**VOLUME 3**

**service information and specific service specification**

**TRAFFIC SIGNALS and ancillary equipment maintenance term service contract**

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| --- | --- | --- |
| **Section** | **Contents** | **Page** |
| SS01 | Generic Clauses | 2 |
| SS02 | Routine Services | 13 |
| SS03 | Non-Routine Services | 29 |
| SS04 | Emergency Services | 83 |

**SSO1 GENERIC CLAUSES**

|  |  |  |
| --- | --- | --- |
| **Section** | **Contents** | **Page** |
| 01 | Traffic Signal Infrastructure | 3 |
| 02 | Contractor’s Staff | 3 |
| 03 | Access Arrangements | 3 |
| 04 | Location and Protection of Services | 4 |
| 05 | Plant, Materials and Equipment | 4 |
| 06 | Statutory Undertakers | 6 |
| 07 | Works Programmes | 7 |
| 08 | Traffic Management | 7 |
| 09 | Health and Safety | 8 |
| 10 | Environmental Management | 11 |
| 11 | Reinstatement | 12 |
| 12 | Illegal Signs | 12 |
| 13 | Special Requirements | 12 |
| 14 | Drawings | 12 |

1. **Traffic Signals Infrastructure**
2. Volume 2 Works Information Appendix 20 of this Service Information is a set of three schematic diagrams of the traffic signals infrastructure managed by the Service Manager. The schematics show clearly which elements are to be maintained through this term services contract.

1. **Contractor’s staff**
2. Without prejudice to the general provisions within the Conditions of Contract, the Contractor’s staff will be suitably trained and competent and conversant with the requirements of BS 7671:2019 as amended from time to time and the Electricity at Work Regulations 1989. All such staff and sub-contractors carry the appropriate Sector 8 scheme card that is pertinent to the work they are carrying out. Contractor’s staff are also competent to maintain and repair the variety of controllers and other equipment that is included in Volume 2 Works Information Appendices 21, 22 and 26 together with any additions to those Appendices that may be made from time to time through the adoption of installations provided by Others.
3. Contractor’s staff are fully equipped with all necessary tools, handsets, PC’s and associated software to communicate with controllers, UTMC units, OMU’s, MOVA, routers, and testing equipment according to the type of work on which they may be engaged from time to time
4. Such tools and equipment are serviced, maintained and calibrated in accordance with the manufacturer’s instructions.
5. Contractor’s staff are equipped with communication equipment that permits them to have instant oral communication with the Contractor’s and Employer’s offices.
6. **Access Arrangements**
7. The Contractor arranges to keep enough sets of keys and other tools for all Traffic Signal and Ancillary Equipment that has locked compartments. The Contractor arranges to attend sites to allow access to these compartments from time to time as required by electricity companies and communications providers in order to effect repairs and maintenance generally in connection with works being provided under this contract. Under certain circumstances (generally in the minority) this duty will be shared with staff of the Service Manager.
8. The Contractor will be permitted access to County Hall in order to maintain or inspect equipment or records at the sole discretion of the Service Manager. Whilst in County Hall, staff of the Contractor observes all of the disciplines that apply to the Service Manager’s staff not least that of proper identification and security arrangements. Use of the Employer’s telephone or computer systems will only be permitted by express permission of and under the supervision of the Service Manager or his staff.
9. **Location and Protection of Services**
	1. Where the Contractor is the Principal Designer, they are responsible for liaising directly with the Statutory Undertakers to ascertain the precise location of their plant on site, prior to any works
	2. The Contractor should be confident as to the exact position of Statutory Undertakers and other publicly and privately owned services or supplies that are affected by or in the vicinity of the required works and operates in full accordance with the requirements of the HSE publication HSG47 Third addition “Avoiding Danger from Underground Services”.
	3. During the progress of the works the Contractor will take all measures required by any Statutory Undertaker or the management of other publicly or privately owned services or supplies, for the transport and full protection of all such services or supplies.
10. **Plant, Materials and Equipment**
	* 1. Unless otherwise directed by the Service Manager, the Contractor provides the Plant, Materials and Equipment necessary to provide the services in accordance with the requirements of this contract.
		2. The Contractor; during the term of this Contract will have available locally a store of Materials and Equipment sufficient to deliver the services detailed within the appendices. Where Materials and Equipment are required that cannot have been foreseen then the Contractor expedites delivery by the most effective means. Non availability of Materials and Equipment due to the Contractor not having stock available will not be accepted as a valid reason for non-performance by the Contractor.
		3. The Service Manager may from time to time purchase Materials and Equipment for use by the Contractor in executing new works. The Contractor shall reserve space for the storage of the Employers existing owned equipment and/or materials, along with any new equipment/materials.  The Store shall be made secure by the Contractor. An inventory shall be made and updated on a regular basis for asset management purposes. Items such as controllers shall be photographed (with swing frame closed and swing frame opened) to record contents.
		4. The Contractor shall store and maintain in their offices and / or Depot, sufficient spares, test equipment, tools and materials for the proper execution of the Contract requirements.
		5. The Contractor shall list the equipment, spares, test equipment, tools and materials available to this Contract as part of the Quality Assessment and Draft Method Statement and where they will be held.
		6. The offices and / or Depot shall be accredited to ISO 9001 by a recognised accreditation body at commencement of the Contract and details forwarded to the Service Manager.
		7. The Contractor shall make provision for the receiving and dispatching of goods owned by the employer.  The dispatching of goods shall be only with the agreement of the Service Manager.  The Contractor on the Service Manager’s behalf shall maintain a record of all store transactions.
		8. The Service Manager shall, with the assistance of the Contract Manager, carry out a routine inventory of equipment stored therein or at intervals to suit the Service Manager in documenting equipment held. The Service Manager may undertake random tests / inspections of equipment stored within the bonded store
		9. The Contractor will provide secure and appropriate storage within the Contractor’s local Depot, free of charge, for Materials and Equipment procured in this manner. The storage arrangements include for clear labelling of the Materials and Equipment indicating proposed use and with a clear statement that the Materials and Equipment are the property of the Council. Any Materials and Equipment remaining at the end of the contract period are transferred to the new Contractor with the Service Managers approval.
		10. All Materials and Equipment supplied under this contract are new and previously unused unless prior written authorisation has been obtained from the Service Manager.
		11. During any guarantee period, any item of Materials or Equipment which fails, other than by reason as defined in Volume 3 Service Information SS03 Section 03 - Damage Repairs, will be removed and subsequently replaced by the Contractor free of charge, including all labour, transport and disposal charges.
		12. The Contractor is responsible for supplying keys for access to all Traffic Signal and Ancillary Equipment for both his own and Subcontractors and the Service Manager’s staff, as and when requested. Additionally, the Contractor provides the Service Manager with all equipment necessary to carry out the task of supervising and auditing works.
		13. The Contractor ensures the correctness and compatibility both technically and aesthetically of Material and Equipment supplied/used under this contract before they are put into service.
	1. On or before the starting date the Contractor will make available for the Service Manager’s acceptance, a list of Materials and Equipment from all suppliers the Contractor proposes to use together with certificates as appropriate. The list is updated by the Contractor when changes occur to the list and the list is subsequently forwarded to the Service Manager for acceptance. The list will be used should any disputes arise relating to the correctness of Materials and Equipment used.
	2. Materials and Equipment used during the period of this contract are suitable in every respect for the purpose intended and comply with all relevant Regulations, Specifications and Codes of Practice.
	3. Plant and Equipment are maintained in good working order at all times during this Contract. The non-availability of Plant and/or Equipment will not be accepted as a valid reason for non-performance.
		1. For items of Materials and Equipment not already listed as existing within this Service Information and where the Contractor provides new, the Contractor shall provide sufficient and adequate training, software (including updates), Elexon code and licensing to ensure a comprehensive understanding. Training is to be available to the Service Manager and staff together with the Contractor’s staff as deemed appropriate. This training, software (including updates) and licensing is deemed to be included within the rates and Prices detailed within the Price List.
11. **Statutory Undertakers**
	* + 1. The Service Manager obtains statutory information as part of the principal designer responsibilities, for works that are not routine or where the design element has not been passed to the Contractor
			2. The Contractor shall liaise with Statutory Undertakers as necessary to deliver the Services. No charges will be accepted for time spent by Contractor’s staff in liaising with Statutory Undertakers as the cost will be deemed to be included in the rates and Prices within the Price List. In particular, Faults arising as a consequence of electricity supply company mains power failure or interruption or data communication supply company line failure or interruption are dealt with directly by the Contractor liaising with the Service Manage. The Contractor may be required to attend site on behalf of the Service Manager.
12. **Works Programmes**
	* + - 1. The Contractor provides daily whereabouts Works Programmes to the Service Manager and Street Authority which detail but not limited to the whereabouts of each of the Contractor’s gangs and Subcontractors.
				2. The Contractor submits Task Orders programme and considers Volume 0 Conditions of Contract Clause X19 in accordance with clause X19.5 of the *conditions of contract*
				3. For the avoidance of doubt, the provision of Works Programmes to the Street Authority is in addition to the requirements for the contractor to comply with. The Traffic Management Permit Scheme (England) Regulations 2007(TMPS)
				4. The formats of Works Programmes are to be agreed with the Service Manager.
13. **Traffic Management**
	* + - 1. The Contractor will include for the following: -
		1. The Contractor complies with Clause 117 – Traffic Safety and Management of the Specification for Highway Works within the Manual of Contract Documents published by the Highways England ;
		2. The Contractor at all times complies with the requirements of traffic sensitive routes this information can be found at [www.one.network](http://www.one.network) – operational information – NSG (special designation) or the most up to date website that holds traffic sensitivity information.
		3. Where traffic management circumstances of any particular case are not covered by current legislation and recommendations the Contractor submits their own proposals for dealing with such situations in advance of programming the works for the Service Manager’s approval;
		4. The Contractor takes all necessary measures to minimise traffic congestion arising from the works on all other roads and if necessary, restricts his hours of working if any operation is causing unreasonable congestion;
		5. Complying with the recommendations contained in Chapter 8 of the “Traffic Signs Manual” published by The Stationery Office and any amendment thereto or where the circumstances of any particular case are not covered submitting proposals for dealing with such situations to the Service Manager for consent;
		6. Phasing the works in a manner acceptable to the Service Manager and the police for the continuing flow of traffic and minimisation of disruption;
		7. Maintaining access to residential and business properties;
		8. All traffic safety and control personnel, including but not limited to, those engaged on manual stop and go, traffic speed control, staff for directing vehicles and pedestrians in and around each site including those sites subject to road closure;
		9. Traffic signs, driver information signs, road markings, lamps, barriers, and traffic control signals including maintaining, cleaning, repositioning, covering, uncovering and removing;
		10. Routine Services are deemed to be fully inclusive of traffic management. Non Routine Services are also fully inclusive of traffic management with the exception of those traffic management items which are separately identified within the Price List as being charged separately;
		11. The Contractor includes within his rates and Prices for the design of the traffic management arrangements required to facilitate the works.
14. **Health & Safety**
	1. This General Health and Safety Information is read in conjunction with, but not limited to clause Z15 of Volume 0 conditions of contract and GS21 of Volume 2 Preamble General Specification

Health and Safety Policy

* 1. Irrespective of any previous submission, the Contractor submits a Health and Safety Policy directly relevant to the management and conduct of this contract.
	2. In this Health and Safety Policy, the Contractor commits to ensuring that all appointees, including his own employees and any subcontracted organisations or individuals, are competent to carry out the works required of them. Furthermore, the Contractor commits to ensuring that all appointees will exercise complete legal compliance and will be given, as appropriate, adequate time to properly plan, risk assess and generally resource the work they are required to undertake.

The Health and Safety Manager

* 1. The Contractor appoints a Health and Safety Manager in accordance with clause Z15 of Volume 0 conditions of contract.

The Contractor and Principal Contractor

* 1. On the basis of the Contractor’s responses during the Contractor selection process, it is assumed that the Contractor is competent to carry out Contractor and Principal Contractor duties in respect of health and safety and will be fully aware of the every-day health and safety hazards and risks associated with the work involved with this contract.
	2. For the avoidance of doubt, the Contractor includes within his rates and Prices within the Price List for all aspects of health and safety in respect of Contractor and Principal Contractor duties as set out in HSE publication L153.
	3. For the purposes of this clause, the Contractor has the same meaning as Principal Contractor when referring to a project where there is more than one contractor or elements are sub-contracted.

Appointment of the Designer

* 1. A competent Designer is appointed to carry out all functions of a Designer/Principal Designer where this has been indicated within the works instruction

Service Instructions & Task Orders

* 1. The Service Manager fulfils the role of Designer or Principal Designer for all Service Instructions except for Slot Cutting and Road Traffic Collisions unless the Contractor is specifically instructed otherwise by the Service Manager in a Service Instruction or a Task Order.

The Health and Safety File

* 1. The Contractor promptly provides any and all information relevant to the Health and Safety File to the Designer and ensures that any subcontracted organisation or individual similarly passes on any and all relevant information to the Contractor for submission. Such information complies with the requirements Construction Design Management Regulations 2015. The Health and Safety File is handed to the Service Manager within one month of completion of the service period for works arising through the issue of a Service Instruction and within one month of Task Completion where works arise through the issue of a Task Order.
	2. The Health and Safety File contains all, and only, information that has any relevance for health and safety during future construction work, e.g. maintenance, alterations, demolition, etc.

Welfare Facilities

* 1. Suitable and sufficient welfare facilities are in place before the construction phase of any project commences. Such facilities are provided by the Contractor and are properly maintained throughout the duration of each project.
	2. Despite the transient nature of the work that many of the projects might involve, the facilities are appropriate to the duration of each project and comply with current HSE guidance and ‘industry best practice’.

General Health & Safety Measures

* 1. The Contractor fully acquaints his employees with the requirements of the Health and Safety at Work Act and ensure compliance at all times with particular reference to the following: -
1. Where work is carried out on or adjacent to a trafficked highway normally open to the public the Contractor ensures all personnel at all times wear high visibility garments complying with BSEN 471:1994 Table 1, Class 2 or 3 and complying with Clause 16.2.3(b) in all cases and also meeting the requirements Clause 16.2.4 on high speed roads. The background colour should be fluorescent yellow from Table 2.
2. All employees wear robust footwear (preferably safety footwear to British Standard No. 1870/1953).
3. The Contractor supplies, and ensures the use of, all other protective equipment required for the safe execution of the work. Head protection should be worn at all times during site works.
4. All practical measures must be taken to reduce noise from plant and machinery on site to below the First Action Level defined in The Control of Noise at Work Regulations 2005 at 80 decibels dB (A).
	1. Contractors takes appropriate precautions when opening up and working in underground structures where there is the possibility of the accumulation of toxic, explosive and asphyxiating gases.
	2. The Contractor is required to demonstrate that they are committed to managing Health and Safety operations by adopting best practice in all situations to the highest standards. Health and Safety must be placed upon the Agenda for the Contractor’s contract meetings with the Service Manager.
	3. The Contractor monitors all aspects of Health and Safety and provides the Service Manager with full details of inspections and updates that are reported and quantified through the monthly contract meetings with the Service Manager. Furthermore, the Contractor and the Service Manager organise joint site inspections to monitor and maintain good Health & Safety practice on site.
	4. The Contractor provides the Service Manager with full Method Statements as and when requested by the Service Manager that relate to Contractor’s operations relating to this Contract but not covered by general or previously published Method Statements.
5. **Environmental Management**
	* 1. The Contractor is responsible for ensuring that all wastes are managed in compliance with legislation relating to management of controlled wastes; including regulations relating to management of electrical/electronic equipment and hazardous wastes (where applicable).
		2. The Contractor is required to demonstrate commitment to managing its’ operations to the highest environmental standards, ideally via an external accredited Environmental Management System e.g. ISO 14001 or Eco Management Audit Schemes (EMAS). The Contractor must seek to address significant environmental impacts and adopt good environmental practice where feasible such as Green Travel Plans. All relevant documentation are provided to the Service Manager and will be reviewed annually at commencement of each new Contract Year.
		3. The Contractor makes available to the Service Manager all Waste Transfer Notices and provides an audit trail from ‘cradle to grave’ for all recovered/recycled materials.
		4. The Contractor endeavours to maximise the use of recycled materials in the delivery of the service and the transfer of waste arising from the delivery of the service to recycling processes and informs the Service Manager as instructed by the Service Manager.
		5. The Contractor disposes of all non-recyclable waste arising from the works to a licensed waste disposal site.
6. **Reinstatement**
7. The Contractor will carry out temporary and permanent reinstatements in accordance with the HAUC Specification for the Reinstatement of Openings in Highways, Third Edition 2010, as amended from time to time.
8. Where temporary reinstatements are used the Contractor carries out permanent reinstatement within 20 Working Days from the date that the temporary reinstatement was carried out.
9. Where items of equipment are removed from the highway surface or from Traffic Signal and Ancillary Equipment the Contractor makes good the surface to match the surrounding appearance and structure and where cables are left exposed makes safe.
10. **Illegal Signs**
11. From time to time illegal signs and notices are attached or stuck to Traffic Signal and Ancillary Equipment. The Contractor removes and environmentally disposes of this material whenever attendance at a site is required for the purpose of providing Services. There is no general requirement to search out, find and remove these illegal attachments. The removal and subsequent disposal is deemed to be included within the rates and Prices within the Price List.
12. **Special Requirements**
13. The Contractor at his own cost complies with all Special Requirements and is not excused from the performance of any of its obligations under the Contract or be entitled to any allowance of time or to any additional remuneration or compensation in consequence of the requirement to comply with this Clause.
14. **Drawings**
15. Where applicable, all works are carried out in accordance with drawings issued by the Service Manager. These include those standard drawings detailed within this Service Information and their subsequent revisions.
16. In the event of an ambiguity between standard drawings detailed within this Service Information and those drawings issued directly by the Service Manager within a Task Order, the latter prevails.

**SS02 ROUTINE SERVICES**

|  |  |  |
| --- | --- | --- |
| **Section** | **Contents** | **Page** |
| 01 | Routine Maintenance | 14 |
| 02 | Fault Management System | 19 |
| 03 | Asset Management System | 22 |
| 04 | Faults | 23 |

**SECTION 1 ROUTINE MAINTENANCE**

1. Routine Maintenance includes the maintenance, Fault attend and fix services required to maintain the Traffic Signal and Ancillary Equipment in such a manner that they remain operational to meet or improve upon the performance targets and specified response times set out in the Service Information.
2. Routine Maintenance includes all works necessary to maintain in good operational condition a number of Urban Traffic Control system private communication cables laid in ducts. The cable routes (including fibre optic cables) are scheduled in Volume 2 Works Information Appendix 22. Some of the cables terminate in the control room at County Hall, and some terminate at a controller that is connected to a British Telecom private circuit. The Employer is installing further cables wherever possible, in order to minimise revenue expenditure. All works necessary to maintain these cables, are included in this contract. Any Faults reported for these cables will be dealt with as Urgent Fault. British Telecom and Siemens, under separate contracts, are responsible for maintaining cabling and equipment at either end of the private cables. The Contractor will be responsible for liaising “on-site” with British Telecom and/or Siemens to ensure that the communications work correctly. The initial contact for booking the visit will be carried out by the Service Manager.
3. Routine Maintenance is provided every day of the year including public holidays and weekends.
4. Without prejudice to the generality of the foregoing, the Contractor is also required to carry out routine maintenance, periodic inspections, cleaning, lamp replacements, electrical testing, cleaning of lenses, data verification, all necessary access arrangements and traffic management, respond to Fault Reports within timescales contained in this Service Information and carry out the replacement of, or repair to, Traffic Signal and Ancillary Equipment and its associated parts or components which have failed or been damaged by any cause **other** than those defined under Damage Repair Services.
5. The rates for Routine Maintenance are deemed to include the provision of Routine Maintenance as defined in this Service Information to all Traffic Signals and Ancillary Equipment including electrical, electronic and optical equipment, cables, lamps, lamp holders and other components necessary for the effective operation of the Traffic Signal and Ancillary Equipment **but excluding** the following equipment to be known as “Excepted Equipment”:-
6. Controller casings and MEC cabinets and their root and foundations;
7. External detector housings and their posts;
8. mini pillars;
9. Poles, mast arms and brackets for signal heads;
10. Plastic and metal signal head casings, hoods and louvers;
11. Armoured signal and telecommunication cables (including those listed in Volume 2 Works Information Appendix 22);
12. Detector cables;
13. Foundations, ducts, chambers and pole housings;
14. Failure of foundations, ducts, chambers due to ground conditions or excessive loading (unless caused by the work of the Contractor);
15. Replacing backing boards and border strips together with their retro-reflective facings;
16. Highway elements adjoining the equipment e.g. kerbs, markings, studs, and the like.
17. Ancillary Equipment is of varying age and supplied by various manufacturers. The Contractor ensures that, as far as is practicable, that the manufacturer’s parts are fitted and maintenance manuals (where available) are followed.
18. For the avoidance of doubt this includes the routine maintenance of Variable Message signs and Vehicle Actuated signs.

Cost Estimate

1. If during a Routine Maintenance site visit maintenance or repairs to the Excepted Equipment are required, they are carried out by the Contractor at the rates contained within Volume 5 Returnable Schedules Schedule 6 Price List section 4 (Dayworks).
2. Dayworks up to the value of £1000 may be carried out without authorisation from the Service Manager provided notification of action (during contract hours), is provided and photographic plus supporting evidence is provided.
3. For the avoidance of doubt, measurement rules for Dayworks will apply.
4. Where total charges to the Employer are expected to be in excess of £1000 agreement is obtained from the Service Manager before proceeding.
5. The Service Manager reserves the right to withdraw the facility for the Contractor to proceed with works without authorisation. The Service Manager’s decision to withdraw this facility is not a compensation event.

Periodic Inspections

1. Periodic Inspections are carried out at each site every 12 months and are to run concurrently with the existing periodic inspection programme in accordance with an accepted Works Programme. A Monthly report shall be supplied within 5 working days of the end of each calendar month stating the date the Periodic Inspection was completed and any that are outstanding, the report will be accessible to the Service Manager. Failure to supply report and achieve PIs within a suitable timescale as agreed with the Service Manager will result in a Low Service Damage as detailed in Volume 2 Works Information Appendix 06. For any individual site the inspection is carried out in the same anniversary of each year of the Contract, unless otherwise agreed with the Service Manager.
2. The checks detailed in Volume 2 Works Information Appendix 23 are carried out at each Periodic Inspection.
3. At each inspection RAM batteries are checked or replaced in accordance with the manufacturer’s instructions for both controllers and outstations.
4. Periodic Inspections include ensuring that all the outstation clocks are correctly set and that they switch correctly between GMT and BST at the appropriate times.
5. Each inspection will include but is not limited to a functionality test together with an electrical safety test and a clean of all visible surfaces to remove dust, grime and other matter that reduces the visibility or effectiveness of the equipment. The results of the inspection are entered onto a report and sent to the Service Manager within five Working Days of the inspection. The format of the report is to be agreed with the Service Manager.

Electrical Testing

1. To be carried out as part of the specified Periodic Inspections, where new wiring or equipment has been installed to BS7671 and if needed for fault investigation.

Data Verification

1. Verification of the site data is to be carried out as part of the Periodic Inspection. Any discrepancies should be recorded and notified to the Service Manager.
2. An updated list of site equipment data will be provided every 3 months by the Contractor. Routine Maintenance payments will be based on this list.

Bulk Lamp replacement

1. It is proposed that the bulk lamp change is carried out at each site that is fitted with Halogen/Tungsten filament lamps every 12 months, however if the contractor believes that this can be extended a proposal can be provided to the service manager during the mobilisation period.
2. For any individual site, the bulk lamp change is carried out in accordance with a programme prepared during the mobilisation period by the Contractor and approved by the Service Manager. A Monthly report shall be supplied within 5 working days of the end of each calendar month stating the date the bulk lamp change exercise was completed and any that are outstanding, the report will be accessible to the Service Manager at all times
3. Lamps used for replacement are of the appropriate wattage, voltage and fitting for the installation and comply with BS EN 60357:2003.
4. All used lamps, cartons and wrappings are removed from site and disposed of by the Contractor. Where possible all materials for disposal are sent for recycling.
5. During the process of changing lamps, lamp holders are inspected and if any damage to electrical or mechanical components is found the lamp holder is changed as part of the lamp changing process at no extra cost to the Employer.
6. The Contractor replaces failed lamps with lamps of equivalent quality and type.

Cleaning

1. Cleaning is carried out at each site every 12 months. For any individual site the cleaning is carried out in accordance with a programme prepared during the mobilisation period by the Contractor and approved by the Service Manager. A Monthly report shall be supplied within 5 working days of the end of each calendar month stating the date the cleaning exercise was completed and any that are outstanding, the report will be accessible to the Service Manager at all times
2. Cleaning comprises of: -
3. the removal of dust and dirt from all lenses (including the internal faces if these are readily accessible);
4. cleaning the face of each above ground detector, including but not limited to kerbside detection, on-crossing detection, stop line detection, and any form of detection, including Bluetooth or ANPR.
5. re-securing as necessary any loose backing boards, border strips and hoods, cabling and fixings;
6. ensuring all hinge pins are in place;
7. removal of graffiti;
8. removal and subsequent disposal of illegal signs.
9. Cleaning of any accessible CCTV camera.
10. Failure to supply report and achieve lamp cleaning within a suitable timescale as agreed with the Service Manager will result in a Low Service Damage as detailed in Volume 2 Works Information Appendix 06. For any individual site the lamp cleaning is carried out in the same anniversary of each year of the Contract, unless otherwise agreed with the Service Manager.

Supplementary Information

It is not anticipated that any of the existing LED signals currently on-street will be subject to replacement under a preventative maintenance programme during the service period.  Generally, as traffic control sites are refurbished or new sites installed, equipment will be of the ELV variety and utilise LED technology.  It is therefore expected that the number of lamps requiring bulk lamp changing will slowly reduce as an overall percentage of the total number.  This may reduce premature lamp failure rates and therefore may also reduce the overall number of Faults.  In turn, this may reduce costs and improve efficiency. When all lamps have been converted to LED type optics, the contractor shall therefore assume that there will be no requirement to bulk replace lamps, however an annual cleanse of signal aspects will be required at part of the cyclical maintenance programme. The contractor may therefore undertake this activity as part of the annual periodic inspection.

**SECTION 2 FAULT MANAGEMENT SYSTEM**

1. The Contractor is to supply and install a Fault Management System with all necessary software and hardware for a fully functional system.  It is to be in place and fully operational on or before the starting date.  This will involve installation and testing of systems to ensure compliance, during the mobilisation period. The Contractor’s attention is directed to Volume 0 – Conditions of Contract, Clause Z124.
2. The Contractor maintains the system, including all software support, all upgrades and training for the Service Manager and staff.
3. As a minimum the Contractor’s Fault Management System has the following functionality: -
4. The system must be able to automatically link to the Siemens RMS and UTC systems currently housed on servers housed and owned by SCC at County Hall and must be able to be migrated to incorporate UTMC principles;
5. Automatic fault detection from numerous technology control systems including but not limited to UTC and RMS;
6. Automatic fault prioritisation, identifying failures and matching against required key performance indicators (KPI);
7. Escalation of failures to roadside operatives via handheld devices, using secure mobile technology;
8. Automatic up-dating of Fault status via engineer’s hand-held device;
9. Site comments / alerts to be associated to individual sites and issued to the Service Managers handheld device;
10. Real time activity status (e.g. travelling to site, working on site etc);
11. Fault suppression to avoid duplication of entries, to maximise engineering time;
12. Access to the system should be via the internet allowing the Service Manager access to the system from remote locations;
13. Manual entry of Fault data by the Service Manager from any web-based device;
14. Ability to re-prioritise Fault classifications (Authorised staff only);
15. Manual entry of Fault data by the Contractor;
16. System overview of network performance;
17. Real time KPI status;
18. Contract compliance monitor;
19. Storage of all collected data in a secure location, including server back-ups, etc. by the Contractor;
20. To provide a live list of engineers working in the area (during working and out of hours)
21. Provision of equipment performance reports, both current & historical;
22. Identification of Fault trends through detailed analysis of all live and historic Fault data;
23. Identification of the means to improve maintenance regimes through technology performance analysis;
24. Production, maintenance and review of Performance Indicators;
25. Maximising engineering resources through pro-active maintenance regimes;
26. ‘Network Health’ reports, to enable an engineering response to be targeted to areas of most need;
27. Prediction of failure and development of permanent rectification solutions;
28. Identification of under-performing technology or infrastructure assets;
29. Asset condition reports, to inform renewals and enhancements;
30. Trend and equipment manufacturer reliability reports;
31. Search functionality on historic data;
32. Operational impact reports;
33. Management of a callout rota (incorporating emergency response contact);
34. Message board functionality;
35. Graphical representation of site location;
36. Tracking of available engineering resource;
37. Providing an Inventory system for all sites maintained under this contract;
38. Automatic Key Performance Indicator information required by the Service Manager for regional reporting;
39. Appropriate Firewall security to ensure use only by authorised personnel;
40. Periodic Inspection (PI) data collection and document management facility;
41. On occasion the Service Manager receives comments and information from other sources regarding the condition of existing infrastructure In some instances, this information leads to the Service Manager issuing a Fault Report to the Contractor. Notwithstanding this there are instances where comments and information are retained on file purely for information and record purposes.
42. On occasion the Service Manager will need to submit a modification task orders as detailed in Volume 3 Service Information and Specific Service Specification SS03 Non-Routine Services Section 2 Modification Works. The fault management system should have the facility to allow the Service Manager to create a task order so that an auditable trail can be established. The system should include schedule of rates, agreed completion dates and show if the task was completed on time.
43. To allow the Service Manager to approve charges resulting from modification task orders or routine maintenance it is recommended to build this facility within the fault management system to allow an auditable trail to be recorded.

**SECTION 3 ASSET MANAGEMENT SYSTEM**

1. The Service Manager currently uses the IMTRAC system for Asset Management purposes. This will be deemed to be the definitive data source for the purposes of this contract. It contains an inventory of commissioned assets. It is also used for the purposes of calculating energy consumption at un-metered installations (by use of Elexon codes).
2. The IMTRAC system will also be used to record major assets (e.g. controllers, MECs, etc.) not currently in commission, but awaiting installation on site.
3. Within the system are facilities to store site specific information, such as MOVA datasets. Access will be granted to the contractor to both upload and download data to and from IMTRAC.
4. It will be expected that data, such as Periodic Inspections will be uploaded to IMTRAC in a timely manner and in general from site (or if communications prevent this, within 24 hrs) by the contractor.
5. At new installations, an inventory of equipment will be provided by the contractor and will be uploaded to IMTRAC in a timely manner and in general from site (or if communications prevent this, within 24 hrs) by the contractor.
6. Any controller data or related paperwork such as Site acceptance tests or Periodic inspections for example ELIs and Controller configuration files, MOVA data (including LIN, LIFs etc) are required to be uploaded on to IMTRAC within 24hrs.
7. When any changes are made to existing sites due to RTCs or detector alterations for example, it will be the responsibility of the contractor to update the Service Manager within 24 hours of the change either though the FMS with supporting notes or email.
8. There is a requirement within the Periodic Inspection regime, that the inventory of equipment for each site is checked for correct type and quantity. Where there is a discrepancy, the Service Manager shall be notified within 24hrs either through the FMS with supporting notes or Email, with the required changes.
9. Where new previously unrecorded equipment is provided by the contractor, it is expected that Elexon code information is also supplied (where relevant) before or at the time of installation.

**SECTION 4 FAULTS**

General

1. The Service Information sets out the various requirements for the Contractor to respond to Faults detected in Traffic Signal and Ancillary Equipment. The information about these Faults will come from various sources and will generally be registered on the Fault Management System automatically. Additional Faults may be added manually by the Service Manager or approved staff.
2. The Contractor arranges to have constant monitoring of the Fault Management System to ensure that responses are achieved in accordance with the time scales set out in the Service Information.
3. From time to time, Faults will be detected by the Service Manager or Others outside of Normal Working Hours when access to the Fault Management System is not practicable. To enable the details of the Fault to be communicated to the Contractor without entry onto the Fault Management System the Contractor provides the Service Manager with a telephone number which will available 24 hours a day, 7 days a week, including public and bank holidays where Faults can be registered and from which the Contractor can mobilise their resources to provide a response within the time scales set out in the Service Information.
4. For the avoidance of doubt the below should be read in conjunction with Volume 2 Works Information Appendix 06

Fault Types

1. The Contractor undertakes all work necessary to rectify and clear Faults detailed within a Fault Report. Each Fault Report will categorise the Fault as either an Emergency Response, Urgent Fault, a Lamp Fault or Less Urgent Fault.
2. An **Emergency Response** is defined as: -
3. Signals unlit classed as high priority (See Volume 2 Works Information Appendix 17)
4. Signals failing to change state classed as high priority (See Volume 2 Works Information Appendix 17)
5. All signals damaged and in a dangerous condition.
6. Any other emergency situation deemed an emergency by the Service Manager.
7. An **Urgent Fault** is defined as: -
8. All signals unlit (except those classed as high priority) or;
9. Signals failing to change or;
10. Signals giving conflicting indications or;
11. Pushbutton tactile not working or;
12. Red lamp failure or;
13. Pedestrian phases inhibited due spurious or detected lamp faults or;
14. Any Detection Faults that is preventing a phase being demanded or;
15. UTC, SCOOT data transmission Faults and any Communication faults or;
16. Lamps stuck on dim or;
17. Defective signals which although not falling into any of the above categories will produce excessive queues and which have produced demonstrable abnormal traffic conditions which require urgent attention;
18. Head out of alignment, giving conflicting information to an approach or phase.
19. A **Lamp Fault** is defined as: -
20. One signal aspect, one Wait indicator or one regulatory sign unlit when it should normally be illuminated. If two or more signal aspects or wait indicators are unlit then two or more Fault Reports will be issued except where a pedestrian phase is inhibited or red lamp faults.
21. A **Less Urgent Fault** is defined as a Fault that is neither an Urgent Fault or a Lamp Fault. For the avoidance of doubt this includes faults relating to Vehicle Actuated signs or Variable message signs unless damaged and in a dangerous condition.

Fault Response Times

1. The Contractor responds to Fault Reports in accordance with the timescales set out in this clause.
2. For clarity the contract normal operation is 7 days a week, including Public and Bank Holidays, between the hours of 0700-1800.
3. Faults notified to the Contractor between 18:00 hours and 07:00 hours will be deemed to have been received by 07:00 hours the following day (except in the case of **EMERGENCY RESPONSE**).

The time scales for response, unless specified elsewhere, are timed from Notification as follows: -

|  |  |  |  |
| --- | --- | --- | --- |
| **Fault Type** | **Notification** | **Attend & Fix** | **Temp Clear:** |
| **EMERGENCY RESPONSE** | Anytime | Within 3hrs from being notified | If a revisit or spares are required the service manager is to be informed and a revisit no later than 12 contract hrs from first notification, after this time the fault will be subject to Low Service Damages. |
| **URGENT FAULT (including Red Lamps)** | Anytime | Within 5hrs from being notified | If a revisit is required the service manager is to be informed and a revisit no later than 12 contract hrs from first notification, after this time fault will be subject to Low Service Damages. |
| **LAMP FAULT** | Anytime | 12hrs from being notified | Where signal heads are mounted on gantries a full fix is required within 5 contract days.Where a fault has resulted from cabling a full fix is required within 5 contract days and although chargeable becomes subject to Attend & Fix Low Service Damages. |
| **LESS URGENT FAULT** | Anytime | * 1. 12hrs from being notified
 | Where Slot Cutting is required for a full fix the Contractor has 20 contract days to arrange for full repair. Anything later will be subjected to Low Service Damages, unless delays are out of the contractor’s control and the service manager has been informed.Where a fault has resulted from cabling a full fix is required within 5 days and although chargeable still comes under Attend & Fix Low Service Damages. |

1. In this clause the terms Notification, Attend & Fix and Temp Clear and are defined as follows:-
	1. “Notification” means the time in which the Fault Report is made available to the Contractor;
	2. “Attend & Fix” means to attend the site and commence necessary action to the Traffic Signal and Ancillary Equipment to make safe and fully restore to a perfect working condition;
	3. “Temp Clear” means the contractor has made all efforts to restore the Traffic Signal and Ancillary Equipment to a perfect working condition at the first visit however a second visit is required to fully restore the site due to more complex faults being diagnosed.
2. Where, in the opinion of the Service Manager a Fault occurs at any site that requires Attendance within a response time that is shorter than that set out above then they instruct the Contractor to provide an **Emergency Response**.
3. If any of the above faults result in a chargeable then it will be reassigned as a less urgent. Therefore, it will be subjected to the Less Urgent LSD parameters of full fix within 5 days, unless the fault requires Slot Cutting. Within these circumstances the Service Manager is not required to submit a modification task order, this is to reduce unnecessarily delaying the Contractor.

Extension to Attend & Fix Times

1. Where the Contractor notifies the Service Manager that circumstances beyond the Contractor's control have arisen at the Site. Such circumstances include, but are not necessarily limited to: -
* Unusual adverse weather conditions existing which would cause damage to the equipment if the repair was to be executed,
* access to the Site not granted,
* actions of any third party,
* fire
* flood
* presence of toxic or explosive gas or substances,

Then the fault will be held until the site or weather conditions (or whatever else the circumstances were that prevented the Full Repair being carried out) have been removed or are no longer existing. Then the fault shall be reinstated to the original Fault Priority but start from the point when it is possible for the Contractor to attend and rectify the fault.

Fault Reports

1. A Fault Report is created identifying the Fault and its respective Fault Type together with the response time required. The Contractor carries out repairs to Traffic Signal and Ancillary Equipment whenever a Fault Report is generated.
2. When all work necessary to rectify and clear the reported Fault resulting from the issue of a Fault Report has been carried out by the Contractor the Contractor completes a Fault Clearance Report.
3. The Fault Clearance Report is entered onto the Fault Management System and a detailed Fault Clearance Report is available to the Service Manager no later than the end of the following Working Day which includes: -
4. time/date of Fault report;
5. origin of report;
6. Contractor’s operative/s tasked with undertaking the works;
7. time of attendance on site;
8. time work was completed;
9. details of work carried out;
10. details of further work required;
11. identity of maintenance technician;
12. estimated cost of works broken down into labour and materials;
13. approximate actual cost of works;
14. time/date of Service Manager’s acceptance of estimate.
15. The Fault Clearance Report is entered onto the Fault Management System no later than one hour from the Fault being cleared.
16. If the Fault reoccurs within 24 hours of the work being completed, then, unless the reoccurrence was clearly due to activity beyond the control of the Contractor, the Fault is re-reported as a continuation of the original Fault.
17. Where the Contractor responds to a Fault Report in accordance with the contract and no Fault whatsoever is found, the Contractor updates the Fault Management System specifying that the Fault has been cleared. No reimbursement of the Contractor’s costs will be made.
18. Where the Fault Report indicates that Traffic Signal and Ancillary Equipment is in a state that is dangerous to the public (for any reason) then the Contractor makes the equipment safe (notifying the Service Manager accordingly) within the timescales set out for Emergency Faults.

Tall poles

1. The vast majority of sites in Somerset utilise a mixture of standard height, straight, swan-necked and stub poles. There are a few exceptional instances where taller poles have been used. Some have one signal head above another to improve driver forward visibility requirements. Others may contain CCTV equipment, etc. Various combinations and permutations are in use. Volume 2 Works Information Traffic Signal and Ancillary Equipment – Unit Value
2. A number of the sites have poles that may be lowered to the ground for maintenance access. Others are ‘fixed’ and to avoid the use of tall ladders, other methods of access will be required, such as a MEWP (Mobile Elevating Working Platform), or similar.
3. Furthermore, there are a number of sites that incorporate Masts or Mast Arms. These are detailed in the Volume 2 Works Information Traffic Signal and Ancillary Equipment – Unit Value
4. The contractor is deemed to have appraised themselves of all existing instances where a MEWP (or similar) access may be required. It is also possible that over the duration of the contract, additional installations using ‘over-height’ poles and equipment may be added.
5. For the avoidance of doubt it is deemed that regardless of the type of access required to all poles, mast arms, masts, etc., the rates are deemed to be included within the contract rates, with no additional payment to be claimed.

**SSO3 NON-ROUTINE SERVICES**

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| --- | --- | --- |
| **Section** | **Contents** | **Page** |
| 01 | Introduction | 30 |
| 02 | Modification Works | 31 |
| 03 | Damage Repair Services | 77 |
| 04 | Additional Services | 80 |
| 05 | Support Services | 81 |

**SECTION 1 INTRODUCTION**

1. For ease of reference, Non-Routine Services are split into four individual sections as follows: -
	* Modification Works
	* Damage Repair Services
	* Additional Services
	* Support Services
2. All Non-Routine Services are ordered by the Service Manager as Task Orders.
3. For the avoidance of doubt the Employer and Service Manager are not obliged to issue Task Orders to the Contractor and the Contractor has no claim against the Employer or Service Manager in respect of any decision not to appoint the Contractor to perform any particular Task or Tasks generally or award to Others/third parties.
4. Non-Routine Services are chargeable by the Contractor using rates and Prices contained within Volume 5 Returnable Schedules Schedule 6 sections 2 and 4 of the Price List.
5. In the event that works and services carried out are different to those contained within the Price List and the Service Manager does not consider that Dayworks rates or Defined Costs are an appropriate mechanism for valuing work and services then the Service Manager may fix additional rates (known as Star Rates) to be incorporated into the Price List.

**SECTION 2 MODIFICATION WORKS**

1. Modification Works are the re-active works required to modify or enhance existing Traffic Signal and Ancillary Equipment as instructed by the Service Manager from time to time. The works required may include the disconnection and removal of existing equipment and/or the supply and installation and connection of new equipment. It may include civil works and all necessary access arrangements and traffic management works.
2. Modification Works are generally provided during Normal Working Hours unless instructed otherwise by the Service Manager.

**Modification Orders**

1. The Service Manager may, from time to time, issue a Modification Task Order depending on scope this will include supporting documentation such as drawing(s) and specifications to the Contractor for the modification of existing Traffic Signal and Ancillary Equipment.
2. The Modification Task Order will be either submitted through the Fault Management System or Email using an excel document (whichever method is in place at the start of the contract).
3. There are two types of Modification Task Orders: -
* **Minor Task Orders** are defined where the requirement for Traffic Management has minimal impact on the network and will last no longer than two days, examples of this may be Configuration changes or Slot Cutting
* **Major Task Orders** are defined where the requirement for Traffic Management will have a greater impact on the network and will last longer than two days, examples of this may be Pole swaps, Controller replacements/ upgrades or the Service Manager has requested works not detailed in the Schedule of Works and will be priced as star rate services requiring a quote.
1. On receipt of the **Minor** Modification Task Order the Contractor will check and inform the Service Manager of any required amendments to the submitted Modification Task Order as well as supply a completion date within two working days. This is to assist the Service Manager in managing their programme and budget effectively. Failure to supply a completion date within the parameters will result in a Low Service Damage detailed in Volume 2 Works Information Appendix 06
2. On receipt of the **Major** Task Order the Contractor examines the requirements of the proposed scheme of works, visits the site, assesses the traffic management requirements, confirms the practicability of the proposed works, calculates rates for items of work required that are not included in the rates and Prices within the Price List where instructed, advises the Service Manager of any necessary changes to the Major Task, prepares a Works Programme for the proposed works, including completion dates. The Contractor provides a report to the Service Manager containing the results of his considerations including the above matters and any alternative proposals that they consider are advantageous to the outcome of the scheme within ten working days. This is to assist the Service Manager in managing their programme and budget effectively. Failure to supply a completion date within the parameters will result in a Low Service Damage detailed in Volume 2 Works Information Appendix 06.

1. On receipt of the **Major** Task Order report from the Contractor, the Service Manager will consider the information provided and may discuss with the Contractor. The purpose of these discussions is to ensure that the Service Manager and the Contractor are satisfied about the scope and extent of the works, the programme for the works and the rates submitted. Where the discussions do not produce agreement on all of these issues the Modification Task Order will be withdrawn. Where the discussions lead to agreement on all of the matters discussed then the programme of works agreed in the discussions will become the accepted Works Programme.
2. For clarity the completion dates are supplied though the same mechanism the Modification Task Order was submitted
3. The time spent by Contractor’s staff in considering a Modification Task Order and entering into discussions with the Service Manager (including site visits) is not chargeable under the contract, whether or not the discussions lead to the issue of a Modification Task Order. The Contractor’s rates and Prices within the Price List are deemed to include for these costs.

**Modification Works**

1. Without prejudice to the general definition, Modification Works may include the following works and responsibilities: -
	1. The supply and installation of poles, control cabinets, etc;
	2. The supply and installation of equipment pillars;
	3. The supply and installation of signal equipment;
	4. The supply and installation of detectors, both above ground and subsurface;
	5. The supply, installation and connection of all interconnecting cables between the feeder pillars, control cabinets, signal equipment, detectors, third party equipment, etc;
	6. The supply and installation of ducts, duct chambers, hard-standing, etc;
	7. The disconnection and disposal of signal equipment, cables etc;
	8. The removal and disposal of signal poles, controller bases, etc;
	9. Ancillary civil works, including islands, kerbing, paving, slot cutting, barriers and the supply and installation of advanced signs and high friction surfacing and studs;
	10. Traffic management including design;
	11. Obtaining approvals and interface details where equipment is to be connected to equipment belonging to or supplied by a third party;
	12. Attendance at Factory Acceptance Tests (FAT) and Site Acceptance Tests (SAT) including commissioning and electrical installation tests.
2. The design, specification, installation and maintenance of a traffic signal installation is governed by numerous national regulations, codes of practice, advice notes and recommendations. The Contractor makes themselves aware of the requirements of the following documents and the design and specification documents referred to within them and unless a Somerset standard applies then the most current version of these documents must be strictly adhered to at all stages: -
3. Design Manual for Roads and Bridges, Volume 8, Section 1, TD 24/97;
4. Design Manual for Roads and Bridges, Volume 6, Section 2, TD 50/04;
5. Design Manual for Roads and Bridges, Volume 8, Section 1, TA 84/06;
6. Design Manual for Roads and Bridges, Volume 8, Section 1, TA 82/99.
7. All traffic control and information systems comply with the “Code of Practice for Traffic Control and Information Systems for All-Purpose Roads” – TA84/06 or the latest version.
8. All equipment is registered and compliant with the TOPAS Product Registration which supersedes DfT type approval. All equipment supplied will comply with either the TOPAS specification or legacy (MCE and TR series) and British Standards Institution (BS) documents. The equipment complies with all relevant specifications in law or in common practice or covered in codes of practice. In all cases the current issue applies including any subsequent amendments.
9. Traffic Signal equipment complies with the following: -
	1. BS EN 12675:2001 Traffic Signal Controllers – functional requirements;
	2. BS EN 7987:2001 Road Traffic Signal Systems;
	3. BS EN 50293 Electromagnetic compatibility, Road traffic signal systems;
	4. BS EN 12368 Traffic control equipment, Signal heads;
	5. TR2206A Specification for Road Traffic Signals.
10. All equipment is new unless otherwise stated within the Modification Task Order and is supplied and installed in accordance with this Service Information. No variations or alterations are accepted without the written agreement of the Service Manager.
11. All new traffic signal equipment has, as a minimum, a one-year unconditional manufacturer’s warranty for all parts.
12. The Contractor honours all guarantees or warranties offered by third party suppliers of traffic signal equipment and arranges at his own expense for the replacement and installation of any equipment being replaced under warranty.
13. Where a new electricity supply is being provided for an installation, the supplying Electricity Company may require the Contractor to complete the Electricity Company’s ‘Notice of Completion of Installation’. Power will not be connected until a number of days after submission of the Notice. It is the Contractor’s responsibility to ensure that the Notice is completed and returned to the Service Manager.
14. Traffic Signal and Ancillary Equipment is supplied with the most up to date versions of software and firmware.
15. Delivery, installation, testing and associated system documentation are in accordance with this Service Information.
16. A Modification Task Order, in addition to the requirements specified within Clause X19 of Volume 0 Conditions of Contract may include: -
17. Modifications to or amplification of this Service Information;
18. Drawing(s);
19. Controller specification documents;
20. A Price List for the works including rates or rates specifically agreed with the Service Manager (Star Rates) for the Task;
21. Where known, an indication of potential hazards in the vicinity of the proposed works (the provision of this information does not relieve the Contractor’s obligation to carry out his own review of these matters);
22. Where known, an indication of the likely Environmental or Traffic issues associated with the execution of the proposed works (the provision of this information does not relieve the Contractor’s obligation to carry out his own review of these matters).

**Acceptance Tests Ref to STAN 11/17**

1. For the avoidance of doubt, Factory Acceptance Tests, Pre-Site Acceptance Tests and Site Acceptance Tests are deemed to be included within the rates and Prices included within the Price List unless otherwise specifically stated.
2. The Contractor uses his testing centre closest to Taunton, as agreed with the Service Manager. Any costs associated with the Service Manager’s travel to alternative test centres are paid for by the Contractor.

**Factory Acceptance Test (FAT) Ref to STAN 11/17**

1. The Contractor is responsible for facilitating and co-ordinating the FAT, in full consultation with the Service Manager giving at least 4 weeks notice. The Contractor’s FAT is conducted either at the manufacturers’ or suppliers’ factory, works or depot.
2. The Contractor provides all necessary test equipment in a suitable environment set aside for the purpose including any necessary emulation software. The Contractor provides a competent person for any technical discussion resulting from or associated with the tests and to sign the FAT document containing any agreed actions to complete the test. Additional tests may be required at the discretion of the Service Manager.
3. The Contractor ensures that all equipment and configuration/s to be tested are operating correctly, prior to requesting the Service Manager to be present at the FAT. Where the Service Manager is requested to attend a FAT and it is established that insufficient prior testing has occurred, then the Contractor will be liable to reimburse the Service Manager for all reasonable costs associated with the Service Manager’s presence at that test.
4. It is imperative that the manufacturer’s controller/s hardware is fully tested with the approved tested configuration running in it/them. Often the configuration is tested on a computer and has to have the configuration engineer present to carry out any amendments necessary. Once the Service Manager is satisfied that the configuration is running safely and efficiently, then the configuration/s can be loaded onto the actual controller/s being supplied for testing.
5. The Contractor performs its controller/s tests and green/green conflict tests in the factory and on the actual controller/s to be supplied, not just on the emulator software. The green/green conflict tests are carried out on the junction controller/s using a relevant test unit.
6. All functions specified within the MCH1827B provided by the Service Manager are satisfactorily demonstrated and tested.
7. FAT for Puffin and Toucan controllers do not normally require the presence of the Service Manager. These controllers must be supplied with a FAT certificate signed by the manufacturer, listing all safety checks that have been carried out. These checks include the green/green conflict test.
8. Where a specific MCH1827B specification is provided by the Service Manager for a Puffin or Toucan controller; all functions shall be satisfactorily documented and tested.
9. The Contractor ensures the Service Manager is supplied with a FAT certificate, a green/green conflict test certificate and hard copies and electronic copies of each controller/s configuration/s. These documents are handed over to the Service Manager ideally at the Factory Acceptance Test but no later than one week before the date of the Site Acceptance Test (SAT).
10. Controller configurations will not be amended by the Contractor during any phase of the construction process and uploaded on to the street hardware without a supplementary FAT taking place.
11. Configurations will not be released to street at point issue and will be up issued to the next available issue number, to maintain the tracking process of all modifications. The Contractor that is modifying the controller configuration will update the administration page of the controller configuration printout ensuring that full traceability of the last modification is maintained.
12. No signal controller is allowed onto the site without a current and valid FAT certificate being in place. Under no circumstances will the FAT be conducted with the controller in situ.
13. If the Service Manager is called to a FAT and finds that all necessary work is not satisfactorily completed, the FAT will be terminated. If the Contractor arrives later than the agreed time, the FAT may be terminated. The Contractor pays the applicable low service damage (Service Manager Return Site Visit).
14. Only EPROM's / controller configuration files produced through a certified QMS (Quality Management System) are acceptable for site use.

**Pre- Site Acceptance Test (PSAT) Ref to STAN 11/17**

1. Otherwise known as pre-commissioning, the Contractor ensures that all appropriate certificates and documentation is made available to the Service Manager prior to commencement of the Site Acceptance Test (SAT).
2. The Contractor fully tests the installation prior to requesting the Service Manager to attend the SAT and ensures that all civil works relevant to the installations are completed to the required standards.

**Site Acceptance Test (SAT) Ref to STAN 11/17**

1. The Contractor must not commence the SAT process without the required certificates and documents as follows: -
	1. Green / green conflict certificate;
	2. Electrical test certificates as prescribed by BS 7671;
	3. Signed FAT documentation (copy of, if applicable);
	4. Detection loop impedance readings (if applicable);
	5. A Hard copy of controller specification;
	6. An electronic version of the controller configuration;
	7. Equipment list (showing location, type, No off, & manufacturer of equipment installed);
	8. Certificate of conformity (of equipment);
	9. Controller log book
2. The Contractor is responsible for facilitating any tests required by the Service Manager.
3. The Contractor ensures that all equipment installed is fully tested and operating correctly, prior to requesting the Service Manager to be present at a test. This includes all communication lines for the Remote monitoring and UTC equipment unless otherwise specified by the Service Manager.
4. The SAT is conducted when all elements of the installation/s are considered by the Service Manager and Contractor to be complete. This includes all associated civil works (ducting, chambers, tactile paving etc), road markings, in-station connections and configurations.
5. The Contractor organises a SAT at each new traffic signal installation at a time and date agreed by the Service Manager. The Contractor and the Service Manager are both present at this test. The SAT is conducted by the Service Manager, who will ask for a sequence of tests to be demonstrated by the Contractor. On successful completion of the SAT, the original Site Acceptance Test certificate is signed by the Contractor and the Service Manager and retained by the Service Manager
6. Where minor Faults are found that do not affect the safety or efficiency of the installation an interim SAT certificate will be issued by the Service Manager. The Contractor and Service Manager will sign these items at the SAT completion.
7. The interim SAT certificate will list any items that require attention. A final SAT certificate will not be issued until the remedial actions listed on the interim SAT have been completed and agreed as complete by the Service Manager.
8. For health and safety reasons and as far as reasonably practicable SAT’s are ONLY carried out during daylight hours. If a SAT is started in daylight hours but may not finish before dusk then the SAT may, at the instruction of Service Manager, be adjourned until such time as completion of the SAT during daylight hours is possible. A SAT will NOT be started during either the hours of darkness or if the weather is deemed to be unsuitable.
9. If during the SAT the weather becomes inclement then the Contractor provides a shelter to protect the sensitive electronic equipment from the effects of the weather when testing, or commissioning.
10. The Contractor does not leave the junction open to traffic, under the control of the installation, until an interim or final Site Acceptance Test certificate has been issued. The final Site Acceptance Test certificate will not be issued until all defects identified have been resolved to the satisfaction of the Service Manager.
11. A copy of the installation cabling schedule is placed in the controller case and a copy is provided to the Service Manager a maximum of 7 working days after completion of the SAT.
12. From time to time the Service Manager accepts, through a Site Acceptance Test, works constructed by Others. The Contractor may be required to accompany the Service Manager at this handover and provide advice in the form of written reports as instructed by the Service Manager. The Contractor is deemed to have included within his rates and Prices within the Price List for the Service Manager to undertake ad hoc Tests and Inspections amounting to a total of 120hrs per Contract Year. These hours may be utilised to accompany the Service Manager at these handover meetings and providing advice. Any requests by the Service Manager in excess of the 120hrs per Contract Year will be paid for on a Dayworks basis. Please also refer to Volume 0, Conditions of Contract, Clause 40.8.
13. If the Service Manager is called to a SAT and identifies that the Contractor has undertaken insufficient testing and/or that necessary works are not complete, the SAT will be terminated. If the Contractor arrives on site later than the agreed time, the SAT may be terminated. The Contractor pays the applicable low service damage (Service Manager Return Site Visit).
14. For clarity the following items need to be read conjunction with Volume 4 Method of Measurement.

**Traffic Signal Controller & Pedestrian Controller (Remove & Install Only) Ref to STAN 11/17**

Remove

1. The Service Manager liaises directly with the appropriate Distribution Network Operator (DNO) to arrange for the disconnection of electricity supply.
2. The Contractor is required to remove the existing Controller together with its associated foundations and cabling, unless otherwise specified by the Service Manager. All waste materials and equipment to be disposed off site to the Contractor’s tip. Those materials and equipment deemed suitable by the Service Manager as Spares are to be removed from site and temporarily stored at the Contractor’s, as instructed by the Service Manager. For the avoidance of doubt Spares remain the property of the Employer and are marked appropriately and made available to the Service Manager as and when required.
3. The Contractor provides a suitable secure storage area, easily accessible to the Service Manager and continues to store materials and equipment until such time where the Service Manager requires their use.
4. The Contractor maintains an inventory of equipment removed to their store and provides to the Service Manager as and when requested.

Installation

1. The Contractor installs the Controller in accordance with the applicable manufacturer’s instructions and in accordance with the appropriate codes of practice.
2. Works include, but are not limited to, fixings, connection of signal cables, connection of controller to pillar and labelling. All controllers are mounted onto mounting bases with grommet trays. (mounting bases supply are measured separately). Drawing detailed within the latest version of STAN 11/17.
3. The Service Manager uses NAL Ltd (www.nal.ltd.uk) as their Controller Cabinet base supplier. Any alternative suppliers must be approved in advance by the Service Manager.
4. The Duct and cable between the pillar and controller are measured separately.
5. The Contractor provides photographic evidence to the Service Manager that the existing foundation has been removed and subsequently replaced.
6. Disturbed areas are to be reinstated in accordance with the HAUC Specification for the reinstatement of openings in highways Third Edition 2010 as amended from time to time.
7. Upon completion of the installation the Contractor provides a record of Spares to the Service Manager as appropriate, retains a record of Materials and Equipment disposed off site to tip and provides all associated documentation as reasonably required by the Service Manager. The cost of the supply of a new Controller is covered elsewhere within the Price List. All other costs and associated works applicable to this section are deemed to be included within this section.
8. The controller is marked with the site reference number. Labels are manufactured of waterproof self-adhesive vinyl, and applied after the controller surface has been cleaned. The characters are to be 50mm high, white on black in Transport Medium font. The black backing tile should be at least 10mm wider than the widest part of the character.
9. Upon final connection the Contractor completes a Site Acceptance Test to enable final commissioning of the Controller, together with any Ancillary/Additional Equipment installed. The Site Acceptance Test is undertaken jointly with the Service Manager. Task Completion is achieved upon satisfactory completion of the Site Acceptance Test provided by the Contractor and subsequently accepted by the Service Manager.
10. For the avoidance of doubt, the Site Acceptance Test is deemed to be included in the Controller installation cost.

**Controller Cabinet Base with Grommet Tray (Supply and Install) Ref to STAN 11/17**

1. The Contractor installs new, replaces existing or removes controller foundation as instructed by the Service Manager.
2. The Contractor cut’s the edge for a joint to the new surface; Exposes or fills the required area; Mounts, removes or replaces the controller cabinet base (to standard detail).
3. The Contractor installs a concrete bed with 50mm drainage duct; ST4 concrete surround; backfilling and reinstatement.
4. Make good area to HAUC Specification for the Reinstatement of Openings in Highways, Third Edition 2010 as amended from time to time.
5. All surplus material is removed from the site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.
6. The removal of cabinets and associated cables are charged separately.

**Controller Foundation Ref to STAN 11/17**

1. The Contractor installs new, replaces existing or removes controller foundation as instructed by the Service Manager.
2. The Contractor cut’s the edge for a joint to the new surface; Exposes or fills the required area; Mounts, removes or replaces the controller stool (root) (to standard detail).
3. The Contractor installs a concrete bed and haunch; flagstone paving; sand filling; permanent shuttering; sealant; excavation; disposal; backfilling and reinstatement.
4. Make good area to HAUC Specification for the Reinstatement of Openings in Highways, Third Edition 2010 as amended from time to time.
5. All surplus material is removed from the site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.
6. The removal of cabinets and associated cables are charged separately.

**Traffic Signal & Pedestrian Controller (Supply Only) Ref to STAN 11/17**

1. The Contractor supplies Materials and Equipment which conform to specification requirements as detailed within the Service Information and are fully compliant and compatible with the Employer’s existing (and as amended from time to time) monitoring system and associated connected equipment.
2. Traffic signal controllers operate in accordance with the TOPAS specification, currently 2500A and associated appendices and be Type Approved for the purpose which they are being used for.
3. The Service Manager may require the Contractor to supply and fit a revised EPROM/ controller configuration files, data being provided by the Service Manager. The revised EPROM / controller configuration files incorporates any timing, CLF or configuration amendments deemed necessary by the Service Manager. For the avoidance of doubt, the revised EPROM / controller configuration files is paid for separately.
4. Each controller shall be supplied complete with: -
	1. Black Cabinet with door stays (unless “cuckoo” into existing);
	2. RKA27C main door lock (not S18) with 2 keys;
	3. Compression bolts (T key) for sealing door;
	4. Door ‘open’ sensor;
	5. Hinged internal swing frame (19 inch);
	6. Mounting rack for additional equipment (3U);
	7. Spare ‘available’ 13A maintenance socket;
	8. Power distribution rail (DIN rail type) with double pole switch, miniature circuit breakers and fuses (4 minimum);
	9. Lamp switch card(s) required to drive number of phases specified;
	10. Lamp dimming (via solar cell, measured separately);
	11. Input / Output cards if supplied as standard;
	12. Power supplies or transformers required to drive number of phases specified;
	13. All required fixings, brackets, cable labels and cable ties;
	14. All required connection cables (i.e. ribbon cables);
	15. Cable castellation bars, where supplied as standard by manufacturer;
	16. Cable end terminations (CET glands), where supplied as standard by manufacturer;
	17. Fitted controller identification label;
	18. Certificate of conformity;
	19. Configuration data in paper and electronic form.
5. In addition to the above traffic signal junction controllers shall be supplied with: -
	1. Full Police Manual Panel with Yale type 900 lock (not S18 type);
	2. Separately Isolated 2 gang RCD protected auxiliary power supply (DIN rail mounted);
	3. Approved configured EPROM / controller configuration files or Standard Employer Pedestrian EPROM / controller configuration files
6. Controller(s) configured for integral 'MOVA' or supplied with an external 'MOVA' unit are capable of full 'MOVA' communications via the County Council's current In-station facilities.
7. Manuals are provided for equipment purchased unless otherwise directed by the Service Manager. The manuals are in an electronic format acceptable to the Service Manager or in hardcopy format only when authorised by the Service Manager.
8. Traffic Signal & Pedestrian Controllers shall be capable of displaying speed readings through handsets where the associated speed reading equipment is installed (see miscellaneous detector equipment section (Supply and Install)). Equipment requiring specific measuring facilities will not be utilised.
9. Where instructed by the Service Manager, cabinets are coated with an anti flyposting and ant graffiti system of the desired colour. The coating is in a smooth finish. The coarse finish will not be acceptable in urban areas and/or where pedestrians are present.

**Uninterruptable Power Supply Ref to STAN 11/17**

1. Where Instructed by the Service Manager a UPS system as indicated on the design drawings will be supplied. The Contractor shall be responsible for installing, setup and commissioning of a UPS system.
	1. The UPS shall be able to run the controller for a minimum of 4 hours.

* 1. The UPS shall be fully monitored and shall report a fault If the site is running under UPS power. The contractor shall be responsible for installing battery storage cabinets required for the UPS.
	2. The contractor shall ensure that the controllers are suitably labelled warning that they are dual power supply system where both supplies must be isolated before dead working can be achieved. Specific output warning mnemonics shall be provided via RMS and to UTC for the monitoring of UPS Battery Backup system, capable of reporting low battery operation, UPS active and UPS faults.
	3. The Contractor shall calculate the number of battery cells required and the number of storage cases and supply these details for installation updates and amendments.
	4. The contractor shall provide details of signal operation under battery control in both Dimmed and non-Dimmed states and provide a software switch setting in the controller to enable / disable this function.

**Additional Equipment for Traffic Signal Controller (Supply & Install) Ref to STAN 11/17**

1. The Contractor supplies Materials and Equipment and subsequently installs equipment which is fully compliant and compatible with the Employer’s existing (and as amended from time to time) monitoring system and associated connected equipment. “Supply” includes the supply and fitting which for the avoidance of doubt includes for all fixings and cables necessary and for controller and Additional Equipment to function correctly.
2. The controller supply section above provides a ‘base’ unit. Additional Equipment may be required depending on the attached equipment and controller manufacturer. This section is to cover the additional equipment that may be required to produce a functioning controller suitable for the site or additional items that may be required to alter an existing installation. These items are in addition to those provided as standard by the manufacturer: -
	1. Detector Backplanes; Contractor to supply and install additional controller items required to connect detector cards or other inputs to the controller
	2. Transformers; Contractor to supply and install additional transformers required to drive on-street equipment (i.e. LED indicators and above ground detection);
	3. Lamp Switch Cards (inc. ELV); The new ‘base’ controller should contain enough lamp switch cards to drive the phases stated. Additional items may be required for modification of an existing installation (i.e. where additional phases have been added);
	4. Input / Output cards (inc. ELV) ; Contractor to supply and install input / output cards needed for on street equipment where the base controller has insufficient capacity or where an existing installation has been modified;
	5. Lockable double pole isolator; at certain sites it may be necessary to install a lockable isolator that prevents accidental energising of an isolated installation. Locking should be achieved through removable key or padlocking. Min current rating 30A. A test certificate (BS7671) shall be supplied to the service Manager following installation and testing;
	6. Secondary double pole isolator; Contractor to supply and fit a DIN rail mountable double pole isolator within the consumer unit in the controller. Min current rating 20A. A test certificate (BS7671) shall be supplied to the Service Manager following installation and testing;
	7. 2 gang RCD protected power supply; Contractor to supply and install additional RCD protected 3 pin sockets in controller or cabinet for connection of additional equipment. Includes mountings and any cable required to connect and earth the unit to an existing supply. A test certificate (BS7671) shall be supplied to the Service Manager following installation and testing;
	8. IP rated fuse box; Contractor to supply, connect and fix a DIN rail mountable, weatherproof to IP 65 (to BS EN 60529) consumer unit in the controller or cabinet. This will be used to house isolators and fuses for additional equipment. Minimum capacity of four DIN rail mounted items. A test certificate (BS7671) shall be supplied to the Service Manager following installation and testing;
	9. Castellation bars & CET glands; Contractor to supply and fix additional cable retention equipment in the controller or cabinet base to secure cables. In addition to any items supplied as standard as part of the controller ‘base’ unit or where required as part of a modification;
	10. EPROM / controller configuration files new; Contractor to supply and install a newly configured EPROM / controller configuration files at an existing site to data supplied by the Service Manager. Contractor to supply electronic and paper copies of the configured data. FAT & SAT included;
	11. EPROM / controller configuration files modify; Contractor to supply and install a modified configured EPROM / controller configuration files at an existing site. Existing site data supplied by Service Manager encompassing a minor amendment. No FAT required. Contractor to supply electronic and paper copies of the configured data. SAT included.
	12. EPROM / controller configuration files new: Contractor to install only newly configured EPROM / controller configuration files supplied by Service Manager at new traffic signal site SAT Included.
	13. EPROM / controller configuration files new: Contractor to install only new/modified configured EPROM / controller configuration files supplied by Service Manager amendments to cabling and SAT included

**Additional Equipment: Pillars Refer to STAN 11/17**

1. The Contractor supplies and installs new, replaces or relocates existing pillars on the street in accordance with STAN 11/17.
2. IP rating of 65 or higher in accordance with BS EN 60529.
3. The Contractor includes for all excavations, foundations, reinstatements, all mountings, warning labels, a preservative treated wooden backboard, fixings, any required cable fixings and connections.
4. The connection cable between the consumer side cut-out and the controller conforms to the current issue of BS7671 and is double insulated with a minimum conductor cross sectional area as required by the system load.
5. The Contractor is to ensure that the Distribution Network Operator has installed the correctly rated BS88 HRC (High Rupturing Capacity) cartridge fuse into the pillar when connecting the power supply.
6. Supply and fix of supply cables, base seal, ducting, chambers, covers and frame are measured separately.
7. Upon completion of the work the Contractor tests and leaves the unit in an operational state. A test certificate (BS7671) is supplied to the Service Manager following installation and testing.
8. All surplus material is removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Additional Equipment: Cabinets Ref to STAN 11/17**

1. The Contractor supplies and installs new, replaces or relocates existing cabinets on the street in accordance with STAN 11/17, including all excavations, foundations, reinstatement, mountings, warning labels, fixings, any required cable fixings and connections.
2. The connection cable to the cabinet conforms to the current issue of BS7671 and is double insulated with a minimum conductor cross sectional area as required by the system load.
3. Miscellaneous Equipment Cabinets are similar to the controller cabinets. Including a door stay, RKA27C lock and compression bolts, 19” swing frame with 5U, 3U & 19” rack mounting facilities, rear and side mounting plates, castellation bars with CET glands, Electrical supply items (DIN rail mounted) including double pole isolator, mains circuit breaker, 4 fused connections and a minimum of two 3 pin plug sockets.
4. The cabinet size is approximately 1160mm high x 725mm wide x 420mm deep and weatherproof to IP65 or higher in accordance with BS EN 60529.
5. Cabinets are constructed of aluminium (powder coated) or galvanised steel (2mm min thickness).
6. Supply and fix of supply cables, base seal, ducting, chambers, covers and frame are measured separately.
7. Cabinets are black or as otherwise instructed by the Service Manager.
8. Where instructed by the Service Manager, cabinets are coated with an anti-fly posting and anti-graffiti system of the desired colour. The coating is of a smooth finish. A coarse finish will not be acceptable in urban areas and/or where pedestrians are present.
9. Upon completion of the work the Contractor tests and leaves the unit in an operational state. A test certificate (BS7671) is supplied to the Service Manager following installation and testing.
10. All surplus material is removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Transmission and Monitoring Equipment (Remove & Install Only) Ref to STAN 11/17**

Remove

1. The Contractor is required to remove the existing Transmission & Monitoring Equipment as specified by the Service Manager. All waste materials and equipment to be disposed off site to the Contractor’s tip. Those materials and equipment deemed suitable by the Service Manager as Spares are to be removed from site and temporarily stored at either the Contractor’s or Service Manager’s store, as instructed by the Service Manager. For the avoidance of doubt Spares remain the property of the Employer and are marked appropriately and made available to the Service Manager as and when required.
2. The Contractor provides a suitable secure storage area, easily accessible to the Service Manager and continues to store materials and equipment until such time where the Service Manager requires their use.
3. The Contractor maintains an inventory of equipment removed to his store and provides to the Service Manager as and when requested.

Installation

1. The Contractor installs, configures and tests the Transmission & Monitoring Equipment in accordance with the applicable manufacturer’s instructions and the appropriate codes of practice. Works include, but are not limited to screws, fixings, connection and securing of required cables and labelling of cables.
2. The cost of the supply of new Transmission & Monitoring Equipment is covered elsewhere within the Price List. All other costs and associated works applicable to this section are deemed to be included within this section.
3. All Transmission and Monitoring equipment is wired into its own MCB (Miniature Circuit Breaker) on the power distribution rail and will not be connected into the maintenance sockets.
4. Upon final connection the Contractor completes all required tests to enable final commissioning of the equipment together with any Ancillary/Additional Equipment installed and leaves the unit in an operational state. The Contractor provides the Service Manager with all documentation, as reasonably required, including an Inventory record and any electrical test certificates required (BS 7671).
5. Final testing is undertaken jointly with the Service Manager. Task Completion is achieved upon satisfactory completion of the tests provided by the Contractor and subsequently accepted by the Service Manager.

**Transmission and Monitoring Equipment (Supply Only) Ref to STAN 11/17**

1. The Contractor supplies materials and equipment which conform to specification requirements as follows: -
	1. TOPAS2523A Traffic Control Equipment Interfacing Specification;
	2. TOPAS2522A Remote Monitoring and Control of Traffic Control Equipment via a Telecommunications Network;
2. Supplied equipment is fully compliant and compatible with the Employer’s existing (and as amended from time to time) monitoring system and associated connected equipment. “Supply” includes but is not limited to the supply of the equipment together with all necessary fixings and connections (i.e. ribbon cables and screws) required to install Transmission & Monitoring Equipment to the Traffic Signal Controller. For the avoidance of doubt Transmission & Monitoring Equipment together with associated fixings are deemed to be new.
3. The Transmission and Monitoring Equipment is fitted with the most current version of firmware available at the time of installation.

1. Supplied equipment should be rack mountable within the controller or have suitable fixings to keep the unit fixed securely.

1. The Contractor supplies IP CCTV camera that does not require a separate control logic unit in controller or cabinet racks. The IP CCTV camera units to provide Pan Tilt Zoom and Lens control of the fitted camera and be able to provide remote control of the camera via an internet based system.
2. If an ADSL router is required, it must have the following facilities: -
3. Remote management over a web based interface with user configurable port number;
4. Port forwarding;
5. A minimum of 4 Ethernet RJ45 connection sockets.

**Traffic Signal Pole Equipment (Remove Only) Ref to STAN 11/17**

1. The Contractor attends site, disconnects and removes equipment including but not limited to signal heads, on-pole detectors, push button units and nearside pedestrian units.
2. The Contractor provides a safe and suitable means of access appropriate to the required task.
3. The Contractor removes the existing cabling back to the connection point.
4. The Service Manager instructs whether to: -
5. Dispose off site;
6. Set aside for re-use;
7. Take to store at Contractor’s site;
8. The Contractor makes good (through use of suitable weatherproof material) the remaining equipment.
9. Where instructed, the Contractor stores any removed items at the Contractor’s store in a safe condition until further instructed by the Service Manager. The Contractor maintains an inventory of equipment removed to his store and provides to the Service Manager as and when requested.
10. For the avoidance of doubt spares remain the property of the Employer and are marked appropriately and made available to the Service Manager as and when required.
11. The Contractor removes and disposes of brackets at the same time as the pole equipment when instructed by the Service Manager.
12. All surplus material is removed from site and disposed of by the Contractor.

 **Traffic Signal Pole Equipment (Install previously set aside or stored off site) Ref to STAN 11/17**

1. The Contractor attends site, connects and installs equipment including but not limited to signal heads, on-pole detectors, push button units and nearside pedestrian units.
2. The Contractor provides a safe and suitable means of access appropriate to the required task.
3. New cables and copex protective sheaths will be supplied and drawn through, terminating the cables as appropriate at the new connection point.
4. The Contractor installs previously set aside or stored off site equipment as instructed by the Service Manager as follows: -
5. Install previously set aside for re-use;
6. Install from store off site – Contractor’s site;
7. If the unit requires setting up this is done in accordance with the manufacturer’s specification and to the satisfaction of the Service Manager. Cables shall be labelled or marked.
8. Upon completion of the work the Contractor tests and leaves the unit in an operational state. An inventory record and any required electrical test certificates (BS7671) are provided to the Service Manager.
9. All surplus material is then removed from site and disposed of by the Contractor.

**Traffic Signal Pole Equipment; with fitting kit (Supply and Install); Ref STAN 11/17**

1. The Contractor attends site, supplies and installs Traffic Signal Pole Equipment to include all required installation tests, setting up, fixings, brackets, mounting kits, labelling, connection cables and connectors.
2. The Contractor ensures that the supply has been isolated and installs the required items including drilling holes if required in accordance with the manufacturer’s specification and details (where relevant) shown in STAN 11/17.
3. Pole mounted vehicle detection is in accordance with TOPAS2505A Performance Specification for Above Ground Vehicle Detector Systems for use at Permanent Traffic Signal Installations.
4. Tactile devices are in accordance with TOPAS2508B Performance Specification for Tactile Equipment for use at Pedestrian Crossings.
5. NPI’s are in accordance with TOPAS2511A Performance Specification for Nearside Signal and Demand Unit.
6. On-crossing detection is accomplished using signal pole mounted, microwave detectors as specified in TOPAS2506A.
7. Kerb-side detection is accomplished using signal pole mounted, digital vision detectors as specified in TOPAS2507A.
8. All PDU’s and green/red figure LED displays are to be extra low voltage (50 Volts maximum).
9. All PDU's NPI’s, WKB’s and similar units are installed by drilling holes in the appropriate place on the pole and securing using suitable fixings.
10. Every PDU is required to a have tactile unit fitted on the right, left or both, as viewed from the front.
11. All Tactile units are to be monitored.
12. Orientation of PDU's is strictly in accordance with the scheme drawing; if there are any doubts then the Service Manager decides. The height above ground level to centre of the pushbutton of the push button unit, (gradient taken into account) is between 1.0m and 1.1m.
13. Smaller high level repeater NPI’s where specified by the Service Manager are mounted as shown In STAN 11/17
14. The PEC is rated at 55 Lux.
15. The cables are drawn through and terminated as appropriate to the new connection point. If the unit requires configuring it is done in accordance with the manufacturer’s specification.
16. All cabling is to be clearly labelled with the appropriate detector name.
17. Upon completion of the work the Contractor tests and leaves the unit in an operational state. An inventory record and any required electrical test certificates (BS7671) are provided to the Service Manager.
18. A new bracket may be requested by the Service Manager, for the avoidance of doubt, the supply of the bracket is measured separately.
19. All surplus material is removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Brackets for Traffic Signal Pole (Supply and Install) Ref to STAN 11/17**

1. The Contractor attends site, supplies and fits brackets for mounting signal heads and on-pole detectors to existing poles in conjunction with other works. Includes all fixings and caps.
2. New brackets to be of suitable weatherproofed material and provide adequate support to attached equipment.
3. Triangle bracket will be used to mount detectors so that the signal head backing board is not obstructing the detector.

**Signal Heads including backing boards and fitting kit (Supply and Install) Ref to STAN 11/17**

1. The Contractor attends site, supplies and installs signal heads to existing or new brackets in accordance with TR 2206 (EN12368). All signal heads to be Type Approved.
2. A minimum clearance of 2.4m to the lowest part of the street furniture is maintained where the signal heads are on a cycle route, otherwise a minimum clearance of 2.1m is maintained.
3. All vehicular signal heads are fitted with backing boards, edged with 50mm wide white Class 2 Hi-Intensity grade (for example 3M Diamond grade) retro reflective material to BS EN 12899-1 as a minimum standard.
4. To include supply and fix of fixings, standard primary or secondary hoods, protective caps, new connecting cable, cable connectors and new protective copex sheath.
5. The standard signal head variations are set out in TR2206 Appendix 1.
6. Regulatory box signs are supplied without visor or hood.
7. The new cables are drawn through the new Copex protective sheath, terminating the cables as appropriate at the head and connection point. If the unit requires setting up this is done in accordance with the manufacturer’s specification and to the Service Managers requirements.
8. All cabling is to be clearly labelled and identified.
9. Upon completion of the work the Contractor will test and leave the unit and the controller in an operational state. An inventory record and any required electrical test certificates (BS7671) are provided to the Service Manager.
10. Where instructed by the Service Manager, replacement brackets are fitted. The supply and fixing of these items are charged separately.
11. All surplus material is then removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Retro fit Signal Heads and associated equipment**

1. With the demise of incandescent lamp availability, a LED retro-fit programme was instigated during 2021 and 2022. This resulted in approximately 40%of existing commissioned sites being upgraded from full or partial incandescent lamp usage to fully LED fitted. The sites were controlled by either ST700, ST800 or ST900LV controllers. All our ST750ELV and ST950ELV controllers were already fully fitted with LED technology.

**Miscellaneous Detector equipment (Supply and Install) Ref to STAN 11/17**

1. The Contractor attends site, supplies and installs a unit to the existing controller including all required installation tests, setting up, fixings, connection cables and connectors.
2. The Contractor ensures that the supply has been isolated and will install the required items in accordance with the manufacturer’s specification.
3. The cables are drawn through and terminated as appropriate to the new connection point. If the unit requires configuring it is done in accordance with the manufacturer’s specification or settings supplied by the Service Manager.
4. Installations use approved autotune four-channel loop detector units. as approved by the Service Manager.
5. Surplus channels from loop detector units are left as spares for future use. Total requirements are not made up with two-channel units.
6. Four-channel detector units are mounted in 19 inch rack(s) with single backplanes and guides pitched at approximately 25mm, unless otherwise agreed by the Service Manager. All detector units are collated into the rack(s), assembled and connected into the controller, with wiring looms and termination blocks provided where necessary.
7. Where unidirectional logic is not provided in the controller then logic equipment is mounted in similar fashion with standard logic backplanes pitched similarly to the detector units and incorporated in the same 19 inch rack(s).
8. Where speed assessment equipment is specified it is provided by the traffic signal controller and has an internal testing regime which may be accessed with a handset through the controller communications port.
9. Detector units allocated to speed applications should not be mixed with any other application e.g. System 'D', Call/Cancel; queue or stop line detection.
10. All detector channels are to be permanently labelled with the appropriate detector name.
11. Where required (i.e. modification works) the Contractor will supply and install additional racking to house the detector units. Includes all fixings and connection cables. Additional items required for connection to the controller (i.e. backplanes or I/O boards) measured separately.
12. Upon completion of the work the Contractor tests and leaves the unit in an operational state. An inventory record and any required electrical test certificates (BS7671) are provided to the Service Manager.
13. All surplus material is removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Traffic Signal Pole (Remove and Dispose) Ref to STAN 11/17**

1. The Contractor removes the pole from site, disposes of all waste materials off site to the Contractor’s tip and reinstates the area.
2. The Contractor removes and disposes the pole and the pole foundation to the Contractor’s tip and reinstates the area when instructed by the Service Manager.
3. Any Equipment deemed suitable by the Service Manager as Spares are removed from site and temporarily stored at either the Contractor’s or Service Managers store, as instructed by the Service Manager. An inventory record is supplied to the Service Manager. For the avoidance of doubt Spares remain the property of the Employer and are marked appropriately and made available to the Service Manager as and when required.

**Traffic Signal Pole; Refer to STAN 11/17 (Erect Only) Ref to STAN 11/17**

1. The Contractor installs the pole into an existing Pole Retention Socket (PRS). He includes for the supply and fixing of the electrical connector (pole cap), pole number label, strip, crimping and connection of supply cable to connector and any required testing. Supply of the pole measured separately.
2. The pole is new or existing from the Contractor’s store
3. The Contractor removes protective packaging, inspect pole for damage and accepts, repairs or rejects as necessary, removes and stores (in-situ) the Pole Retention Socket (PRS) protective cap, inserts the pole into the PRS at the correct orientation and secures the pole into the PRS in accordance with manufacturers instructions (NAL).
4. The Contractor provides a safe and suitable means of installation.
5. Once installed the Contractor strips and connects the required crimps to the supply cable cores and connects the cores to the connector with the appropriate identification labels. Once connected the Contractor assembles the door and locks where applicable as per the manufacturer’s instructions and supplies and fixes the relevant pole number label. The unit is tested as per BS7671 and a test report showing the relevant readings and test meter details is supplied to the Service Manager.
6. The traffic signal poles are conspicuously labelled. The pole numbers are all visible from the controller position and are located on the pole just below the bottom fixing kit position or bottom grommets.
7. Labels are manufactured of waterproof self-adhesive vinyl, and applied after the pole surface has been cleaned. The characters are to be 50mm high, white on black in Transport Medium font. The black backing tile should be at least 10mm wider than the widest part of the character.
8. All surplus material is removed from the site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Traffic Signal Pole; Refer STAN 11/17 (Supply Only) Ref to STAN 11/17**

1. The Contractor supplies black or grey slot less poles to the details shown in drawing SD013 and specifications shown in the following paragraph.
2. Traffic signal poles are either 114mm, 168mm or 177mm diameter.
3. 114mm Diameter poles are made of 3.5mm+ 0.5mm thick grade 50C structural steel to BS EN 10219 S275, hollow section, hot dipped galvanised to BS EN 1461 and plastic coated in the colour black to the current issue of BS EN 12368. Other pole materials and colours should not be used unless instructed by the Service Manager. Traffic signal poles are not to be pre-drilled for push button, PDU or NPI units and are not to have a cable entry slot near the base. They are to be predrilled at the top for mounting head brackets at each quadrant. No damage to the external finish is acceptable.
4. 168mm and 177mm Diameter poles are of similar construction to the 114mm poles above but should have an access door with tri-locks and accessible electrical connection point. Includes supply and installation of door and assembly of electrical connector to the pole.
5. Energy absorbing non frangible passively safe signal poles will be considered and only approved on a site by site basis by the Service Manager. Traffic signal poles meet the vehicle impact testing requirements of BS EN12767.
6. Full height poles are supplied with any required fixings, pole cap electrical connector, cable clamps and pole caps in the same colour as the pole.
7. Short 2m or 3m stub poles used for push button or combined PDU units are to have a welded top cap as part of the manufacture, there will be no pre-drilling.
8. Swan necked poles are to be of a smooth construction with no welding at the crank, they must not be the cut and welded type.
9. The Contractor ensures that all the traffic signal poles are supplied in perfect condition with no damage, including the external finish. Any damaged poles are returned to the supplier for replacement. At the time of commissioning the Service Manager will inspect the poles and will require any damaged poles to be replaced at his discretion. The total costs of any such measures are borne by the Contractor, including all civil works and signal equipment works to each affected pole.

**Signal Pole Retention Socket; Refer to STAN 11/17**

1. The Contractor supplies and fixes the Pole Retention Socket in accordance with manufacturer’s instructions. The PRS is to be a combination ductile iron body and duck foot bend with a galvanised steel central housing, including a stainless-steel sleeve and anti-rotation retaining bolts. Only Pole Retention Systems agreed by the Service Manager are used.
2. The Service Manager uses NAL Ltd (www.nal.ltd.uk) as their PRS supplier. Any alternative suppliers must be approved in advance by the Service Manager.
3. The Contractor excavates, installs the Pole Retention Socket with ducting back to access chamber and surround in ST2 concrete. The backfill is concrete with characteristic cube strength of not less than 25 N/mm2, laid to the underside of the surface course. Including excavation, disposal backfilling, concrete and reinstatement.
4. Where the PRS depth is less than the required depth, the Contractor informs the Service Manager immediately.
5. When instructed by the Service Manager a wedge plate is installed where the surrounding surface is sloping. A Pole Retention Socket protective cap is secured in position.
6. All surplus material is removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Controller Box Lock (Replace) Ref to STAN 11/17**

1. The Contractor supplies and installs a new lock with 2 keys at existing controller. The existing lock is removed and disposed of.
2. Upon completion of the work the Contractor tests and leaves the unit in an operational state. An inventory record is then provided to the Service Manager.

**Non Reflecting Road Studs Ref to STAN 11/17**

1. The Contractor removes and disposes or supplies and fits, square stainless steel pedestrian road studs at a signal controlled crossing point. Studs are installed as per drawings in STAN 11/17 and should conform to BS 8442.
2. The Contractor prises existing road stud from the carriageway and fills the resultant void with suitable material to HAUC Specification for the Reinstatement of Openings in Highways, Third Edition 2010 as amended from time to time.
3. The Contractor marks out and drills suitable holes in the carriageway and applies suitable adhesive to the holes before installing the square road studs. Flat edges of road studs are aligned with each other and studs extend from the end of the tactile paving zone on the crossing.
4. All surplus material is removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Tactile Paving; Drawings Refer to STAN 11/17**

1. The Contractor removes, renews, installs or reseats tactile paving as instructed by the Service Manager.
2. Removal - the Contractor removes existing tactile paving and mortar foundations from footway and reinstates area as footway. Includes excavation and disposal; reinstatement as footway is measured separately.
3. Install - Contractor installs new tactile paving and mortar. Includes excavation, disposal, new mortar bed, supply of slabs, installation of slabs and any required slab cutting. Compacted sub-base material (where required) measured separately.
4. Lift existing slab reseat in same location - Contractor removes existing unseated tactile paving and reseats to match surrounding. Includes disposal, new mortar bed, any required cutting and reinstatement. The tactile paving is either red or buff (dimple or cord) as instructed by the Service Manager.

**Access Chamber Frame and Cover; Refer to STAN 11/17**

1. The Contractor replaces, reseats, or provides new chamber frames and / or covers including fixings as instructed by the Service Manager.
2. All frames and covers comply with BS EN 124:1994 as described in STAN 11/17

### Skid resistance values of all covers are a minimum of 80 (dry) and 50 (wet).

### The cover and frame assembly fits snugly inside the access chamber to provide height and tilt adjustment at surface level. The cover and frame are supplied complete with keyway closer caps and are marked ‘Traffic Signals’.

1. All surplus material is removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Access Chamber; Refer to STAN 11/17**

1. The Contractor supplies and installs signal access chambers as per STAN 11/17
2. The Contractor excavates, installs double wall (modular) access chamber formers to achieve required ducting depth and forms a base with a drainage tube. He includes for cutting off or assembly of associated ducting to the formers, backfilling around formers with suitable material.
3. The ends of all ducts are finished flush with the inside of the chambers and the appropriate sized cut-out is made and the duct should be a snug fit.
4. Supply and fix of frame and cover shall be included within rate and ducting will be measured separately.
5. All surplus material is removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Carriageway Loop Box; Refer to STAN 11/17**

1. The Contractor supplies and fixes Carriageway Loop Box and associated ducting at locations and of a type specified by Service Manager.
2. Where instructed by the Service Manager the Contractor will supply and install an alternative style of loop box as approved by the Service Manager. The installation process is similar to that of the loop box shown in STAN 11/17, but the unit can be core drilled into place.
3. Carriageway loop box covers and frames conform to BS EN 124 Class D400 and are installed in accordance with the standard details. They are positioned generally in the centre of the running lane/s or proposed hatched areas to reduce the impact of axle loading on them. In any instance they will not be any closer to kerb lines than that shown in STAN 11/17 this allows sufficient room for the slot cutting machine to correctly cut into the box.
4. The Contractor excavates the existing carriageway, installs the Carriageway Loop Box and reinstates in accordance with STAN11/17 .
5. All carriageway loop boxes to be supplied with compatible lockable lids
6. The Contractor includes concrete for installation of Carriageway Loop Box and connection of ducting at each end.
7. Each duct is fitted with a pigmented and stranded polypropylene draw rope of minimum 5KN breaking load and having a design life of not less than 20 years, the ends of which is secured to prevent it being pulled back into duct.
8. An end cap or plug is placed over the vertical end of the duct in the Carriageway Loop Box at the time of construction. This will prevent the ingress of foreign matter.
9. All surplus material is removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Ducting; Refer to STAN 11/17(Supply and Install)**

1. Ducts are made from polyethylene, with a smooth internal and external wall and have a wall thickness of no less than 5mm. The ducts are coloured orange and inscribed with white lettering, 9mm high at 1m centres "TRAFFIC SIGNALS". Corrugated ducting will not be permitted except in exceptional circumstances and only with the prior written consent of the Service Manager. If corrugated ducting is installed prior to any written approval, the Service Manager has the right to ask for its complete removal and replacement with the above specified ducting at the Contractor’s cost including any associated civil works.
2. Each duct is fitted with a pigmented and stranded polypropylene draw rope of minimum 5KN breaking load and having a design life of not less than 20 years, the ends of which is secured to prevent it being pulled back into duct.
3. The Contractor ensures the polypropylene draw ropes used to pull cables through the duct system remain intact throughout the duct network on completion of the cable installation. They are flushed clear, using compressed air, prior to the installation of traffic signal cables.
4. For Highway construction details see Manual of Contract Document for Highway Works Volume 3.
5. All 100mm ducting is tested, by the Contractor passing a 90mm mandrel through the whole length of the completed ducting. For details see Highway Construction Detail (HCD) No. I2.
6. The minimum cover for ducts laid in the carriageway is 750mm. The ducts are bedded in accordance with detail Type B in HCD I2.
7. Where ducting in the carriageway has less than 750 mm cover, the ducts are bedded in accordance with detail Type A in HCD I2.
8. The minimum cover for ducts laid in the footway/verge is 450mm the ducts are bedded in accordance with detail Type L in HCD F2.
9. Where it may be necessary to lay ducts in the footway/verge with less than 450mm cover, the Service Manager is consulted on requirements. The minimum bedding detail is Type Z in Highway Construction Detail F1. Depending on the circumstances and at the Service Manager’s discretion, the depth of concrete backfill may be increased.

### Only traffic signal control cables are housed within the traffic signal ducting.

1. The Contractor includes for excavation, he supplies and installs bedding material, supplies, installs and compacts the backfilling material, disposes of waste, supplies ducting, supplies and fits any required duct joining sleeves or bends, connection of ducting to access point.
2. All surplus material is removed from site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Duct and Cable Surveying Ref to STAN 11/17**

1. From time to time the Service Manager will request the contractor to carry out a survey of the existing ducting or cable or both. This will include proving and clearing of existing ducts.
2. The Service Manager will provide OS/TOPO or an As built drawing confirming the area for surveying, duct or cable survey form and detailing the purpose of the survey.
3. For the avoidance of doubt a duct survey will include all road crossings, controller, intermediary and longitudinal duct runs.
4. For the avoidance of doubt a cable survey will include recording of spare cores at each pole and the cable and copex condition
5. The Contractor tests the functionality of existing chambers and ducting and where feasible duct runs shall be rodded using a COBRA not drainage rods.
6. Where the duct is blocked and the Contractor is unable to move any existing cables, then the contractor establishes the location and reason for the blockage and informs the service manager of the best course of action. If water jetting and vacuum equipment is required, then this will be charged as a separate item. Upon completion the Contractor ensures that any disturbed access chamber covers are correctly seated and that any dislodged waste material is removed from the chambers or ducts.
7. All surplus material is then removed from the site by the Contractor to the Contractor’s tip and they ensure that the site is left in a clean and safe condition.
8. The Contractor is to provide results for the duct survey using the supplied drawings and duct survey form detailing ducts quality and capacity with photographic evidence of each pit.
9. The Contractor is to provide the results of the cable survey using a cable survey form detailing the number of spare cores, Copex condition and condition of the cable including if there is any ‘slack’ available.

**Slot Cutting for Detector Loop Cable Refer to STAN 11/17**

1. The Contractor marks out, cuts, cleans and dries a slot in the carriageway and installs 3 turns of loop cable in the slot before backfilling with hot bituminous material.
2. For the avoidance of doubt this includes slot cutting for Traffic Count detectors (including Car Parks)
3. The cable is measured separately.
4. The slot is thoroughly dried prior to filling with the loop cable and bitumen. Loop cable are tamped down into the slot with a blunt instrument so as not to damage the cable, but to ensure it is jammed in place at the base of slot so as to stop lifting of the cable when the bitumen is poured in. The slot is filled to carriageway level with blown grade hot poured oxidised bitumen complying with the current specification (R95/25 preferred or R85/25 is an acceptable alternative). The Contractor ensures that no voids are left within the bitumen.
5. If on inspection the loops are cut less than the specified depth or the loop cable has floated up in the bitumen thus reducing the minimum cover to the loop cable then the Contractor will replace all loops on the site at no cost to the Service Manager.
6. Where the loop cable turns in the slot at an angle of less than 110º, the internal apex of the corner is removed by the use of a bolster or by cross-cutting the corner as shown in the sketches below. The formation of a pillar of original surfacing material by cross cutting to far away from the corner will not be accepted and will require re-cutting by the slot cutting Contractor at no cost to the Service Manager.

Edge of blade to coincide with corner

Cross cut across corner

1. The loop is tested in the slot before back filling, as defined in MCH1540.
2. Surplus bitumen over spilled from the slot is removed immediately following its application, clean to the carriageway surface but taking care not to produce a trough. A trough will form if the excess bitumen is removed before it has cooled sufficiently.
3. Slot cutting is not to be carried out when the ambient air temperature is 2ºC, or lower, and falling.
4. The slots cut in the Carriageway Loop Box are of sufficient size to accommodate the tails from separate loops. A pre-treated cotton rag (treated with a suitable agent so as to repel the bitumen) is inserted into the end of the duct to hold the cables secure and prevent the ingress of foreign matter. Bitumen is poured on top of this rag to the top of the duct, totally encasing the loop cables to ensure a watertight seal into the duct. Blanking plates are placed over the inside faces of the slots in the box and the normal backfilling of the loop slots completed up to the box. The blanking plates are removed after the bitumen has solidified and the LB cover refitted.
5. The base of the Carriageway Loop Box is not be filled with bitumen to seal the duct.

1. Where instructed by the service Manager, the Contractor will carry out work in conjunction with the slot cutting gang to cut an extra wide and deep slot in the carriageway and install armoured traffic signal cable into the slot. Slot is 40mm wide by 70mm deep and sealed with bituminous material as per detection loops. Supplying and laying of the cable is measured separately.
2. All surplus material is removed from site by the Contractor to the Contractor’s tip and they ensure that the site is left in a clean and safe condition.

**Steel Pedestrian Guardrail; Refer to STAN 11/17**

1. The Contractor removes existing pedestrian guardrails and sets aside, disposes or replaces.
2. The guardrails are supplied in accordance with BS7818; V4 Visirail or similar approved.
3. When instructed by the Service Manager, the Contractor supplies and installs pedestrian posts into a new foundation. Includes excavation, foundations, reinstatement and any fixings required.
4. When instructed by the Service Manager, the Contractor supplies and installs pedestrian guardrails into an NAL RS 50 x 50 socket or an NAL RS 60 x 50 socket.
5. Where a guardrail has to be cut to fit the Contractor cuts as required, dresses the end to remove sharp edges and applies suitable anti-corrosive protective treatment (of the same colour as the barrier) to the exposed surfaces.
6. Where the Contractor installs street furniture (i.e. keep left weeble) into an existing retention socket as part of other works the street furniture is either supplied by Service Manager free of charge or by the Contractor and paid for under day works.

1. All surplus material is then removed from the site by the Contractor to the Contractor’s tip and they ensure that the site is left in a clean and safe condition.

**Cables (Remove and Dispose)**

1. The Contractor removes and disposes of cable from site including any required disconnection and removal of cable.
2. All surplus material is then removed from the site by the Contractor to the Contractor’s tip and they ensure that the site is left in a clean and safe condition.

**Cables (Supply and Lay) refer to STAN 11/17 for guidance**

1. The Contractor supplies and installs cabling, through ducting or a carriageway slot to the required termination points.
2. The Contractor includes for the supply and install of cable, any terminations and labels. This includes but is not limited to any required stripping, connection to CET glands, labelling of cable and wire termination materials.

**Signals Cable Ref to STAN 11/17**

1. Traffic signal cable complies with the current issue of BS6346, be steel wire armoured with copper multi-core conductors to BS 7671 current edition, and coloured orange.
2. The signal cable complies with the following specification to the current issue of BS 6346, sheathed coloured orange, periodically embossed “Traffic Signals” in 4mm height letters of the said specification. Conductor cross sectional area as required by the cable design and dependant on the load to be applied but will be in the range 1mm2-1.5mm2. The core insulators are coloured and not numbered. The central core has the new BS7671:2011 colour designation (blue / green).
3. In the case of mast arm assemblies, where the transformers are placed in the base of the stanchion, the signal cable conductor size is of a sufficient dimension or number to avoid any appreciable voltage drop to the suspended aspects.
4. Signal cables of 8, 12, 16 or 20 core are used throughout, with a minimum of 25% or 4 (four) spare cores (whichever is the greater) between poles and the controller.
5. ELV and LV cores are to be in separate cables.
6. ELV cables are separated at the pole cap and use separate termination blocks, these are on opposing faces of the mounting plate.
7. ELV cables are not subjected to any joint(s) on new works.
8. All cabling is to be clearly tagged and labelled.
9. Cable cores that have been terminated are tied together in a neat manner.
10. Spare cores are cut to a minimum length, with the shortest being long enough to reach the furthest termination point plus 150 mm and the remaining spare cores cut, so that the ends are of equal length.
11. Spare cores at the pole tops, controller and all other locations are terminated and bonded to earth. The spare cores are grouped and tied together and labelled 'SPARE'.

**Loop cables Refer to STAN 11/17**

1. Approximately 1m of spare loop cable and 1m of spare feeder cable are left in the chamber at the joint between the two cables.
2. Loop to feeder cable joints are enclosed in a re-enterable joint enclosure to BS EN 60529 with an IP68 Cat 1 rating. The enclosure should be sufficiently transparent to view the condition of the terminal block providing the loop to feeder connection.
3. Other types of jointing kits are only used with the authorisation of the Service Manager.
4. A feeder cable is only jointed where a loop tail is to be connected. This is only in the chambers provided.
5. Loop feeder cables are not terminated directly onto the detector backplanes.
6. The cores are labelled with the loop identity.

**Cable Labelling Refer to STAN 11/17**

1. All cables entering any equipment housing is identified using a pull tight tag.
2. The tag is marked using an approved waterproof, indelible, black marker pen, in the following manner:-

### ELV Cables (PDU’s, etc)

The tag is yellow and marked with all the signal poles in the cable run and in addition the letters ELV added;

Example

Pole 1

ELV

Colour - Yellow

### ELV Cables (Linking)

The tag is yellow and marked with the site reference number of the linked equipment and in addition the letters ELV added;

Example

280S

ELV

Colour - Yellow

### Loop Feeder Cables

The identification of these cables is shown below and follows the detector and road names given in the scheme drawing and specification sheets supplied. One side of the yellow tag is marked with the detector and arm designation and the other side marked with the Street or Road name, as agreed with the Service Manager. Where multi-pair feeders are used then each twisted pair of cores is labelled.

Example

AXYZ1

ARM1

Colour - Yellow

Side 1

HIGH ST

W/BND

Side 2

Cable Core Identification Refer to STAN 11/17

### All individual cable cores in the cables are identified using coloured PVC grip type markers with black lettering and the markers positioned on the core next to the termination point in such a way that they are easy to read.

### Three types of identification marker are used: -

### Numbered markers indicating the signal pole fed by that cable. Markers are colour coded in accordance with the standard resistor colour code:-

0 = black

1 = brown

2 = red

3 = orange

4 = yellow

5 = green

6 = blue

7 = violet

8 = grey

9 = white

1. Legend markers indicating the function of the core as shown below;
2. Lettered markers, indicating the phase of the core.

### The colours, numbers, function, letters and arrangement of the markers are as follows: -

### ELV Cables Ref to STAN 11/17

### This arrangement is used for all ELV cables terminating at the controller and for all cables leaving a signal pole.

First Marker

(Going to Pole)

Second Marker

(Function)

Third Marker

(Phase)

Yellow

White

1

22

32

42

52

62

72

82

A

B2

C2

D2

E2

F2

G2

H2

AUD/COM

PB/COM

PUSH/B

AUDIBLE

Example: -

Colour:

Brown

Red

Orange

Yellow

Green

Blue

Violet

Grey

R/MAN

DET+

MVD

TACT+

INHIB

G/MAN

DET-

KS

TACT-

LINK

WAIT

SPARE

SIG/N

COMM

OC

IRD

T/O

Note: functions not covered by the above shall be written onto blank markers with an indelible (black) pen.

Etc

Etc

### The above arrangement is used for all ELV cables arriving at a signal pole or equipment housing with two markers only, i.e. the second and third marker as in the following example.

### Example: -

From Controller

To Pole 12

GREEN

Red

1

A

2

Colour: Brown Red

White

GREEN

A

Red

White

From Pole 12

To Pole 6

GREEN

Red

6

A

Colour: Blue

White

GREEN

A

Red

White

### Cable core usage should follow the colour code system shown in TR2206 Appendix D.

1. All surplus material is then removed from the site by the Contractor to the Contractor’s tip and he ensures that the site is left in a clean and safe condition.

**Communications cable Ref to STAN 11/17**

1. Contractor supplies and installs Cat 3 communications cable into existing cabinets via ducting. Cable to be direct burial type CW1128/1198 with 10 pairs.
2. Contractor supplies and installs armoured CAT 5E communications cable for laying in ducting. Suggested type Cat 5E PE FTP GSWB LSZH 4 twisted pairs to ISO/IEC11801-1 2017. Includes for the supply and connection of RJ45 connectors at each end. Maximum 100m length.
3. Contractor supplies and installs CAT 5E UTP moulded and booted patch lead tested to ISO 11801-1 2017 of desired length (up to 10m) with RJ45 connectors at each end.
4. Contractor supplies and installs CCTV cable between the controller and the pole mounted camera unit. Cable to be special CCTV type incorporating coax, power and quad cores. Full specification on request. Includes connectors and connection of cable to required terminals. First 15m of this cable deemed to be included with the CCTV camera installation.
5. Contractor supplies and installs IP68 (BS EN 60925 2011+A1:2016) rated communications connection box (for BT or private wire connections) in cabinet. Includes all mountings and connection of cable.

**Base Sealing; Drawing Refer to STAN 11/17**

1. Before the site is commissioned or within 7 days of installation whichever is the earlier, the cabinet or pillar base, including any exposed ducts are sealed to avoid condensation and gas ingress within the cabinet.
2. The Contractor plugs all ducts arriving into the void within the cabinet root, as shown in drawing SD005.
3. The Contractor back-fills the void within the cabinet root with dry fine sand. The sand is firmly compacted and levelled with the top of the flange of the cabinet base.
4. The cabinet flange and the surrounding equipment is cleared of any surplus sand or other debris. A sealing compound in epoxy or polyurethane resin, mixed as specified by the manufacturer, is poured onto the sand. If after pouring the sealing compound it does not cover the cabinet retaining studs and nuts, pour a small quantity of the compound over each to seal them as well.
5. Any spillage of the sealing compound is removed and the area involved cleaned with a suitable solvent.
6. All cabinet bases and exposed ducts within the cabinets are sealed or resealed whenever the integrity of the seal is compromised.

**Bagging/un-bagging**

1. From time to time, third party Contractor’s (mainly Statutory Undertakers) require to work at or within the vicinity of traffic control installations. For safety reasons, and to permit the Contractor’s to install their own traffic management, permanent traffic control installations will require their lamps switching off. This is generally to avoid conflicting information to members of the travelling public from permanent traffic signals and portable signals and/or other traffic management.
2. The Contractor undertakes the switching off, bagging, un-bagging and switching on again of traffic control installations as and when required. Majority of requests will come through the Employer via the fault management system.
3. From time to time an emergency request from a third party contractor will need to be requested out of normal working hours. A contact telephone number and an appropriate email address will be made available (24/7) by the Contractor to discuss and arrange requirements for each undertaking from various third-party Contractor’s.
4. When the request has been made out of normal working hours the contractor will enter this onto the fault management system no later than the next working day and include the following details:-
	1. Dates and times the contractor is required to attend site
	2. Contact details of the third party requestee
	3. The Contractor is to supply the third party the employers ‘bagging request form’ which will be sent to traffic control inbox retrospectively
5. As a minimum level of service, the following processes and undertakings are required: -
6. Arrangements and Notifications: -
7. Receives request from Service Manager via fault management system and supporting email. The Contractor undertakes the work and is reimbursed using the applicable rate within the Price List.
8. Contractor responds within one working day and confirms the job is booked, who it is allocated too and contact details to supply third party contractor.
9. Ensures the Contractor’s own staff are aware of forthcoming events (by ‘phone and/or email as appropriate);
10. Ensure sufficient proprietary orange signal head covers and red proprietary ‘crossing not in use’ demand unit covers are transported to site.
11. Switching Lamps Off: -
12. When arriving at site carry out a risk assessment and record details;
13. Check the Service Manager’s permanent traffic control equipment and note any existing operational Faults. This task should include interrogating the controller and any Ancillary Equipment with appropriate handset(s) and/or laptop(s); The contractor confirms if there are any faults present in the controller on the fault management system.
14. Work with third party Contractor to transfer traffic control from permanent installation to temporary traffic management in a safe and controlled manner;
15. Switch permanent signals lamps off at appropriate time mindful of the travelling public at the installation;
16. Ensure Contractor’s own staff are aware of the works and are not called unnecessarily to attend any automatic Fault Reports (e.g. Lamps off);
17. Bag all permanent signal heads with proprietary orange covers and tie as necessary;
18. Bag all pedestrian/cyclist demand units with red proprietary ‘crossing not in use’ covers;
19. Observe operation of site;
20. Note any particular concerns regarding third party Contractor’s traffic management and raise with the most senior third-party personnel on site to arrange any necessary amendments. Forward all concerns to the Service Manager as necessary.
21. Switching Lamps On: -
22. When arriving at site carry out a risk assessment and record details;
23. Work with third party Contractor to transfer traffic control from temporary traffic management to permanent installation in a safe and controlled manner;
24. Un-Bag all signal head orange covers and stow away in vehicle;
25. Un-Bag all pedestrian/cyclist proprietary ‘crossing not in use’ covers from demand units and stow away in vehicle;
26. Undertake visual inspection to ensure alignment of signal heads, Above Ground Detectors, etc. have not been altered by the bagging/un-bagging process. Re-align as necessary;
27. Switch permanent signals lamps on at appropriate time;
28. Carry out a visual inspection of all equipment for any damage that may have been sustained during the third-party works. Record any damage, including photographic evidence, as appropriate and pass to the Service Manager within two working days via the fault management system or email;
29. Check controller for any faults and reset detectors, Detector Fault Monitor (DFM), etc., as necessary;
30. Note and photograph damage to induction loops, white lining, road studs, high friction surface, etc. caused by third party Contractor and pass information to Service Manager within two working days via the fault management system or email;
31. Observe operation of site;
32. Failure to supply the above information within two working days, the Employer/Service Manager will hold the Contractor responsible for remedial works that are directly associated with the damage to the permanent traffic control equipment.;
33. Notify Service Manager of any outstanding issues.
34. Repairing Damaged Equipment: -
35. Arrange for re-cutting of inductive loops, on completion of permanent reinstatement to any trenching or highway-opening works by third party Contractor;
36. Ensure inductive loops are jointed to feeder cables using re-usable bottle joints;
37. Reset controller Detector Fault Monitor (DFM) and observe site installation for operation;
38. All other types of damage repair to be discussed with the Service Manager and dealt with as agreed.
39. General observations: -
40. All costs for switching on/off, bagging / un-bagging and any repair works to the traffic control equipment necessary as a result of the third party works will be recovered by the employer.
41. The Service Manager or delegated staff are kept appraised of incidents as they occur;
42. It is suggested that the Contractor may wish to apply an extra over rate for requests that occur outside normal working hours or are less than 2 hours notice has been given It is recognised that there may be occasions when third parties have no option but to carry out emergency works and can therefore give short notice;
43. It should be noted that it is expressly forbidden for any third-party Contractor to: -
44. Switch signals off or on themselves;
45. Request their Subcontractors (including TM Contractor) to switch signals off or on;
46. Place bin bags or other such devices over signal heads.
47. Any such occurrences observed by the Contractor’s staff during their day-to-day work around the county, must be notified to the Service Manager immediately for further instruction. The Contractor records date/time and third-party contractor name and supplies photographic evidence at the earliest opportunity
48. For the avoidance of doubt the switching on/off lamps instructed directly by the Service Manager are undertaken in accordance with the above specification which includes but is not limited to the associated bagging and un-bagging.
49. In the event the Contractor has failed to attend the bag up arranged by the Service Manager at the agreed time, where it be a no show or later than 30 minutes and the works are aborted then the Contractor will cover any costs incurred by the Service Manager unless the Contractor can prove the failure to attend was out of their control. For clarity refer to Volume 2 Works Information Appendix 06

**Joint pits for electrical works**

1. From time to time the service manager will instruct the contractor to dig out a pit for electrical disconnection and re-connection. The size of pit will be dictated by the electricity supply company, this is normally 1000mmX1000mm .
2. The Contractor includes for excavation, tools, disposes of waste, board to make safe and all necessary traffic management.
3. Following on from electricity supply company attendance the contractor will arrange to reinstate the pit and make area as new.
4. The operatives carry out works in accordance with the specific instructions issued by the service manager.
5. All surplus material is then removed from the site by the Contractor to the Contractor’s tip and they ensure that the site is left in a clean and safe condition

**Vegetation clearance**

1. From time to time the service manager will instruct the contractor to cut back trees or bushes that are impeding access or function of a traffic signal site.
2. The contractor includes for all necessary tools, traffic management and disposes of all waste.
3. The Contractor will arrange for a signals engineer to attend following vegetation removal to ensure any equipment that was affected by vegetation is aligned and working correctly.
4. All surplus material is then removed from the site by the Contractor to the Contractor’s tip and they ensure that the site is left in a clean and safe condition

**Civil Engineering Gang**

1. From time to time the Service Manager may instruct the Contractor to carry out works of maintenance, pole replacement, repair and investigation of ducting and other minor civil engineering components associated with Traffic Signal and Ancillary Equipment. When instructed, the Contractor supplies a civil engineering gang comprising two civil engineering operatives, trained and competent on highway works, together with a 3.5 tonne GVW lorry and hand tools including drain rods. The gang is also equipped with a mobile phone.
2. The operatives carry out works in accordance with the specific instructions issued by the Service Manager.
3. The Civil Service Engineering Gang, unless otherwise instructed by the Service Manager will be paid for in accordance with the rates and Prices detailed within Volume 5 Returnable Schedules Schedule 6 Price List Section 4 – Dayworks.

**SECTION 3 DAMAGE REPAIR SERVICES**

**Damage Repair Services**

1. Damage Repair Services are the re-active works instructed by the Service Manager from time to time or arising from Fault Reports that are necessary for the replacement of, or repair to, any parts of Traffic Signal and Ancillary Equipment that have been: -
2. damaged by accidental or deliberate act by any person other than the Contractor; or
3. damaged by riot or civil commotion; or
4. damaged by any animal (supporting evidence required); or
5. damaged by insects, gastropods (slugs, snails etc supporting evidence required); or
6. damaged by lightning strikes; or
7. damaged by irregular electricity supply (for the avoidance of doubt this excludes power failures which are deemed to be included within the rates and Prices applicable to Routine Maintenance); or
8. damaged by ground and surface water flooding or extreme wind.
9. Those Damage Repairs specifically resulting from damage defined within sub clauses a) to g) above are, unless otherwise instructed by the Service Manager, chargeable using Volume 5 Returnable Schedules Schedule 6 Price List Section 3 Emergency Services and Section 4 – Dayworks. All other repairs are deemed to be included within the rates and Prices for Routine Maintenance as detailed within Volume 5 Returnable Schedules Schedule 6 Price List Section 1.
10. The work primarily requires the Contractor to respond within timescales contained in this Service Information to restore the Traffic Signal and Ancillary Equipment to full working order including making safe, replacing or reinstating supporting poles and structures, replacing or repairing and reconnecting damaged signal equipment, replacing armoured cables and slot cutting detector cables. These services also include all necessary access arrangements and traffic management.
11. Damage Repair Services are provided every day of the year.

**Response to Fault Reports**

1. The Contractor responds and acts in response to the issue of Fault Reports for damaged Traffic Signal and Ancillary Equipment in a manner and within the timescales set out in the Service Information for Routine Maintenance.
2. Where the damaged equipment represents a hazard to the public arising from a road traffic accident, gas leak or other major incident then the Contractor responds with the greatest urgency such that works to make safe and rectify the damage commences within **three hours** of the Fault being notified to the Contractor by any means. This will be known as an **Emergency Response**. For this type of incident it is possible that the Employer’s network management Contractor will be aware of and active in the initial making safe activities and the Contractor works with the Employer’s network management contractor as necessary. Where these incidents occur it is highly likely that the notification to the Contractor will be made initially by telephone. The classification of any call out as Emergency Response will be for the Service Manager or Others to decide and communicate clearly in the telephone call.
3. Where the repair to the equipment requires excavation that cannot be commenced until information about the location of utility mains and services can be obtained by the Contractor from the Statutory Undertaker, then the Contractor makes safe as necessary and return to site as soon as the locations are known to complete the repairs. In order to expedite this process the Service Manager may assist in whatever means are possible to expedite the supply of information to the Contractor.
4. Before commencing any works on damaged Traffic Signal and Ancillary Equipment the Contractor takes digital photographs of the equipment to provide evidence of the nature, extent and, where possible, the cause of the damage. A copy of these photographs is sent electronically to the Service Manager within seven days of the incident being reported being completed. The Contractor provides digital photographs to support any estimates for work which may be required by the Service Manager.
5. Where damage to slotted cables arises from a planing and resurfacing operation the Service Manager will normally have advance warning of such damage and will notify the Contractor more than ten Working Days in advance of the works. The Contractor makes arrangements to re-cut the slots, re-joint loops to feeder cables and reset controller and relay cables on a date or dates to be agreed with the Service Manager.

**Civil Engineering Works**

1. Where the damage to the equipment is such that other works to kerbing, signing, marking, barriers, road surfaces, slotted cables and the like are necessary then the Contractor co-ordinates his work with those of the Employer’s network management Contractor to ensure effective and efficient restoration of the damaged highway. When agreed by the Service Manager, the Contractor may carry out such civil engineering works himself.

**Costs and Charges**

1. Within three Working Days of the completion of repair works the Contractor estimates the cost for all works completed and communicates, by e-mail, the estimate to the Service Manager.
2. Within 28 days of completion of the repair works the Contractor calculates the charges to the Employer and submits a statement of cost. This statement is broken down as per the Service Manager’s instructions. In any event the statement of cost is suitably broken down to define the works carried out together with the associated costs to the Employer broken down into labour, plant, materials, traffic management and Subcontractors and/or by the applicable tendered rate/s for the works in question and shows any contract percentage additions separately. When requested by the Service Manager, evidence of actual costs incurred will also be provided by the Contractor with the statement.
3. This information will be provided to insurance companies who will frequently ask for full breakdowns of cost before meeting the claim of the Employer against their insured. The provisions of this clause are regarded as being part of the services delivered under this contract and for the avoidance of doubt no payment of any invoice arising from the Contractor’s statement will be made until such information is made available and certified by the Service Manager.

**SECTION 4 ADDITIONAL SERVICES**

**Additional Services**

1. The Service Manager may from time to time require the Contractor to undertake Additional Services. The Service Manager issues a Task Order for Additional Services.
2. Additional Services may relate to reactive works to existing Ancillary Equipment where works are not already deemed to be included within the rates and Prices tendered within Volume 5 Returnable Schedules Schedule 6 Price List Section 1 – Routine Services.
3. Additional Services may also relate to the supply and subsequent maintenance of new Ancillary Equipment not listed within the rates and Prices tendered within Volume 5 Returnable Schedules Schedule 6 Price List Section 1 – Routine Services.
4. There may also be instances where the Service Manager requires civil engineering works to be undertaken by the Contractor to facilitate installation and connection of new equipment. Instances may also arise where the Service Manager requires the Contractor to procure works, services, materials and/or equipment for specific projects where rates and Prices do not exist within the Price List.
5. Prior to undertaking Additional Services, the Service Manager may seek to obtain a quotation or quotations from the Contractor. Time taken by the Contractor’s staff to produce quotations is not separately chargeable under this contract and is deemed to be included within the rates and Prices tendered within the Price List. Quotes are expected to be back within ten working days unless an extension previously is agreed.
6. Unless otherwise paid for as a result of a quotation, Additional Services are paid in accordance with the rates and Prices as detailed within Volume 5 Returnable Schedules Schedule 6 Price List section 4– Dayworks.
7. On occasion the Service Manager may require the Contractor to directly liaise with Distribution Network Operators (DNO’s) and subsequently pay DNO costs directly. In doing so the Contractor will be entitled to apply a percentage uplift to the DNO costs to cover the Contractor’s overheads and profit etc. This percentage uplift is detailed within Volume 5 Returnable Schedules Schedule 6 Price List section 4 – Dayworks. The Contractor provides evidence of payments made to the DNO’s.

**SECTION 5 SUPPORT SERVICES**

1. The Service Manager may from time to time require the Contractor to provide Support Services. The Service Manager issues a Task Order for Support Services.
2. The Contractor provides suitably qualified and experienced staff to provide Support Services in accordance with the Service Manager’s instructions. The functions and tasks included within Support Services may be site based or County Hall based or may be a mixture of both.
3. The functions and tasks may include, but are not limited to the following: -
4. Systems work including: -
	1. UTC/SCOOT database/validation work and loop positioning;
	2. Mova design, dataset and commissioning work;
5. Skilled maintenance support: -
6. Changes to controller configurations and Factory Acceptance Testing;
7. Signal design using Linsig, AutoCad for production of drawings, production of specifications and estimates;
8. General maintenance activities including identification of Faults and arranging/supervising Fault repair;
9. Full operational usage of the Remote Monitoring System and Fault Management System.
10. Semi-skilled maintenance support: -
11. Data gathering at all signal installations in Somerset;
12. Database work including inputting data into databases and interrogating the data;
13. Interrogating Remote Monitoring System and Fault Management System.
14. or any other traffic signal related service as instructed by the Service Manager.
15. Service Managers may be required to travel and will do so, unless otherwise instructed by the Service Manager in transport provided by the Contractor.
16. The Contractor provides all necessary high visibility and protective clothing in relation to Support Services.
17. Unless otherwise instructed by the Service Manager, Support Services will be paid in accordance with the rates and Prices as detailed within Volume 5 Returnable Schedules Schedule 6 Price List Volume 5 Returnable Schedules Schedule 6 Price List section 4– Dayworks.

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| **Section** | **Contents** | **Page** |
| 01 | Introduction | 84 |
| 02 | Basic Facility | 85 |
| 03 | Emergency Response Times | 88 |

**SS04 EMERGENCY SERVICE**

**SECTION 1 INTRODUCTION**

1. For ease of reference, Emergency Services are split into two individual sections as follows: -
	* Basic Facility
	* Emergency Response Times
2. Basic Facility is ordered by the Service Manager as a Service Instruction and Emergency Responses are ordered by the Service Manager as Task Orders.
3. Emergency Services are chargeable by the Contractor using rates and Prices contained within Volume 5 Returnable Schedules Schedule 5 Price List – Section 3 Emergency Services

**SECTION 2 BASIC FACILITY**

**General Requirements**

1. Where, in the opinion of the Service Manager or Others, a Fault occurs at any site that requires Attendance within a response time that is shorter than that set out within SS02 - Routine Services, Section 1 –Routine Maintenance then the Service Manager instructs the Contractor to provide an **Emergency Response**. For this type of Fault, it is possible that the Employer’s network management Contractor will be aware of and active in the initial identification and making safe activities and the Contractor works with the Employer’s Contractor as necessary.
2. Emergency Response will only be required when specifically instructed by the Service Manager or Others. Emergency Response will not be instructed when the Contractor is already at the site of the Traffic Signal and Ancillary Equipment. In this event the Contractor will be required to make safe whilst at the site as if the Fault were classified as an Urgent Fault complying with the timescales detailed within SS02 – Routine Services, Section 4 - Faults. Where work is necessary to repair and re-commission the equipment the Contractor will be required to respond within five Working Days unless such a response is impossible due to circumstances beyond the control of the Contractor, e.g. non-availability of spare parts, in which case the Contractor will be required to use best endeavours to complete as quickly as possible.
3. The Contractor provides a suitable means of communication to allow the Employer or Employer’s highway maintenance contractor to contact the Contractor at any time to notify the Contractor of Emergencies. The procedure proposed by the Contractor is to be approved by the Service Manager prior to the starting date.
4. The Contractor provides on a 24 hour basis on every day of the year: -
	* 1. a dedicated call handling service able to receive and transmit reports of Emergencies;
		2. an Emergency Service Manager on call to respond to and manage the appropriate response to Emergencies;
		3. Emergency Service Teams are made available in sufficient numbers to deal with Emergencies.

**Management and Communications**

1. The Contractor provides a trained Emergency Service Manager and Emergency Service Team/s to be on call 24 hours every day of the year to receive information, reports and instructions, arrange the appropriate emergency action and to attend site if necessary.
2. The Contractor provides an effective means of communication by telephone to receive emergency and defect reports and instructions and to communicate with the Service Manager and relevant authorities. E-mail communications may only be used to support the telephone communication system.
3. Emergency Service Teams able to receive reports and communicate with the Emergency Service Manager and workforce operates the communications system on a 24 hour basis on every day of the year.
4. The Contractor assesses all reports received by the 24-hour call-handling service to determine the nature of the response required for the reported situation. All requests for emergency assistance are provided within the Emergency Response Time.

**Emergency Service Teams**

1. Emergency Service Teams are made available in sufficient numbers to deal with Emergencies.
2. Each Emergency Service Team are suitably equipped to deal with Emergencies and complete the Emergency Service Operation.

**Information to be supplied by the Contractor**

1. The Contractor maintains records of all calls received, actions taken, work completed and resources employed. The records are in a format to be agreed with the Service Manager and will include the time that each call is received and if appropriate, the time that the Emergency Service Team leaves the depot, arrives on site, departs from site and arrives back at the depot. Such records are to be detailed on the Fault Management System in a “real time” manner in order that the Service Manager is kept informed. Notwithstanding this the Contractor in any event ensures that information is entered onto the Fault Management System within one Working Day of the Emergency Response.
2. Immediately after the site has been made safe the Contractor’s staff proceeds to carry out evidence gathering on behalf of the Service Manager to ensure comprehensive and valid information is available to validate the emergency response call out and for sufficient evidence to be presented at any subsequent court hearing relating to damage to highway equipment. This information gathering must include the presentation of digital photographs covering the whole site and depicting all relevant evidence that is necessary, e.g. vehicle registration number, equipment and vehicle damage, close and long distance views of the site and documentary details of police officer in charge and any police log number for the accident. The digital photographs must be date stamped so that they can be suitably cross-referenced.
3. The Service Manager is kept informed of any major Emergencies in progress in accordance with a protocol to be agreed with the Contractor prior to the commencement of this contract.
4. Each year and at regular meetings (frequency to be decided by the Service Manager) the Contractor produces summary reports in a format to be approved by the Service Manager compatible with the Service Manager’s requirement for performance indicators.

**SECTION 3 EMERGENCY RESPONSE TIMES**

1. The Contractor may initially be given the instruction verbally. On receipt of an Emergency Response instruction the Contractor responds with the greatest urgency such that Attendance on site occurs within **three hours** of the Fault being notified to the Contractor (by Fault Report or verbally relayed, whichever is the earlier) and proceeds to Damage Repair with the greatest possible speed.
2. In these circumstances the Contractor records the date, time, persons name, company or service they represent and their position or service number and contact details.