HIGHWAYS AGENCY

National Roads Telecommunications Services Project

Schedule 1.3 to NRTS Project Agreement

Schedule 1: Statement of Requirements

Schedule 1.3: General Constraints

Author **Names Redacted under Sec 40 of the FOIA Exemptions 'Personal Information'**

Checker **Names Redacted under Sec 40 of the FOIA Exemptions 'Personal Information'**

Approver **Names Redacted under Sec 40 of the FOIA Exemptions 'Personal Information'**

GD00323/RT/E/484 Issue 1 Date: 8 September 2005

CONFORMED COPY

List of Amendments

Issue No	Amendment Number	Date	Clause	Action

List of Contents

List of Figures

List of Tables

1 INTRODUCTION

1.1 Aims and Objectives

1.1.1 [Not Used]

1.2 Definition

1.2.1 **M** A Constraint is a rule limiting how an activity is to be carried out or limiting the scope of what can be carried out. Constraints are expressed as requirements with which NRTS Co must comply.

1.2.2 [Not Used]

1.3 [Not Used]

1.4 [Not Used]

1.5 [Not Used]

1.6 [Not Used]

1.7 Development of Project Standards

1.7.1 **M** Constraints listed in this document call for the production of a number of "Project Standards". Project Standard is defined as covering all requirements, working practices, methodology, controls, processes, Processes, procedures and Records that are attributable to the relevant Constraint. NRTS Co shall develop and maintain these Project Standards, which shall be Registered Documents, as agreed and defined in the *Develop Registered Document* process (Schedule 1.2 section 4.2) and in accordance with Clause 4 of the Project Agreement.

1.7.2 [Not Used]

1.7.3 **M** The Project Standards shall be based on the following standards unless otherwise agreed in accordance with the *Get Consent to Service Solution* process (Schedule 1.2 section 4.3):

- Design Manual for Roads and Bridges (DMRB);
- Specification for Highways Works (SHW);
- Manual of Contract for Highways Works (MCHW);
- Trunk Road Maintenance Manual (TRMM); and,
- Highways Agency specifications, instructions, procedures and specific interim advice that may apply.

1.7.4 [Not Used]

1.7.5 **M** NRTS Co shall incorporate the HA's existing requirements, working practices, methodologies, procedures and documents when preparing Project Standards. The development of Project Standards by NRTS Co shall also cover areas for which there are no current documented requirements, working practices, controls or procedures. Where an existing HA standard wholly meets some aspect of a Project Standard, then NRTS Co may propose that HA standard as forming part of the appropriate Project Standard and be referenced from the relevant Project Standard.

1.7.6 [Not Used]

1.7.7 **M** The Project Standards for complying with Constraints shall cover the requirements and scope of the Constraint, the methodology by which NRTS Co shall comply with the Constraint, the outputs against which compliance shall be self monitored, audited and evidenced by NRTS Co with the option to inspect and audit by the HA.

1.7.8 [Not Used]

1.7.9 **M** Project Standards, documentation, procedures and controls shall take due account of the HA's existing requirements. These include, but are not limited to:

- working practices;
- methodologies;
- procedures;
- documents;
- change control;
- consultation;
- notice periods.

1.7.10 **M** Requirements arising from these Constraints or associated Project Standards shall be reflected in the Service Solution Specification.

1.8 Monitoring and Compliance Checking

1.8.1 **M** NRTS Co shall comply with all Constraints and the methodologies for compliance as embodied in the Project Standards.

1.8.2 **M** The overriding principle for compliance checking is that the Project Standard shall identify the outputs against which compliance with the Constraint can be monitored, together with the documentation to evidence this. NRTS Co shall self assess and monitor to ensure compliance and to demonstrate compliance to the HA.

1.8.3 **M** The Project Standards for addressing Constraints shall contain sufficient information, including inventories and inspection records, to enable NRTS Co to self-monitor to ensure and to demonstrate compliance with all aspects of the Constraint. The Project Standards shall be agreed with the HA under the *Develop Registered Document* process (Schedule 1.2 section 4.2).

1.8.4 **M** The self monitoring systems that NRTS Co puts in place to ensure and demonstrate compliance with the Constraint shall interleave with NRTS Co quality assurance procedures and shall be easily auditable by the HA under the *Facilitate Audit and Inspection* process (Schedule 1.2 section 5.6). HA shall have the right to inspect and audit to confirm compliance.

1.8.5 **M** NRTS Co shall continually monitor compliance against Project Standards and ensure that areas of non-compliance and corrective actions are recorded and identified to the HA. NRTS Co shall proactively ensure that areas of non-compliance and corrective actions are addressed and refine the Project Standard to prevent recurrences under the *Develop Registered Document* process (Schedule 1.2 section 4.2).

2 INFRASTRUCTURE STANDARDS

2.1 [Not Used]

2.2 Appearance and Impact on Surroundings

2.2.1 **M** This Constraint is defined in Table 2-1.

Appearance and Impact on Surroundings	
Issue(s) being addressed	
2.2.1.1	NRTS Co shall ensure that the appearance of the NRTS Co infrastructure does not degrade the image of the HA, in particular the road network and its environs, present a safety hazard or contravene local environmental constraints.
2.2.1.2	NRTS Co shall keep the proliferation of roadside equipment to a minimum.
Applicability	
2.2.1.3	All visible Roadside Infrastructure and buildings that NRTS Co installs and/or maintains or which is associated with any of the Services or performance of the Commercial Contracts.
Constraint Requirements	
2.2.1.4	NRTS Co shall ensure that the Project Standard, "*Appearance and Impact on Surroundings*", addresses the following Constraint requirements.
2.2.1.5	NRTS Co shall keep and maintain such infrastructure, including buildings, cabinets and hardstandings in a condition that meets the issues being addressed. Infrastructure shall be free from graffiti and the effects of vandalism as well as any commercial markings such as advertising or logos. The appearance of the finish of equipment housings shall not be allowed to degrade (e.g. through rust stains or aluminium corrosion) over more than 25% of the surface area any one face of the housing. Housings shall not be allowed to settle on their foundations to the extent that they are more than 10 degrees from vertical.
2.2.1.6	NRTS Co shall only install permanent cabling below ground or in the deck of a structure or by attaching it to structures above ground, by methods approved by the HA. For example, no catenary cable installations shall be permitted. NRTS Co shall produce and maintain records of inspections, notifications of Non Compliance by NRTS Co or third parties, and the status of remedial actions associated with this Constraint. These shall be in accordance with the *Record Keeping* Constraint (section 5).
2.2.1.7	NRTS Co shall manage its implementation such that the proliferation of roadside infrastructure is minimised.
2.2.1.8	NRTS Co shall comply with Environmental Law and local environmental policies.

Constraint Requirements (Continued)	
2.2.1.9	Subject to Clause 16.7 of the Project Agreement, and subject to section 3.9 "HA Branding and Communication", NRTS Co is not permitted to display any advertising material, including logos, in or on: • the Project Road Network; • any premises of the HA; • any premises of Interfacing Organisations containing NRTS Co equipment; • vehicles used to execute the NRTS Contract.
2.2.1.10	This Project Standard shall cover all NRTS Co Roadside Infrastructure and buildings that NRTS Co installs or maintains that are visible to the public and third parties and shall include: • design criteria (including the aesthetic design criteria for new build); • inspection criteria; • frequency of inspection; • Time to Rectify (taking into account sensitivity of the Non-Compliance); • notification by third parties of possible Non-Compliance; • guidelines to avoid proliferation of roadside equipment and infrastructure; • records; • the need to record and update Asset condition relating to this Constraint on the HA's National On-Line Motorway Assets Database (NOMAD) system; • Remedial Works in accordance with the *Do Remedial Work* process (Schedule 1.2 section 5.12).
2.2.1.11	NRTS Co shall provide, maintain and update Records in accordance with Clause 27 of the Project Agreement and other provisions of Schedule 1.
2.2.1.12	NRTS Co shall maintain all sites for which it is responsible to the agreed Project Standard.
Related Specifications	
2.2.1.13	The related specifications which NRTS Co shall follow in production of the Project Standard are: • TR1100 – Technical and Quality Control Requirements for Systems, including parts of Systems, Manufactured, Supplied, Installed or Maintained; • MCH1865 – NMCS Maintenance Instruction NOMAD – National On-Line Motorway Asset Database Asset Condition Surveys; • MCL10470 – Transmission Station Building Specification.

Table 2-1 Appearance and Impact on Surroundings Constraint

2.2.2 [Not Used]

2.2.3 [Not Used]

2.2.4 **M** The appearance of a roadside Asset shall be one of the conditions inspected and reported on by NRTS Co as part of the requirement to record Asset conditions through the use of NOMAD. This requirement is further described in MCH1865.

2.3 Permanent Access

2.3.1 **M** This Constraint is defined in Table 2-2.

Permanent Access	
Issue(s) being addressed	
2.3.1.1	NRTS Co must adopt standards for the permanent Access Infrastructure provided for physical access that allows safe attendance and working at sites, e.g. hard-standing for vehicles, access steps, paths, handrails, gantry hoists etc. The standards are to ensure that a safe and consistent approach to Access Infrastructure is adopted by NRTS Co.
Applicability	
2.3.1.2	All NRTS Sites requiring permanent access. "NRTS Sites" means the locations of Assets excluding ducts and cables.
Constraint Requirements	
2.3.1.3	NRTS Co shall ensure that the Project Standard, "*Permanent Access*", addresses the following Constraint requirements.
2.3.1.4	NRTS Co shall comply with the standards for permanent access as set out in the DMRB, MCHW, SHW, TRMM and any other Project Standards developed and maintained by NRTS Co and agreed with the HA. The Project Standard, "*Permanent Access*", shall be developed from these standards for permanent access and be consistent with HA's approach to access to equipment on the Project Road Network that takes into account the safety of the workforce and the travelling public.
2.3.1.5	NRTS Co shall accept responsibility for design, installation maintenance and costs for permanent access to NRTS Co infrastructure in accordance with the Table of Responsibilities (Annex A).
2.3.1.6	After the Execution Date, the HA will maintain Access Infrastructure to existing sites on the Project Road Network where HA equipment cabinets and/or buildings are transferred to NRTS Co according to the Table of Responsibilities.
2.3.1.7	NRTS Co shall pay the HA a Commuted Maintenance Charge for maintenance of Access Infrastructure of sites to equipment transferred to NRTS Co and new or changed NRTS Sites in accordance with the Table of Responsibilities. In cases where existing HA or NRTS Co Access Infrastructure is extended for NRTS Co purposes, NRTS Co shall pay a Commuted Maintenance Charge (in accordance with Schedule 30) for the extension to the arrangement.
2.3.1.8	From each RMC Area Transmission Service Take-On Date or each RMC Area Camera Mast Service Take-On Date or the Take-On of a Service (as applicable), the HA will be responsible for maintaining, in the RMC Area(s) or Service Taken-On, the Access Infrastructure for new or changed NRTS Sites in those areas or relating to those Services Taken-On. However, the HA shall commence maintenance of the Access Infrastructure, only where such Access Infrastructure is installed and handed over by NRTS Co to the HA in accordance with the *Provision Service* process (Schedule 1.2 section 6.4). Upon the installation and hand over of each such Access Infrastructure, the HA shall be paid a Commuted Maintenance Charge (in accordance with Schedule 30) for the relevant infrastructure to be maintained.
2.3.1.9	NRTS Co shall make arrangements to provide access to any new or changed NRTS Sites. This shall be in accordance with the Project Standard. If HA installs any Access Infrastructure on behalf of NRTS Co, NRTS Co shall pay the installation cost and the Commuted Maintenance Charge (in accordance with Schedule 30).
2.3.1.10	Where it is normally HA's responsibility to provide access under the Table of Responsibilities (Annex A), HA may instruct NRTS Co to undertake the work as an Ad Hoc Project in accordance with the *Ad Hoc Projects* Processes (Schedule 1.2 section 7).

Constraint Requirements (Continued)	
2.3.1.11	NRTS Co shall ensure that these arrangements shall not adversely affect the safety of the public. In particular, NRTS Co shall comply with the HA's objectives to avoid the unnecessary proliferation of Access Infrastructure, whilst ensuring safe access and working practices for maintenance personnel. NRTS Co shall not use Protected Streets to provide access to NRTS Co or Third Party equipment located outside a Protected Street.
2.3.1.12	Without prejudice to Clause 20.2.3 of the Project Agreement, NRTS Co shall carry out its own risk assessments when making access. NRTS Co shall make its own arrangements for safe access, except where access is not authorised by procedures and controls of the HA and Interfacing Organisations and except where an abnormal health and safety risk to NRTS Co staff (e.g. significant risk of structure collapse) exists.
2.3.1.13	As a user of the access, NRTS Co shall maintain an inventory of all Access Infrastructure on the Project Road Network and report to the HA any defects that require attention for which HA has maintenance responsibility. This shall be done under the *Operational* Processes (Schedule 1.2 section 5) and by using the HA's asset database NOMAD, refer to MCH1865.
Related Specifications	
2.3.1.14	The related specifications which NRTS Co shall follow in production of the Project Standard are: • Design Manual for Roads and Bridges (DMRB); • Manual of Contract for Highways Works (MCHW); • Specification for Highways Works (SHW); • Trunk Road Maintenance Manual (TRRM).

Table 2-2 Permanent Access Constraint

2.4 Site Protection

2.4.1 [Not Used]

2.4.2 **M** This Constraint is defined in Table 2-3.

Site Protection	
Issue(s) being addressed	
2.4.2.1	NRTS Co shall adopt standards for the physical protection arrangements that must be provided by NRTS Co to protect NRTS Sites, road users and the public from physical damage, e.g. safety fencing (crash barriers), retaining walls, etc. The Project Standard shall ensure that a safe and consistent approach to protection arrangements is adopted by NRTS Co.
Applicability	
2.4.2.2	All NRTS Sites that require protection from traffic or access by the public.
Constraint Requirements	
2.4.2.3	NRTS Co shall ensure that the Project Standard, "*Site Protection*", addresses the following Constraint requirements.
2.4.2.4	When installing infrastructure or equipment NRTS Co shall assess and prove the protection of the installation in accordance with the Design Manual for Roads and Bridges (DMRB) and the Manual of Contract Documents for Highway Works and any interim advice such as IAN44/02 pending the embodiment of BS EN 1317 into HA documentation.
2.4.2.5	NRTS Co shall accept responsibility for design, installation, maintenance and costs for all site protection arrangements on the Project Road Network for NRTS Co infrastructure in accordance with the Table of Responsibilities (Annex A).
2.4.2.6	NRTS Co shall be solely responsible for the costs of special security arrangements to protect the public from NTRS equipment for example security fences around mast sites.
2.4.2.7	After the Execution Date the HA will maintain site protection arrangements, in relation to existing sites with NRTS Co equipment cabinets and/or buildings transferred to NRTS Co, according to the Table of Responsibilities.
2.4.2.8	NRTS Co shall pay the HA a Commuted Maintenance Charge (in accordance with Schedule 30) for maintenance of Protection Infrastructure in accordance with the Table of Responsibilities.
2.4.2.9	In cases where the Protection Infrastructure on an existing HA or NRTS Site is extended for NRTS Co purposes, NRTS Co shall pay a Commuted Maintenance Charge (in accordance with Schedule 30) for the extension to the arrangement.
2.4.2.10	From each RMC Area Transmission Service Take-On Date or each RMC Area Camera Mast Service Take-On Date or the Take-On of a Service (as applicable), the HA will be responsible for maintaining, in the RMC Area(s) or Service Taken-On, the Protection Infrastructure for new or changed NRTS Sites in those areas or relating to those Services Taken-On. However, the HA shall commence maintenance of the Protection Infrastructure, only where such Protection Infrastructure is installed and handed over by NRTS Co to the HA in accordance with the *Provision Service* process (Schedule 1.2 section 6.4). Upon the installation and hand over of each such Protection Infrastructure, the HA shall be paid a Commuted Maintenance Charge (in accordance with Schedule 30) for the relevant infrastructure to be maintained.
2.4.2.11	NRTS Co shall make arrangements to provide protection for any new or changed NRTS Sites where required by the Table of Responsibilities. This shall be in accordance with the Project Standard. If HA installs any site protection on behalf of NRTS Co, NRTS Co shall pay the installation cost in addition to the Commuted Maintenance Charge (in accordance with Schedule 30).
2.4.2.12	Where it is normally the HA's responsibility to provide protection under the Table of Responsibilities, the HA may instruct NRTS Co to undertake the work as an Ad Hoc Project in accordance with the *Ad Hoc Projects* Processes (Schedule 1.2 section 7).

Constraint Requirements (Continued)	
2.4.2.13	NRTS Co shall ensure that these arrangements do not adversely affect the safety of the public. In particular, NRTS Co shall comply with the HA's objectives to avoid the unnecessary proliferation of roadside equipment and the need for its protection.
2.4.2.14	NRTS Co shall carry out its own risk assessments when determining the location and protection requirements for its Assets on the Project Road Network.
2.4.2.15	NRTS Co shall obtain the agreement of the HA on siting and protection arrangements from a road safety and, where necessary, structural perspective of any equipment placed by NRTS Co on the Project Road Network. NRTS Co shall ensure that such agreement is in place prior to the deployment of any site protection infrastructure by NRTS Co.
2.4.2.16	In particular, details of any site protection arrangements which are not in accordance with, or are outside the scope of the Project Standard shall be submitted to and agreed with the HA in accordance with the *Development* Processes (Schedule 1.2 section 4).
Related Specifications	
2.4.2.17	The related specifications which NRTS Co shall follow in production of the Project Standard are: • DMRB, SHW and TTRMM; • BS EN 12767 – Passive safety of support structures for road equipment. Requirements and test methods; • MCX0138 – Installation Drawing NMCS1 & 2 Typical Safety Handrail Details; • MCX0153 – Installation Drawing Layout of Communications Cabinets, Posts, Ducts & Hardstanding & Installation Drawing NMCS1 & 2 Communications Cable Trough Detail; • MCX0160 – Installation Drawing NMCS Safety Fence Protection of Cabinets – Guide; • BS6579 – Safety fences and barriers for highways. British Standards Institution, London; • BS EN 1317 – Road Restraint Systems; • Interim Advice Note IAN44/02 – Interim Requirements for Road Restraint Systems; • Interim Advice Note IAN 55/04 – Guidance on the Use of European Standard BS EN 1317 – Road Restraint Systems.

Table 2-3 Site Protection Constraint

2.5 Power Supplies

2.5.1 [Not Used]

2.5.2 [Not Used]

2.5.3 **M** This Constraint is defined in Table 2-4.

Power Supplies – General	
Issue(s) being addressed	
2.5.3.1	NRTS Co shall agree with the HA the principles by which NRTS Co obtains electricity supplies and distributes power on the Project Road Network and the premises of the HA and of Interfacing Organisations to ensure safe and efficient working practices.
2.5.3.2	There is no mechanism whereby the HA can onward charge for electricity supplied to Third Parties. Where this supply is used in connection with the performance of the Services then the HA will provide power free of charge to NRTS Co where supplies already exist. For delivery of NRTS Co Commercial Contracts, NRTS Co is required to make independent arrangements at its own cost.
2.5.3.3	NRTS Co shall ensure that its power supply arrangements are workable and do not impede the HA's operational obligations or safety.
2.5.3.4	NRTS Co shall ensure that, in order to protect Step-In and Handback arrangements, power supply arrangements shall be clearly identified and safe.
Applicability	
2.5.3.5	All sites on the Project Road Network and other buildings and premises of HA and Interfacing Organisations where NRTS Co may install equipment.
Constraint Requirements	
2.5.3.6	General responsibilities relating to the design, installation, maintenance and costs of electricity power supplies are identified in the Table of Responsibilities (Annex A).
2.5.3.7	NRTS Co shall ensure that the Project Standard, "*Power Supplies*", shall take into account the following Constraint requirements.
	<u>General</u>
2.5.3.8	All new roadside supplies on Protected Streets that are provided by NRTS Co shall have electricity supply company (ESC) connections in the boundary fence, in accordance with the *External Communications and Power Interfaces* Constraint (section 2.13).
2.5.3.9	NRTS Co shall observe and ensure the HA requirement that access to ESC interfaces by Third Parties from motorways and Protected Streets is not permitted.
2.5.3.10	NRTS Co shall ensure that new ESC interfaces are in the boundary fence line or located as otherwise agreed with the HA such that access to the new ESC interface by the ESC from the road (Protected Street) is not necessary. NRTS Co shall ensure that ESC interfaces provided for NRTS Co purposes only are located so as to minimise as far as practicable the cabling on Protected Streets.
2.5.3.11	NRTS Co shall not take power from street lighting columns. If NRTS Co needs to obtain electricity from a street lighting source of supply because communications power is not available, NRTS Co shall obtain prior agreement from the HA and the connection shall be at an ESC connection.
2.5.3.12	NRTS Co shall be responsible for its own electrical testing in a manner that does not interfere with the delivery of the Services or the HA's operations.

Constraint Requirements (Continued)	
2.5.3.13	NRTS Co shall comply with the harmonised core colour requirements of Amendment No. 2 to BS 7671 2001 (the IEE Wiring Regulations). NRTS Co shall only install new power cables to the harmonised cable core colour requirements. NRTS Co's power cable replacement practise shall be consistent with that adopted by the HA.
2.5.3.14	NRTS Co shall clearly identify and label all NRTS Co Assets within the arrangements that are a unique part of the power supply circuit used by NRTS Co.
2.5.3.15	NRTS Co shall make all necessary modifications to safety notices, circuit diagrams, labels, etc arising from changes made by NRTS Co to any existing power supply network that NRTS Co connects to, or is transferred to NRTS Co, e.g. when separating the supply to NRTS Co equipment from the existing communications systems (NMCS) equipment supplies.
2.5.3.16	NRTS Co shall provide the HA, and the Supply Landlord (defined in paragraph 2.5.3.21 below) in the case of shared sites, with details of amendments to be made to HA or the Supply Landlord's site records following the separation of a power supply to NRTS Co equipment from existing communications systems (NMCS) equipment supplies and NRTS Co shall amend the Supply Landlord's site records if required.
2.5.3.17	NRTS Co shall maintain Records in accordance with section 5 for power supplies at all NRTS Sites. This shall include installation and cabling test procedures and records including special arrangements for shared sites.
2.5.3.18	NRTS Co shall identify in the Project Standard, "*Power Supplies*", the extent of electrical power supply alterations necessary. This may include reconfiguration of the supplies and shall include NRTS Co's obligations in relation to labelling, cable marking and record amendments. These alterations shall be made by NRTS Co prior to the Actual Service Start Date for the Transmission Service in accordance with the *Transition* Processes (Schedule 1.2 section 8).
2.5.3.19	NRTS Co shall acknowledge the right of the HA and/or Third Parties to "disconnect and make safe" in order to make the supply electrically safe. Typically this could occur following a road traffic accident when supplies have been damaged and may need to be disconnected and the *Operational* Processes (Schedule 1.2 section 5) would apply.
2.5.3.20	NRTS Co shall ensure that its installation contains adequately labelled emergency isolation and/or fireman's switches, where appropriate, to meet this requirement.

Constraint Requirements (Continued)

Shared Arrangements

2.5.3.21 The following additional requirements shall apply:

- At locations where power supply is shared, the Supply Landlord shall be the organisation that has the responsibility for the electricity supply company connection and who pays for the electricity consumption. This can be the HA, NRTS Co or a Third Party such as a building operator acting on behalf of or the Police for supplies shared in a Police Control Office building.
- Where the Supply Landlord is a Third Party, e.g. the Police, any initial approach to the Supply Landlord by NRTS Co shall be via the HA. The HA shall remain a party to and be fully informed of all subsequent arrangements unless specifically agreed by the HA.
- The Supply Landlord will remain responsible for the power supply provision up to the point of NRTS Co's connection. Neither the HA nor the Supply Landlord shall be liable to NRTS Co for the quality or continuity of the supply.
- NRTS Co shall make independent arrangements with the HA, and where applicable the Supply Landlord, for the use, inspection, and testing of the electrical supply. NRTS Co shall ensure that supplies agreed by NRTS Co under such an agreement shall have separate fusing/isolation arrangements. Such arrangements between NRTS Co and the Supply Landlord may be shared with the HA where the use is solely for HA services. NRTS Co shall clearly identify and label power cables and any circuit protection, isolation and disconnection within the shared arrangements that are a unique part of the power supply circuit used by NRTS Co.
- Where NRTS Co shares part of the power supply with others, NRTS Co shall ensure that it does not cause the integrity of the electrical installation, or equipment connected to the supply to be impaired.
- The HA or NRTS Co may make arrangements to share electricity power supplies with each other taken from power cabinets (such as cabinets Type 609P) at new or existing sites. The principle shall be that the party requesting the shared arrangements shall be responsible for making the changes to the supply arrangements in accordance with the requirements of this Project Standard and their costs. In cases where the remaining capacity of the supply is less than an amount agreed with the HA or Supply Landlord this may include uprating the incoming electricity company supply. The principles governing the expected reserve capacity of sites shall be covered by this Project Standard.
- The HA or NRTS Co may make arrangements to share electricity power supplies with each other taken from electricity supply company (ESC) interfaces at new or existing sites. The principle shall be that the party requesting the shared arrangements shall be responsible for making the changes to the supply arrangements in accordance with the requirements of this Project Standard, and shall be responsible for all costs except as described in paragraph .5.3.29.
- NRTS Co shall be responsible for electrical testing of its own circuits in a manner that does not interfere with the delivery of the Services or HA's or the Supply Landlord's operations.
- NRTS Co shall provide information in respect of the power consumption of connected equipment in order to satisfy the requirements of the Supply Landlord, the HA and the ESC. This shall include a quarterly updated inventory of connected equipment and consumption information.
- NRTS Co shall comply with the requirements of the Balancing and Settlement Code of Practice (Elexon BSCP520) and the HA's energy procurement strategy in respect of connections made to unmetered supplies.

Constraint Requirements (Continued)

- Similarly, HA will provide NRTS Co with power consumption information for HA equipment connected to shared unmetered supplies where NRTS Co is the Supply Landlord.
- NRTS Co shall provide information relating to heat emission of NRTS Co equipment located in confined spaces such as Police Control Office equipment rooms or shared cabinets.
- NRTS Co shall ensure that heat emission by NRTS Co equipment shall not interfere with the operation of other equipment. HA may impose upper limits in respect of power consumption or heat emission with which NRTS Co shall comply.

Power headroom at power supplies

2.5.3.22 At sites where NRTS Co shares roadside power with the HA, the HA requires NRTS Co to leave a minimum power headroom (i.e. spare power capacity allocated for HA use) of 500Watts at power cabinets. However, where power cabinets are located at gantries all the available power is reserved for HA use. Exceptionally, and by agreement with the HA on a site-by-site basis, NRTS Co may draw up to 200Watts from existing gantry sites, in addition to power requirements for the Services at the Execution Date. At new standard gantry sites 200Watts will be reserved for NRTS Co. At ATMg gantry sites power will be reserved for NRTS Co Common Equipment Cabinets.

NRTS Co Commercial Contracts and NRTS Co only sites

2.5.3.23 The following additional requirements shall apply:

- Power arrangements to NRTS Co equipment shall be separated at the electricity supply company side of the ESC interface cabinet in the boundary fence and totally independent of HA communications power supply arrangements. Power shall be procured by NRTS Co independently and NRTS Co shall be solely responsible for its integrity, its testing and paying for electricity consumption.

Power supplies to Transmission Station buildings

2.5.3.24 The following additional requirements shall apply:

- NRTS Co shall be responsible for all Transmission Station building electrical power supplies. NRTS Co shall take over these supplies from the HA and be responsible for paying for electricity consumption. NRTS Co shall be the Supply Landlord for supplies shared with HA equipment within Transmission Station buildings.
- When NRTS Co can demonstrate that the power consumption of its certified solution, excluding any Legacy Assets that will become redundant following the deployment of its certified solution, exceeds the available capacity of the ESC interface then NRTS Co shall specify and manage the procurement from the ESC of the upgraded power supply that represents the most economically advantageous solution to the HA. The ESC's costs for increasing the maximum rating of the incoming supply to the ESC interface, to provide sufficient capacity for the certified solution, will be paid for by the HA. All other costs shall be borne by NRTS Co.
- At any locations where the Transmission Station building power supply is shared with power to roadside devices outside the building, NRTS Co shall be responsible for making the HA and NRTS Co power connections independent of each other within the shared power arrangement.

Shared roadside sites – (e.g. independent HA and NRTS Co cabinets)

2.5.3.25 The following additional requirements shall apply:

- NRTS Co shall comply with the HA standard arrangements to have emergency electrical isolation (fireman's switches) at certain roadside sites such as at gantries where a road traffic accident could cause the gantry to become unsafe.

Constraint Requirements (Continued)
Shared cabinets (roadside or within buildings or Transmission Stations) 2.5.3.26 The following additional requirements shall apply: • NRTS Co and HA shall take mains power from separate isolators on the power distribution unit in the cabinet which shall be electrically independent of each other's systems. Buildings (e.g. Police Control Offices) Independent cabinets 2.5.3.27 The following additional requirements shall apply: • NRTS Co shall take mains power from separate isolator(s) on the power distribution unit in the Supply Landlords premises and shall be electrically independent of HA's and the Supply Landlord's systems. • A number of buildings such as Coleshill Computer Centre and Police Control Offices have standby generators. Arrangements vary from site to site. NRTS Co shall ensure that the NRTS Co systems do not interfere or affect the delivery of the Services during the operation or test of these standby power arrangements. For example, equipment is typically supplied via uninterruptible supplies (UPS) to accommodate generator stabilisation and switching transients.
Related Specifications
2.5.3.28 The related specifications which NRTS Co shall follow in production of the Project Standard are : • BS7671 – Requirements for electrical installations. IEE Wiring Regulations. Sixteenth edition; • BS7430 – Code of practice for earthing; • MCX0146 – Installation Drawing NMCS Cabinet 609/620 Set in Standard Motorway Fence; • BSCP520 – Balancing and Settlement Code of Practice Unmetered Supplies Registered in SMRS; • MCH1957 – NMCS Maintenance Instruction General Electrical Tests and Inspections. 2.5.3.29 This Constraint requirement applies when NRTS Co has chosen to take electrical power for a NRTS roadside transmission cabinet by connecting to an existing ESC interface for which the HA is the Supply Landlord, in localities at or being upgraded to SPC A and SPC B. The HA will pay the ESC's costs of increasing the maximum current rating of the incoming supply at an electricity supply company (ESC) interface provided the following conditions have been met: • NRTS Co has considered all ESC interfaces for which the HA is the Supply Landlord within the range of tolerance for locating the NRTS roadside transmission cabinet as delimited by the SPC Rules; and • NRTS Co has ascertained the unallocated capacity within the supply at each ESC interface being considered by liaison with the HA and all interested Authority Parties; and • NRTS Co requires a single phase electrical supply and there is insufficient unallocated capacity within the supply at the ESC interface to meet the requirement of its certified solution; and • NRTS Co has obtained quotations from the ESC for upgrading power supplies and have chosen the ESC interface which is the most economically advantageous to the HA; and • NRTS Co has advised the HA in advance of its requirement for the power supply to be upgraded and provide evidence that the above requirements have been met; and • NRTS Co has specified, and has managed the procurement and implementation of, the upgrade of the power supply on behalf of the HA.

Table 2-4 Power Supplies Constraint

2.6 Power Supplies – Vacating and Decommissioning

2.6.1 **M** This Constraint is defined in Table 2-5.

Power Supplies – Vacating and Decommissioning	
Issue(s) being addressed	
2.6.1.1	In the situation where the principal user of the electricity supply (i.e. the Supply Landlord who may be the HA, NRTS Co or a third party) vacates or no longer requires a power supply site or a shared cabinet or site, the options and responsibilities falling on the secondary user need to be clearly defined. This arrangement applies equally to NRTS Co and the HA.
2.6.1.2	The principle shall be that the party vacating a site shall be responsible for making the changes and paying the costs for disconnection and removal of its equipment and where a secondary user wishes to take over a supply vacated by a principal user, the secondary user shall be responsible for making the additional changes and paying the costs to take over the supply.
Applicability	
2.6.1.3	All shared sites and equipment cabinets provided for any Service.
Constraint Requirements	
2.6.1.4	NRTS Co shall ensure that the Project Standard, "*Power Supplies – Vacating and Decommissioning*", addresses the principles and arrangements for vacating and decommissioning sites and cabinets containing power supplies when they are no longer required by one or other party. The principle shall be that the party vacating a site shall be responsible for making the changes and paying costs for vacating the site and all associated costs.
2.6.1.5	The Project Standard shall address the following Constraint requirements. <u>Secondary user vacates shared site</u>
2.6.1.6	If a secondary user of a site, has no continuing need of power at the site, the secondary user shall plan and agree with the principal user the programme, tasks and method for decommissioning the secondary user's connection. The secondary user shall be responsible for vacating the site and all associated costs. <u>Principal user vacates shared site</u>
2.6.1.7	If a power supply is no longer required by the principal user (the Supply Landlord), the secondary user shall have the option to completely take over responsibility for the provision of the supply at the site at the secondary user's cost, including electricity supply company charges and Commuted Maintenance Charges. Responsibility for all local infrastructure associated solely with the power supply, e.g. cabinet and power cabling to the electricity supply company (ESC) interface, Access Infrastructure, Protection Infrastructure, etc, shall be transferred to the secondary user. Furthermore, if the secondary user has a continuing need for the cabinet and power supply it shall make the power arrangements fully independent and update all labelling cable marking and record systems accordingly.
2.6.1.8	If neither the principal nor secondary user requires the site it shall be decommissioned on a cost-sharing basis, based on the ratio of the total maximum power consumption of all equipment attached by each party in the preceding twelve months.
2.6.1.9	In addition, NRTS Co shall offer to the HA to take over any power supply used solely by NRTS Co on the Project Road Network that NRTS Co no longer requires and proposes to vacate.
2.6.1.10	These activities shall be undertaken under the *Deactivate Service* process (Schedule 1.2 section 6.6) and the work programmed as part of the NRTS Forward Programme under the *Remove Service* process (Schedule 1.2 section 6.7).

Related Specifications	
2.6.1.11	The related specifications which NRTS Co shall follow in production of the Project Standard are: • BS7671 – Requirements for electrical installations. IEE Wiring Regulations. Sixteenth edition; • BS7430 – Code of practice for earthing.

Table 2-5 Power Supplies – Vacating and Decommissioning Constraint

2.7 Earthing and Lightning Protection

2.7.1 **M** This Constraint is defined in Table 2-6.

Earthing and Lightning Protection	
Issue(s) being addressed	
2.7.1.1	To ensure that high-voltage transients (power surges) induced in NRTS Co's equipment by lightning do not affect the equipment of the HA and Third Parties, and to ensure that high-voltage transients induced by lightning in the equipment of the HA and Third Parties do not affect NRTS Co's equipment.
2.7.1.2	To ensure that equipment and structures are appropriately earthed and protected from lightning.
2.7.1.3	To clarify responsibilities and obligations for earthing and lightning protection arrangements, in particular design, maintenance and testing of such protection arrangements where protection integrity may be compromised.
Applicability	
2.7.1.4	All shared facilities and interfaces where the earthing arrangements are common or are in close proximity plus all electrical interfaces between NRTS Co and HA or Third Party systems or equipment.
Constraint Requirements	
2.7.1.5	NRTS Co shall ensure that the Project Standard, "*Earthing and Lightning Protection*", addresses the following Constraint requirements.
2.7.1.6	NRTS Co shall ensure that a common acceptable standard and working procedures for earthing and lightning protection of all Assets are in place.
2.7.1.7	NRTS Co shall be responsible for the provision, testing and maintenance of all earthing and lightning protection arrangements including circuit bonding of its infrastructure, systems and equipment and shall provide an appropriate earth point and lightning protection for all NRTS Co equipment, power and interfaces including Service Delivery Points.
2.7.1.8	NRTS Co installations shall be such that they do not increase the risk to the public, road users or HA/Third Party systems and equipment from lightning.
2.7.1.9	Where NRTS Co shares an earthing point or cabinet, NRTS Co shall identify, agree and record with the HA or the Third Party sharing, responsibilities for the provision, testing and maintenance of the earthing.
2.7.1.10	NRTS Co shall protect its own equipment from high-voltage transients (power surges) induced in the HA or Third Party systems, and shall protect the HA or Third Party systems from the effects of high-voltage transients (power surges) induced in NRTS Co systems.
Related Specifications	
2.7.1.11	The related specifications which NRTS Co shall follow in production of the Project Standard are: • TR1100 – Technical and Quality Control Requirements for Systems, including parts of Systems, Manufactured, Supplied, Installed or Maintained; • ITU K series – Construction, Installation and Protection of Cable and other elements of Outside Plant; • BS7430 – Code of practice for earthing; • BS7671 – Requirements for electrical installations: IEE Wiring Regulations. Sixteenth edition; • BS6651 – Code of practice for protection of structures against lightning; • ENV61024–1 – Protection of Structures against Lightning Part 1: General Principles.

Table 2-6 Power Supplies – Earthing and Lighting Protection Constraint

2.8 Electromagnetic Compatibility

2.8.1 **M** This Constraint is defined in Table 2-7.

Electromagnetic Compatibility	
Issue(s) being addressed	
2.8.1.1	Addition of all new equipment poses the risk of electromagnetic interference with existing equipment. Clarity on responsibilities and obligations is important in case electromagnetic compatibility (EMC) problems do arise at any particular site. HA roadside equipment is generally tested for EMC compliance against TRG1068; more recent testing of roadside equipment is being performed to BS EN 50293. Equipment may exist which has not been tested to TRG1068 or BS EN 50293.
Applicability	
2.8.1.2	All equipment and infrastructure installations for which NRTS Co is responsible.
Constraint Requirements	
2.8.1.3	NRTS Co shall ensure that the Project Standard, "*Electromagnetic Compatibility*", addresses the following Constraint requirements.
2.8.1.4	NRTS Co roadside equipment shall conform to the EMC Directives EN 50278, BS EN 50293, and EN 45000.
2.8.1.5	NRTS Co shall produce evidence of conformity when required by the HA.
2.8.1.6	Where the HA suspects that equipment used by NRTS Co in the provision of the Services or used in the performance of the Commercial Contracts is interfering or has the potential to interfere with HA systems, NRTS Co shall be required to prove compatibility with HA systems, refer to EMC under the *Provision Service* process (Schedule 1.2 section 6.4).
2.8.1.7	If NRTS Co cannot show to the HA's reasonable satisfaction that the equipment referred to in paragraph 2.8.1.6 is not causing interference then the HA reserves the right to disconnect, or have disconnected the equipment. In such circumstances, NRTS Co shall not be given relief from Service performance or any resultant Service Credits and Payment Deductions arising from such non-performance or any failure of the Service or Services disconnected. Hence, the relevant Service Type Instance(s) shall be regarded as in the state of Outage and will be subject to Service Credit Regime.
2.8.1.8	No equipment, producing electromagnetic emissions, used by NRTS Co in the provision of the Services or the performance of the Commercial Contracts shall be placed such that it exposes other systems and equipment to levels above the EMC envelope for roadside equipment described in the related specifications, e.g. power cables, transmitters and aerials.
2.8.1.9	Newly installed equipment shall have been demonstrated to comply with EMC requirements for roadside equipment and not to be causing interference with other equipment before it will be accepted under the *Provision Service* process (Schedule 1.2 section 6.4).
2.8.1.10	NRTS Co shall take into account the fact that the roadside environment can be exposed to sources of electromagnetic radiation in excess of the EMC envelope for roadside equipment and shall document any special tests and remedial measures taken.
2.8.1.11	NRTS Co shall provide records and evidence (in accordance with Clause 27 of the Project Agreement) that equipment used by NRTS Co in the delivery of the Services or the performance of the Commercial Contracts does not expose HA systems and equipment to levels above the EMC envelope for roadside equipment. This shall include certification and test results to confirm EMC compliance for each type of equipment.

Related Specifications	
2.8.1.12	The related specifications which NRTS Co shall follow in production of the Project Standard are: • TRG1068 – Electromagnetic Compatibility Tests for Motorway Communication Equipment and Portable and Permanent Traffic Control Equipment; • EN 50278 – Design and Configuration; • BS EN 50293 – Electromagnetic compatibility. Road traffic signal systems. Product standard; • BS EN 61000–3 – Electromagnetic compatibility (EMC). Limits. Limitation of voltage changes, voltage fluctuations and flicker in public low–voltage supply systems. Equipment with rated voltage current <= 75 A and subject to conditional connection; • BS EN 55022 – Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement; • BS EN 50082–1 – Electromagnetic compatibility. Generic immunity standard. Residential, commercial and light industry; • BS EN 50082–2 – Electromagnetic compatibility. Generic immunity standard. Industrial environment; • BS EN 60215 – Safety requirements for radio transmitting equipment; • EN 45000 – Earthing in Telecommunication Buildings, Radio Broadcasting and Television Centres.
Further Constraint Requirements	
2.8.1.13	NRTS Co will be allowed an exception to the Attributable Outage Hours for a Defined EMI Waived Fault State, as specified in Section 16 of Schedule 1.1a. An EMI Waived Fault State shall be deemed to have occurred when the HA consent to an application for an EMI Waived Fault Notice prepared by NRTS Co.
2.8.1.14	The application for an EMI Waived Fault Notice shall define: • the specific Performance Requirements for which NRTS Co are to be allowed exceptions to the Attributable Outage Hours; • the affected Service Type Instances; • the affected Asset; • the physical boundaries of the EMI Waived Fault State; • the time when the EMI Waived Fault State is deemed to have started i.e. either the time of the start of the first Outage due to the EMI Waived Fault State or one month before HA receive the application from NRTS Co for an EMI Waived Fault Notice, whichever is the later; • evidence to the reasonable satisfaction of the HA that the fault is an Other-Party EMI Fault or a Legacy EMC Fault; and • the time that the fault was first detected.

Further Constraint Requirements (Continued)	
2.8.1.15	NRTS Co may apply for an EMI Waived Fault Notice when an Outage occurs due to an Other-Party EMI Fault or a Legacy EMC Fault.
2.8.1.16	Regarding Other-Party EMI Faults, evidence that equipment for which NRTS Co is not responsible has developed a fault and, as a direct result of the fault, has emitted excessive electromagnetic interference shall be defined as a written admission of such by the party responsible for the equipment, or as the report of such by an independent expert.
2.8.1.17	All applications for EMI Waived Fault Notices due to Legacy EMC Fault shall be issued to the HA before the affected Service Type Instances are Taken-On. Upon receipt of the application, the HA will not unreasonably withhold the issue of an EMI Waived Fault Notice acknowledging the existence of an EMI Waived Fault State.
2.8.1.18	An Other-Party EMI Fault is defined as when: • the equipment for which NRTS Co is not responsible develops a fault and, as a direct result of the fault, it emits excessive electromagnetic interference (EMI) which affects the equipment for which NRTS Co is responsible; • and this results in an Outage; • and the Outage could not reasonably have been prevented by NRTS Co observing and acting in accordance with Good Industry Practice and/or by compliance with contract requirements in relation to EMC.
2.8.1.19	A Legacy EMC Fault is defined as when there has been an Outage caused by EMC problems in relation to equipment used by NRTS Co in the provision of the Services, excluding: • equipment which has been installed by or on behalf or NRTS Co; • equipment for which a remedy for an EMC problem has been implemented by or on behalf of NRTS Co; and • NRTS Co equipment which is suffering from a fault thereby causing it not to comply with EMC requirements for roadside equipment.
2.8.1.20	The EMI Waived Fault State arising from an Other-Party EMI Fault shall end and the record removed from the list of current EMI Waived Fault Notices when: • equipment causing the Other-Party EMI Fault is removed or is prevented from emitting excessive EMI and is in a steady state; or • the co-located equipment for which NRTS Co is responsible and which is affected by the excessive EMI is protected from the effects of the excessive EMI and is in a steady state.
2.8.1.21	The EMI Waived Fault State arising from a Legacy EMC Fault shall end and the record removed from the list of current EMI Waived Fault Notices when: • the equipment used by NRTS Co in the provision of the Services is renewed by NRTS Co; or • NRTS Co have completed the Ad Hoc Project designed to remedy the EMC problem; or • the source of the electromagnetic interference (EMI) is removed or is prevented from emitting excessive EMI and is in a steady state.
2.8.1.22	NRTS Co shall take the risk of any EMC problems affecting equipment installed by or on behalf of NRTS Co.

Further Constraint Requirements (Continued)	
2.8.1.23	NRTS Co shall ensure that it has procured all the necessary skills, qualified staff and resources to enable it: • to identify all EMC problems affecting the Services; • to produce scoping requirement for specialist tests and investigations; and • to manage the process of resolving such EMC problems in a professional and timely manner.
2.8.2.24	NRTS Co shall adequately investigate Legacy EMC Faults, to produce a specification and costed proposal to HA within the *Ad-hoc Projects* Process to resolve such Legacy EMC Faults. NRTS Co shall bear the cost of the investigation in the Base Service Charge. The cost of any necessary specialist EMC consultants and EMC test laboratories for the investigation and agreed in advance with the HA will be borne by the HA.
2.8.2.25	NRTS Co shall warrant the effectiveness of the remedy to an EMC/EMI problem once such remedy has been implemented by or on behalf of NRTS Co. NRTS Co shall thereby bear the risk of any and all subsequent EMC problems associated with the Services in the area defined in the proposal.

Table 2-7 Electromagnetic Compatibility Constraint

2.8.2 [Not Used]

2.9 Non-Ionising Electromagnetic Radiation

2.9.1 **M** This Constraint is defined in Table 2-8.

Non-Ionising Electromagnetic Radiation	
Issue(s) being addressed	
2.9.1.1	Protection of the public, Authority Parties and Third Parties' staff and contractors from the effects of non-ionising electromagnetic radiation emissions.
Applicability	
2.9.1.2	All emissions from equipment and infrastructure for which NRTS Co is responsible on the Project Road Network, the premises of the HA or Interfacing Organisations.
Constraint Requirements	
2.9.1.3	NRTS Co shall ensure that the Project Standard, "*Non-Ionising Electromagnetic Radiation*", addresses the following Constraint requirements.
2.9.1.4	NRTS Co shall assess all non-ionising electromagnetic radiation hazards and take measures to ensure the protection of the public, and the staff and maintenance personnel of Authority Parties and Third Parties. NRTS Co shall not rely on the procedures of others to ensure safety.
2.9.1.5	NRTS Co shall take into account the installation, maintenance and access methods of Authority Parties and/or Third Parties, such as the use of hoists to maintain lighting columns and signs. NRTS Co shall identify and clearly label all hazards, including exclusion zones.
2.9.1.6	Where appropriate, clear exclusion zones shall be defined by NRTS Co around Aerials or Aerial Sites to prevent workers or the public from accessing certain places to ensure that the ICNIRP (International Commission on Non-Ionising Radiation Protection) guidelines on exposure to radio frequency radiation are not exceeded.
2.9.1.7	Where it is necessary to provide an exclusion zone NRTS Co shall place a physical barrier and a readily identifiable sign and logo either to a national standard or to one agreed with the HA for all sites on the Project Road Network. This shall inform the public and workers that inside the zone there may be emissions that exceed the relevant guidelines. This requirement shall be in addition to identification and labelling requirements detailed in the *Identification and Labelling* Constraint (section 2.12).
2.9.1.8	NRTS Co shall not use training as the method of making Authority Parties aware of the potential risks and to advise them of the precautions to be taken. Equipment shall be protected by NRTS Co using physical barriers, signage and/or access control procedures wherever training would otherwise be used to make HA or HA's contractors aware of such risks and precautions. NRTS Co shall ensure that levels of exposure and protection arrangements for Authority Parties shall be within the relevant guidelines as set out in paragraph 2.9.1.9 for levels of exposure and protection for members of the public.
Related Specifications	
2.9.1.9	Guidelines for restrictions on exposure to electromagnetic fields produced by the National Radiological Protection Board (NRPB), international standards for optical radiation published by the American Conference of Governmental Industrial Hygienists (ACGIH) and the International Commission on Non-Ionising Radiation Protection (ICNIRP).

Table 2-8 Non-Ionising Electromagnetic Radiation Constraint

2.10 Planning Approvals

2.10.1 [Not Used]

2.10.2 **M** This Constraint is defined in Table 2-9.

Planning Approvals	
Issue(s) being addressed	
2.10.2.1	Under the NRTS Contract, NRTS Co is responsible for obtaining all necessary planning consents for the NRTS Project. HA requires NRTS Co to retain evidence of its compliance, such that the evidence is passed to the HA following Step-In or Handback.
Applicability	
2.10.2.2	All sites developed by NRTS Co for any Service or Commercial Contract where planning approval is required.
Constraint Requirements	
2.10.2.3	NRTS Co shall ensure that the Project Standard, "*Planning Approvals*", addresses the following Constraint requirements.
2.10.2.4	NRTS Co shall adhere to local, national and European planning and environmental requirements and obtain the related planning and environmental approvals.
2.10.2.5	NRTS Co shall maintain Type C Records to document planning applications and approval.
Related Specifications	
2.10.2.6	The related documentation which NRTS Co shall follow in production of the Project Standard is: • 85/337/EEC – Environmental Impact Assessment; • 97/11/EC – Environmental Impact Assessment; • DMRB Volume 11.
Further Constraint Requirements	
2.10.2.7	NRTS Co is required to obtain all necessary consents for the NRTS Project. In particular, NRTS Co will need to give consideration to the question of whether an Environmental Impact Assessment (an "EIA") and/or planning permissions or approvals are required. Relevant legislation to be considered will include: • Part VA of the Highways Act 1980; and • the Town and Country Planning Act 1990, the Town and Country Planning (Environmental Impact Assessment) Regulations 1999 and the Planning and Compulsory Purchase Act 2004.
2.10.2.8	If the NRTS Project: • is determined by the Secretary of State or a court of law to be a relevant project requiring an EIA for the purposes of the Highways Act ; or • is a project requiring any planning permissions and any associated EIA under town and country planning legislation; then NRTS Co shall be responsible for the cost of and the carrying out of any EIA (and produce all relevant documentation in connection with any application for necessary consents).

Further Constraint Requirements (Continued)	
2.10.2.9	The risks (including all costs) associated with: • the decisions as to whether or not any EIA and/or planning permissions or other necessary consents are required; and • the obtaining of any necessary consents shall remain with NRTS Co at all times.
2.10.2.10	Given the statutory requirements on the Secretary of State in reaching and publishing any determination and the requirements for publication and consultation on any Environmental Statement, NRTS Co shall allow sufficient time in its programmes for comments to be made, considered and responded to, and for any periods for challenge (if applicable) after the determination. NRTS Co shall do nothing to prejudice the Secretary of State's position in the 12 week challenge period following any determination.
2.10.2.11	Notwithstanding NRTS Co's obligations to comply with the relevant legislation referred to above, the HA requires NRTS Co to undertake an environmental assessment prepared in line with HA guidance (the "HA environmental assessment") in accordance with the provisions set out in Volume 11 of the DMRB.
2.10.2.12	The HA shall have the right to use any information gathered and documents produced by or on behalf of NRTS Co, as a result of the work undertaken by NRTS Co for any purposes whatsoever, including assisting the Secretary of State in determining whether the NRTS Project is a "relevant project" under the Highways Act. At the HA's request, NRTS Co shall also carry out reasonable further assessment work to assist the Secretary of State to determine whether or not an EIA is required. The HA also reserves the right to make this information public where required by law in this regard. All information referred to in this section 2.10 shall be prepared at NRTS Co's sole cost and expense and the HA shall not be liable to reimburse NRTS Co for the costs and expenses incurred under any circumstances.

Table 2-9 Planning Approvals Constraint

2.11 Compliance with Environmental Requirements

2.11.1 **M** This Constraint is defined in Table 2-10.

Compliance with Environmental Requirements	
Issue(s) being addressed	
2.11.1.1	The HA requires contractors to operate an Environmental Management System (as defined in BS EN ISO 14000 series) that takes specific account of environmental issues that may be encountered on the highway.
Applicability	
2.11.1.2	All NRTS Sites and operations to deliver the Services or Commercial Contracts.
Constraint Requirements	
2.11.1.3	NRTS Co shall ensure that the Project Standard, "*Compliance with Environmental Requirements*", addresses the following Constraint requirements.
2.11.1.4	NRTS Co shall ensure certification to, and operation of an Environmental Management System to BS EN ISO 14000 series.
2.11.1.5	NRTS Co shall comply with environmental requirements applied to any design, including compliance with EU Directives 85/337/EEC and EU 97/11/EC – Environmental Impact Assessment, as enabled in the Highways Act 1980 Sections 20A and 55A. Guidance on the application of these Directives is provided in Volume 11 of the DMRB.
2.11.1.6	NRTS Co shall ensure linkage to the Highways Agency's Environmental Database.
2.11.1.7	NRTS Co shall ensure that disposal of waste and recycling accords with environmental requirements.
2.11.1.8	NRTS Co shall implement and operate methods and controls to safeguard the environment and mitigate the effects of the Project, under the headings: • noise and vibration; • dust, smoke and other airborne pollutants; • construction compounds; • contaminated land; • groundwater and surface water; • spillage of fuel and oil on the ground; • artificial light spillage; • traffic management; • mud on the highway; • disposal of surplus material.
2.11.1.9	NRTS Co shall notify the HA of any contamination or spillage that may constitute a risk to users or maintainers of the highway.

Related Specifications	
2.11.1.10	The related specifications which NRTS Co shall follow in production of the Project Standard are: • MCHW; • BS EN ISO 14000 series – Family of Environmental Management Standards; • MCH 1967 – Guidelines and Requirements on the Development of Aerial Sites on Motorways; • EU Directives 85/337 and EU 97/11 – Environmental Impact Assessment; • DMRB Volume 11.

Table 2-10 Compliance with Environmental Requirements Constraint

2.12 Identification and Labelling

2.12.1 **M** This Constraint is defined in Table 2-11.

Identification and Labelling	
Issue(s) being addressed	
2.12.1.1	All NRTS Co equipment and installations used by NRTS Co in the provision of the Services or the performance of the Commercial Contracts need to be clearly identified and labelled by NRTS Co as such to comply with good working practices in the interests of efficiency and safety and to provide adequate information to cover Step-In and Handback.
Applicability	
2.12.1.2	All NRTS Co equipment installations used by NRTS Co in the provision of the Services or the performance of the Commercial Contracts, including, from each Partial Area Take-On Date or each RMC Area Transmission Service Take-On Date or each RMC Area Camera Mast Service Take-On Date (as applicable) all Legacy Assets in such Trial Area or RMC Area respectively.
Constraint Requirements	
2.12.1.3	NRTS Co shall ensure that the Project Standard, "*Identification and Labelling*", addresses the following Constraint requirements.
2.12.1.4	NRTS Co shall uniquely identify equipment, cabinets and cables (power and communications) used by NRTS Co in the provision of the Services or the performance of the Commercial Contracts.
2.12.1.5	This Project Standard shall be compatible with HA standards for infrastructure identification and labelling, and the maintenance mechanisms for the record systems.
2.12.1.6	NRTS Co shall ensure that roadside equipment shall be bar-coded in accordance with the requirements of MCH1953 – National On-Line Motorway Asset Database (NOMAD) Bar Code Procedures.
2.12.1.7	NRTS Co shall also comply with existing working arrangements regarding existing infrastructure transferred to NRTS Co at Service Take-On.
Related Specifications	
2.12.1.8	The related specifications which NRTS Co shall follow in production of the Project Standard are : • TR1100 – Technical and Quality Control Requirements for Systems, including parts of Systems, Manufactured, Supplied, Installed or Maintained; • MCX0145 – Installation Drawing NMCS1 & 2 Labelling; • MCX0171 – Installation Drawing NMCS Labels For Use on Electrical Switchgear Enclosures; • MCX0306 – Installation Drawing NMCS1 & 2 Cabinet 617 – Transmission Stations; • MCE2205 – Requirements of the NOMAD Barcode Reader System; • MCH1953 – NOMAD – National On-Line Motorway Asset Database Asset Bar Code Procedures; • MCH1954 – NMCS Maintenance Instruction NOMAD – National On-Line Motorway Asset Database GPS Procedures.

Table 2-11 Identification and Labelling Constraint

2.13 External Communications and Power Interfaces

2.13.1 [Not Used]

2.13.2 **M** This Constraint is defined in Table 2-12.

External Communications and Power Interfaces	
Issue(s) being addressed	
2.13.2.1	For safety reasons and to minimise disruption to road users, it is the HA's policy not to allow Third Parties such as electric supply companies (ESCs) or telecommunications suppliers to access their equipment via Protected Streets. On Protected Streets, the physical location of these interfaces is in the boundary fence of the Protected Street to enable access from land outside the Protected Street.
Applicability	
2.13.2.2	All external interfaces on Protected Streets relating to equipment and installations used by NRTS Co in the provision of the Services or the performance of the Commercial Contracts.
Constraint Requirements	
2.13.2.3	NRTS Co shall ensure that the Project Standard, "*External Communications and Power Interfaces*", addresses the following Constraint requirements.
2.13.2.4	NRTS Co shall identify a code of practice, including arrangements for the provision of and access to communications and power supply interfaces at the boundaries of HA's Protected Streets.
2.13.2.5	NRTS Co shall ensure that no external interfaces to equipment and systems involve access by Third Parties to the motorway or Protected Streets. For example, ESC interfaces shall be in the motorway boundary fence-line.
2.13.2.6	With the exception of the delivery of the Services, NRTS Co shall not use its rights to access Protected Streets as a means to access any land adjacent to the Protected Streets.
2.13.2.7	Some devices using the Services may require Home Office approval. When requested by the HA or Home Office, NRTS Co shall provide HA and the Home Office such details of the NRTS Co solution to provide Services to these devices as necessary to obtain the Home Office approval.
Related Specifications	
2.13.2.8	The related specifications which NRTS Co shall follow in production of the Project Standard are : • MCX0146 – Installation Drawing NMCS Cabinet 609/620 Set in Standard Motorway Fence; • MCX0164 – Installation Drawing NMCS1 & 2 ESC Interface Cabinet; • Home Office Police Scientific Development Branch (PSDB) Digital Imaging Procedure Version 1.0 ISBN 1840 82 7343.

Table 2-12 External Interfaces Constraint

2.14 Cables and Cable Ducts

2.14.1 [Not Used]

2.14.2 **M** This Constraint is defined in Table 2-13.

Cables and Cable Ducts	
Issue(s) being addressed	
2.14.2.1	Ducts fall into the following categories, those provided: • through structures (structures ducts); • under carriageways including slip roads (cross-carriageway ducts); • typically in the verge of the motorway or All-Purpose Trunk Road for longitudinal cables forming the core transmission network; • typically in the verge of the motorway or All-Purpose Trunk Road for local cables connecting Service Delivery Points to the core transmission network.
2.14.2.2	At the Execution Date, the cable infrastructure to support all the existing STIs, including the cross-carriageways ducts and ducts through structures, will already be in place. A through-route for the existing longitudinal cables and local cables to support the STIs handed over to NRTS Co will therefore exist over the whole of the motorway network.
2.14.2.3	Cross-carriageway ducts are provided in motorways at a nominal spacing of 500m but their construction was such that old ducts are often found to have collapsed. Noting that cross-carriageway ducts can be relatively expensive to install under existing roads using trenchless techniques, the responsibility for additional cross-carriageway ducts has been defined to incentivise NRTS Co to minimise its requirement for additional or replacement ducts. Noting that the condition of existing ducts is unknown, the HA will take the risk for some cross-carriageway ducts as detailed in this Constraint.
2.14.2.4	Noting that ducts in structures, as defined in the DMRB, are often part of the structure itself, the responsibility for providing these is defined to take account of HA's obligations in managing the structure.
2.14.2.5	All ducts particularly those through structures and across carriageways are part of the highway construction. Provision of additional ducts will be disruptive because of their location and could impact on the stability and structural integrity of the highway or a structure. Work to provide additional ducts requires extensive co-ordination with the maintainers of the highway and highway structures.
2.14.2.6	Schematic cabling arrangements for Bespoke Services are contained in the Physical Implementation Diagrams (Schedule 1.1a Annex D).
2.14.2.7	The process by which the condition of ducts is assessed and spare duct space is to be allocated shall be detailed in the Project Standard, "*Cable Ducts*".
2.14.2.8	With the exception of some non-standard cables (e.g. large power cables) or minor amendments to an existing directly buried armoured cable network, the HA's current policy, with which NRTS Co is required to comply unless agreed otherwise with the HA, is for all new or renewed communications and communications power cables to be installed within a ducted network.
Applicability	
2.14.2.9	All roadside installations for any of the Services and Commercial Contracts.

Constraint Requirements	
2.14.2.10	General responsibilities relating to the design installation, maintenance and costs of ducts are identified in the Table of Responsibilities (Annex A).
2.14.2.11	NRTS Co shall ensure that the Project Standard, "*Cable Ducts*", addresses the following Constraint requirements.
2.14.2.12	The Project Standard shall identify: • the standards to which all new ducts and chambers are installed including ducts across carriageways and through structures; • mechanisms whereby the responsibility and condition of all ducts and chambers is recorded; • how additional space in ducts is determined and managed; • assessment criteria for determining the suitability of ducts. This shall apply to all longitudinal, local, structures and cross-carriageway ducts and associated chambers.
2.14.2.13	NRTS Co shall manage and record the allocation of duct space in longitudinal, local, structures and cross-carriageway ducts in accordance *with Manage Duct Space* process (Schedule 1.2 section 5.8).
2.14.2.14	NRTS Co shall be deemed to have been allocated duct space for cables though any existing longitudinal, local, structures and cross-carriageway ducts that contain cables at Take-On.
2.14.2.15	NRTS Co shall be responsible for the provision and cost of installation of any additional ducts (including longitudinal, local, structures and cross-carriageway ducts) and any associated chambers required by NRTS Co to support NRTS Co infrastructure and Service Type Instances except where otherwise stated under this Constraint or in Annex A to Schedule 1.3.
2.14.2.16	HA will reinstate ducts through structures or across carriageways that contain longitudinal communications cables at Take-On provided NRTS Co demonstrates that the existing duct required for new longitudinal cables is unsuitable for new cables to be pulled through. Under such circumstances, the HA retains the right to provide alternative cross-carriageway ducts within 600m of the original duct.
2.14.2.17	Where there is no suitable existing cross-carriageway duct to support an HA requirement for a new STI, as demonstrated by NRTS Co to the reasonable satisfaction of the HA, the HA will provide or replace a cross-carriageway duct within 600m of the STI location. HA may require NRTS Co to take responsibility for providing this replacement or reinstatement at rates defined in the Payment Mechanism (Schedule 30) or refurbishment as an Ad Hoc Project.
2.14.2.18	NRTS Co shall assume responsibility for the maintenance of all ducts and chambers at Take-On, excluding ducts and chambers in structures, cross-carriageway ducts and any ducts and chambers in the central reserve. The HA does not perform routine maintenance on cross-carriageway ducts. In circumstances where a cross-carriageway duct has failed and it is demonstrated by NRTS Co to the reasonable satisfaction of the HA that the failure has caused damage to a NRTS Co cable, the HA will provide a cross-carriageway duct within 600m of the original crossing. The HA will be responsible for the maintenance of all ducts and chambers for which NRTS Co is not responsible including those newly provided by or on behalf of NRTS Co and handed-over to HA for maintenance.
2.14.2.19	NRTS Co shall identify its requirements for new cross-carriageway ducts, ducts in structures and associated chambers under the *Design Service Installation* process and *Provision Service* process (Schedule 1.2 section 6.3 and section 6.4).
2.14.2.20	When providing, designing or installing any ducts and cables for which NRTS Co is responsible, NRTS Co shall take into account that the ducts and their route form part of the highway fabric and structure and shall liaise and co-ordinate with the HA and Interfacing Organisations responsible for the design, construction, maintenance and operation of the highway.

Constraint Requirements (Continued)	
2.14.2.21	The HA may require existing duct space in structures and across carriageways for its own purposes, e.g. to support power, local cabling beyond the NRTS Service or for lighting schemes. Potential HA requirements for ducts in an area would typically be identified though the *Capture Requirements and Plan* process (Schedule 1.2 section 5.13). NRTS Co shall take this into account when designing cable and duct installations.
2.14.2.22	The allocation of additional space for NRTS Co in ducts across carriageways and through structures requires the prior consent of the HA. This consent will not unreasonably be refused by the HA but will take into account future HA requirements for Schemes (including lighting schemes) when considering such requests for additional duct space.
2.14.2.23	NRTS Co shall comply with the DMRB requirement to use separate ducts for communications cables, communication power cables and lighting.
2.14.2.24	NRTS Co duct routes shall not impede access by Authority Parties or Third Parties to maintain buried infrastructure, such as other ducts and drains.
2.14.2.25	NRTS Co may only utilise existing ducts through structures and across carriageways for Commercial Contracts where these are surplus to HA's future requirements. Otherwise these ducts shall be provided by NRTS Co at NRTS Co's expense in accordance with the Table of Responsibilities (Annex A) and maintained by the HA under a Commuted Maintenance Charge.
2.14.2.26	Where NRTS Co requires ducts and chambers to be installed within the boundaries of a Scheme, the HA will normally be responsible for certain design and installation activities in accordance with the Table of Responsibilities (Annex A). The ducts and chambers shall be subsequently Taken-On by NRTS Co who shall then be responsible for cabling.
2.14.2.27	In managing duct space allocation and cable allocation in ducts NRTS Co shall make the most effective use of the duct space and shall not impede the practicality of future installation or maintenance activities.
2.14.2.28	NRTS Co shall install all new or renewed longitudinal cable networks in ducts. Where the longitudinal cable network is in ducts, NRTS Co shall ensure that all new or renewed local communications cables and associated power cables shall also be installed in ducts. These requirements are part of the Critical Design Rules, which appear in the Transmission Service document (Schedule 1.1a Annex F).
2.14.2.29	Either party can propose changes or updates to these standards under the *Development* Processes (Schedule 1.2 section 4).
2.14.2.30	NRTS Co shall produce and maintain records on the location, responsibility and condition of all new and existing ducts and chambers used, or potentially to be used, by NRTS Co.
Related Specifications	
2.14.2.31	MCX0873 – Installation Drawing NMCS (Ducted Cable) Cable Management.
Further Constraint Requirements	
	<u>Duct Preparation</u>
2.14.2.32	Duct Preparation shall be defined as all preparatory activities relating to the use of pre-existing ducts through structures and across carriageways wherever they are used during the installation of NRTS Co's cables including: • locating the ducts; • clearing the ducts; and • proving the ducts.
2.14.2.33	NRTS Co shall be responsible for Duct Preparation in the construction of the Base Network and Cable Renewal and shall include the cost of Duct Preparation in the Base Service Charge.

Further Constraint Requirements (Continued)	
2.14.2.34	Outside the construction of the Base Network and where provision of the ducts is the responsibility of the HA, the HA shall be responsible for Duct Preparation and the HA may require NRTS Co to take responsibility for Duct Preparation at a Call-Off Charge at rates defined in the Payment Mechanism (Schedule 30).
2.14.2.35	Outside the construction of the Base Network and where provision of the ducts is not the responsibility of the HA, NRTS Co shall be responsible for Duct Preparation at NRTS Co's cost.
2.14.2.36	The HA will bear the responsibility and cost of any agreed Remedial Work on unsuitable ducts provided by the HA in accordance with paragraphs 2.14.2.16 to 2.14.2.18 inclusive.
	<u>Duct Termination</u>
2.14.2.37	Duct Termination shall be defined as all activities relating to the provision of chambers at each end of ducts through structures and at each end of cross-carriageway ducts
2.14.2.38	NRTS Co shall be responsible for Duct Termination in the construction of the Base Network and Cable Renewal and shall include the cost of Duct Termination in the Base Service Charge.
2.14.2.39	Outside the construction of the Base Network and where provision of the ducts is the responsibility of the HA, the HA shall be responsible for Duct Termination and the HA may require NRTS Co to take responsibility for Duct Termination at a Call-Off Charge at rates defined in the Payment Mechanism (Schedule 30).
2.14.2.40	Outside the construction of the Base Network and where provision of the ducts is not the responsibility of the HA, NRTS Co shall be responsible for Duct Termination at NRTS Co's cost

Table 2-13 Cables and Cable Ducts Constraint

2.14.3 **M** NRTS Co is not obliged to replace local cables to existing STIs when upgrading the longitudinal cable network.

2.15 Cable Pair and Fibre Allocation

2.15.1 **M** This Constraint is defined in Table 2-14.

Cable Pair and Fibre Allocation	
Issue(s) being addressed	
2.15.1.1	The HA currently applies standards nationally for cable pair and fibre allocation, wherever practicable. This ensures consistency and is necessary to safeguard the technical performance of certain elements of the network. The HA wishes to ensure that this consistent approach is maintained, and is interested in the information to support Step-In and Handback. This requires records to be adequately maintained by NRTS Co and presented in a logical manner since others may have to maintain and modify the system at short notice and the NRTS Co systems must be third party maintainable.
2.15.1.2	There needs to be an agreed mechanism between HA and NRTS Co on allocation/re of existing and new cable pairs/fibres; this needs to be supported by a maintained and managed record and maintenance system.
Applicability	
2.15.1.3	All cabling work associated with provision of the Services.
Constraint Requirements	
2.15.1.4	NRTS Co shall ensure that the Project Standard, "*Cable Pair Allocation*", addresses the following Constraint requirements.
2.15.1.5	The Project Standard shall apply for existing and new cable pairs, require national consistency of standards for cable pair and fibre allocation and require records for each section of road.
2.15.1.6	NRTS Co shall record and maintain the records for the entire installed infrastructure.
Related Specifications	
2.15.1.7	The related specifications which NRTS Co shall follow in production of the Project Standard are: • MCH1386 – Cable Pair Allocation for NMCS2; • MCX0824 – Installation Drawing NMCS (Ducted Cable) Cable Joint Enclosure (CJE) Cable Pair Allocation.

Table 2-14 Cables – Cable Pair and Fibre Allocation Constraint

2.15.2 [Not Used]

2.16 Cable Repair/Replacement

2.16.1 **M** This Constraint is defined in Table 2-15.

Cable Repair and Replacement	
Issue(s) being addressed	
2.16.1.1	The cable infrastructure represents a major investment. To protect the HA's interests in the event of Step-In or at Handback, the permitted extent of repairs or degradation to cables before the integrity of the cable network becomes unacceptably compromised needs to be defined by NRTS Co. This is to allow NRTS Co to implement an agreed repair and replacement policy for this important asset.
Applicability	
2.16.1.2	All NRTS Co buried infrastructure.
Constraint Requirements	
2.16.1.3	NRTS Co shall ensure that the Project Standard, "*Cable Repair and Replacement*", addresses the following Constraint requirements.
2.16.1.4	NRTS Co shall identify a cable repair and replacement policy for cables damaged after they are Taken-On taking into account known damage in respect of the Transmission Service.
2.16.1.5	[Not Used]
2.16.1.6	NRTS Co shall be responsible for developing and maintaining a Predictive Asset Management System (PAMS), refer to the *Manage Network* process (Schedule 1.2 section 5.10) in accordance with Clause 14 of the Project Agreement. This will be used, amongst other things, to assess the condition of the Assets at Handback. The buried cable infrastructure and its condition is a major element of the PAMS, and NRTS Co shall agree with the HA a whole life renewal policy for cables.
2.16.1.7	The Project Standard shall detail how the policy is to be implemented. NRTS Co shall also reflect this policy implementation in the NRTS Forward Programme for works and maintenance.
2.16.1.8	The Project Standard shall take into account splice losses, available optical power budgets and degradation in optical fibre performance in order to provide a sustainable service. It shall also place requirements on NRTS Co to: • clearly mark/record the location of any cable repair or joint; • produce and maintain records of any cable damage and implement repair and replacement programmes; • enter the cable infrastructure into the PAMS; • take into account the effects of long-term degradation; • repair and replace cables within the requirements of the Project Standard.

Related Specifications	
2.16.1.9	The related specifications which NRTS Co shall follow in production of the Project Standard are : • MCH1458 – Motorway Communication Cables Record And Approval Of Sheath Repairs And Temporary Joints; • MCH1433 – Cable Repair Procedures For Armoured & Unarmoured Motorway Communications & Power Cables; • MCH1598 – Requirements for repair and reinstatement of damaged M–Way Communications equipment including cables; • MCX0517 – Accommodation Drawing Termination Arrangement for Fibre Optic Communications Cable Repair Joint; • TRMM (TR430) – Trunk Road Maintenance Manual.

Table 2-15 Cables – Cable Repair and Replacement Constraint

2.16.2 [Not Used]

2.17 Location of Equipment and Infrastructure

2.17.1 **M** This Constraint is defined in Table 2-16.

Location of Equipment and Infrastructure	
Issue(s) being addressed	
2.17.1.1	All buildings and cabinets on the roadside contribute in some way as a form of visual intrusion for drivers, and obstruction to other existing or planned highway works as well as being hazard to road users. The HA needs to minimise such risks and NRTS Co shall adopt procedures to minimise such risks.
2.17.1.2	There may also be requirements for NRTS Co to comply with specific local requirements when installing equipment in premises such as Police Control Offices (PCOs) or their associated equipment rooms.
Applicability	
2.17.1.3	The Project Road Network, all premises of HA and Interfacing Organisations where NRTS Co equipment or infrastructure is located.
Constraint Requirements	
2.17.1.4	NRTS Co shall ensure that the Project Standard, "*Location of Equipment and Infrastructure*", addresses the following Constraint requirements.
2.17.1.5	NRTS Co shall ensure that the number and location of Assets excluding Legacy Assets is such as to minimise the proliferation of street furniture and the risk of unnecessary obstructions on the highway and in premises operated by HA's business partners such as the Police, refer also to the *Appearance and Impact on Surroundings* Constraint (section 2.2).
2.17.1.6	The actions of NRTS Co and the location of equipment shall not impede HA operations or present a road safety hazard or be a hazard to Authority Parties, Third Parties or the public. Equipment shall not distract drivers, obscure signs, obscure the field-of-view of CCTV cameras or impede access by other parties.
2.17.1.7	NRTS Co shall avoid potential hazards by design. For example, NRTS Co shall take due account of the requirements for Protection Infrastructure when placing equipment and infrastructure.
2.17.1.8	NRTS Co shall not place any equipment or infrastructure on the Project Road Network without the prior agreement of the HA in respect of its placement. This mechanism is part of Processes that involve roadside construction, including the *Provision Service* process (Schedule 1.2 section 6.4).
2.17.1.9	NRTS Co shall ensure that equipment used by NRTS Co in the provision of the Services or the performance of the Commercial Contracts does not obstruct other existing or planned highway systems/structures such as direction signs, drainage, lighting, ducts, chambers, power and local communications.
2.17.1.10	Similarly, equipment placed by NRTS Co in HA or other premises shall require the prior agreement of the HA and any other affected party as to its placement so that it does not interfere with other systems. For example, equipment placed in PCOs will require the agreement of the relevant Police Authority as well as the HA.
2.17.1.11	Where NRTS Co has predefined its space requirements in respect of RCCs and PCOs in the SSS for the delivery of the Transmission Services solution at Execution Date or has notified its space requirements in respect of RCCs and PCOs to the HA in a Registered Document at Execution Date, or where NRTS Co's space requirements are set out in Schedule 8, the HA will arrange for such space to be made available to NRTS Co. Where NRTS Co's space requirements were not predefined in accordance with the above, and where the authority responsible for space allocation advises NRTS Co that there is insufficient space within the preferred area, then NRTS Co shall make its own accommodation arrangements, which shall be agreed with whoever has responsibility for the building. This shall be at no cost to the HA where there are no additional Service Delivery Points.

Constraint Requirements (Continued)	
2.17.1.12	NRTS Co shall provide and update location information relating to the placement of all equipment used by NRTS Co in the provision of the Services or the performance of the Commercial Contracts on the Project Road Network, the premises of the HA or Interfacing Organisations. This shall include As-built Drawings, the PAMS and records to demonstrate compliance with the Constraint. This information shall also be stored and updated, for certain Assets, on HA Asset databases, and inventories such as the National On-Line Motorway Assets Database (NOMAD) and the Structure Management Information System (SMIS).
Related Specifications	
2.17.1.13	The related specifications which NRTS Co shall follow in production of the Project Standard are: • DMRB, SHW and MCHW.

Table 2-16 Location of Equipment and Infrastructure Constraint

2.17.2 [Not Used]

2.17.3 **M** Equipment located within 4.5m of the edge of the carriageway that has not been satisfactorily assessed under BS EN 12767 requires the installation of safety fencing, refer to the *Site Protection* Constraint (section 2.4).

2.18 Sustainability of Equipment and Infrastructure

2.18.1 **M** This Constraint is defined in Table 2-17.

Sustainability of Equipment and Infrastructure	
Issue(s) being addressed	
2.18.1.1	The HA has made a considerable investment over the years in the existing infrastructure and equipment, much of which will need renewing during the life of the NRTS Contract. For the purposes of Handback or Step-In, the HA needs to ensure that the renewal of equipment and infrastructure installed by NRTS Co and transferred to the HA meets a whole life, value for money, assessment.
2.18.1.2	The HA does not wish to stifle innovation but would be concerned if renewed infrastructure or equipment was of a lower standard than that currently installed. Where renewals are not to the current HA standards they will need to be justified by NRTS Co in terms of whole life costs and not just in terms of meeting the immediate requirements of the duration of the NRTS Contract.
Applicability	
2.18.1.3	All equipment and infrastructure installed by NRTS Co to deliver the Services.
Constraint Requirements	
2.18.1.4	NRTS Co shall ensure that the Project Standard, "*Sustainability of Equipment and Infrastructure*", addresses the following Constraint requirements.
2.18.1.5	[Not Used]
2.18.1.6	Key Assets and design life shall be identified by NRTS Co and placed into the Predictive Asset Management System (PAMS).
2.18.1.7	Against each key Asset entry within the PAMS, NRTS Co shall undertake a design life and a residual life assessment.
2.18.1.8	Using the PAMS, NRTS Co shall schedule and implement installation and renewal programmes in accordance with the Asset life agreed with the HA.
2.18.1.9	When considering the renewal of equipment or infrastructure that does not meet current HA standards, NRTS Co shall undertake a whole life, value for money assessment. This assessment shall include consideration of the expected life of Assets. The assessment period and criteria shall form part of the Project Standard.
2.18.1.10	In making any renewal NRTS Co shall take account of the requirement to replace SPC B with SPC A as detailed in the Processes document (Schedule 1.2 paragraph 4.3.3.13).
2.18.1.11	Assessment criteria used in the evaluation (paragraph 2.18.1.9 refers) shall consider whole life periods in excess of the duration of the NRTS Contract.
Related Specifications	
2.18.1.12	The related specifications which NRTS Co shall follow in production of the Project Standard are: • TR1100 – Technical and Quality Control Requirements for Systems, including parts of Systems, Manufactured, Supplied, Installed or Maintained; • TR2130 – Environmental Tests for Motorway Communications Equipment and Portable and Permanent Road Traffic Control Equipment.

Table 2-17 Sustainability of Equipment and Infrastructure Constraint

2.18.2 [Not Used]

3 SITE ACCESS AND WORKING ARRANGEMENTS

3.1.1 **M** Traffic Management shall mean the provision of all resources and activities required to be executed by NRTS Co in providing, maintaining and removing the traffic management referred to in the DMRB and in Chapter 8 of the Traffic Signs Manual.

3.2 Traffic Management Provision

3.2.1 **M** This Constraint is defined in Table 3-1.

Traffic Management Provision	
Issue(s) being addressed	
3.2.1.1	To ensure the safety of members of the public, road users and staff working on the highway, NRTS Co must adopt established procedures for identifying the requirement for, procuring and setting out traffic management. In considering this the need to undertake the activity must be assessed against the risk.
3.2.1.2	For the avoidance of doubt, NRTS Co is responsible for all costs in respect of Traffic Management. NRTS Co also needs to note that under some circumstances, NRTS Co may be instructed to remove Traffic Management and replace it later at NRTS Co's own expense.
3.2.1.3	It may be mutually beneficial for NRTS Co to procure Traffic Management from the Term Maintenance Contractor/Managing Agent Contractor (TMC/MAC). When NRTS Co implements Traffic Management, the timing and scope needs to be co-ordinated with the TMC/MAC in order to optimise its use (opportunity works) and hence reduce risks and delays to the public. This may also provide opportunities to share costs.
3.2.1.4	NRTS Co shall also consult the Police at various stages of the planning and execution of Traffic Management; therefore, NRTS Co needs to be able to respond to the Police requirements .
Applicability	
3.2.1.5	All work on the highway.
Constraint Requirements	
3.2.1.6	NRTS Co shall ensure that the Project Standard, "*Traffic Management Provision*", addresses the following Constraint requirements.
3.2.1.7	NRTS Co shall comply with the HA standards for traffic management in the Traffic Signs Manual Chapter 8.
3.2.1.8	NRTS Co shall ensure that prior to requiring any access to the highway, e.g. for inspection, survey, installation, maintenance, or test, the Project Standard shall, as a minimum: • Detail the circumstances, standards, procedures and means by which NRTS Co shall provide Traffic Management for its roadside activities. • Detail the schedules, programmes and Traffic Management plans requiring liaison and approval from Authority Parties and/or Third Parties, and for demonstrating compliance. • Detail the approval process for Traffic Management operatives. • Take cognisance of the fact that lane closures by or on behalf of NRTS Co will be in accordance with the *Lane Closures* Constraint (section 3.5) and the *Once Only Hardshoulder Closures to Install NRTS Co Longitudinal Infrastructure* Constraint (section 3.6).
3.2.1.9	NRTS Co shall coordinate Traffic Management plans and associated risk assessments with other interested parties and shall agree such plans with the MA/MAC and the Police, including adjacent areas where necessary. Where no conflict exists in the carrying out of concurrent works, NRTS Co shall permit, by prior arrangement, interested parties to execute works on sites where Traffic Management is applied.

Constraint Requirements (Continued)	
3.2.1.10	NRTS Co shall recognise and comply with local restrictions applied to the implementation of certain Traffic Management plans. These restrictions include the need to avoid Traffic Management at peak traffic hours, around the times of public holidays or nearby events that require full-unimpeded road capacity to be maintained. The restrictions also vary according to locality and on structures.
3.2.1.11	NRTS Co shall obey the instructions of authorised persons, (which include the Police and those responsible for the operation and safety of the highway) who may instruct NRTS Co to immediately remove Traffic Management and to prohibit the re-application of Traffic Management within a defined period. This may occur as a result of unforeseen circumstances that necessitates the removal of the Traffic Management, e.g. a road traffic accident or through NRTS Co infringing agreed standards in the application of the Traffic Management as set out in the Project Standard *"Traffic Management Provision*" and a Non-Compliance being raised, in accordance with the *Do Remedial Work* process (Schedule 1.2 section 5.12). In the latter case, serious infringements may require NRTS Co to stop work until the infringement is remedied.
3.2.1.12	NRTS Co shall be responsible for the procurement and costs of Traffic Management, ensuring and demonstrating that the provision and maintenance of Traffic Management is to the requirements of the Project Standard, "*Traffic Management Provision*".
Related Specifications	
3.2.1.13	Traffic Signs Manual Chapter 8.

Table 3-1 Traffic Management Provision Constraint

3.3 Roadspace Bookings

3.3.1 **M** This Constraint is defined in Table 3-2.

Roadspace Bookings	
Issue(s) being addressed	
3.3.1.1	There are competing requirements for roadside activities and therefore NRTS Co must plan and co-ordinate its activities with other works. The Managing Agent/Managing Agent Contractor (MA/MAC) manages roadspace booking on behalf of the HA, and NRTS Co must comply with the procedure set out by the relevant MA/MAC. This is managed on the basis that at any one time there is only one contractor in possession of a section of road (including approaches) that is subject to traffic management.
3.3.1.2	Roadspace booking procedures vary between HA maintenance areas and for different MAs/MACs, typically these include: • the notice required; • the length and minimum distance between successive Lane Closures (Lane Closures are defined in section 3.5); • requirements for "permits to work".
3.3.1.3	[Not Used]
3.3.1.4	The HA seeks to minimise the impact of Lane Closures on the travelling public. NRTS Co shall maximise the effectiveness of traffic management and the roadspace booking process by sharing Lane Closures where access and safety requirements do not conflict.
3.3.1.5	The Police require to be consulted at various stages of the planning and execution of Traffic Management. Therefore, NRTS Co shall respond to and comply with the requirements and approval of the Police.
Applicability	
3.3.1.6	All roadside work requiring Lane Closures associated with provision of the Services and the performance of the Commercial Contracts.
Constraint Requirements	
3.3.1.7	NRTS Co shall ensure that the Project Standard, "*Roadspace Booking*", addresses the following Constraint requirements.
3.3.1.8	NRTS Co shall define, in the Project Standard, "*Roadspace Booking*", the circumstances and procedures by which NRTS Co shall book roadspace for its roadside activities.
3.3.1.9	The Project Standard shall take cognisance of the fact that lane closures by or on behalf of NRTS Co shall be in accordance with the *Lane Closures* Constraint (section 3.5) and *Once Only Hardshoulder Closures to Install Ducts for NRTS Co Longitudinal Infrastructure* Constraint (section 3.6).
3.3.1.10	In requesting roadspace booking, NRTS Co shall comply with the requirements of the Road Users Charter, the Police and HA national and local obligations that restrict the duration and extent of Lane Closures and Traffic Management.
3.3.1.11	It may not be possible to provide roadspace at the times requested by NRTS Co due to other HA operational priorities.
3.3.1.12	To avoid unnecessary Lane Closures, NRTS Co shall be aware of and wherever practicable take advantage of closures and traffic management provided for other works. Refer also to the *Traffic Management Provision* Constraint (section 3.2).
3.3.1.13	The roadspace bookings shall form part of the NRTS Forward Programme maintained by NRTS Co as part of the *Capture Requirements and Plan* process (Schedule 1.2 section 5.13).

Constraint Requirements (Continued)	
3.3.1.14	The application of Traffic Management shall be scheduled and approved through the roadspace booking procedures operated by each MA/MAC. These procedures include approvals by the HA's agents and the Police, the requirement that at any instant only one contractor is allowed to apply traffic management on any one stretch of road (including the adjacent road network) and that minimum distances are to be maintained between the application of concurrent traffic management measures.
3.3.1.15	NTRS Co shall provide to the HA, as part of the Build Programme, a headline roadspace booking programme for forward installation of NRTS Co systems, including those identified in the *Once Only Hardshoulder Closures to Install NRTS Co Longitudinal Infrastructure* Constraint (section 3.6) that require Lane Closures. Prior to the Interim Service Start Date, NRTS Co shall identify and record these works in the NRTS Co Forward Programme and subsequently maintain a schedule of the activities as part of the *Capture Requirements and Plan* process. This programme shall identify: • the sections of road where the hardshoulder closures are requested; • the sections of road where lane 1 closures are requested; • when the closures are planned to start; • the physical length of the closures; • the timing of each closure (i.e. 24 hour/inter-peak/night time); • the total period during which closures will be applied in each section of road; • the number of days on which closures are planned within the total period.
Related Specifications	
3.3.1.16	The related specifications which NRTS Co shall follow in production of the Project Standard are : • Traffic Signs Manual – Chapter 8, DMRB; • TA 61/94 – Currency of the Traffic Signs Manual; • TA 64/94 – Narrow Lane and Tidal Flow Operations at Road Works on Motorways and Dual Carriage Trunk Roads with Full Width hard Shoulders; • TD 49/97 – Mobile Lane Closures – Supersedes those of Chapter 8, Topic 6 that deal with Mobile Lane Closures; • Sector Scheme Document (SSD) 12A, 12B and 12C.

Table 3-2 Roadspace Bookings Constraint

3.4 Frequency of Access

3.4.1 [Not Used]

3.4.2 **M** This Constraint is defined in Table 3-3.

Frequency of Access	
Issue(s) being addressed	
3.4.2.1	The safety of the travelling public and others working on the Project Road Network and associated premises must not be put at risk as a result of excessive site visits by NRTS Co. The activities of NRTS Co should not cause unnecessary delay to the road users or impede other HA operations. Therefore, there must be control on the frequency and duration of site access by NRTS Co, which must be taken into account by NRTS Co in risk assessments for traffic management. This Constraint applies to installation, maintenance and fault repair activities.
3.4.2.2	Additionally, frequency of access may be restricted at structures for example where there is no hardshoulder or at construction sites where special site procedures may apply, refer to the *Access Procedures and Controls* Constraint (section 3.7).
3.4.2.3	In order to minimise interference with the travelling public, NRTS Co needs to minimise the frequency and duration of access to its sites.
Applicability	
3.4.2.4	Visits to roadside sites in support of the Services or the Commercial Contracts, e.g. for inspection, maintenance and repair.
Constraint Requirements	
3.4.2.5	NRTS Co shall ensure that the Project Standard, "*Frequency of Access*", addresses the following Constraint requirements.
3.4.2.6	NRTS Co shall take account in the design and execution of its systems of the need to minimise the frequency and duration of access to site for routine and fault maintenance.
3.4.2.7	NRTS Co's approach to fault repairs and spares holdings shall be such that it minimises the duration of roadside stops.
3.4.2.8	NRTS Co shall identify and agree with the HA the anticipated frequency and duration of visits to all NRTS Sites to undertake installation, testing, commissioning, routine maintenance and repair tasks and all aspects of foreseeable work and attendance on site. This shall be incorporated into the Project Standard and the Predictive Asset Management System (PAMS).
3.4.2.9	NRTS Co shall carry out risk assessments in determining the requirements for the number of site visits and design out the risks.
3.4.2.10	NRTS Co shall minimise the number and duration of site accesses that require hardshoulder stops or Lane Closures.
3.4.2.11	NRTS Co shall produce and agree with the HA a programme for foreseeable roadside and site attendance for all tasks including installation, planned maintenance, test and inspection programmes that shall be entered in the NRTS Forward Programme in the *Capture Requirements and Plan* process (Schedule 1.2 section 5.13).
3.4.2.12	NRTS Co shall ensure that the frequency and duration of roadside attendance is recorded, falls within the pre-agreed programme and is available to the HA for audit.
Related Specifications	
3.4.2.13	Not applicable.

Table 3-3 Frequency of Access Constraint

3.5 Lane Closures

3.5.1 [Not Used]

3.5.2 **M** NRTS Co shall address the following issues when planning, implementing and operating Lane Closures:

- on a particular road, at a particular time of day, it must be demonstrated that with the Lane Closure there will still be sufficient traffic capacity on the remaining lanes for traffic to flow freely;
- the length of the Lane Closure is as short as possible;
- the duration of the Lane Closure is as short as possible;
- it is better to apply a Lane Closure when traffic flows are low;
- the Lane Closure takes cognisance of other traffic management;
- the requirements of the Road Users Charter in relation to a minimum spacing of 10km between lane closures;
- the Lane Closure has the agreement of both the MA/MAC and the Police including those affected in adjacent areas;
- each area has local rules set by the HA, the Police and the MA/MAC that have to be complied with;
- the closure should be of the hardshoulder only, where practicable;
- any Lane Closure has to be justified and has to have a risk assessment.

3.5.3 **M** This Constraint is defined in Table 3-4.

Lane Closures	
Issue(s) being addressed	
3.5.3.1	Lane Closures are disruptive and increase risks for the travelling public.
3.5.3.2	NRTS Co shall limit its use of Lane Closures except as set out in this Constraint.
Applicability	
3.5.3.3	All sites for which NRTS Co has responsibility in whole or in part.
Constraint Requirements	
3.5.3.4	For the avoidance of doubt: • a Lane shall be defined as any traffic lane, including hardshoulders; • a Lane Closure means (and shall be deemed to be applied) whenever NRTS Co causes a Lane not to be freely available to the public except when agreed by the local Police and the MA/MAC as a short duration stop not requiring traffic management and not requiring speed restriction.
3.5.3.5	NRTS Co shall ensure that the Project Standard, "*Lane Closures*", addresses the following Constraint requirements.
3.5.3.6	NRTS Co shall not be permitted to close Lanes to conduct routine maintenance.
3.5.3.7	This Constraint shall apply for all Lane Closures requested by NRTS Co.
3.5.3.8	In identifying requirements for Lane Closures NRTS Co shall ensure that the risk and disruption to the travelling public is minimised.

Constraint Requirements (Continued)	
3.5.3.9	Lane Closures shall comply with: • Traffic Signs Manual Chapter 8; • Trunk Road Maintenance Manual (TRMM) Highways Maintenance Code; • Road Users' Charter; • any local requirements of the HA, Police or MA/MAC.
3.5.3.10	For works associated with the new build (i.e. the SPC A roll out) and with the renewal of Assets and in addition to any other considerations, NRTS Co will only be permitted Lane Closures of the types identified in Annex B on any section of road for which the Annual Average Daily Traffic (AADT) flow figures are lower than the thresholds for the corresponding type of closure identified in Annex B. NRTS Co will only be permitted Lane Closures greater than 2000m in length by agreement with the HA.
3.5.3.11	Requests for Lane Closures shall take account of the HA forward programmes in the *Capture Requirements and Plan* process (Schedule 1.2 section 5.13) and shall be subject to the *Roadspace Bookings* Constraint (section 3.3) and the *Access Procedures and Controls* Constraint (section 3.7).
3.5.3.12	NRTS Co shall be responsible for all costs incurred in meeting its obligations in this Constraint, including any additional costs associated with the type of Traffic Management, or the timing of access to the roadside such as works required to be outside peak periods or at night.
Related Specifications	
3.5.3.13	The related specifications which NRTS Co shall follow in production of the Project Standard are: • Traffic Signs Manual Chapter 8; • Trunk Road Maintenance Manual (TRMM) Highways Maintenance Code Chapter 1; • Road Users' Charter.

Table 3-4 Lane Closures Constraint

3.6 Once Only Hardshoulder Closures to Install NRTS Co Longitudinal Infrastructure

3.6.1 [Not Used]

3.6.2 [Not Used]

3.6.3 [Not Used]

3.6.4 **M** This Constraint is defined in Table 3-5.

Once Only Hardshoulder Closures to Install NRTS Co Longitudinal Infrastructure	
Issue(s) being addressed	
3.6.4.1	[Not Used]
3.6.4.2	[Not Used]
3.6.4.3	NRTS Co will be allowed a "once only opportunity" within the Contract Term to install or renew NRTS Co's longitudinal duct infrastructure on any one section of road.
Applicability	
3.6.4.4	The Constraint applies to all installation, renewal and replacement works on Longitudinal Infrastructure at all sites for which NRTS Co has responsibility in whole or in part. Installation, renewal and replacement works shall include all preparatory works, installation, reinstatement, inspections, snagging, testing, commissioning and (where applicable) the handover by NRTS Co of civil infrastructure into maintenance by the HA.
Constraint Requirements	
3.6.4.5	The Project Standard for this Constraint shall be a separately identified part of the Project Standard for "*Lane Closures*" and shall address all of the issues addressed by that Constraint.
3.6.4.6	Longitudinal Infrastructure shall be defined as all the equipment and infrastructure required by NRTS Co for the national fibre optic cable network and the core transmission network for data, video and speech services, including: • the ducts and chambers; • the cables and cable joint enclosures; • cabinets, their bases and associated access and site protection infrastructure; • cabinet internal equipment including any associated equipment; • transmission station buildings (and internal equipment); • any other systems or equipment that NRTS Co installs as part of its core network.
3.6.4.7	NRTS Co shall not apply any Lane Closures to any Lanes other than hardshoulders to facilitate the installation or renewal of Longitudinal Infrastructure, except where there are physical site-specific features which prevent any practical alternative.
3.6.4.8	The HA will allow NRTS Co a "once only opportunity" to apply a series of individual but co-ordinated and programmed Lane Closures to install or renew NRTS Co Longitudinal Infrastructure on each section of the road network ("*Once Only Hardshoulder Closure*"). NRTS Co shall not be allowed a subsequent Lane Closure on the same section of road for further installation, replacement or renewal of Longitudinal Infrastructure.

Constraint Requirements (Continued)	
3.6.4.9	The installation of Longitudinal Infrastructure under the *Once Only Hardshoulder Closure* shall be planned by NRTS Co in a phased and co-ordinated programme that shall not be fragmented. This shall address sections of road that have the same number of Lanes throughout and are: • not less than 10km long, or • between junctions; or • between Transmission Stations.
3.6.4.10	These lengths shall take account of the HA forward programmes in the *Capture Requirements and Plan* process (Schedule 1.2 section 5.13) and shall co-ordinate with the *Roadspace Booking* Constraint (section 3.3).
3.6.4.11	These *Once Only Hardshoulder Closures* shall be subject to the *Roadspace Bookings* Constraint (section 3.3) the *Lane Closures* Constraint (section 3.5) and the *Access Procedures and Controls* Constraint (section 3.7).
3.6.4.12	Prior to the Execution Date, NRTS Co shall produce and agree with HA a national forward programme of where NRTS Co requires Once Only Hardshoulder Closures to install NRTS Co longitudinal infrastructure. This programme shall identify: • the sections of road where the hardshoulder closures are required; • the sections of road where lane 1 closures are requested; • the timing of each closure (i.e. 24 hour/inter-peak/night time); • when the closures are planned to start; • the physical length of the closures; • the number of lanes in the section; • the total period during which closures will be applied in each section of road; • the number of days on which closures are planned within the total period.
3.6.4.13	[Not Used]
Related Specifications	
3.6.4.14	NRTS Co shall maintain a record of the sections of road where Lane Closures have been applied and the duration of the closures so that compliance with the agreed programme can be monitored.
3.6.4.15	The related specifications which NRTS Co shall follow in production of the Project Standard are: • Traffic Signs Manual Chapter 8; • Trunk Road Maintenance Manual (TRMM) Highways Maintenance Code, • Road Users' Charter.
3.6.4.16	• [Not Used]

Further Constraint Requirements	
3.6.4.17	Compliance with this Constraint shall be demonstrated against a Service Level Target and shall be measured as the ratio of Actual Traffic Delay Costs against Planned Traffic Delay Costs. Traffic delay costs shall be calculated by summing the delay costs from individual Lane Closures in each RCC area using the tables in Annex B, assessing each closure by: • type (i.e. hardshoulder only or combined hardshoulder and lane one); • annual average daily traffic flow (AADT) on the relevant link from Annex C; • the number of lanes of motorway on the relevant link; • the period of Lane Closure (24 hour, inter-peak, night time); • the length of Lane Closure (up to 500m, up to 1000m, up to 1500m and up to 2000m).
3.6.4.18	The Actual Traffic Delay Cost shall be the total cost of individual Lane Closures implemented on site calculated as above.
3.6.4.19	The Baseline Planned Traffic Delay Cost shall be the total cost of individual Lane Closures shown in the agreed national forward programme of Once Only Hardshoulder Closures to Install NRTS Co Longitudinal Infrastructure (defined as the Lane Closure Programme) at the Execution Date and calculated as above.
3.6.4.20	Each Lane Closure Programme shall be updated against the agreed project programme each time relevant tasks are rescheduled on the agreed project programme. The Planned Traffic Delay Cost shall be the total cost of individual Lane Closures shown in the agreed Lane Closure Programme calculated as above. The Planned Traffic Delay Cost shall only differ from the Baseline Planned Traffic Delay Cost to reflect a Task Authorisation, an update by HA of the data in Annexes B and C or a plan agreed by the HA.
3.6.4.21	HA will normally update the data in Annexes B and C annually. This shall not affect the requirement for compliance with this Constraint.
3.6.4.22	For the avoidance of doubt, the Lane Closure Programme is only for the purpose of assessing compliance with the *Once Only Hard Shoulder* Constraint; NRTS Co retains the risk of booking roadspace and complying with the various requirements regarding Lane Closures.

Table 3-5 Once Only Hardshoulder Closures to Install NRTS Co Longitudinal Infrastructure Constraint

3.7 Access Procedures and Controls

3.7.1 **M** This Constraint is defined in Table 3-6.

Access Procedures and Controls	
Issue(s) being addressed	
3.7.1.1	This Constraint covers all procedures, controls, working practices and codes of practice to ensure that a safe and consistent approach for NRTS Co and all personnel for whom NRTS Co is responsible to access sites and premises is adopted by NRTS Co. NRTS Co must comply with HA and agreed project procedures, working practices and codes of practice. These set out how access is to be carried out to various parts of the Project Road Network, associated buildings and facilities including those operated by Third Parties. Access shall not impede the operations of the Authority Parties or Third Parties.
3.7.1.2	Special procedures will be required for construction sites. These are usually determined by the lead civil contractor and must be adopted by any sub-contractors and visitors to the site including NRTS Co.
3.7.1.3	Currently, the HA operates a limited duration motorway pass system to identify authorised personnel working on motorways. It complies with the access and security requirements of associated premises under third party control including construction sites. This Constraint should be read in conjunction with the "Access" Clause of the Project Agreement (Clause 16).
Applicability	
3.7.1.4	All NRTS Co attendance at HA and Third Party sites. These include sites owned, controlled or operated by any of the Interfacing Organisations as listed in Table 1-1 of the Processes document (Schedule 1.2). (These cover, for example, construction sites, special structures, such as tunnels, bridges, rail crossings, and DBFO roads etc.)
Constraint Requirements	
3.7.1.5	NRTS Co shall ensure that the Project Standard, "*Access Procedures and Controls*", addresses the following Constraint requirements.
3.7.1.6	NRTS Co shall comply with the access procedures and controls of the HA and Interfacing Organisations.
3.7.1.7	NRTS Co shall comply with any specific requirements relating to the delivery of Services that include evidential data, e.g. information from gantries containing digital speed camera systems, and that may include certain access restrictions prescribed by the Home Office in order to preserve the integrity and or privacy of the data being transmitted.
3.7.1.8	NRTS Co shall not stop on Protected Streets in order to access NRTS Co or Third Party equipment outside the Protected Street.
3.7.1.9	The Project Standard shall address, as a minimum, the following requirements.
3.7.1.10	Access codes of practice – these are physical arrangements and procedures for personnel to attend sites safely and with regard to the interests of other parties, including: • working practices; • risk assessments; • method statements appropriate to the type of work undertaken that take account of Authority Parties and Third Parties and include labelling and instructions on placed equipment.

Constraint Requirements (Continued)	
3.7.1.11	Access procedures and controls – these are arrangements to authorise site attendance, covering, for example: • permissions for roadspace booking; • notification of Police Control Offices; • personnel identification to allow access.
3.7.1.12	NRTS Co shall manage and monitor for all personnel for whom NRTS Co is responsible, the requirements for pass management, vetting identification and access authority. This shall be in a manner clearly identifiable and acceptable to the Interfacing Organisations and take account of turn over of staff and withdrawal of authority.
3.7.1.13	Special Requirements of Interfacing Organisations, including the: • vetting of personnel, in respect of access to sensitive areas, e.g. Police Control Offices.
3.7.1.14	Compliance with procedures and practices by Contractor Parties.
Related Specifications	
3.7.1.15	The related specification which NRTS Co shall follow in production of the Project Standard follow is: • BS7799 – Information security management. Code of practice for information security management.

Table 3-6 Site Access Procedures, Working Practices and Codes of Practice Constraint

3.8 Control and Management of Access of Personnel to NRTS Co Sites

3.8.1 **M** This Constraint is defined in Table 3-7.

Control and Management of Access to NRTS Co Sites	
Issue(s) being addressed	
3.8.1.1	HA conducts trials and other activities to support its highway operations or in the monitoring and development of systems and equipment. It may require the support of NRTS Co in this, e.g. by requiring access of authorised personnel to certain sites managed by NRTS Co such as Transmission Stations and the Coleshill Computer Centre. Additional requirements covering the control and management of access to the Coleshill Computer Centre are also defined in the Transmission Service document (Schedule 1.1a paragraph 15.17.11).
3.8.1.2	NRTS Co shall co-operate with such requests and provide support as necessary, which may be tasked through the Consultancy Service.
3.8.1.3	A limited number of Transmission Stations contain equipment maintained by others and, where possible, the HA plan to re-locate this equipment. However, some equipment cannot be easily removed. Therefore, under these circumstances, NRTS Co shall make arrangements for the HA and its contractors to access these sites to undertake the maintenance.
3.8.1.4	NRTS Co is required to provide a mechanism to allow others to access NRTS Co premises as part of the *Facilitate Audit and Inspection* process (Schedule 1.2 section 5.6).
3.8.1.5	NRTS Co shall be required to operate access control procedures for personnel authorised by the HA.
Applicability	
3.8.1.6	All sites managed by NRTS Co, in particular Transmission Stations and the Coleshill Computer Centre.
Constraint Requirements	
3.8.1.7	NRTS Co shall ensure that the Project Standard, "*Control and Management of Access to NRTS Co Sites*", addresses the following Constraint requirements.
3.8.1.8	NRTS Co shall agree with the HA a schedule of all HA equipment that will remain in NRTS Co sites, premises or cabinets along with the environmental, identification, access and security requirements.
3.8.1.9	NRTS Co shall ensure the protection and the security of all HA systems and equipment in NRTS Co premises.
3.8.1.10	NRTS Co shall operate access control procedures to sites managed by NRTS Co for personnel authorised by the HA.
3.8.1.11	NRTS Co shall manage and control the access arrangements for Contractor Parties and for sites managed by NRTS Co (e.g. Transmission Stations and the Coleshill Computer Centre) such that the sites managed by NRTS Co can be accessed for the placement and operation of HA equipment to support HA trials or other aspects of the HA operations.
3.8.1.12	NRTS Co shall institute and manage access control arrangements at sites managed by NRTS Co such that access by other personnel/parties is via NRTS Co authorised personnel, procedures and systems only.
3.8.1.13	NRTS Co shall manage access to its sites such that any access found to be unauthorised shall be subsequently denied.

Constraint Requirements (Continued)	
3.8.1.14	In response to a specific task, NRTS Co shall grant access authority to HA staff and other agreed personnel to sites managed by NRTS Co as determined by the requirements of this Constraint and the task.
3.8.1.15	At sites managed by NRTS Co where there is HA equipment, NRTS Co shall make arrangements that allow the Authority Parties access for the maintenance and operational support of the equipment.
3.8.1.16	Access management and support to HA trials shall address: • NRTS Co management arrangements for controlling access to NRTS Co premises and sites managed by NRTS Co. • General principles for placement of HA equipment at sites managed by NRTS Co . • Access arrangements to sites managed by NRTS Co for HA staff and personnel authorised by the HA.
3.8.1.17	HA requirements shall be identified though tasks placed on NRTS Co and managed through the *Capture Requirements and Plan* process (Schedule 1.2 section 5.13).
Related Specifications	
3.8.1.18	The related specifications which NRTS Co shall follow in production of the Project Standard are: • BS7799 – Information security management. Code of practice for information security management; • MCE2071 – Security Access Control System (Transmission Station).

Table 3-7 Control and Management of Access to NRTS Co Sites Constraint

3.8.2 [Not Used]

3.9 HA Branding and Communications

3.9.1 **M** This Constraint is defined in Table 3-8.

HA Branding and Communications	
Issue(s) being addressed	
3.9.1.1	The HA wishes to ensure that it presents a consistent and branded image to its customers across all of its operations.
Applicability	
3.9.1.2	All NRTS Co activities and all communications connected with the exercise of its rights and the performance of its obligations under, and the execution and implementation of the NRTS Contract.
Constraint Requirements	
3.9.1.3	NRTS Co shall ensure that the Project Standard, "*HA Branding and Communications*", addresses the following Constraint requirements.
3.9.1.4	HA customers' needs are at the forefront of HA communications planning. NRTS Co and/or all Contractor Parties (as defined in the NRTS Contract) shall demonstrate the HA's values in all dealings with HA customers and stakeholders.
3.9.1.5	NRTS Co shall support the aims, principles and policies described in the HA documents *"Communications Strategy"* and the *"MPD External Communications Framework"*.
3.9.1.6	NRTS Co shall adopt the "*Department for Transport and Highways Agency Branding Guidelines for Road Contractors*", which addresses signage on major construction projects.
3.9.1.7	Save as specified in paragraph 3.9.1.8 below, the Highways Agency Information Line (HAIL) telephone number shall be included at all times on material published by or on behalf of NRTS Co which is aimed at the general public.
3.9.1.8	Any material published by or on behalf of NRTS Co which describes Schemes where there is a risk of dust, noise or other nuisance may include a local number at the discretion of the HA's Regional Communications Manager. Note: a direct letter from NRTS Co to local householders and businesses may be more appropriate than a general leaflet.
3.9.1.9	HA may, from time to time, require NRTS Co to provide supporting material for media presentations or to represent the HA in the media on matters of fact. Such media include television and radio interviews. The cost of such support shall be borne by NRTS Co, unless otherwise agreed.
3.9.1.10	NRTS Co shall ensure that all external communications material produced in connection with the NRTS Contract, including but not limited to letterheads, web sites, business cards, newsletters, exhibitions, advertisements, public notices, official notices, signs and publicity material, fully conforms to the guidelines for branding described in HA's Communications Strategy referred to in paragraph 3.9.1.5 above. Such external communications include those directed to HA stakeholders (i.e. anyone with a business interest in what HA do) and those directed to the general public.
3.9.1.11	NRTS Co shall ensure that any external communications material produced, but not connected with the NRTS Contract (such as recruitment or leasing of offices), does not use Highways Agency branding.
3.9.1.12	NRTS Co shall ensure that all automobiles exclusively engaged by NRTS Co and/or all Contractor Parties in the performance of NRTS Co's obligations under, and in the execution and implementation of the NRTS Contract are marked in accordance with the HA branding requirements. This requirement does not apply to automobiles used within traffic management inside the boundary of a Scheme, such as a road maintenance or road widening scheme. HA branded automobiles shall be used only in connection with HA work. Upon decommissioning of a HA branded automobile, all HA branding shall be removed.

Constraint Requirements (Continued)	
3.9.1.13	The base colour of HA branded automobiles shall be white, silver or yellow. The automobile shall display the HA 'swoosh' on both the nearside and offside, on the largest flat surfaces and on the bonnet. The HA 'swoosh' shall incorporate the HA logo and name, all in accordance with the brand guidelines in the HA "Communications Strategy" referred to in paragraph 3.9.1.5 above. When viewed from either the nearside or offside the HA 'swoosh' should flow from the left
3.9.1.14	The outside of HA branded automobiles shall not display any telephone numbers, web addresses or any names, trademarks or logos other than the permitted HA branding. Such automobiles must comply with all requirements set out regarding visibility of the automobile.
3.9.1.15	All enquiries from the media and from the general public relating to Highways Agency policies, schemes, programmes and network operations shall be directed immediately to the appropriate HA contacts, who shall be identified in the Project Standard. NRTS Co shall not provide any information to the media or to the general public without the prior written consent of the HA.
Related Specifications	
3.9.1.16	The related documents which NRTS Co shall follow in production of the Project Standard are: • HA Communications Strategy; • HA MPD External Communications Framework; • Department for Transport and Highways Agency Branding Guidelines for Road Contractors.

Table 3-8 HA Branding and Communications Constraint

4 SUPPORT TO THE HIGHWAYS AGENCY

4.1 Support for Existing Highways Agency Systems and Trials

4.1.1 **M** This Constraint is defined in Table 4-1.

Support for Existing Highways Agency Systems and Trials	
Issue(s) being addressed	
4.1.1.1	HA conducts trials and other activities to support its highway operations or in the monitoring and development of systems and equipment. It may require the support of NRTS Co in this, e.g. by requiring to place HA equipment in certain sites such as Transmission Stations or the Coleshill Computer Centre.
4.1.1.2	NRTS Co shall co-operate with such requests and provide support as necessary, which shall be tasked through the Consultancy Service.
4.1.1.3	A limited number of Transmission Stations contain equipment maintained by others, e.g. Local Communications Controllers. Where possible, the HA plan to re-locate this equipment as described in the Transmission Service document (Schedule 1.1a paragraph 3.7.5 and paragraph 4.8.8). However, some equipment cannot easily be removed. Therefore, under these circumstances, NRTS Co shall make arrangements for the HA and Authority Parties to access these sites to undertake maintenance.
4.1.1.4	NRTS Co shall preserve an agreed operating environment and operate access procedures for personnel authorised by the HA to support this equipment.
Applicability	
4.1.1.5	All NRTS Sites, in particular Transmission Stations and the Coleshill Computer Centre.
Constraint Requirements	
4.1.1.6	NRTS Co shall ensure that the Project Standard, "*Support for Existing Highways Agency Systems and Trials*", addresses the following Constraint requirements.
4.1.1.7	The general principles for placement of HA equipment into NRTS Co managed sites.
4.1.1.8	The environment and security protection of all HA systems and equipment in NRTS Co premises.
4.1.1.9	Access control procedures for personnel authorised by the Highways Agency, as required in the *Control and Management of Access of Personnel to NRTS Co Sites* Constraint (section 3.8).
4.1.1.10	A schedule of all HA equipment that will remain in NRTS Sites, premises or cabinets along with the environmental, identification, access and security requirements.
4.1.1.11	Access arrangements for HA staff and HA authorised personnel.
4.1.1.12	HA requirements shall be identified though tasks placed on NRTS Co and managed through the *Capture Requirements and Plan* process (Schedule 1.2 section 5.13).
4.1.1.13	HA shall be entitled to call up Service Delivery Points at sites that NRTS Co identifies as Transmission Stations. Such sites shall be categorised as Service Provisioning Capability type D locations.
Related Specifications	
4.1.1.14	Not applicable.

Table 4-1 Support for Existing Highways Agency Systems and Trials Constraint

5 RECORD KEEPING

5.1 Introduction

5.1.1 **M** NRTS Co shall keep Records of all aspects of the NRTS Co solution and shall comply with the requirements of Clause 27 of the Project Agreement. This includes the Services NRTS Co delivers, i.e. the design, operation, maintenance, and condition. These Records have been grouped into three types, Type A, B and C Records, which are described in Schedule 1.2, Table 4-6 *"The Categories of Registered Documents"*.

5.1.2 [Not Used

5.1.3 **M** The Project Standard, "*Record Keeping*", shall identify the categories of Type A, B and C Records that NRTS Co shall keep, and also the maintenance of Type C Records.

5.1.4 **M** This Constraint is defined in Table 5-1.

Type C Records	
Issue(s) being addressed	
5.1.4.1	Type C Records are required to: • provide auditable proof of NRTS Co's compliance with Constraints; • provide supplementary information to support Handback; • provide Records to meet statutory and contractual obligations; • provide operational procedures/risk assessments and codes of practice*;* • provide adequate supplementary information to support Step-In in the event of Contractor Default; • provide adequate information for retendering at the end of the NRTS Contract.
5.1.4.2	NRTS Co shall prepare and maintain records to provide a sustainable system for follow-on contracts or in the case of Step-In or the termination of the NRTS Contract.
5.1.4.3	To promote efficient handling of data NRTS Co shall endeavour to use electronic storage and transmission of record data. For example, when designing and implementing such record systems NRTS Co shall ensure that flexibility in data extraction and reporting is a priority.
Applicability	
5.1.4.4	All NRTS Co activities.
Constraint Requirements	
	<u>Type C Records</u>
5.1.4.5	Type C Records are records normally held and managed by NRTS Co but shall be audited by HA in order to be satisfied that sufficient information is in place to prove compliance with Constraints, contractual obligations or to meet the requirements of Step-In and Handback.
5.1.4.6	NRTS Co shall identify in the Project Standard, "*Record Keeping*", where Type C Records are required and provide a timetable for their production.
5.1.4.7	NRTS Co shall produce and maintain Type C Records that shall be available for inspection by the Highways Agency under the *Facilitate Audit and Inspection* process (Schedule 1.2 section 5.6).
5.1.4.8	The following list includes Type C Records which NRTS Co is required to produce and maintain.

Constraint Requirements (Continued)	
	<u>As Constructed Drawings</u>
5.1.4.9	Typically these include arrangements within Transmission Stations and NRTS Co cabinets.
	<u>Manuals and Files</u>
5.1.4.10	Equipment manuals are Type C Records. However, a schedule of equipment manuals shall be produced as a Type A Record.
5.1.4.11	Health and safety files and Risk Assessments (Construction Design and Management Regulations) records are Type C Record, except for areas of common interest where Records shall be Type A.
5.1.4.12	Structures Inspection Records are Type C, except for areas of common interest where they are Type A.
5.1.4.13	Building Condition Reports are Type C Record, except for areas of common interest where Records shall be Type A.
5.1.4.14	Fault Logs are Type C Record, except for areas of common interest where Records shall be Type B.
	<u>Communications Circuit Test Records</u>
5.1.4.15	As required under the *Take-On Service Area* process (Schedule 1.2 section 8.6) for circuits, NRTS Co shall record circuit performance parameters for each circuit as identified in the Statement of Requirements document (Schedule 1).
	<u>Electrical Test Records</u>
5.1.4.16	Electrical Inspection Records.
5.1.4.17	Power supplies and earthing (including shared supply and earth records).
	<u>Cable Loading Information</u>
5.1.4.18	NRTS Co shall verify and maintain records of cable loading information.
	<u>Cable Pair and Fibre Allocation</u>
5.1.4.19	Cable and fibre allocation records.
	<u>Cable Joints</u>
5.1.4.20	Cable joint location and information.
	<u>Cable Repairs</u>
5.1.4.21	Cable repair location and information.
	<u>Software & Licenses</u>
5.1.4.22	These include the following: • bespoke software; • software licences; • escrow agreements.
5.1.4.23	All software documentation shall be in English or English (US) by agreement with the HA.
	<u>Constraint Compliance Records</u>
5.1.4.24	These comprise items necessary to prove compliance with the requirements of a Constraint.
	<u>Handback</u>
5.1.4.25	Records are handed back to the HA as part of the *Handback Service* process (Schedule 1.2 section 8.8) and Clause 27 of the Project Agreement.

Related Specifications	
5.1.4.26	The related specifications which NRTS Co shall follow in production of the Project Standard are: • MCH1281 – Maintenance Instructions – NMCS Fault Classification; • MCH1351 – Maintenance Instruction NMCS 2 fault classification; • MCH1458 – Motorway Communication Cables Record And Approval Of Sheath Repairs And Temporary Joints; • MCH1470 – Maintenance Instruction, Maintenance Site Records; • MCH1500 – DTp Transmission Station Regional Access Records 1/89; • MCH1579 – Management Information – Fault Report; • MCH1652 – Communications Records Drawings Computer Aided Drawings Standard; • MCH1860 – Motorway Communications Maintenance Instruction NOMAD – National On-Line Motorway Asset Database Roles of Users; • MCH1861 – Motorway Communications Maintenance Instruction NOMAD – National On-Line Motorway Asset Database User Guide; • MCH1862 – Motorway Communications Maintenance Instruction NOMAD – National On-Line Motorway Asset Database Getting Started (Examples of NOMAD outputs for particular tasks); • MCH1863 – Motorway Communications Maintenance Instruction NOMAD – National Motorway Asset Database Service Level Performance Assessment; • MCH1864 – Motorway Communications Maintenance Instruction NOMAD – National On-Line Motorway Asset Database Registering an Asset; • MCH1865 – NMCS Maintenance Instruction NOMAD – National On-Line Motorway Asset Database Asset Condition Surveys; • MCH1866 – Motorway Communications Maintenance Instruction NOMAD – National On-Line Motorway Asset Database System; • MCH1867 – Motorway Communications Maintenance Instruction NOMAD – National On-Line Motorway Asset Database Fault Reporting; • MCH1868 – Motorway Communications Maintenance Instruction NOMAD – National On-Line Motorway Asset Database Configuration; • MCH1966 – Recommendations for Standardising Fault Codes for Traffic Control Equipment for all Purpose Roads.

Table 5-1 Records Constraint

ANNEX A

TABLE OF RESPONSIBILITIES

A.1 TABLE OF RESPONSIBILITIES

A.1.1.1 **M** The HA and NRTS Co areas of responsibility for infrastructure under the NRTS Contract during design, installation and maintenance phases shall be as defined in the following Table of Responsibilities.

A.1.1.2 **M** Within the context of the Table of Responsibilities, “Existing” refers to any infrastructure required to support the STIs Taken-On by NRTS Co. “New” refers to any new infrastructure installed to enable NRTS Co to support existing or new STIs after Take-On. Unless otherwise stated, the party responsible in the Table of Responsibilities is also responsible for the cost.

A.1.1.3 **M** The responsibilities described in this Annex shall be considered in conjunction with the Processes document (Schedule 1.2), that explains how these responsibilities are likely to be executed within a typical HA Scheme and with the Payment Mechanism (Schedule 30) that defines the pre-agreed Call-Off Charges for undertaking work.

A.1.1.4 **M** Roadside Infrastructure is defined as ducts, chambers, cabinet bases, associated retaining structures, Access Infrastructure and Protection Infrastructure. Where NRTS Co requires Roadside Infrastructure to be installed within the boundaries of a Scheme, to minimise interference between NRTS Co and the HA civil works contractor, NRTS Co shall be responsible for the schematic design and specification of the Roadside Infrastructure. The HA will be responsible, through its civil works contractor, for the site-specific highways design and installation of the Roadside Infrastructure. Exceptionally, when required by the HA, the design and installation of the Roadside Infrastructure may be entirely the responsibility of NRTS Co, as well as the programming and access arrangements to the contract area under the *Design Service Installation* process and *Provision Service* process (Schedule 1.2 section 6.3 and section 6.4).

A.1.1.5 [Not Used]

A.1.1.6 **M** Where HA requests NRTS Co to provide Roadside Infrastructure to discharge HA's responsibility in the Table of Responsibilities, it shall be at a Call-Off Charge.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
1	Permanent access at NRTS Co only sites (section 2.2.4)	NRTS Co	NRTS Co (or NRTS Co and HA in Schemes)	HA	HA (NRTS Co responsible for Commuted Maintenance Charge)	This includes the permanent access at all sites for which NRTS Co is responsible, such as Transmission Stations, longitudinal communications, Cabinets Joint Enclosures etc. Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
2	Permanent access at Service Delivery Points (excluding shared sites) (section 2.2.4)	HA	HA	HA	HA	
3	Permanent access at Camera Mast Site (section 2.2.4 Schedule 1.1b section 4.5)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	HA	HA (NRTS Co responsible for Commuted Maintenance Charge)	The allocation of these responsibilities assumes that the HA accepts a NRTS Co offer to provide the Camera Mast Service, then the access costs to these sites shall be included in the cost of providing a Camera Mast Site. If HA does not accept the offer for the Camera Mast Service then NRTS Co's responsibilities at a Camera Mast Site will be the same as at any other Service Delivery Point location as defined in Permanent access at Service Delivery Points above. Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
4	Permanent access at other NRTS Co sites shared with HA (section 2.2.4)	Either HA or NRTS Co depending on who extends (or NRTS Co and HA in Schemes)	Either HA or NRTS Co depending on who extends (or NRTS Co and HA in Schemes)	HA	HA if HA extend (if NRTS Co extends then still HA with NRTS Co responsible for Commuted Maintenance Charge)	When an existing access is extended the cost (and any Commuted Maintenance Charge) shall be paid by the party extending the existing arrangements. Where there are new permanent access arrangements the costs are shared. At a site where NRTS Co only shares an HA cabinet with an SDP, the arrangement is as Permanent Access at Service Delivery Points, above. Outside Schemes, the party which extends is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
5	Permanent access at NRTS Co sites to be used for Commercial Contracts (section 2.2.4)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	Not applicable	HA (NRTS Co responsible for Commuted Maintenance Charge)	Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
6	Permanent access to NRTS Co fenced sites (section 2.2.4)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	HA	HA (NRTS Co responsible for Commuted Maintenance Charge)	This includes Transmission Stations in fenced compounds. Outside Schemes NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
7	NRTS Co fenced sites.	NRTS Co	NRTS Co	NRTS Co	NRTS Co	This includes the perimeter fence and everything within it.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
8	Protection (safety fence) at NRTS Co only sites (section 2.4)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	HA	HA (NRTS Co responsible for Commuted Maintenance Charge)	This includes all sites for which NRTS Co is responsible such as Transmission Stations, longitudinal communications, Cabinets and Joint Enclosures. Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
9	Protection (safety fence) at Service Delivery Points (excluding shared sites) (section 2.4)	HA	HA	HA	HA	
10	Protection (safety fence) at Camera Mast Site (not shared with HA) (section 2.4 Schedule 1.1b section 4.5)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	HA	HA (NRTS Co responsible for a Commuted Maintenance Charge)	The allocation of these responsibilities assumes that the HA accepts NRTS Co's offer to provide the Camera Mast Service, then the access costs to these sites shall be included in the cost of providing a Camera Mast Site rather than providing a transmission Service Type Instance at the site. If HA does not accept the offer for the Camera Mast Service then NRTS Co's responsibilities at a Camera Mast Site will be the same as at any other Service Delivery Point location as defined in Protection (safety fence) at Service Delivery Points, above. Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
11	Protection (safety fence) at other NRTS Co sites shared with HA (section 2.4)	Either HA or NRTS Co depending on who extends (or NRTS Co and HA in Schemes)	Either HA or NRTS Co depending on who extends (or NRTS Co and HA in Schemes)	HA	HA if HA extend (if NRTS Co extends then still HA with NRTS Co responsible for Commuted Maintenance Charge)	When an existing access is extended the cost (and any Commuted Maintenance Charge) shall be paid by the party extending the existing arrangements. Where there are new permanent access arrangements the costs are shared. At a site where NRTS Co only shares an HA cabinet with an SDP, the arrangement is as Permanent Access at Service Delivery Points, above. Outside Schemes, the party who extends is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
12	Protection (safety fence) at NRTS Sites for Commercial Contracts (section 2.4)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	Not applicable	HA (NRTS Co responsible for Commuted Maintenance Charge)	Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
13	Power supplies NRTS Co Commercial Contracts NRTS Co only sites (section 2.5)	NRTS Co	NRTS Co	Not applicable	NRTS Co	NRTS Co makes arrangements with the electricity supply company (ESC) (or Supply Landlord) to be completely independent from HA communications systems.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
14	Power supplies – Services delivered by NRTS Co at Transmission Station buildings (section 2.5)	NRTS Co	NRTS Co	NRTS Co to ESC	NRTS Co to ESC	At Take On, NRTS Co shall take over power supply to Transmission Station from ESC and continue to provide power to any HA locally connected equipment. HA will maintain from HA's point of connection to NRTS Co's supply. (typically Cabinet Type 609P outside Transmission Station) to any HA locally connected systems. HA will provide NRTS Co with power consumption details. Cost of future changes borne by party making the change.
15	Power supplies at shared power cabinet site – (e.g. independent HA and NRTS cabinets) (section 2.5)	HA and/or NRTS Co	HA and/or NRTS Co	Supply Landlord from ESC to local power cabinet Secondary User from local power cabinet to Secondary User's equipment	Supply Landlord from ESC to local power cabinet Secondary User from local power cabinet to Secondary User's equipment	Typically HA is the Supply Landlord and NRTS Co is the Secondary User. NRTS Co comply with BSCP520 and HA energy procurement strategy. NRTS Co to provide HA with inventory and power consumption details. The Supply Landlord pays for all electricity consumption. The cost of future changes borne by the party making the change.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
15A	Power supplies at shared ESC interface cabinet site (section 2.5)	HA and/or NRTS Co	HA and/or NRTS Co	Supply Landlord from ESC to local power cabinet Secondary User from ESC interface to Secondary User's equipment	Supply Landlord from ESC to local power cabinet Secondary User from ESC interface cabinet to Secondary User's equipment	Typically HA is the Supply Landlord and NRTS Co is the Secondary User. NRTS Co comply with BSCP520 and HA energy procurement strategy. NRTS Co to provide HA with inventory and power consumption details. NRTS Co to manage provision or upgrade of incoming supply, or HA within a Scheme. HA pays for upgrade of incoming supply where defined in section 2.5. The Supply Landlord pays for all electricity consumption. The cost of future changes borne by the party making the change.
16	Power supplies at shared cabinets (roadside or within buildings or transmission stations) (section 2.5)	HA and/or NRTS Co	HA and/or NRTS Co	Supply Landlord	Supply Landlord from ESC to power distribution unit. From power distribution unit responsibilities are split between Supply Landlord and Secondary User in accordance with this Table of Responsibilities	NRTS Co is the Supply Landlord at Transmission Stations. HA will be the Supply Landlord at existing roadside cabinets. NRTS Co comply with BSCP520 and HA energy procurement strategy. NRTS Co to provide HA (and Supply Landlord) with power consumption details. The Supply Landlord pays for all electricity consumption. Cost of future changes borne by party making change.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
17	Power supplies buildings (e.g. Police Control Offices – where NRTS equipment is installed in independent cabinets (section 2.5)	NRTS Co in conjunction with HA and the Supply Landlord NRTS Co shall pay for any items designed on its behalf under HA contracts.	NRTS Co in conjunction with HA and the Supply Landlord NRTS Co shall pay for any items installed on its behalf under HA contracts.	NRTS Co from point of connection to Supply Landlord's supply	NRTS Co from point of connection to Supply Landlord's supply	NRTS Co comply with BSCP 520 and HA energy procurement strategy. NRTS Co to provide Supply Landlord and HA with power consumption details. Typically in Police Control Offices, the Supply Landlord is the police who pay for all electricity consumption. HA and NRTS Co work together to meet Supply Landlord's requirements. Cost of changes to Supply Landlord's supply borne by the party or parties making the changes.
18	Cross-Carriageway Ducts (section 2.14 Schedule 1.2 section 5.8)	HA or NRTS Co (or NRTS Co and HA in Schemes)	HA or NRTS Co (or NRTS Co and HA in Schemes)	Not Applicable	Not Applicable	NRTS Co is responsible for the design installation and cost of new requirements with the following exceptions. Where the cross-carriageway ducts contain longitudinal communications cables at Take-On, HA takes on the responsibilities set out in paragraph 2.14.2.16. Where there is no suitable existing cross-carriageway duct to support an HA requirement for a new STI, HA takes on the responsibilities set out in paragraph 2.14.2.17. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
19	Ducts in Structures (section 2.14 Schedule 1.2 section 5.8)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	HA	HA	NRTS Co is responsible for the design installation and cost of new requirements with the following exceptions. Where the structures ducts contain longitudinal communications cables at Take-On, HA takes on the responsibilities set out in paragraph 2.14.2.16. Where there are no suitable existing structures ducts and a structures duct is required for a new STI or for a regrade, the HA will be responsible for costs and NRTS Co will be responsible for provision. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
20	Longitudinal Ducts (section 2.14 Schedule 1.2 section 5.8)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co	NRTS Co	Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
21	Local Ducts for communications (section 2.14 Schedule 1.2 section 5.8)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co	NRTS Co	Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
22	Local ducts for power only (e.g. fence ESC interface to longitudinal network) and local ducts beyond SDP (section 2.14 Schedule 1.2 section 5.8)	HA (or NRTS Co for NRTS Co only power or NRTS Co and HA in Schemes)	HA (or NRTS Co for NRTS Co only power or NRTS Co and HA in Schemes)	HA	HA (or NRTS Co for NRTS Co only power)	Where local ducts for power only are solely for NRTS Co purposes, then design, installation and maintenance shall be NRTS Co responsibility at NRTS Co's cost. Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
23	Longitudinal Duct Chambers (section 2.14 Schedule 1.2 section 5.8)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co	NRTS Co	Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
24	Local Duct Chambers for communications (section 2.14 Schedule 1.2 section 5.8)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co	NRTS Co	Local duct chambers are those required to support local communication cabling as defined under "Local Communications Cabling", refer to Item 28. Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
25	Local Ducts Chambers for power only (e.g. fence ESC interface to longitudinal network) and local ducts chambers beyond SDP (section 2.14 Schedule 1.2 section 5.8)	HA (or NRTS Co for NRTS Co only power or NRTS Co and HA in Schemes)	HA (or NRTS Co for NRTS Co only power or NRTS Co and HA in Schemes)	HA	HA (or NRTS Co for NRTS Co only power)	Where local duct chambers for power only are solely for NRTS Co purposes, then design, installation and maintenance shall be NRTS Co responsibility at NRTS Co's cost. Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
26	Duct Chambers within Cross-Carriageway Ducts or within Structures Ducts (section 2.14 Schedule 1.2 section 5.8)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	HA	HA	Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4.
27	Longitudinal Communications Cabling (section 2.14 Schedule 1.2 section 5.8)	NRTS Co	NRTS Co	NRTS Co	NRTS Co	
28	Local Communications Cabling (section 2.14 Schedule 1.2 section 5.8)	NRTS Co	NRTS Co	NRTS Co	NRTS Co	Local communications refers to cabling between the longitudinal cable network and the Service Delivery Point, i.e. the cabling required to deliver NRTS Co Services. It excludes any cabling on the HA side of the Service Delivery Point interface, i.e. between the Service Delivery Point and the end device.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
29	Cabinets containing Service Delivery Points (section 2.17 Schedule 1.2 section 5.10)	HA	HA	HA	HA	
30	All other NRTS cabinets (section 2.17 Schedule 1.2 section 5.10)	NRTS Co	NRTS Co	NRTS Co	NRTS Co	
31	Advance and Temporary Works, including reconfiguration and the provision of Telecoms Bypass (cabling around or through a Scheme to maintain continuity of Service on either side of a Scheme and the re–instatement of permanent Longitudinal Cabling on completion of the Scheme). (Schedule 1.2 section 5.3)	NRTS Co	NRTS Co	NRTS Co	NRTS Co	NRTS Co prepares proposals as part of *Operational* and *Tasking* Processes (Schedule 1.2 section 5 and section 6). NRTS Co installs Telecommunications Bypass arrangements and reconfigures network to interface with bypass arrangement to an agreed design and implementation process as advance works or during the Scheme. Works performed within the scheme site includes the support, where required, to the HA's contractor in accordance with the *Maintain Service Continuity* process (Schedule 1.2 section 5.3). NRTS Co shall re–instate cables in accordance with this Table of Responsibilities. Within a Scheme works site, a Special Requirement will be placed on the HA Contractor to provide access for NRTS Co to maintain and repair.

TABLE OF RESPONSIBILITIES

	Area of Responsibility	Responsible Party				Comments
		Design	Installation	Maintenance		
		New	New	Existing	New	
32	Camera Masts (section 2.17 Schedule 1.2 section 5.10 Schedule 1.1.b section 4.5)	HA for location of camera NRTS Co for all other aspects (or NRTS Co and HA in Schemes)	NRTS Co (or NRTS Co and HA in Schemes)	NRTS Co	NRTS Co	Outside Schemes, NRTS Co is responsible for the design installation and cost of new requirements. In Schemes, design and installation responsibilities are in accordance with paragraph A.1.1.4. NRTS Co pays for items installed on its behalf by the HA.
33	Transmission station buildings (MCL10470) and their supporting infrastructure including compound and fencing (section 2.13 section 2.17 Schedule 1.2 section 5 and section 6)	NRTS Co	NRTS Co	NRTS Co	NRTS Co	
34	Other items required by NRTS Co to deliver the Services (section 2.17 Schedule 1.2 section 5 and section 6)	NRTS Co	NRTS Co	NRTS Co	NRTS Co	NRTS Co pays for items installed on its behalf by the HA.

ANNEX B

HARDSHOULDER AND LANE 1 CLOSURES

B.1 HARDSHOULDER CLOSURES

B.1.1.1 **M** In addition to any local constraints, NRTS Co will not be allowed hardshoulder closures when the Annual Average Daily Traffic (AADT) flow on a particular link exceeds the values in the areas shaded **GREEN** in these tables (**RED** shading signifies when hardshoulder closures are not allowed). The Constraint varies according to the standard of the road, the time of day and the length (in metres) of the Lane Closure, as given in Table B.1—1, Table B.1—2 and Table B.1—3.

AADT ≤	Period of Lane Closures											
	24-hour				Inter-peak (10:00 to 16:00 only)				Night Time (21:00 to 05:00 only)			
	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site
20,000	£326	£483	£639	£796	£126	£187	£248	£309	£30	£44	£59	£73
40,000	£640	£960	£1,270	£1,587	£246	£365	£484	£603	£60	£88	£117	£145
60,000	£1,520				£361	£549	£733	£920	£90	£132	£175	£217
80,000					£774	£1,406	£2,014		£119	£176	£232	£289
100,000									£148	£219	£290	£361
120,000									£178	£262	£346	£430

Table B.1—1 Hardshoulder Closures for Dual 2-Lane Road

AADT ≤	Period of Lane Closures											
	24-hour				Inter-peak (10:00 to 16:00 only)				Night Time (21:00 to 05:00 only)			
	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site
20,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
40,000	£672	£998	£1,324	£1,650	£260	£388	£516	£644	£60	£89	£118	£147
60,000	£999	£1,483	£1,979		£387	£578	£769	£960	£90	£134	£177	£221
80,000	£1,386	£2,084			£511	£762	£1,013	£1,264	£120	£178	£236	£294
100,000					£633	£942	£1,273	£1,589	£151	£223	£295	£367
120,000					£1,137				£181	£267	£354	£440
140,000									£211	£312	£413	£514
160,000									£241	£356	£472	£587

Table B.1—2 Hardshoulder Closures for Dual 3-Lane Road

AADT ≤	Period of Lane Closures											
	24-hour				Inter-peak (10:00 to 16:00 only)				Night Time (21:00 to 05:00 only)			
	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site
20,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
40,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
60,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
80,000	£1,332	£1,977			£516	£770	£1,025	£1,279	£120	£178	£236	£236
100,000	£1,689				£641	£955	£1,270	£1,584	£151	£223	£295	£295
120,000					£763	£1,137	£1,511	£1,885	£181	£267	£354	£354
140,000					£883	£1,349	£1,765		£211	£312	£413	£413
160,000					£1,479				£241	£356	£472	£472
180,000									£271	£401	£530	£530
200,000									£301	£445	£589	£589

Table B.1—3 Hardshoulder Closures for Dual 4-Lane Road

B.2 LANE 1 CLOSURES

B.2.1.1 **M** In addition to any local constraints, NRTS Co will not be allowed lane 1 closures when the Annual Average Daily Traffic (AADT) flow on a particular link exceeds the values in the areas shaded **GREEN** in these tables (**RED** shading signifies when lane 1 closures are not allowed). The Constraint varies according to the standard of the road, the time of day and the length (in metres) of the Lane Closure, as given in Table B.2—1, Table B.2—2 and Table B.2—3.

AADT ≤	Period of Lane Closures											
	24-hour				Inter-peak (10:00 to 16:00 only)				Night Time (21:00 to 05:00 only)			
	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site
20,000	£481	£748	£1,014	£1,281	£170	£277	£377	£482	£36	£55	£74	£93
30,000	£1,201	£1,811			£301	£482	£661	£841	£55	£84	£112	£141
40,000					£551	£907	£1,262	£1,618	£74	£113	£152	£191
50,000					£1,367				£94	£143	£192	£241
60,000									£114	£174	£234	£294

Table B.2—1 Lane 1 Closures for Dual 2-Lane Road

AADT ≤	Period of Lane Closures											
	24-hour				Inter-peak (10:00 to 16:00 only)				Night Time (21:00 to 05:00 only)			
	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site
20,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
40,000	£682	£1,033	£1,373	£1,720	£263	£394	£525	£656	£62	£91	£121	£150
60,000	£1,778				£392	£601	£802	£1,008	£92	£137	£182	£227
80,000					£645	£1,015	£1,384	£1,754	£123	£183	£243	£303
100,000					£1,995				£154	£229	£303	£378
120,000									£185	£274	£364	£453
140,000									£216	£320	£425	£529
160,000									£247	£366	£485	£604

Table B.2—2 Lane 1 Closures for Dual 3-Lane Road

AADT ≤	Period of Lane Closures											
	24-hour				Inter-peak (10:00 to 16:00 only)				Night Time (21:00 to 05:00 only)			
	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site	500m site	1000m site	1500m site	2000m site
20,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
40,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
60,000	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
80,000	£1,429				£516	£770	£1,025	£1,279	£120	£178	£236	£294
100,000					£641	£955	£1,270	£1,584	£151	£223	£295	£367
120,000					£854	£1,317	£1,783	£2,247	£181	£267	£354	£440
140,000					£1,350				£211	£312	£413	£514
160,000									£241	£356	£472	£587
180,000									£271	£401	£530	£660
200,000									£301	£445	£589	£733

Table B.2—3 Lane 1 Closures for Dual 4-Lane Road

ANNEX C

AADT TRAFFIC FLOW MAP

C.1 AADT TRAFFIC FLOW MAP

For Map refer to PDF Version of this Document

(file: M20306AADT figures (incl HGVs) 2001.pdf)

Figure C.1-1 AADT Traffic Flow Map