**Infrastructure & Operations Division**

**Specification**

**Title: Specification for Chimney and Lightning Protection Inspection and Maintenance**

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**Purpose**: This specification is to be used as the basis for the maintenance, service, and repair agreement to the following assets

* Chimneys (asset2224)
* Lightning Protection systems. (asset 2225)

(This will also include an annual inspection and certification of the Flagpole)

The specification is intended to be advisory, industry standard best practice and compliance to national standards are to be the basis of any agreed contract service agreement. Amendments and Additional recommended works should be highlighted & agreed between NIBSC and the service provider.

The awarded company must carry the current relevant accreditation for competency and be ready to submit all relevant governance associated with the maintenance work

The specification will cover the entire system, and a current position drawing is available.

The Services required are:

* **Annual site/service visits** - to carry out routine and planned preventative maintenance (PPM). (Completed certificates/service sheets of examination to confirm this)

**Associated Documents**

Work Bench Document Serial No [6598](http://waddell/scripts/WebObjects.dll/IVPro.woa/wa/Docfetch?db=NIBSC%20(view%20only)&id=6598) for contractor general requirements

## BS4076:1989 Specification for steel chimneys

## BS6651:1999 Code of practice for protection of structures against lightning

## BS EN 62305:2011 Code of practice for protection of structures against lightning

## BS7430 Code of practice for earthing

Although these standards are now withdrawn the installation at NIBSC conforms to them and will be inspected and tested to meet their requirements.

The following buildings; site wide storage facility, IRCUKSCB and the cold rooms 26 & 27 were built post 2008 and must conform and be tested to BS EN 62305:2011.

**Planned Maintenance and Service**

All maintenance/servicing must be carried out according to the relevant standards.:

* Chimneys inspected and tested to BS4076:1989
* Lightning Protection to BS6651:1999, **BS EN 62305:2011** and BS7430
* Flagpoles will be serviced and maintained to good industry practice and specialist contractor experience
* There will be one annual visit to check and inspect and submit a condition report or compliance certificate for the following: Chimneys, Lightning Protection, and Flagpole.

**Flagpole**

The preventative maintenance service is designed to keep the flagpole in a safe, secure and clean condition. The work must include the following:

* Foundation and ground anchor bolt inspection
* Pole check for signs of wear, fatigue, bending or failure
* Cleats, finial, and fittings checked
* Condition and working order of the flag hoisting mechanism.
* Halyards checked for signs of abrasion or weakness through UV ageing. If replacement recommended to be quoted separately.
* Washing of the flagpole to maintain clean appearance.

**Chimneys**

* Inspect all chimney stacks in accordance with BS4076:1989
* The Steeplejacks foreman will be responsible for all aspects of Health & Safety for operatives under his jurisdiction, ensuring hats, boots, belts and harnesses are worn at all times.
* Steeplejacks to supply all necessary skilled labour, access, steeplejack equipment.
* Carefully gain access to the chimney, and ensure any roofs are properly protected. Temporary fall arrest is used at all times.
* Carry out an Ultrasonic Thickness Test of the chimneys at the existing test points and record all readings for the report, i.e. 3 number positions every 2m thought the chimneys full height.
* Replace the test patches.
* Inspect the top capping, bolts and welds.
* Inspect the condition of the cladding, rivets, holding down bolts, base plates and flue arm etc.
* Carry out a visual inspection of the chimneys flange bolts and check any specified torque settings.
* Remove the access door and inspect the inside of the chimney for debris and standing rainwater.
* Carry out a detailed inspection of the chimneys Liner where possible.
* Disconnect Lightning protection and test in accordance with BS6651:1999 & BS7430.
* On completion leave site clean and tidy.
* Provide photographic evidence of any defects found for the report.
* Provide a full Report to include Chimney Data sheet, Observation record, Ultra Sonic Thickness data Sheet, photo index of any defects found accompanied with all relevant photos.

**Lightning Protection System**

* Carry out a visual inspection of the roof area to check conformity to BS6651:1999 or BS EN 62305:2011 and establish if any metallic plant such as air conditioning units, phone mast or other equipment, has been installed within the time elapsed from the previous inspection. These must be correctly bonded to the system.
* Once it has been established that the installation confirms to the British Standard guide lines the system must then be inspected in accordance with BS7430.
* Carry out soil tests to establish the ground conditions for each of the systems present onsite.
* Disconnect each lightning protection electrode in turn at each earth position, and isolate from the main system.
* Test the earth resistance reading and record results.
* Carry out a test on each system to establish the condition of the air network and all of its components.
* Carry out a visual inspection or all down conductors, and all Air Networks.
* Compile an engineer’s report to include photographic evidence of any defects found referencing any failures as detailed in British Standards and costing any remedial works.
* An ohm allowance with a multiplication of 10 ohms per position is allowed. E.g. 8 earth positions would allow a maximum reading of 80 ohms per position and so on. This maximum reading must be detailed in the report, and a clear pass or fail indicated for each point. Any points within 10 ohms of the maximum allowed value should be highlighted, with a plan for remedial action for the next annual inspection and testing.
* Issue all relevant certification with an engineer’s report where compliance has been met.

All access equipment must be supplied, maintained, and certified to the correct standard, by the company awarded the contract, any documentation associated with the equipment, must be available for inspection by NIBSC

All personnel employed by the company must be trained to the correct standard for the duties they are undertaking, any training records for personnel attending site at NIBSC, must be available for inspection by NIBSC.

The Chimney and Lightning Protection Inspection is set up as a single asset, with a unique identifier on the CAFM system. The Service interval is once per annum and is entered within the Computer-Aided Facilities Management (CAFM) software to generate Work Orders (WO’s) to ensure the inspection is at the correct interval.

The Maintenance Administrator will then liaise with the contractor and agree suitable dates for the visit to site.

Administration Process

The procedure used to administer the service and documentation is detailed in a workbench document [SN6721](http://waddell/scripts/WebObjects.dll/IVPro.woa/wa/Docfetch?db=NIBSC%20(view%20only)&id=6721).

The full report must be reviewed by the Responsible Person on delivery, and if necessary a program of works compiled for any remedial work or recommendations as required.

When the electronic report is received, the file will be saved under the following directory:

* File director with asset number and works order
* The **Contractor Name** will be the service contractor at the time of the service

A site plan of the Chimneys and Earth electrodes for the Lightning protection system will be eventually kept in the Teamwork drawing software package. However at the time of writing this specification, it is not yet operational, so a copy will be kept in the following directory:

Opsgen\drawings\site wide pdf\M-SITE-EARTH PROT-CHIM-E3701

END