense that it is regularly updated to reflect any changes. It is the responsibility of the *Contractor* to manage the fact that Sections involved in Survey Routes may be subject to change in the *Client's* Database in the interval encompassing the planning and executing of the Survey, the processing of the RCD and the loading of the BCD into the *Client's* Database.

3.2.19 Subject to satisfying the requirements of this Specification, the Contractor shall be free to define whatever Survey Routes are most appropriate and convenient to their operational requirements, each having lengths of 100km or less.

3.2.20 A Survey Route shall comprise an ordered list of "Survey Lanes". Each Survey Lane shall be identified by:

- Section label
- Lane Direction Indicator
- Lane
- Start Chainage
- End Chainage
- Start location marker (LRP) label
- Start location (LRP) National Grid Co-ordinates.

3.2.21 A Survey Lane need not (but in most cases shall) extend along the entire length of a Section.

3.2.22 A Survey Route may include "dummy" Survey Lanes, of possibly unspecified length, to represent a part of the route to be taken by the Survey vehicle over which Survey Data shall not be of interest.

3.2.23 The Survey Route shall also have an end location marker label and National Grid Co-ordinates.

3.2.24 For the purposes of location referencing the *Client* installed physical markers on the network to mark the presence of LRPs, commonly referred to as "marker studs". However, these physical markers are no longer used to mark LRPs for network surveys carried out at traffic speed. Instead, accurate locations of the LRPs, expressed in the form of National Grid Co-ordinates have been defined within the *Client's* Database, which are used for the purposes of fitting to the network in post-processing. These locations will be delivered in the Route File when the facilities provided in the *Client's* Database are used to obtain the Route File.

3.2.25 An example Survey Route is shown in Figure 2. Note that, although Figure 2 shows the presence of marker studs at the start of Sections, this is for demonstration only and is not necessarily the case on the road Network. It cannot be assumed that such markers will be present.

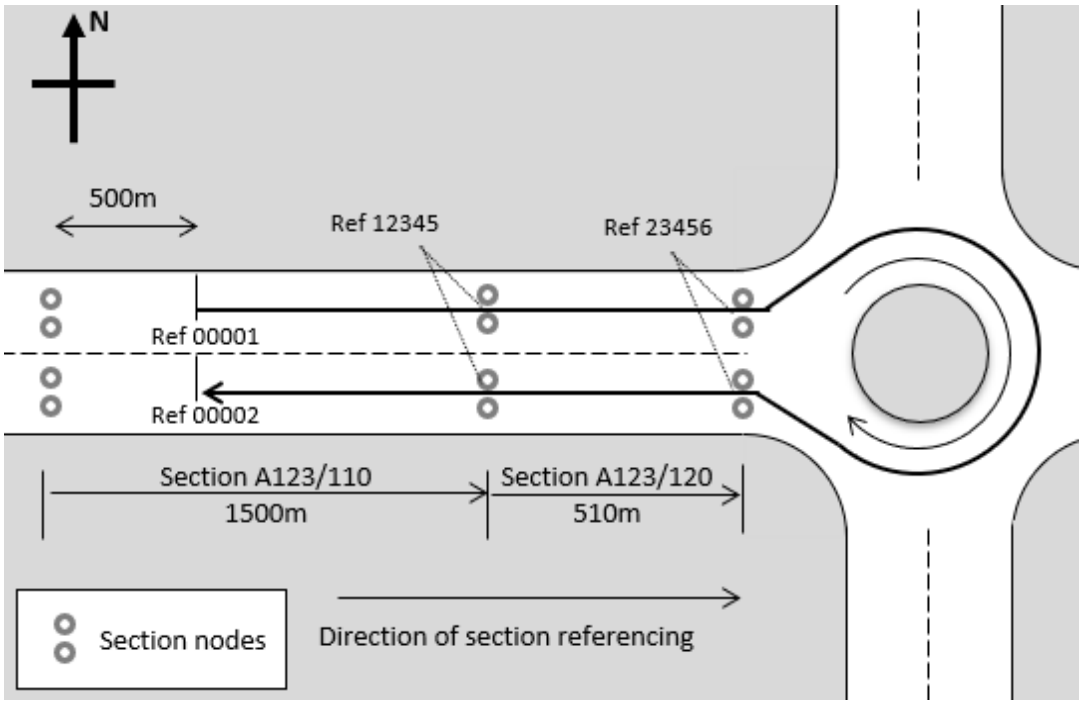

Figure 2: Example Survey Route

3.2.26 For the Survey Route shown in Figure 2, the Survey Route definition would be as shown in Table 4. This Survey Route includes a Roundabout. As the surveys under this specification exclude roundabouts, it includes a Dummy Survey Lane.

3.2.27 Survey Task Execution

3.2.28 The *Contractor* shall use the Equipment to carry out the Survey of the planned Survey Route and collect the Survey Data, according to the TRASS SOP.

3.2.29 It may be necessary for the Equipment to deviate from the Survey Route for a short length as a result of obstructions in the path of the Equipment (for example as a result of parked cars or temporary roadworks). The *Contractor* shall record the occurrence of such deviations in the Survey Data using the Deviation tools provided on the Equipment. The *Contractor* may suggest additional flags, as required, which could be accommodated in the Equipment.

3.2.30 Survey Data collected during deviations from the Survey Route (or using other relevant flags) shall be considered invalid in terms of the Coverage requirements specified section 4.

3.2.31 All surveys shall be undertaken in the direction of normal traffic flow.

3.2.32 Survey Task Review and Re-planning

3.2.33 The Survey Plan shall be reviewed regularly and presented to the *Client* as part of monthly progress meetings. In particular there will be a need to review the Survey Plan where there are agreed changes to the Survey Task timetable or as a result of undertaking Special Survey Task Orders.

3.2.34 Survey Task Review and Re-planning may identify a requirement to re-programme the survey, for example to move certain lengths of the network or areas up or down the priorisation list so that the risk of failure to survey priority lengths (e.g. before the end of the time allowed for the current Survey Task) is minimised. The effects of Survey Task Review and Re-planning will not be compensated unless evidence is provided of a material effect on the *Contractor*.

Sequence	Section Label	Lane Direction Indicator	Lane	Start Chainage	End Chainage	Start Location Marker (LRP) Label	Start reference co-ordinates (E,N)	Notes
1	A123/110	EB	Lane 1	500	1500	00001	122450.000, 543210.000	1,2,4
2	A123/120	EB	Lane 1	0	510	12345	123450.000, 543210.000	4
3	DUMMY	N/A	N/A	N/A	N/A	23456	123960.000, 543210.000	3
4	A123/120	WB	Lane 1	510	0	23456	123960.000, 543206.000	4
5	A123/110	WB	Lane 1	1500	500	12345	123450.000, 543206.000	1,4
Survey End Location Marker Label						00002	122450.000, 543206.000	1,2

Notes:

1. Survey Lanes cover only part of the length of Section A123/110.
2. Start location marker label “00001” and end location marker label “00002” would typically be defined when using the route building software. They would normally be (but need not be) unique within the Survey Route. The choice of 5-digit numbers as location marker labels shall not be mandatory within the software but is current practice.
3. A dummy lane is included within the route to cover the path of the Survey vehicle on the roundabout. The distance covered by the vehicle within this Survey lane is undefined and any Survey Data recorded within this Survey lane will not be used within the *Client’s* Database.
4. Chainages are measured in the direction of section referencing and are reversed when surveying in the opposite direction to section referencing on a 2 way single carriageway. Within the *Client’s* Database, each Section shall have a Section Direction Indicator with which the Survey Lane Direction Indicator can be compared. Typical Direction Indicators are NB – Northbound, EB – Eastbound, SB – Southbound, WB – Westbound, CW – Clockwise, AC – Anti-clockwise.

Table 4: Example Survey Route

3.3 Special Survey Task Orders

3.3.1 Special Survey Task Orders will be commissioned to collect Survey Data on specific lengths of the road network for which data is required to support research or further investigation into the structural condition. The locations of the Special Surveys, and in some cases the survey methodology, may differ from those required in Survey Tasks (e.g., they may be located on UK sites away from the SRN, they may require multiple surveys of the same site, or testing with the Equipment set up in a different configuration).

3.3.2 Each Special Survey Task Order will define:

- The survey site/location
- The timetable during which the survey is required to be carried out
- The Survey Data that is to be collected, and the processing.
- The method of delivery of the Survey Data (i.e., how and where the raw data, RCD, BCD etc. is to be provided)
- Details of how the survey would differ from a standard network survey
- Whether the Technical Advisor will need to be present for the survey
- Any other specific additional requirements that shall be met by the *Contractor* for that particular Special Survey Task.

3.3.3 The *Contractor's* current Survey Task programme would be taken into account when defining the required timetable for the Special Survey Task Order.

3.3.4 Special Survey Task Order Planning

3.3.5 Special Survey Task Orders will be commissioned in two stages. The *Client* will initially issue a Special Survey Task Order via a request for a Method Statement for a Special Survey Task Order. Subject to the acceptance of the Method Statement, the Client will issue a Special Survey Task Survey Order. A proforma for commissioning a Special Survey Task is provided in Appendix D.

3.3.6 On receipt of a request for a Method Statement, the *Contractor* shall:

- Develop and deliver a method statement for the work. Note that it is envisaged that the Special Survey Task Order surveys will require planning and execution that includes many of the components described above for Survey Task Orders, in particular route planning.
- Identify and report any risks or issues with the work, based on their experience of conducting network surveys.
- Propose a timescale for delivery
- Confirm any implications of carrying out the Special Survey Task Order for the current Survey Task Order.
- Provide a costing for the work.

3.3.7 The method statement and costing for the work shall be provided with 14 days of receipt of the request for a Method Statement for a Special Survey Task Order and agreed by all parties (*Client*, *Contractor* and Technical Advisor) before work commences – which will be confirmed via the issuing of a Special Survey Task Survey Order by the *Client*.

3.3.8 Special Survey Task Orders may delay the completion or affect the planning of Survey Task Orders.

- Special Survey Task Orders are commissioned according to the Special Survey Task Order rates (time and materials) defined in the Prices. Special Survey Task Orders may require the Equipment to shift from its location undertaking the current Survey Task Order to the required location for the Special Survey Task Order. The pricing of the Special Survey Task Order should take into account the fair and reasonable costs of the full requirement for undertaking the Special Survey Task Order and returning the Equipment to continue the Survey

Task Order. This will also include any time required for training/guidance by the Technical Advisor (e.g., where the Special Survey Task Order survey differs from a standard survey).

- If delays to a Survey Task Order (due to conducting a Special Survey Task Order) result in an inability to complete the Survey Task Order within the current survey season, the *Contactor* shall not be compensated for the loss of surveys in the current season. However, the uncompleted lengths may be considered by the Client when establishing Survey Task Orders for the subsequent survey season, subject to budget and other practical constraints.
- The *Contractor* will clearly demonstrate the implications of undertaking the Special Survey Task Order on the current Survey Task Order survey programme within their Method Statement. As a result of the Special Survey Task Order there may be a requirement to revise the Survey Task Order survey programme to accommodate, for example, priority lengths to reduce the risk of these not being covered before the end of the current Survey Task Order. This will be considered as Survey Task Review and Re-planning – see 3.2.32.

3.3.9 Special Survey Task Execution

3.3.10 The *Contractor* shall use the Equipment to carry out the Special Survey Task over the agreed site Route and collect the Survey Data, according to the Method statement.

3.3.11 As for Survey Task Orders, It may be necessary for the Equipment to deviate from the Survey Route for a short length as a result of obstructions in the path of the Equipment (for example as a result of parked cars or temporary roadworks). The *Contractor* shall record the occurrence of such deviations in the Survey Data using the Deviation tools provided in the Equipment. The *Contractor* may suggest types of flags required, which could be accommodated in the Equipment.

4 Data Processing, Coverage and Task Completion

4.1 Survey and Special Survey Task Orders

4.1.1 The approach to data processing, as described in the following sections, is anticipated to be broadly similar for Survey and Special Survey Task Orders. However, modifications/refinements to the process may be required for Special Survey Task Orders, to be agreed on a Task Order basis. For example, use of MSP may not be appropriate for all sites surveyed under Special Survey Task Orders.

4.2 Processing the Survey Data

4.2.1 As noted in the TRASS SOP, post-processing Software will be provided to process the Survey Data to build RCD files. In summary, these will include the following data:

- Distance measurement
- Location data as coordinates

- Deflection velocity data for all sensors installed on either the left, right or both measurement beams (as defined in the Task Order).
- Data quality for the deflection velocities, reported as “data rates” for each sensor for all sensors installed on either the left, right or both measurement beams (as defined in the Task Order).
- Deflection bowls calculated from the measured deflection velocities for either the left, right or both measurement beams (as defined in the Task Order). Laser height data in the left hand wheelpath, reported as longitudinal profile and texture
- Inertial data
- Temperatures of on either the left, right or both measurement beams (as defined in the Task Order).
- Air and Road surface temperatures
- Tyre temperatures
- Dynamic load measurements

4.2.2 The *Consultant* uses the provided software to process the Survey Data to RCD, as defined in the TRASS SOP.

4.2.3 The following Survey Data are also collected and shall be delivered, but not as RCD

- Ground Penetrating Radar (GPR) data for the left and right wheeltracks
- Forward Facing digital images
- Downward Facing digital images

4.2.4 Note: the post-processing software and/or RCD files may be subject to change during the contract as a result of ongoing developments. the *Consultant* will use the current version of the TRASS SOP provided by the Technical Advisor.

4.3 Validating RCD and checking coverage

4.3.1 Quality validation of the RCD

4.3.2 The *Contractor* shall ensure, as far as practically achievable, that surveys do not provide non-Valid Data. Where this is unavoidable for parts of a survey, all Survey Data collected in such conditions will the marked using the tools provided in the Equipment (for example using the deviation marker – see 3.2.27).

4.3.3 All survey data will be subject to a network validation Quality Assurance check to quantify the coverage of valid data. This Validation check is described in Appendix B.

4.3.4 Checking Coverage of Valid RCD

4.3.5 The validation check will label individual lengths within each RCD datafile as Invalid/Valid. This will then be checked to determine the coverage of valid data within individual lengths, or within the Survey Task as a whole.

4.3.6 There are three levels for the assessment of Survey Data coverage. These are:

- Level 0 Coverage assesses the overall length over which a complete set (RCD/BCD/GPR/Images) of Survey Data was collected

- Level 1 Coverage assesses the Coverage of **Valid** Data achieved over individual 10km lengths.
- Level 2 coverage assesses the Coverage of **Valid** Data achieved over the entire Eligible Network for the Task

4.3.7 Note that validation will be carried out on either the left, right or both measurement beams (as defined in the Task Order). Where both beams are in use the requirements must be satisfied independently for each beam.

4.3.8 The minimum Data Coverage requirements (which apply to each Survey Task Order) are summarised in Table 5. These Data Coverage requirements define the percentage of the length over which Survey Data was collected in a Survey Task Order for which Valid Data shall be reported.

Type	Extent of Eligible Network for which Survey Data will be collected (Level 0)	Minimum Coverage of Valid Data (Level 1 – 10km lengths)	Minimum Coverage of Valid Data (Level 2 – Eligible Network)
Main Carriageways Lane 1	99%	85%	90%
Lane 1 of Slip Roads	99%	N/A	70%
Main Carriageways Lane 2	99%	85%	90%
Special Survey Task	To be defined for each Task Order	To be defined for each Task Order	N/A

Table 5: Survey Data Coverage Requirements

4.3.9 To assist in assessing Level 1 Coverage, following the above RCD validation process, the Validation Tool will segment each survey into 10km lengths. It will quantify the percentage of each 10km length that contains Valid data.

4.3.10 The Validation Tool will report any 10km length where the Coverage of Valid data for any parameter is less than the Level 1 requirement. This will be called an Invalid 10km length. All network sections in which this Invalid 10km length fall will be considered to have Invalid data and have not been surveyed. No payment will be made for the data from these sections.

4.3.11 Note that Data Coverage for Level 2 is interdependent with the Survey Coverage (Level 0) requirements. For example, if a Lane 1 Survey Task Order has a length of 10,000km requiring a survey coverage of 99%, it would require at least 9900km to be surveyed. If in this Task a survey coverage of 9950km was achieved, the Valid Data requirements of 90% would require that 8955km of Valid Survey Data is delivered.

4.3.12 The *Contractor* shall maintain their survey programme such that lengths that have not been covered (either as a result of failure to survey or as a result of invalid data) are covered in subsequent (re)surveys within the timescale of the Survey Task Order, to achieve the Level 2 coverage requirements.

4.3.13 Quality Validation of the data not provided as RCD

4.3.14 The *Contractor* shall ensure, as far as practically achievable, that surveys do not provide poor quality or missing GPR and Image data. As for data that will be provided as RCD, where this is unavoidable for parts of a survey, the data will the marked using the tools provided in the Equipment (for example using the deviation marker or other markers proposed by the *Contractor* – see 3.2.27).

4.3.15 All non-RCD survey data will be subject to a network validation Quality Assurance check as described in Appendix B.

4.3.16 This validation check will not form part of the coverage assessment. However, where checks on non-RCD data identify a consistent lack of quality or where data is consistently missing, payment for this data may be withheld or partial payment made, as discussed in section 4.8

4.4 Using the Machine Survey Pre-processor to obtain BCD

4.4.1 Subject to the approval and training of suitable staff, the *Client* will provide the *Contractor* with software (the "Machine Survey Pre-processor" (MSP)) to pre-process the RCD.

4.4.2 The *Contractor* shall use the Machine Survey Pre-processor (MSP) to carry out the necessary pre-processing of the RCD. In order to minimise the likelihood of any changes to the Network, which would prevent the Survey Data being loaded into the *Client's* Database, this shall be done as soon as possible after the completion of a Survey.

4.4.3 The MSP will:

- Read and validate the format and consistency of the RCD.
- Validate the Measured Values, and then calculate and Validate any Derived Values.
- Fit the Survey to the Route (determine the elapsed chainage of the start and end of each Survey Lane within the Survey)
- Output the Derived Values and fitting information as Base Condition Data (BCD).

4.4.4 MSP may be upgraded or otherwise amended during the life of this contract to include additional functionality or to fix issues. If required due to the nature of the changes, the *Client* will arrange for additional training. The *Contractor* is expected to only work with the most up to date approved version of MSP and incorporate any changes to the software process into their procedures.

4.4.5 Validation

4.4.6 MSP will validate the Measured Values in the RCD and any Derived Values. The rules applied by MSP will be broadly similar to those applied by the RCD Validation Tool provided to the *Contractor.*

4.4.7 MSP will also use the flags provided by the *Contractor* in the RCD to label data as Invalid.

4.4.8 MSP will provide a report to the *Client's* information management systems of the Coverage achieved for each parameter.

4.4.9 Fitting the Survey to the Survey Route

4.4.10 The *Contractor* shall provide the RCD and the Route File to the MSP.

4.4.11 The National Grid co-ordinates of the start of each Survey Lane will be used by the MSP to obtain the elapsed chainages of the start points of these Survey Lanes in the RCD.

4.4.12 Differences in measured and expected lengths between References shall be compared with limits defined within the Parameter File and reported.

4.4.13 Where a Survey Section Length differs from the Section Length recorded in the Route File by more than 20m, or 10% of the Section Length (whichever is the less) the *Contractor* shall firstly ensure that the difference has not arisen from an error in the RCD or Survey procedure. If it is concluded that the length or National Grid Co-ordinates defined in the *Client's* Database (and thus within the Route File) are in doubt then the *Contractor* shall report the disagreement to the *Client*. The *Client* shall instruct the *Contractor* on what action to take.

4.4.14 For route fitting the following facilities shall be provided to the *Contractor* in the MSP:

- The facility to edit the Survey Route (read from the Route File).
- The facility to add to, edit and delete the "known sections" (i.e. those read from the Route File).

4.4.15 These facilities should only be used for any individual route with prior agreement of the *Client* in relation to the processing of that particular route.

4.4.16 Note that, if a Survey has covered sections that were not included within the original route, a new route shall be built within the *Client's* Database and exported. However, it is recognised that it may not be possible to do this. The user of the facilities shall be aware that the "known section" data shall be included within the BCD and shall be compared, during the load BCD process, with the current network definition within the *Client's* Database. If any discrepancies are found, the entire data set shall be rejected.

4.4.17 Neither the original Survey Route (contained in the Route File) nor the RCD shall be modified by the processes described above.

4.4.18 Obtaining the BCD

4.4.19 On successful completion of the fitting process the MSP will process the RCD to obtain the Base Condition Data (BCD).

4.5 Load Survey Data (BCD)

4.5.1 Subject to the approval and training of suitable staff, the *Client* will provide the *Contractor* with access to its information management systems to enable the BCD to be loaded.

4.5.2 In general, the load BCD process shall:

- Read and validate the format and consistency of the BCD.
- Validate the Survey "header" data.
- Validate the parameters used in processing by the MSP.
- Validate the condition data.
- Validate the section data.

- Validate the Survey lane data.
- and, if all validations are satisfied,
- Load the Survey Data into the *Client's* Database.

4.5.3 The Survey Data loaded into the *Client's* Management systems shall include the Survey Route definition.

4.5.4 The *Contractor* shall ensure that the BCD is loaded into the *Client's* Management systems as soon as practicable and in any event within thirty (30) Working Days of the Survey Data being collected.

4.5.5 If the *Client* becomes aware of errors in the Survey Data, such as inaccurate location referencing, it will inform the *Contractor* of the details of the error. If informed of any such error, the *Contractor* will, as soon as practicable and in any event within five (5) days, remove the affected Survey Data from the *Client's* Management systems. The *Contractor* will attempt to rectify the source of the error and, if successful, re-supply the correct Survey Data.

4.6 Provide Survey Data (BCD, RCD, GPR, Images and supporting files)

4.6.1 For Survey Task Orders, once the *Contractor* has successfully loaded the BCD into the *Client's* Management systems, copies of the Survey Data (all files of raw data collected, RCD, BCD, Forward Images, Downward Images, GPR data) shall be provided to both the *Client* and the Auditor. These shall be accompanied by copies of all relevant documents including the route files and appropriate survey reports, if so requested by the *Client* or Auditor.

4.6.2 For Special Survey Task orders (not loaded into the *Client's* Management systems) the Contractor shall process the Survey Data and provide this data (all files of raw data collected, RCD, BCD, Forward Images, Downward Images, GPR data) within a maximum of 1 week of completing the Survey.

4.6.3 The *Client* intends to undertake further processing of the Survey Data to draw value from the data beyond that achievable with the BCD alone. This may include uploading of the data into the Client's data systems for visualisation, and further analysis and processing of the GPR data and survey Images. This will require practical handling of the large volumes of data and synchronisation between the data (images, RCD, BCD and GPR). The *Contractor* shall take this into account when planning their approach to the delivery of the Survey Data to the Client and the Auditor:

- The *Contractor* shall implement a structured, consistent and practical approach to the delivery of the Survey Data such that all connected items (RCD, BCD, GPR, Images etc.) are provided together, for example in a common directory structure. This structure shall be agreed between the *Contractor* and the Technical Advisor and included within the SOP.
- All components of the data from any Survey shall be provided at the same time. The delivery should focus on minimising the work required by the *Client* to achieve their further processing objectives.
- For Survey Tasks commissioned from year 2 of the contract there may be a requirement for the *Contractor* to upload these data (images, RCD, BCD and GPR) directly to the *Client's* systems.

i. Changes to the methods of uploading data are treated as compensation events in accordance with section 60 of the contract terms.

ii. Where changes to the methods of uploading data are proposed, the *Service Manager* may instruct the *Contractor* to provide a quotation for the proposal in accordance with section 65 of the contract terms. The *Service Manager* will consider the proposed quotation in accordance with section 65. The proposed change is not implemented unless instructed by the *Service Manager*.

iii. Where changes to the methods of uploading data are to be implemented without consideration of a proposal, this is treated as a compensation event under clause 60.1(1) of the contract terms.

4.6.4 The *Contractor* shall agree with the *Client* and Auditor a schedule for the delivery of the Survey Data to ensure consistent staged delivery throughout each Task. This will aim to deliver the Survey Data no more than thirty (30) Working Days after the BCD has been loaded into the *Client*'s Database. However, all Survey Data for a Survey Task shall be provided to the *Client* and Auditor not more than thirty (30) Working Days after the completion of the Surveys for that Task. The Survey Task will not be considered complete until all the required data has been delivered.

- Where Survey Data is provided via download from a server. The server shall be compatible with the *Client*'s systems and shall operate at a speed that is practical for access and download the Survey Data.
- Where Survey Data is provided on storage media (e.g. portable hard disk) the *Contractor* will provide any storage media required.

4.6.5 The *Contractor* shall retain the Survey Data, in their original format for a minimum of six years, after the end of the contract. At the completion of the six year period the *Contractor* shall seek approval from the *Client* to delete the Survey Data.

4.7 Task Completion

4.7.1 At the end of each Survey Task the *Contractor* will provide a coverage report. This shall contain a list of Survey Lanes (i.e. broken down by Section and distance) within the Eligible Network which the *Contractor* was either unable to Survey or which the *Contractor* decided not to Survey, together with the reason. The *Contractor* will also provide a list of Survey Lanes within the Eligible Network for which the *Contractor* was unable to deliver valid Survey Data, together with the reason. The report provided by the *Contractor* shall be broken down by Measured Parameter.

4.7.2 At the end of each Task the extent of Coverage achieved on the Eligible Network will be assessed against the required Level 2 Coverage. The assessment will take account of the above list of Survey Lanes provided by the *Contractor*. The Survey Lanes for which acceptable reasons (in the opinion of the *Client*) have been given for failure to cover will be accounted for in determining the overall level of coverage achieved.

4.7.3 The *Contractor* may be required to undertake additional surveys to reach the required Level 2 Coverage.

4.7.4 The failure to meet the required level of Data Coverage by the Survey Task Completion Date may affect the number and extent of further Survey Task Orders issued and repeated failure to Provide the Service and may be treated as the *Contractor* having substantially failed to comply with this contract.

4.8 Payment for Partial Data

4.8.1 Within a Survey Task Order there may be lengths of the network for which the length is considered Valid for the data that has been provided but the *Contractor* has not provided a complete dataset of RCD, BCD, GPR, Forward and Downward Facing Images.

4.8.2 Where data is missing because the Equipment is unable to provide this data (for example as a result of a faulty component) the *Client* may approve the continuation of surveys and the delivery of an incomplete dataset. For these surveys Partial Payment shall be made for the data according to the missing data, by reducing the total payment by a fractional amount to accommodate the missing data as defined in Table 6 (Reduced data agreed with *Client* prior to survey).

4.8.3 Where data is missing without prior agreement, the *Client* may still approve the delivery of an incomplete dataset. For these surveys Partial Payment shall be made for the data according to the missing data, by reducing the total payment by a fractional amount to accommodate the missing data as defined in Table 6 (Reduced data not agreed with *Client* prior to survey).

Missing Data*	**Payment Reduction (%) (Reduced data agreed with Client prior to survey)**	**Payment Reduction (%) (Reduced data not agreed with Client prior to survey)**
GPR – Either Left or Right wheelpath	2.5%	5%
Deflection Velocity or Slope - One wheelpath missing in a Task Order that requested both	0%	20
Forward Images	0%	2.5
Downward Images	0%	2.5

*Lengths in which core data (e.g., slope) is absent are considered to not contain Valid data for the purposes of coverage assessment.

Table 6: Partial Payment Schedule

4.8.4 In accordance with the principles of Early Warning (section 15 of the contract terms) where there is an awareness before the Survey Data is collected that there is likely to be an incomplete dataset (e.g. it is known that the GPR is not functional) the *Contractor* or the *Service Manager* notifies the other party when they become aware of the potential issue. The *Contractor* and the *Service Manager* discuss the impact of the Early Warning to agree any changes to collection and how the principle of Partial Payments will be applied before the Survey is carried out. Where appropriate, the *Service Manager* may issue an instruction to pause surveys pending resolution of the issue.

4.9 Variation in Pre-processing Procedure

4.9.1 The *Contractor* shall notify the *Client* if they believe that either the MSP or information management systems are not operational.

4.9.2 The *Client* shall assess the operational capability of its information management systems or the MSP (as appropriate), and shall serve a Non-Operation Notice if appropriate.

4.9.3 If and only if the *Client* serves the *Contractor* a Non-Operation notice, the *Contractor* shall continue to conduct surveys in accordance with this Specification but shall cease loading BCDs into the information management systems until the *Client* provides the *Contractor* with an Operation Notice.

4.9.4 The currency of a Non-Operation Notice shall be from the *Client* serving the Non-Operation Notice until the *Client* serves an Operation Notice.

4.9.5 For the avoidance of doubt, where a Non-Operation Notice is not current, the *Contractor* shall process any RCD and BCD in accordance with this Specification.

4.9.6 On being served with an Operation Notice, the *Contractor* shall process any RCD and BCD in accordance with this Specification as soon as practicable and in any event within thirty (30) Working Days of the Operation Notice so as to clear the backlog of RCD and BCD.

4.10 Application for payment and Performance Management

4.10.1 The *Contractor* provides a work breakdown structure (WBS) breakdown of the invoice in the format discussed in Appendix E on a monthly basis.

4.10.2 In the WBS the *Contractor* provides conformation of the Coverage of Valid Data achieved and charges only for Valid Data loaded into the *Client's* information management systems. The outputs from the RCD validation (4.3) may be used to confirm this.

4.10.3 In the WBS The *Contractor* confirms that all components of the deliverables required in the period covered by the invoice, in particular those stated in Tables E.4 and E.5 of Appendix E in this Annex, have been delivered.

4.10.4 The *Contractor* should note that the delivery of QA data and reports listed in Table E.5 is not priced separately. However, the WBS includes an item for the delivery of the required QA data and reports. Where the required QA data and reports have not been delivered there will be a reduction of 5% in the payment until the required QA data and reports are delivered:

- The delivery of the QA data and reports will be monitored by the Auditor and the *Client* and where a risk is identified of delay to, or there is failure to deliver the required QA data and reports, the *Contractor* shall be notified. The *Contractor* shall be given the opportunity to provide the required data within 30 days. If this is not provided then it will be defined that that there has been a failure to deliver this data, and the invoice shall be reduced as noted above.
- Once the outstanding data and reports have been delivered then the withheld 5% shall be recovered, via the invoice submitted following the provision of this data.

- If the outstanding data and reports are not delivered within 60 days of the date on which the notification was provided, the withheld 5% will not be paid.
- It is anticipated that collaboration between all parties will minimise the risk of invoice reductions. The *Contractor* should establish a robust process to support this collaboration.

4.10.5 The *Contractor* shall also provide a monthly spend forecast when preparing their invoice (Appendix E).

4.10.6 As noted in S635 of the Scope the *Service Manager* will use the current version of the Collaborative Performance Framework (CPF) to measure the *Contractor*'s performance.

- When assessing their performance within the delivery component within the CPF the *Contractor* shall undertake a review of their performance in the delivery of all deliverables defined in Appendix E. Where there is a failure to provide the required deliverables (and there has been no agreement given by the *Client* or the Auditor for not providing any deliverable (e.g. due to unavoidable circumstances)) performance assessment will not achieve a Performance Level of 6.
- Failure to meet a Performance Level of 6 may affect the number and extent of further Survey or Special Survey Task Orders issued. Repeated failure to Provide the Service may be treated as the *Contractor* having substantially failed to comply with this contract.

5 Ensuring data quality

5.1 General Requirements

5.1.1 The *Client* shall appoint an Auditor to monitor the application of the *Contractor's* quality management system, as stated in the contract document.

5.1.2 The *Contractor* will undertake the Calibration, Accreditation, Re-Accreditation and QA checks as defined here and in the Appendices to this document and in the SATTS SOP.

5.1.3 The *Contractor* shall:

- Deliver any Calibration, Accreditation, Re-Accreditation and Quality Assurance tests, re-tests and Survey Data as defined within the overall price agreed for the surveys
- Deliver any reports required to the *Client* and to the Auditor promptly in accordance to the timescales defined
- Report any repairs, alterations or component issues on the Equipment promptly to the Technical Advisor, Auditor and *Client* no later than 7 days of the event / identification of issue, and maintain a record in the Issues log. The results of any subsequent QA checks (to verify the alterations) shall also be provided to the Auditor for review (see Appendix B)
- Work with the *Client* and the Auditor to apply checks on the quality of the Survey according to the process summarised in Figure 3 and further detailed in Figure 4, Figure 5, Figure 6 and Figure 7 and described further in the following sections.

5.1.4 If the Auditor considers that the quality of Survey is affecting the accuracy of any part of the Survey Data, the Auditor may suspend the Accreditation of the *Contractor* to carry out Surveys until sufficient competence has been demonstrated by the *Contractor* via an appropriate test determined by the Auditor.

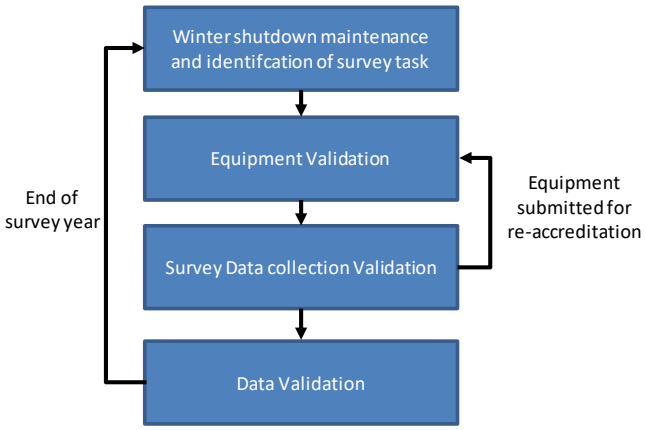

Figure 3: Ensuring data quality – overall process

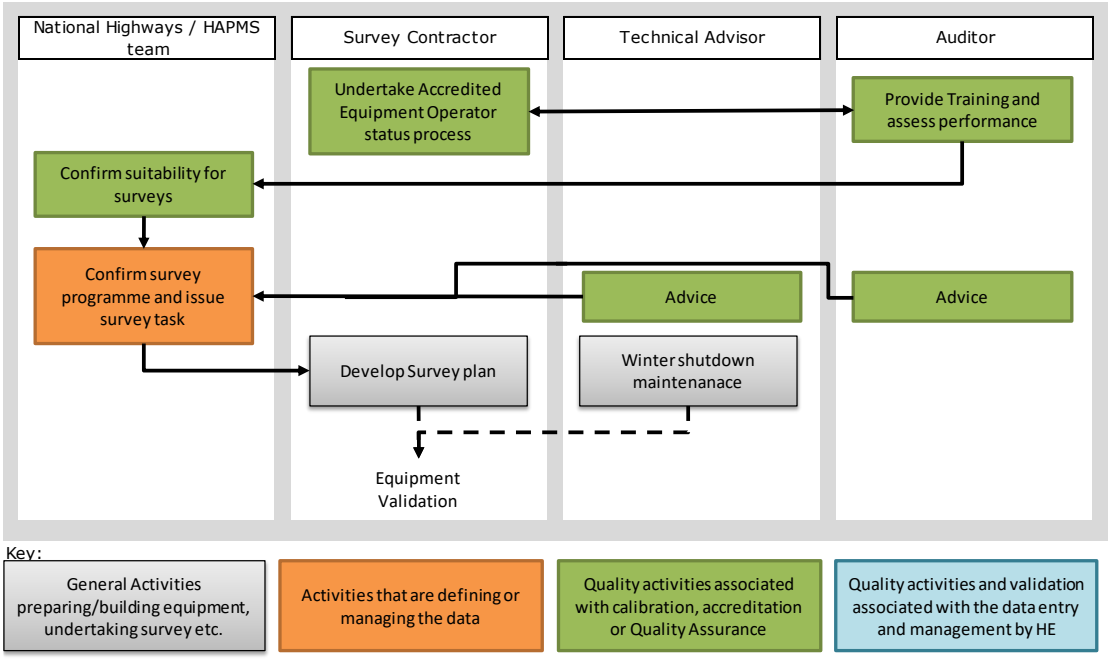

Figure 4: Ensuring data quality – Start of survey season

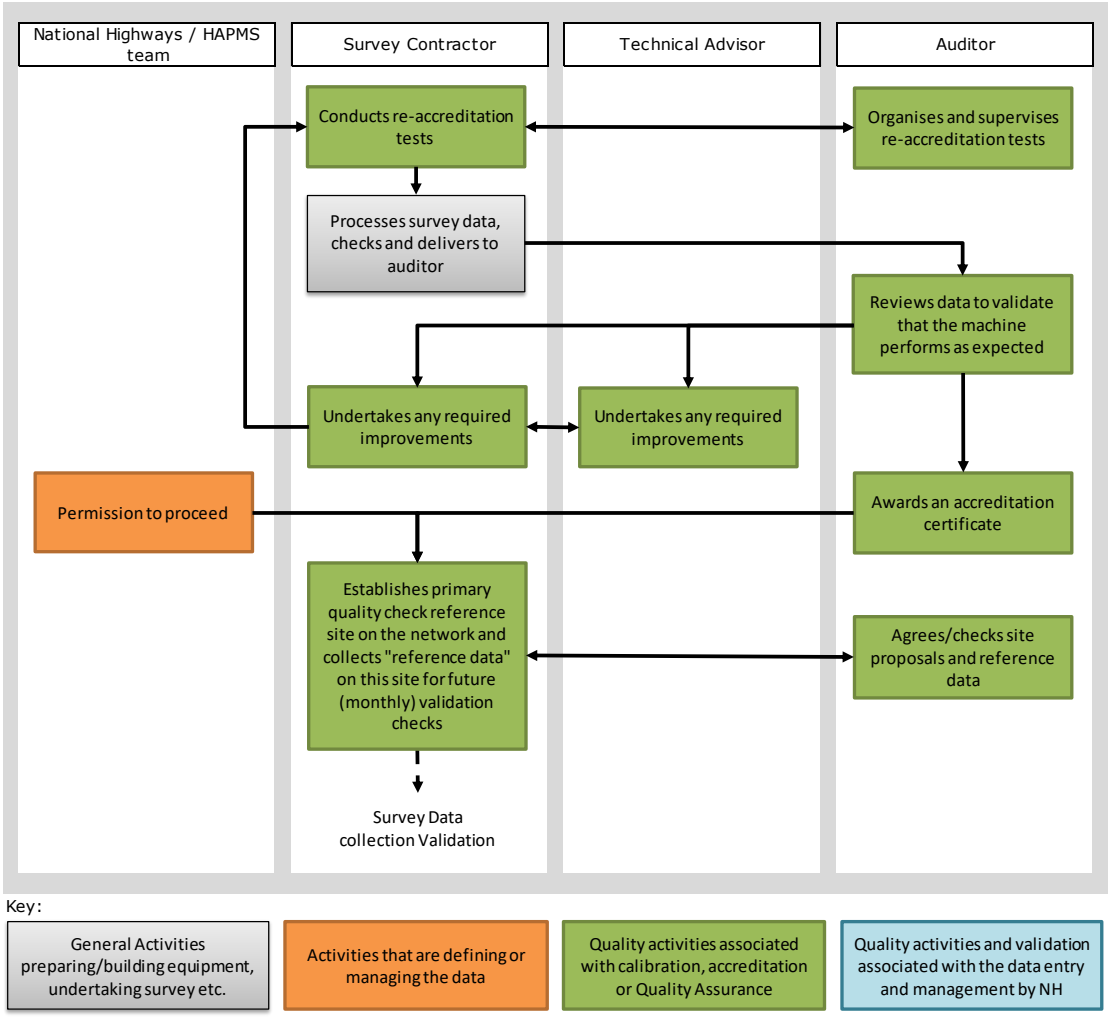

Figure 5: Ensuring data quality – Equipment Validation

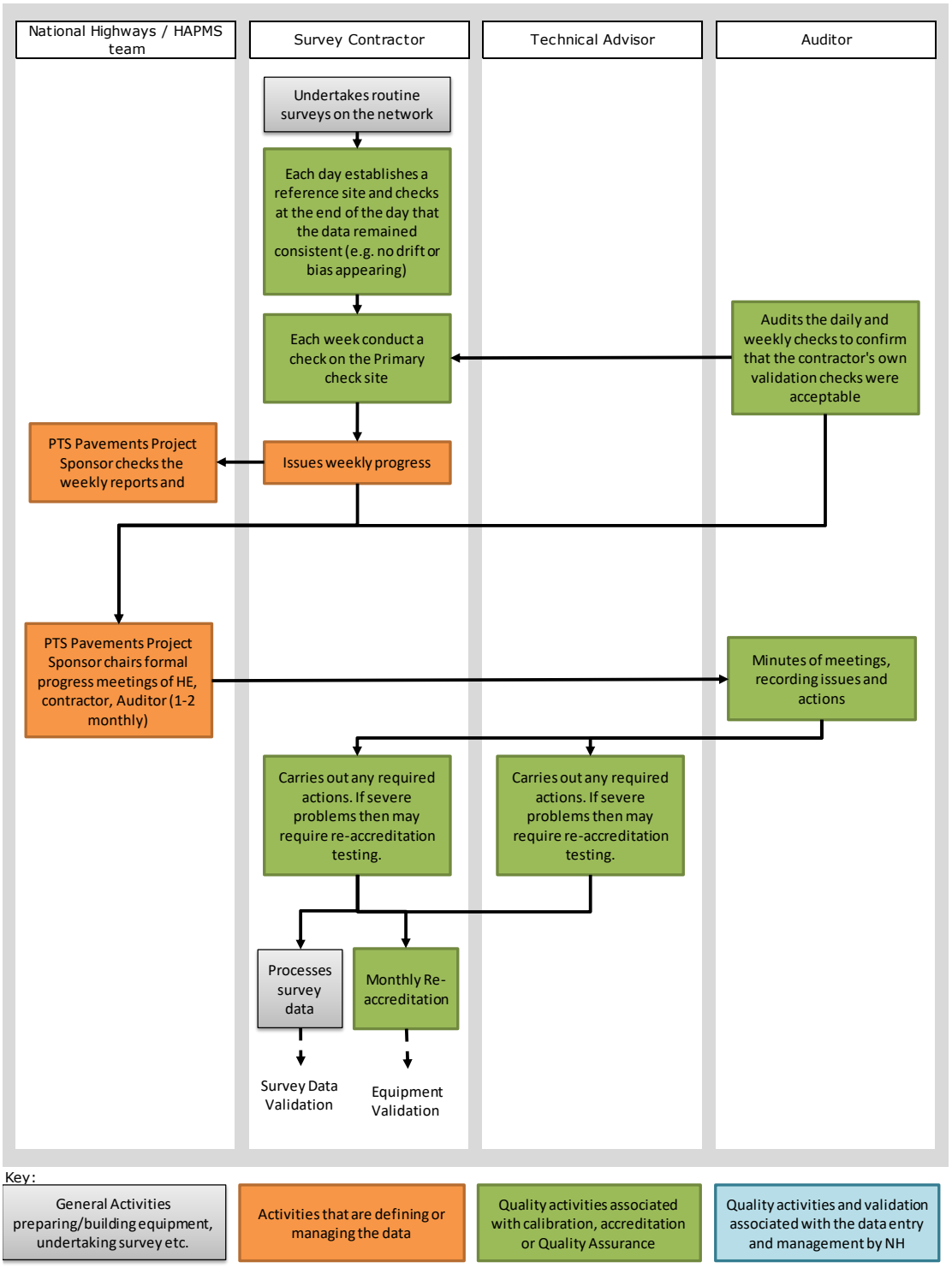

Figure 6: Ensuring data quality – Survey Data collection validation

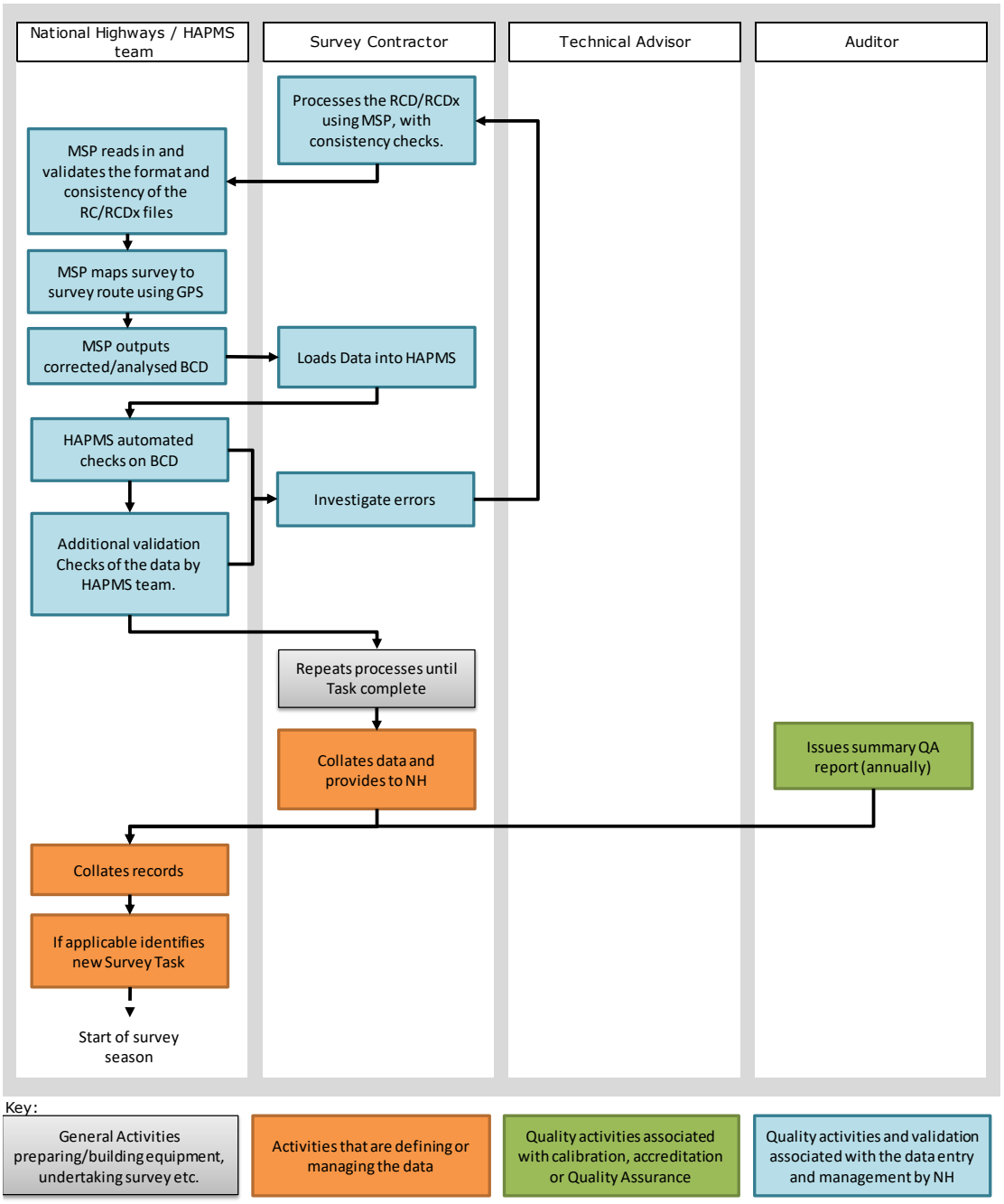

Figure 7: Ensuring data quality – Survey Data validation

5.2 Calibration

5.2.1 The *Contractor* shall undertake regular Calibration checks on the Equipment as described in the TRASS SOP.

5.2.2 The Calibration will assess the performance of the Equipment on established sites. The *Contractor's* Accredited staff will operate the Equipment during the Calibration, process the Survey Data to obtain the Calibration values, and provide the data and the values to the Auditor on the day of testing, according to the TRASS SOP.

5.2.3 The *Contractor* may charge for Calibration as identified in the Commercial Workbook.

5.2.4 The Auditor will confirm the satisfactory Calibration of the Equipment within 1 Working Day of receipt of the Calibration values. The *Contractor* is permitted to continue surveying during this period, provided that no other quality assessments, as defined in the TRASS SOP, prevent continuation of the Survey.

5.2.5 To encourage the *Contractor* to develop alternative Calibration sites in more convenient locations relevant to its normal base of operations, the maximum number of km that can be charged for travel to or from a calibration site in any calendar year is 1,300km.

5.3 Accreditation

5.3.1 Operator Accreditation

5.3.2 The *Contractor* shall achieve accreditation for supporting and operating the Equipment and processing the data, as described in Appendix A.

5.3.3 Equipment Accreditation

5.3.4 The Equipment shall undergo Accreditation testing to maintain approval to carry out Surveys. The accuracy of the Equipment in the measurement of each parameter shall be assessed separately such that the Equipment may be judged as acceptable or not (as applicable) in the measurement of each individual parameter.

5.3.5 The Equipment shall be operated by the *Contractor* during the Accreditation Tests. The Auditor will supervise and control the Tests.

5.3.6 The Equipment Accreditation process is described in Appendix A.

5.3.7 At the successful completion of the Accreditation Tests an Accreditation Certificate shall be produced by the Auditor for the Equipment confirming the continued suitability of the Equipment to undertake Accredited Surveys.

5.3.8 The Equipment shall be considered Accredited to undertake TRASS Surveys for the period extending until the next (Re)Accreditation Test and will be subject to regular Testing as described in Appendix A.

5.4 Quality Assurance

5.4.1 TRASS Quality Assurance Regime

5.4.2 The *Contractor* will apply the Quality Assurance procedures defined in Appendix B and deliver the required Audit reports and data defined therein.

5.4.3 The Quality Assurance procedures, including carrying out any Surveys or data processing required will be undertaken by the *Contractor* at their own cost.

5.4.4 *Contractor's* Quality Assurance Regime

5.4.5 In addition to the procedures defined above and in the TRASS SOP, the *Contractor* will provide and operate an effective and documented Quality Assurance regime specifically focussed on the management of the quality of the surveys and the Survey Data. The regime shall cover all aspects of the Survey, including, but not limited to:

- Vehicle operation and maintenance
- Driver and operative training and instruction
- Survey operation and record keeping
- Data recording, processing, and analysis
- Delivery of Survey Data.
- Processes for minimising surveying in adverse conditions and identification of lengths to be marked as invalid (due unsuitable survey conditions, diversions or other reasons).

5.4.6 This documented Quality Assurance regime shall be provided to the *Client* and the Auditor at least two weeks before surveys commence on the first Survey Task. The *Contractor* shall maintain the document and provide an update at the start of each subsequent Survey Task and after any significant changes.

5.4.7 The Auditor may require the *Contractor* to demonstrate any aspect of their Quality Assurance regime at any time, including documentation and performance.

5.4.8 Survey conditions

5.4.9 Survey conditions can affect the quality of the Survey Data. The TRASS SOP lists the survey conditions that may adversely affect the performance of the Equipment. The Technical Advisor shall maintain and update the SOP based on experience from surveys and following any maintenance or alteration that effects the performance in this regard.

5.4.10 The *Contractor* shall ensure, as far as practically achievable, that surveys will not be carried out in adverse survey conditions. Where this is unavoidable for parts of a survey, the *Contractor* will mark all Survey Data collected in such conditions as invalid in the RCD.

5.4.11 If/where the process is found to be poorly applied (e.g. where the Auditor identifies that Survey Data is being provided on lengths in which the Survey was carried out in adverse survey conditions but the data is not suitably marked), the Auditor may require the *Contractor* to demonstrate improvements. Repeated failure may result in suspension of the Accreditation of the *Contractor* to carry out Surveys until sufficient competence has been demonstrated by the *Contractor* via an appropriate test determined by the Auditor.

5.4.12 Survey Data marked as invalid, or lengths of surveys marked with an adverse conditions flag, will not contribute to the coverage. The *Contractor* may need to resurvey in order to achieve the coverage requirements.

5.4.13 Checks on Data Loading and Fitting

5.4.14 The *Client* or the Auditor may undertake checks on the processing of the RCD, and the subsequent delivery of BCD within the *Client's* Database. These checks will pay particular attention to the fitting of the Survey Data to the Network.

5.4.15 If a check shows that the Survey Data does not meet the requirements the *Contractor* will be required to provide an acceptable explanation for the presence of these errors. The decision on the acceptability of the explanation shall rest with the *Client* and the Auditor.

5.4.16 Should the explanation not be considered acceptable and the Auditor or the *Client* consider that the error demonstrates a wider problem with the Equipment, its operation, or data processing (including data fitting), the Accreditation of the *Contractor* to either carry out Surveys, or deliver data (as appropriate) may be suspended until the *Contractor* has demonstrated appropriate improvements in the procedures. These improvements shall be developed and implemented at the cost of the *Contractor*.

Appendix A Accreditation

A.1 Accredited Equipment Support

A.1.1.1 To gain access to the Equipment the *Contractor* must achieve Accredited Equipment Support status.

A.1.1.2 To achieve Accredited Equipment Support Status the *Contractor* shall demonstrate to the satisfaction of the *Client* and the Auditor that they will apply appropriate processes to support the Equipment during the Contract, and in particular when the Equipment is under an Equipment to *Contractor* Operation notice.

A.1.1.3 Therefore the *Contractor* shall:

- Comply with the requirements of VOSA regarding the operation of the Equipment on the network. This will include both management and operation, including any safety/mechanical checks that may be required for the vehicle.
- Insure the Equipment to indemnify the Client for all losses that may occur when the Equipment is under an Equipment to *Contractor* Operation notice.
- Provide suitable facilities for the safe storage of the Equipment when under an Equipment to *Contractor* Operation notice, including providing a suitable location for the safe storage of the Equipment when surveying the network but unable to return to the premises of the Contractor during survey down-time (e.g. overnight).
- Carry out any checks and inspections on the Equipment required as part of current Health and Safety and vehicle operation legislation.
- Carry out, checks, inspections, calibrations and maintenance of the Equipment as required within the TRASS SOP.
- Support, maintain and otherwise look after the Equipment at all times it is under an Equipment to *Contractor* Operation notice (taking into account the component responsibilities described in Appendix A).
- Hold a valid ‘Ground Probing Radar Operator’s Licence’ from Ofcom.
- Be a member of the European Ground Penetrating Radar association (EuroGPR).

A.1.1.4 The Technical Advisor will assess the ability of the *Contractor* to sustainably deliver the above. If the Technical Advisor has any concerns with the proposed processes the Technical Advisor will raise these issues with the *Contractor* for resolution before moving to the Operator team training phase

A.1.1.5 If the *Contractor* still fails to demonstrate an acceptable level of competence to achieve Accredited Equipment Support Status the *Client* may terminate the Contract and seek another *Contractor*

A.1.1.6 When the *Contractor* has demonstrated that they will apply appropriate processes to support the Equipment during the Contract, the Technical Advisor will recommend to the Auditor that Accreditation is awarded for Equipment Support.

A.1.1.7 The Accredited Equipment Support Status will be formally reviewed at each Equipment Accreditation.

A.2 Accredited Equipment Operator

A.2.1 Proposed Operator team

A.2.1.1 To operate the Equipment to carry out the surveys the *Contractor* must achieve Accredited Equipment Operator status.

A.2.1.2 To achieve Accredited Equipment Operator Status the Technical Advisor will check the Operator Team proposed by the *Contractor*. This will check areas such as:

- The capability of the Operator Team to deliver in each area of Equipment operation.
- The Contractor must use Operator Team drivers holding appropriate licenses for driving the Equipment.
- The Contractor must have suitable procedures in place to enable their Operator Team to undertake safe operation of the systems installed on the Equipment. As a minimum, this will require the *Contractor* to nominate suitably trained staff for the supervision of electrical and laser safety.

A.2.1.3 If the Technical Advisor has any concerns with the proposed Operator Team the Technical Advisor will raise these issues with the *Contractor* and seek to resolve them before undertaking the training

A.2.1.4 Subject to satisfying the above requirements, the *Contractor*'s Operator Team shall undertake training, as described below.

A.2.1.5 When the *Contractor*'s Operator Team has successfully completed the training the Technical Advisor will recommend to the Auditor that Accreditation be awarded for Operating the Equipment and the Auditor will classify the Operator Team as Accredited to undertake surveys with the Equipment, and process the data.

A.2.1.6 If the *Contractor*'s Operator Team fails to achieve Accredited status the *Client* may:

- Offer further training, which would be at the expense of the Contractor, followed by re-assessment.
- Terminate the Contract and seek another *Contractor*.

A.2.1.7 Note that during the period of the Contract the Equipment and/or the *Client*'s management systems may change, for example as a result of enhancement, upgrade or maintenance. If necessary, the Technical Advisor would provide training for the Operator Team to enable the *Contractor* to achieve Accredited Equipment Operator status on the revised Equipment or systems.

A.2.1.8 The *Contractor's* Accredited Equipment Operator Status will be formally reviewed at each Equipment Accreditation.

A.2.2 Training

A.2.2.1 The *Contractor's* Operator Team shall be given training in:

- Driving the Equipment.
- Operation of the Equipment.
- The operation of the Equipment processing / post processing software.
- Troubleshooting Equipment technical problems.

A.2.2.2 The training, which shall be carried out at the premises of the Technical Advisor, shall be based around the achievement of competence to operate the Equipment according to the requirements of the TRASS SOP

A.2.2.3 It is expected that the training will take up to a week. The Technical Advisor will train up to 4 of the staff in the use of the Equipment, including operators and drivers.

A.2.2.4 On successful completion of the training the Technical Advisor will recommend to the Auditor that the *Contractor* is approved as an Accredited Equipment Operator.

A.2.2.5 The training will clearly explain the extent to which the Contractor's Operator Team are permitted to alter or access Equipment electrical, mechanical or software components. Should the Technical Advisor consider that the *Contractor* has made inappropriate access or changes to any Equipment components then the Technical Advisor may suspend the accreditation of the *Contractor* to carry out Surveys (e.g. until it can be demonstrated that the *Contractor's* Operator Team has improved) and inform the *Client*. The *Client* may terminate the Contract.

A.2.2.6 Note that if the Technical Advisor or the Auditor considers a lack of driver or operator competence may affect the ability of the *Contractor* to perform effective Surveys, or that poor processing may be affecting the ability of the *Contractor* to deliver accurate data, the Technical Advisor may suspend the accreditation of the *Contractor* to carry out Surveys and/or deliver data until competence to operate the Equipment and process the data has been demonstrated.

A.2.3 Re-training

A.2.3.1 There may be a requirement during the contract to provide additional training as a result of changes to the Equipment or the Processing Systems. The Technical Advisor will provide this training when required. Wherever possible this will be timetabled to coincide with an Equipment Accreditation.

A.2.3.2 The Auditor may undertake checks from time to time (and in particular during Equipment Accreditations) on the ongoing competency of the Operator Team, to confirm the continued status of the Operator Team as Accredited to undertake Surveys with the Equipment. If the Auditor considers that the Operator Team is no longer demonstrating sufficient competency to maintain their status as Accredited to undertake Surveys

with the Equipment then further training/retraining may be provided and further assessments carried out. If the Operator Team continues to show a lack of competence the *Client* may terminate the contract and seek another *Contractor*.

A.2.3.3 The *Contractor* may require additional Operator Team members to be trained during the contract. The Technical Advisor will provide training for additional Operator Team members during Equipment Accreditation carried out at the start of a Survey Task Order (i.e. not Research Survey Tasks), subject to appropriate notice of the requirement for training by the *Contractor*.

A.2.3.4 The *Contractor* may be charged for the costs of training additional Operator Team members that require training during a Task (i.e. not at an Accreditation coinciding with the start of a Survey Task Order).

A.2.4 Health and safety

A.2.4.1 The *Contractor* shall comply with all relevant statutory requirements and any other rules, regulations, health and safety policies and safety and security instructions notified to the *Contractor* (these will be clarified during the training period).

A.2.4.2 The *Contractor* shall report to the *Client*, the Technical Advisor and the Auditor any accidents to people working on this Contract which require to be reported in accordance with relevant health and safety legislation.

A.2.4.3 The *Contractor*, the *Client* and the Technical Advisor shall notify each other of any known special health and safety hazards which may affect the performance of the Services. The *Contractor* shall inform and instruct people employed by him on the hazards and any necessary associated safety measures. In particular, the *Contractor* should note the laser, fuel and electrical hazards associated with the use of the Equipment

A.3 Equipment Accreditation

A.3.1 Introduction

A.3.1.1 Before undertaking Surveys, and during the Surveys, the Equipment will be subject to Accreditation Tests that shall prepare the system for surveys on the network and will characterise the performance of the system on a set of reference test sites. The Auditor will prepare a detailed study plan describing the Accreditation procedures and provide this to the Contractor before the tests are carried out.

A.3.2 Equipment Examination

A.3.2.1 The Auditor or Technical Advisor will undertake an Equipment Examination and complete an Equipment Examination report (See section C.3).

A.3.3 Review of Equipment Support and Operator Status

A.3.3.1 The Auditor will review the activities undertaken by the Contractor within the current survey period (since the previous Equipment Accreditation) to confirm that

- All the required Equipment Support activities (e.g. examinations, calibrations, checks) have been carried out to the required standard.
- All staff operating the Equipment have Accredited Equipment Operator Status.
- All operational activities have/are being carried out to the required standard. This may include observing the Operator team carrying out a survey (i.e., accompanied by the Auditor or Technical Advisor).

A.3.3.2 Subject to satisfactory performance in the above, the Auditor will re-Accredit the Status of the *Contractor* for Equipment Support and Operation. If satisfactory performance is not demonstrated the *Contractor* may be required to undertake further checks, according to the requirements of sections A.1 and A.2.

A.3.4 Equipment Accreditation Tests

A.3.4.1 The Accreditation tests will assess the performance of the Equipment against reference data collected using either a reference device or against previous measurements collected on the same site using Accredited Equipment, as described in the TRASS SOP.

A.3.4.2 The Accreditation will be held on one or more test track sites, and on one or more network sites. The *Contractor's* Accredited staff will operate the Equipment during the Accreditation tests, process the Survey Data, and provide this data to the Auditor within 7 working days of the testing, according to the TRASS SOP.

A.3.4.3 The Auditor will assess the Survey Data provided by the Equipment within 2 working days of receipt of the Survey Data from the *Contractor*.

A.3.4.4 The parameters to be assessed in the accreditation and the performance criteria are defined in the current version of the TRASS SOP.

A.3.4.5 The Auditor will award an Accreditation certificate to the Equipment on successful completion of the Accreditation.

A.3.4.6 If the Accreditation is unsuccessful there may be a need for further testing and assessment, as determined by the Auditor, until the Equipment can be deemed Accreditable.

A.3.4.7 If full Accreditation is not awarded, the *Client* may wish to continue to accept delivery of the parameters for which the Equipment has met the Accreditation Criteria.

A.3.4.8 The Accreditation Certificate will be valid for a period of 1 month from award, after which an Accreditation re-test will be required.

A.3.4.9 The Contractor shall undertake Accreditation testing (and any further testing during accreditation, including retests where problems are identified) at their own cost (i.e. the Contractor will not be able to charge for operating the Equipment or delivering the Survey Data in these tests).

Appendix B Quality Assurance

B.1 Introduction

B.1.1 Requirements for Quality

B.1.1.1 The achievement of high-quality data delivered in a timely manner is a key requirement of this contract. The RCD, BCD and other Survey Data will be subject to checks by the *Contractor*, Auditor and the *Client* under the Quality Assurance procedure. These checks will include independent random assessments of validity.

B.1.1.2 The overall requirements for data quality have been stated in Section 5. The following sections in this document explain the requirements of Quality Assurance Checks of Survey Data in more detail.

B.2 Contractor's Checks

B.2.1.1 The approach is based on four levels of checking using three types of site:

- Primary Check Sites
- Daily Check Sites
- Secondary Check Sites

B.2.1.2 The *Contractor* shall establish the required Primary and Secondary reference test sites as defined in the TRASS SOP and will survey the sites within the set time period defined in the TRASS SOP. The sites chosen by the *Contractor* may require approval by the Auditor.

B.2.2 Primary Checks

B.2.2.1 Primary Checks on RCD

B.2.2.2 The aim of the Primary Check is to provide an ongoing check of data consistency using a well-established test site.

B.2.2.3 The *Contractor* shall carry out Primary Checks, every week, via at least three Surveys on a Primary Check site, according to the TRASS SOP.

B.2.2.4 The *Contractor* shall calculate the differences between the Primary Check reference data and the test data for the Primary Check site under test. And compare these with the tolerances given the current version of the TRASS SOP for Primary Checks.

B.2.2.5 The Contractor shall also carry out tests on the GPR and Image data according to the requirements of the TRASS SOP.

B.2.2.6 All records and data (including GPR) from the Primary Checks should be provided to the Auditor as soon as possible and in any case within a maximum of 3 working days of undertaking the test.

B.2.2.7 If the required performance levels are not met in any of the three repeat runs (it is acceptable for the tolerance to be met for different parameters

in different runs) the Auditor shall be consulted, who may require the Equipment to return for them for examination and potential re-Accreditation. In the event of a problem the Auditor will aim to provide advice as soon as possible and in any case within 2 working days of notification.

B.2.3 Daily Checks

B.2.3.1 **Equipment Daily Check**

B.2.3.2 The *Contractor* will undertake daily checks on the general safety and functionality of the Equipment including the vehicle, trailer and the measurement systems. Guidance on carrying out these checks is provided in the TRASS SOP.

B.2.3.3 Daily Check on RCD

B.2.3.4 The *Contractor* will undertake Daily Checks on the day-to-day consistency of the measurements provided by the Equipment according to the TRASS SOP – see also Secondary Checks below.

B.2.3.5 The Contractor shall collect Daily Check data at the start and end of each survey day, calculate the differences between the day start data and the day end data, and check that the differences fall within the tolerances given the current version of the TRASS SOP.

B.2.3.6 Daily Check on non-RCD

B.2.3.7 The Contractor shall also carry out tests on the GPR and Image data according to the requirements of the TRASS SOP.

B.2.3.8 Daily Check Data Delivery

B.2.3.9 All records and data from Daily Checks should be provided to the Auditor within 2 weeks of undertaking the test.

B.2.3.10 Surveys to collect Survey Data specifically for the purpose of undertaking a Daily Check are not chargeable.

B.2.3.11 Failure of a Daily Check

B.2.3.12 If the required performance level is not met for any parameter then the test run should be repeated. If the problem remains then the Auditor shall be informed and no further Surveys carried out until the problem is resolved. It may be necessary to reject all data collected since the last successful Daily Check.

B.2.3.13 If a fault is found to be the cause of the problem and is considered serious then the Equipment may need to return to the Technical Advisor for attention. This may result in a need for a re-accreditation test before Surveys are resumed.

B.2.4 Secondary Checks

B.2.4.1 Secondary check process

B.2.4.2 Secondary Checks compare data from a current survey run against survey data previously collected on the Strategic Road network. It will be possible for the *Contractor* to undertake Secondary Checks without having to undertake additional survey runs.

B.2.4.3 The Survey Contractor will employ tools provided by the Technical Advisor to that will identify Secondary Check reference lengths within a current Survey and compare the RCD with that provided in a previous survey, according to the TRASS SOP.

B.2.4.4 The tools will check that the differences between the current and reference data fall within the tolerances given the current version of the TRASS SOP.

B.2.4.5 Secondary Check frequency

B.2.4.6 Secondary checks should be carried out, as a minimum, such that at least one check site is assessed each week that surveys are being carried out.

B.2.4.7 However, the number of Secondary Check sites is expected to be relatively low at the commencement of the first Survey Task. Many survey Routes are unlikely to include a Secondary Site. The Auditor will use the Survey Data to establish additional Secondary Sites and provide Secondary Site Reference Data for these Sites, hence increasing the number of Secondary Sites as each Survey Task Order is completed.

B.2.4.8 In any day that a Secondary Check is completed it will not be necessary to undertake a Daily check on the RCD (but all other Daily Check requirements will still be required).

B.2.4.9 Secondary Check Data Delivery

B.2.4.10 All records and data from the Secondary Checks should be provided to the Auditor within a maximum of 1 week of undertaking the test. Ideally the *Contractor* would summarise the Secondary Check results at the end of each week's survey and provide them to the Auditor at or before the start of the next survey week.

B.2.4.11 Any additional surveys to collect Survey Data for the specific purpose of undertaking a Secondary Check are not chargeable.

B.2.4.12 Failure of a Secondary Check

B.2.4.13 If the requirements are not satisfied then the Auditor shall be informed and no further Surveys carried out until the problem is resolved. If the fault giving rise to the problem is considered serious then the Equipment may need to return to the Technical Advisor for attention. It may be necessary to reject all data collected since the last successful Check on a Secondary or Daily Reference Site.

B.3 Network Validation

B.3.1.1 As noted in section 4.3, all network data will be subject to a network validation check. This validation check primarily aims to confirm that the data was collected under appropriate survey conditions for the Equipment, and hence identify / invalidate the lengths where required conditions were not present.

B.3.1.2 The Auditor will provide a Validation Tool for the *Contractor* to undertake validation of each BCD/RCD file as detailed in the TRASS SOP

B.3.1.3 Any lengths labelled invalid will be used to quantify the coverage of Valid data within each Survey, determine whether the coverage requirements

have been met, and establish the lengths that qualify for payment (Section 4.3).

B.3.1.4 The network validation will not validate non-RCD (GPR and Images). The contractor will undertake appropriate checks throughout the survey to validate these data at the network level.

B.4 Additional QA

B.4.1 Accompanied Surveys

B.4.1.1 The *Contractor* may be subject to checks on their operation of the Equipment and performance of the Survey. In an Accompanied Survey the Auditor will accompany the *Contractor* on a Survey to ensure that the Surveys are being carried out to an appropriate standard.

B.4.1.2 When requested, the *Contractor* shall provide the Auditor with the current and anticipated location of the Equipment during the following 24 hour period, so that the Auditor can determine if it would be appropriate to undertake an Accompanied Survey.

B.4.2 Repeat Surveys

B.4.2.1 The Auditor may, at its discretion, request the *Contractor* to carry out Repeat Surveys of the Network. These tests will check the ability of the *Contractor* to deliver consistent data during the routine survey. The Auditor may request up to 4 Repeat Surveys. It is expected that the length of the repeat survey sites will be between 10km and 50km.

B.4.2.2 The Auditor will use the *Contractor's* progress reports to select suitable sites for Repeat Surveys within 2 weeks of the provision of the progress report in which the original Survey was reported.

B.4.2.3 The data obtained from the Repeat Surveys shall be compared with data collected from the original Survey. The differences between the data must fall within the tolerances defined within the current version of the TRASS SOP.

B.4.2.4 The *Contractor* shall be required to provide an acceptable explanation if the comparison fails to meet the requirements. The decision on the acceptability of the explanation shall rest with the Auditor.

B.4.2.5 Data collected in a *Contractor's* repeat survey is chargeable (at the per km rate) in addition to the charges for Survey Data delivered by the *Contractor* from the routine survey.

B.4.3 General Checks on Data

B.4.3.1 The Auditor may undertake checks on the RCD and the BCD. These checks will examine the data to identify evidence of poor quality survey procedures survey data, including (but not restricted to)

- checks on lane discipline
- checks on speed control during the survey (e.g. acceleration, deceleration)

- checks for evidence of surveying in non-ideal conditions (e.g. wet surfaces)
- checks on the fitting of the data to the Network.

B.4.3.2 If a check shows evidence of poor quality surveys, survey data or survey fitting, then the *Contractor* will be required to provide an acceptable explanation for the presence of these errors. The decision on the acceptability of the explanation shall rest with the Auditor.

Appendix C Equipment Support

C.1 Overview

C.1.1 The equipment

C.1.1.1 The Equipment consists of a semi-trailer tractor unit equipped with sensors that provide data for used in understanding the structural condition of road pavements. Full details of the Equipment are provided in the SATTS SOP.

C.1.1.2 Its replacement value is in excess of £2.5M. The value of the Equipment tractor and trailer represents the estimated replacement value. Both the tractor and trailer contain bespoke components and we therefore we estimate the value of the Equipment as one system.

C.1.1.3 The Contractor will not be provided with the Equipment to carry out Accredited Surveys until they have achieved Accredited Equipment Support status (Appendix A).

C.1.1.4 The *Contractor* may only undertake surveys with the Equipment when the Equipment is under an Equipment to *Contractor* Operation Notice.

C.1.1.5 When the Equipment is under an Equipment to *Contractor* Operation Notice the *Contractor* will ensure the safety and security of the Equipment (both when being operated by the Consultant in undertaking surveys, and when being left unattended), according to the processes demonstrated by the *Contractor* to secure Accredited Equipment Operator Status (Appendix A)

C.1.1.6 The *Contractor* shall make no cosmetic changes to the Equipment. This includes the addition of company logos, motifs etc.

C.1.1.7 During the period of the contract there may be a requirement for the Contractor to undertake maintenance of the Equipment to ensure its continued operation when it is under an Equipment to *Contractor* Operation Notice. This Appendix provides guidance on the level of responsibility with regard to maintaining particular components of the Equipment when under such a notice.

C.2 Equipment Components

C.2.1.1 The components of the Equipment have been separated into three types, A, B and C for the purposes of defining the responsibilities of the *Contractor* when the Equipment is under an Equipment to Contractor Operation notice.

C.2.1.2 The breakdown of component designations (Type A, B, C) is provided in the TRASS SOP.

C.2.1.3 **Type A**: The *Contractor* has full responsibility for all routine servicing and checking and all maintenance of this Type, including repairs to any faults that may develop and the replacement of any defective or worn out components. Costs for Type A cannot be charged (i.e. these costs should

be taken into account by the *Contractor* when calculating the per km rate for the Contract Tasks)

C.2.1.4 **Type B**: The *Contractor* has responsibility for checking and inspecting this Type on a routine basis (instructions will be provided in the training programme and/or TRASS SOP), which cannot be charged. The *Contractor* shall notify the Technical Advisor if he believes or suspects any of this Type are not operating to an acceptable level of performance.

- The Technical Advisor will require the *Contractor* to undertake initial fault finding, including investigatory tests on the network. The extent of any such fault finding would take into account the Technical Advisor's views on the likelihood of correcting the fault without returning to the Technical Advisor. The Contractor would be required to operate the Equipment during these tests, but would not be able to charge for the work.
- On confirmation of the fault the Technical Advisor may require the Contractor to undertake repairs, for which the Contractor would be reimbursed.
- If the Technical Advisor considers that the Contractor would not be able to repair the fault the Equipment will need to be returned to the Technical Advisor for maintenance. It will be the responsibility of the Contractor to deliver the Equipment to the Technical Advisor to undertake the work (at their own cost).
- On delivery to the Technical Advisor, the Technical Advisor will issue an Equipment to Technical Advisor Operation Notice whilst repair work is being carried out.
- The Contractor will collect the Equipment (following repair) at their own cost, at which time the Technical Advisor will issue an Equipment to *Contractor* Operation Notice to allow the Survey to continue.

C.2.1.5 **Type C**: The *Contractor* has responsibility for checking and inspecting this Type on a routine basis (instructions will be provided in the training programme and/or TRASS SOP), which cannot be charged. The *Contractor* shall notify the Technical Advisor if he believes or suspects any of this Type are not operating to an acceptable level of performance.

- The Technical Advisor may require the *Contractor* to undertake initial fault finding, including investigatory tests on the network to confirm the fault. The Contractor would be required to operate the Equipment during these tests, but would not be able to charge for the work.
- The Contractor would not carry out maintenance. The Contractor would return the Equipment (at their own cost) to the Technical Advisor for maintenance. On delivery, the Technical Advisor will issue an Equipment to Technical Advisor Operation Notice whilst repair work is being carried out.
- The *Contractor* will collect the Equipment (following repair) at their own cost, at which time the Technical Advisor will issue an Equipment to *Contractor* Operation Notice to allow the Network Survey to continue.

C.2.1.6 There is a limited stock of low value replacement parts for the Equipment. High value items (e.g., lasers) are not stocked.

C.2.1.7 The *Client* will not reimburse the *Contractor* for any costs incurred as a result of any failure in the Equipment, including costs for time lost as a result of the failure, costs resulting from delivery times for replacement components, or the time spent by the *Contractor* in identifying the fault. See Unavailability, Section C.4.

C.2.1.8 Repairs to bodywork/cosmetic damage cannot be charged.

C.2.1.9 The *Contractor* would not be prevented from making appropriate additions to the Equipment to improve their efficient and/or safe operation of the Equipment, subject to agreement of the *Client* and the Technical Advisor

C.2.1.10 Goods purchased by the *Contractor* on behalf of the *Client* (or which will become the property of the *Client*) shall comply with the relevant minimum environmental standards specified by CCS.

C.2.2 Maintenance support

C.2.2.1 The Technical Advisor will endeavour to provide telephone and email support during office hours (08.00-17.00 Monday-Friday). Any support requested outside of these hours will need to be negotiated at the start of the Contract.

C.3 Equipment Inspections and Examinations

C.3.1.1 The Contractor shall inspect the Equipment on a regular basis according to the requirement of the TRASS SOP and keep a record of these inspections.

C.3.1.2 At regular points during the Contract the Equipment will also be subject to an Equipment Examination, which will be carried out by the Technical Advisor. For example:

- Immediately before issuing an Equipment to Contractor Operation Notice (i.e. at change-over).
- Immediately before issuing an Equipment to Technical Advisor Operation Notice (i.e. at change-over).
- During every Accreditation Test.
- When the Technical Advisor deems an Equipment Examination is necessary (e.g. if the Equipment is undergoing trouble-shooting or maintenance during a Task, but change-over has not been necessary).

C.3.1.3 The Equipment Examination will record the condition of the Equipment using a form that will be provided by the Technical Advisor, which will include:

- The visual condition of the vehicle (including tractor and trailer unit)
- The visual condition of the measurement systems
- The operational status of the vehicle
- The operational status of the measurement systems

C.3.1.4 A summary report on the Equipment condition will be delivered by the Technical Advisor at each Equipment Examination This record of the

Equipment Examination will be used to monitor any damage and/or deterioration to the Equipment.

C.3.1.5 A summary report on the Equipment condition will be delivered by the Technical Advisor at each Equipment Examination. This record of the Equipment Examination will be used to monitor any damage and/or deterioration to the Equipment. It must be agreed and signed by both the Technical Advisor and the *Contractor* before Surveys with the Equipment can continue. In the event of disagreement, the delay will not be classified as Equipment Unavailability and the *Contractor* will not be permitted to charge.

C.3.1.6 Where deterioration has occurred to the Equipment that cannot be associated with normal wear and tear, the *Contractor* may be required to restore the condition of the Equipment at their own cost. Examples of such deterioration include (but is not limited to):

- Damage to the vehicle or measurement systems resulting from physical impacts by other road users (e.g. accidents).
- Damage to the vehicle or measurement systems resulting from physical impact that has arisen from poor operation or driving of the vehicle (e.g. carelessness).
- Damage to the vehicle or measurement systems resulting from poor/incompetent operation or maintenance (e.g. dropping of equipment, over-voltage from external power supply, re-fitting removable systems incorrectly).

C.3.1.7 If such work to restore the condition of the Equipment prevents Surveys from being carried out, this will not be considered as Equipment Unavailability.

C.4 Unavailability of Equipment

C.4.1 Equipment Unavailability

C.4.1.1 During a Survey Task Order the Equipment may become unavailable for Surveys, where an Equipment to Technical Advisor notice has been issued. For example, it may be issued when repairs are being carried out. This may prevent the *Contractor* carrying out Surveys during a Task.

C.4.1.2 Within each survey year if the Equipment has been subject to an Equipment to Technical Advisor notice for a total time of greater than 5 days due to no fault of the *Contractor:*

- the *Contractor* may charge the *Client* at the Equipment Unavailability Rate for each additional day that the Equipment remains subject to an Equipment to Technical Advisor notice.
- Claims for Equipment Unavailability should be supported by evidence of the associated costs incurred by the *Contractor*. The *Contractor* should undertake appropriate action to minimise the costs of Equipment Unavailability, for example by redeploying their staff resources wherever practical.
- Up to a maximum of 24 Equipment Unavailability days can be charged within each survey year, any further days in which the

Equipment is under an Equipment to Technical Advisor notice cannot be charged.

C.4.1.3 The *Contractor*'s rate for Equipment Unavailability shall be provided in the schedule of charges and will be subject to Validation Checking by the *Client* during tender evaluation. The *Client* may require the rate to be revised if the rate cannot be fully justified.

C.4.1.4 On resolution of the issue (when an Equipment to *Contractor* notice is issued) the Auditor may require the Equipment to undertake an Accreditation re-test (in addition to the routine monthly re-accreditation testing). The *Contractor* shall participate in these Accreditation re-tests at their own cost.

C.4.1.5 There is a possibility that the Equipment would become unavailable over a long period, for example as a result of failure requiring significant repair or due to a change of requirement by the *Client*. In this case the *Client* would suspend or terminate the Survey Task and would not issue any further Survey Task Orders until the problem is resolved. The *Contractor* would only be permitted to charge for Equipment Unavailability up to the date of suspension or termination of that Survey Task (within the limit specified in section C.4.1.2) and the time until the Task recommences, or a new Task Order is issued, will not be classed as Equipment Unavailability.

C.4.2 Survey Shutdown

C.4.2.1 Prior to the commencement of the first Survey Task, and from the start of November to the end of February each year, there will be a survey shutdown period during which no Survey Tasks are anticipated to be commissioned, and the Equipment will be under an Equipment to Technical Advisor notice. This programmed/planned period is *not* considered a period of Equipment Unavailability, with respect to claims for Equipment Unavailability.

C.4.2.2 During the survey shutdown period, it is anticipated that the Equipment will undergo maintenance and may be used (for example by the Technical Advisor) to carry out surveys.

C.4.2.3 Towards the end of this period the *Contractor* will be provided with notice of the date at which the Equipment is anticipated to become available to commence Accreditation testing ahead of the first Survey Task in the new Survey Year. The *Contractor* will agree with the Client and the Technical Advisor a suitable period of notice to enable them to mobilise for surveys.

C.4.2.4 There may be unforeseen circumstances which affect or delay the commencement of the survey with respect to the anticipated start date (for example unforeseen delays completing the maintenance). The *Contractor* should adopt a flexible approach to accommodate delays to the start of Survey Year mobilisation (this approach will be considered as part of tender assessment) and claims for Equipment Unavailability at the start of the Survey Year must be supported by evidence of the associated costs incurred by the *Contractor.*

Appendix D Example Task Orders

D.1 Survey task order proforma

TRASS 2022-2024 Survey Task Order

Task order No.:

To:

I instruct you to carry out the following Survey Task on the Traffic Speed Structural Surveys 2022-2024 contract at the agreed rates:

Description

Start date (Survey)

Completion date (upload on HAPMS)

Estimated total Length (km) (based on eligble total network)

Signed: (Employer)

Date:

I accept the above task:

Signed: (Contractor)

Date:

D.2 Special Survey Task order – method statement proforma

national highways

TRASS 2021-2026 Research Task Order - Method Statement

Task order No.:

To:

I instruct you to develop a method statement for the following Research Task on the Traffic Speed Structural Surveys 2021-2026 contract at the agreed rates:

Location	
Survey Timing	
Survey Data required	
Processing required	
Method for data delivery	
Additional requirements for survey and/or processing	

Signed: (Employer)

Date:

I accept the above task:

Signed: (Contractor)

Date:

D.3 Special Survey Task order – Survey proforma

national highways

TRASS 2022-2024 Research Task Order - Survey

Task order No.:

To:

I instruct you to undertake the following Research Task on the Traffic Speed Structural Surveys 2022-2024 contract as agreed in the developed method statement:

Location	
Survey Timing	
Method statement ref.	
Additional notes	

Signed: (Employer)

Date:

I accept the above task:

Signed: (Contractor)

Date:

Appendix E Deliverables

E.1.1.1 The tables presented in E.2, E.3, E.4 and E.5 provide a summary of the deliverables. These should be used as a guide to the required deliverables via the relevant sections referred to. If there are any conflicts between the text in these tables and the text in the rest of this document, then the text in the document takes precedence over these tables.

E.1.1.2 The tables define the minimum deliverable requirements.

E.2 General

Deliverable Name	Date required	Applicable sections	Additional notes
First meeting	Attend meeting with the *Client* within one week of the Starting Date	Scope S812	-
Information security plan	Within one month of contract award	Annex 09	-
Quality Plan	Within 8 weeks of the Contract Date	Scope S610	-
Special Survey Task Order Method Statement	Within 14 days of receipt of the Special Survey Task Order	3.3.4	-

E.3 Reporting

Deliverable Name	Date required	Applicable sections	Additional notes
Weekly progress reports	Provided to both the *Client* and the Auditor no more than 2 working days following the end of each week in which surveys were carried out	Scope S815	Format and content to be agreed with *Client* and Technical Advisor before surveys commence
Communication plan	At the commencement of each Survey Task and as required	Scope S805	-
Monthly progress meetings	Monthly as required through the contract	Scope S812	-
Collaborative Performance Framework (CPF)	The first CPF covers months 1-3 from the starting date and are thereafter submitted quarterly.	4.10, Scope S635,	-
Work breakdown structure (WBS)	When preparing each invoice	4.10	
Monthly spend forecast	When preparing each invoice.	4.10	Format and content to be agreed with *Client* and Technical Advisor before surveys commence
Survey Plan and Timetable	Prepared at the start of each Survey Task Order and provided to the *Client* prior to commencement of surveys. It shall be reviewed regularly and presented during monthly progress meetings	3.2.12, 3.2.33, Scope S812	-
Issues log	Provided such that live monitoring can be undertaken by the Auditor and *Client* (e.g. via web access). It will be updated regularly in particular for progress meetings.	Scope S805	Format and content to be agreed with *Client* and Technical Advisor before surveys commence

Deliverable Name	Date required	Applicable sections	Additional notes
Reports of any accidents to people working on this contract	In accordance with the relevant health and safety regulation.	A.2.4	
Coverage report	At the end of each Survey Task	4.7	Provided in a similar format to the corresponding section of the weekly progress report.

E.4 Survey Data

Deliverable Name	Date required	Applicable sections	Additional notes
Base Condition Data (BCD) – *Client's* Database	Generated using MSP and loaded into the *Client's* Database within thirty (30) working days of the survey being collected.	4.5, 4.9	In event of a non-operation notice the data shall be loaded within thirty (30) working days of the subsequent Operation notice.
Base Condition Data (BCD)	Within thirty (30) working days of the BCD being loaded into the *Client*'s Database for data to be loaded into the database. Data that will not be loaded into the Client's Database (e.g. for some Special Survey Task Orders) shall be provided within 1 week of completing the survey.	4.6	To be retained for a minimum of six years after the end of the survey period.
Raw Condition Data (RCD)	Within thirty (30) working days of the corresponding BCD being loaded into the *Client*'s Database for data to be loaded into the database. Data that will not be loaded into the Client's Database	4.6	To be retained for a minimum of six years after the end of the survey period.

Deliverable Name	Date required	Applicable sections	Additional notes
	(e.g. for some Special Survey Task Orders) shall be provided within 1 week of completing the survey.		
Images	Within thirty (30) working days of the corresponding BCD being loaded into the *Client*'s Database for data to be loaded into the database. Data that will not be loaded into the Client's Database (e.g. for some Special Survey Task Orders) shall be provided within 1 week of completing the survey.	4.6	To be retained for a minimum of six years after the end of the survey period.
GPR data	Within thirty (30) working days of the corresponding BCD being loaded into the *Client*'s Database	4.6	To be retained for a minimum of six years after the end of the survey period.
Route files	Within thirty (30) working days of the corresponding BCD being loaded into the *Client*'s Database	4.6	To be retained for a minimum of six years after the end of the survey period.

E.5 Accreditation and Quality Assurance

Deliverable Name	Date required	Applicable sections	Additional notes
Survey Data from Accreditation tests	Within 7 working days of the test sites being surveyed	A.3.4	-
Quality Assurance regime	At least two weeks before surveys commence on the first Survey Task. Updates at the start of each Survey Task and after any significant changes.	5.4.4	-

Deliverable Name	Date required	Applicable sections	Additional notes
Reports on repairs and alterations	Within no more than 7 days of the event. The results of any QA checks (to verify the alterations) shall also be provided to the Auditor within the defined timescale for the corresponding test (Appendix B)	5.1.3	Format and content to be agreed with *Client* and Technical Advisor before surveys commence
Primary site processed Reference Data	Collect data within 7 days of carrying out an Accreditation Test or Re-Accreditation Test and deliver within 7 days of collection.	B.2	-
Primary Check – results and survey data	Primary checks carried out every 7 days Results and data provided to the Auditor within 3 days of carrying out the Check	B.2.2	Format and content to be agreed with *Client* and Technical Advisor before surveys commence
Secondary Check - Survey Data and Results	Within 7 days of completion of the check. Ideally the Contractor would summarise the Secondary Check results at the end of each week's survey and provide them to the Auditor at or before the start of the next survey week.	B.2.4	Results to be provided in a similar format to Primary check.
Daily check – Survey Data and Results	Within 2 weeks of undertaking the test	B.2.3	-
Contractor's Repeat Survey – Survey Data	Data to be supplied within 2 weeks of a request for a repeat survey by the Auditor.	B.4.2	The *Contractor's* programme and survey/processing plans would be considered when applying timescales for Contractor's Repeat Surveys