NATIONAL TRUST

National Trust Sizergh Castle

Photovoltaic (PV) System Design and Build Invitation to Tender (ITT)

Subject matter: Invitation to tender for design, supply and installation of a PV system at National Trust Sizergh Castle on Visitor Centre roof (Ashbank Lodge).

Tender Issue Date: 20/9/2021

Tender Return Date: 26/10/2021 Before 17:00

Please return the completed Tender proposal to:

Name: Garry Sharples

Title: Project Manager, Renewable Energy Investment Programme

Address: The Hollens, Grasmere, Ambleside, Cumbria, LA22 9QZ

Email: garry.sharples@nationaltrust.org.uk
Tel: 07825450516

Acknowledgement of Invitation to Tender: We ask you to acknowledge by e-mail receipt of this ITT, confirm your intention to participate and if you wish to attend the site visit using the form provided at the end of this document.

Contents

Table of Contents

APPENDICES (attached separately)

- Appendix A Performance Specification
- Appendix B Electrical installations guidance
- Appendix C General Building Requirements
- Appendix D NEC 3 Draft Contract
- Appendix E Photographs of Ashness
- Appendix F NT scaffolding guidance

1 The National Trust Background Information

1.1 About us

The National Trust (NT) is a charity founded in 1895 to promote the permanent preservation of places of historic interest and natural beauty for the benefit of the nation. It has since grown into Europe's biggest conservation organisation.

The NT cares for approximately 247,000 hectares of countryside in England, Wales and Northern Ireland, plus almost 742 miles of coastline and more than 300 buildings and gardens of outstanding interest and importance. These buildings, gardens and coastline are divided into 8 regions/countries and the NT receives nearly 20 million 'pay for entry' visitors at these sites per year. Alongside the central offices, these sites have a combined total spend in excess of £200 million pounds a year.

The NT is a registered charity, completely independent of the Government and therefore relies totally on the generosity of our members, visitors and other ad hoc supporters in order to continue this important work.

For more information on The National Trust, please visit www.nationaltrust.org.uk

1.2 About our Renewables Programme

The National Renewable Energy Investment Programme is aimed at delivering renewable projects on a large scale, supporting the NT's drive towards producing 50% of its energy from renewables by 2021 and more latterly, our commitment to be net zero by 2030. The NT spends more than £6 million each year heating and powering the places in its care. By investing in renewable energy, the NT can reduce its energy bills and invest more in vital conservation work around the country. The programme puts renewable energy at the heart of conservation and shows that renewable technologies can work in some of the country's most sensitive landscapes and historic environments.

In addition to environmental and conservation drivers, the renewable initiative is a targeted investment programme focussing on key installations and aimed at delivering a good financial return that strengthens our investment income. Such projects have also enabled the NT to benefit from the Governments Feed in Tariff and Renewable Heat Incentives and help the NT take a major step towards greater energy security and business resilience.

The programme focuses on tried and tested technologies (biomass, photovoltaic, hydro and heat pumps) but with a weighted focus on heat generation to help accelerate the NT's commitments to 'get off oil'.

1.3 Why Sizergh Castle?

Sizergh Castle has been selected for the installation of a PV system to help reduce / offset the use of electricity from the National Grid and reduce our scope 2 emissions. The property has seen year on year growth and there are plans to continue with the expansion of the visitor centre. With a large roof space available and an increasing on site consumption of electricity, it makes sense to try and utilise renewable energy on site.

The property is also investing in a biomass district heating scheme that will replace the current use of gas for space and water heating at the castle and visitor centre. This project is likely to be completed in February 2022 and the contracts will run simultaneously, requiring some contractor coordination & cooperation.

Invitation to Tender Process

1.4 Document Purpose

The aim of this document is to invite a number of potential suppliers to provide the NT with a Tender proposal for the **design, provision and installation of a PV system** on the roof of the Visitor Centre (Ashness Lodge) at National Trust, Sizergh Castle.

The proposal should demonstrate how a PV system will sit sympathetically on the roof of the café/ visitor centre building, and in accordance with the approved planning permission. It should also demonstrate how the electricity generated will be consumed on site and with the benefit of reducing imported grid electricity.

This will allow the NT project manager to understand which supplier will be capable of meeting the requirements, and to identify a preferred supplier based on the information returned.

1.5 Confidentiality

This Invitation to Tender is issued to a number of third parties and the information herein is provided in confidence in order to assist potential suppliers. It must remain a confidential document, to be viewed by the above-named personnel and by agreed personnel of each organisation. Please do not disclose this information to any other third parties without prior consent of the NT, except to third parties that are essential to the preparation of the tender submission.

1.6 Timetable

Activity	Date
Issue of Invitation to Tender	20/9/2021
Return Intention to Participate Form	N/A
Site visit opportunity - Sizergh Castle	4th & 5th Oct 10 AM – 2 PM
Closing date for return of Tender proposals	26/10/21 - 5PM
Interviews	4/11/2021
Anticipated accepted design and award of contract (subject to NT approvals)	12/11/2021
Target construction and commissioning window	1st Dec 2021 – 15th February 2022

Site Visit

A maximum of two representatives may attend the site visit (dates above) from each tendering company. Tenderers should complete the form at the end of this document and return to garry.sharples@nationaltrust.org.uk . A limited number of places are available and will be on a first come, first served basis.

Tender Assessment and Award Criteria.

The returns will be assessed based on both selection and award criteria.

Selection Criteria - assesses the ability of the tenderer to perform a contract based on qualitative information relating to suitability to pursue a professional activity, economic and financial standing, and technical and professional ability (for example, their previous experience and qualifications).

Award Criteria are specific to how the bidder intends to deliver the contract (for example cost, quality, timescale).

So that all parties receive the same tender conditions, failure to meet the deadline for return without prior consent will result in your proposal being disqualified from this tender process. It is in the tenderer's interest to ensure that all the information requested is provided, the questions section in the tender submission is completed and that the submission reaches the NT by the closing deadline. Clarifications sent to individual tenderer's will also be made available to other tenderers as a condition of the ESIF grant funding requirements.

Statement of facts, proposals, and details submitted will be audited at each selection stage; inconsistencies, ambiguities etc. will count against the responding company. Any attempt to alter the questions could lead to a removal from the application process. The NT reserves the right to ask all Tenderers for additional information, including but not limited to information on the Tenderer's financial status or management systems.

The contract will be awarded on the basis of the tender that most effectively meets the requirements of the ITT. All tenders will be assessed in line with key criteria such as experience, technical competency, finances, project approach, and feedback from previous clients.

Please note, the NT does not undertake to accept the lowest tender, or part, or all of any tender, and the acknowledgement of receipt of any submitted tender shall not constitute any actual or implied agreement between the NT and the tendering company. The NT reserves the right to accept any part, or all, of any tender or tenders at its sole discretion. This means additionally that the NT reserves the right to potentially choose more than one supplier based on the Tender proposals and other selection criteria, or not to appoint any of the companies.

A weighting methodology will be applied to the qualitative questions giving a % allocation of the total available score. An anticipated weighting of responses has been outlined below, although the NT reserves the right to modify these values at its own discretion.

Section	Description of scored elements	Success (S) / award (A) criteria	Max % of total qualitative score
5	Quality of pricing submission against activity schedule (not scoring overall cost)	A	10%
5.1	Company Structure and Details	S	10%
5.2	Proposed System (layout / efficiency etc)	A	12%
5.3	Project Management and Programme	A	8%
5.4	Commissioning, Handover, Performance	A	12%
5.5	Quality Management and Accreditations	S	5%
5.6	Team Structure and Subcontractors	S	5%
5.7	Operations and Maintenance	A	8%
5.8	Setting and Significance	A	12 %
5.9	Experience with the National Trust / sensitive locations	A	10%
5.10	References obtained from clients with similar projects completed by tenderer	S	8%

Once both cost and qualitative question rankings have been identified, these will be compared by the NT to identify a shortlist of suppliers with whom we may conduct a post tender clarification session, including an interview. The NT will also take into account other factors in the selection decision e.g., credit check, case studies, references from existing customers.

1.7 Outcome of Tender

The outcome of the Invitation to Tender process will form the framework for agreement between the NT and the chosen supplier in the form of a Contract.

The selection process will conclude with a decision to either:

A. Nominate a preferred supplier subject to several factors e.g., negotiation of contract, provision of relevant information, planning consent and any associated conditions, internal authorisation to proceed.

B. Not go ahead with any of the suppliers

1.8 Internal Approval requirements

The project is currently in the proposal and development phase of work and the implementation of the project will be subject to the approval of the National Trust Renewables Programme Board.

Planning Consent has already been received for this project.

1.9 Additional information

Tenderers should contact the NT to request any information that is required as part of the tender process or to inform/improve their bids. Where possible, the NT will endeavour to provide any relevant information. Any updates will be issued to all tendering parties.

1.10 General

The National Trust is a registered charity, so please take this into consideration when setting fees for this work.

Responding to this Invitation to Tender (ITT)

To successfully submit a tender response it is required that you:

A. Submit your tender in accordance with these instructions and timescales. Omissions, qualifications or failure to meet requested timescales may render a tender invalid.

B. Provide an overall cost in the form in Appendix A document and a unitised break down of the costs for all works in Pound Sterling

C. Provide detailed answers (and associated documents) to the questions in Section 5 of this document. Each question section (i.e. Section 5.3 Project Management and Programme) should be submitted on its own sheet/s as specified at the end of each Question. Answers should reference the question section title, the associated question numbers, and the company name. Answers should be succinct and focussed.

   One particular answer must relate to only one identified question.

D. Provide a copy of your organisations insurance/liability cover.

E. Supply one electronic copy for review and two hard copies in a sealed envelope marked up as tender return with the time and date. Please note: the return address is The Hollens, Grasmere, Ambleside, Cumbria, LA22 9QZ

F. Submit your tender proposals as outlined in this and the accompanying documents to:

Name: Garry Sharples

Title: Project Manager, Renewable Energy Programme

Address: The Hollens, Grasmere, Ambleside, Cumbria, LA22 9QZ

Email: garry.sharples@nationaltrust.org.uk
Tel: 07825450516

Please be aware that tenders are to be produced at the tenderers own cost, you will not be entitled to claim from the National Trust any cost or expenses that you may incur in preparing your response.

Tenderers are requested to declare any conflict of interest or raise any issues relating to the preparation of their tender or delivery of this brief in their response.

2 Basis of appointment

2.1 Form and Conditions of Contract

The Contract form will be based on an NEC3 Engineering and Construction Contract, (A Draft is attached) a Priced Contract with Activity Schedule. A copy of the terms and conditions has been supplied to tendering parties, please ensure you are willing to proceed under NEC3 before returning tenders for assessment.

This contract is intended to be Design and Build. Initial designs supplied for the purposes of tender will form the basis of detailed design for the successful contractor. Detailed Design will be a priced activity under the final contract. Detailed Designs will need acceptance by the Employer to enable the full contract to progress.

2.2 Pricing & Invoicing

This contract will have fixed costs. The pricing submitted will remain fixed for a minimum period of 120 days from the return deadline date of tender. The price of the services to be supplied shall be as stated in the contract resulting from this tender process and no increase will be accepted.

In line with NEC3 contract form payment of works shall be made in line with an Activity Schedule. This Activity Schedule should align to a provided Programme of Works provided as part of this tender response.

3 Statement of Requirements

3.1 Overview

National Trust Sizergh Castle is undertaking a project to install a PV system as part of the National Trust's (NT) high profile National Renewable Energy Investment Programme. The project is aimed at cost effectively enabling National Trust Sizergh Castle to generate the electricity for use on site and to improve its fuel security and overall environmental performance.

The Project Team, with support from an appointed M&E consultant, is looking to appoint a contractor to **design, supply and install the system** and associated infrastructure within the historic environment of the site. National Trust Sizergh Castle is a living, working property, accommodating staff, visitors and holiday guests and the historic family, as such a smooth transition is essential, minimising outage time and operational impacts on site during construction.

A technical Specification for the Installation of the PV system at National Trust Sizergh Castle is included in Appendix A. It is essential that the tender for the PV system adheres the design parameters provided by that document, but this document is not intended as a design specification.

Approximate dimensions of the roof space available is 350M2 (45M x 8M). The canopy overhang is not to be considered for the installation of any PV panels. Application to connect the system to the building have been made to the local DNO (Electricity Northwest). Previous applications have resulted in approval to connect a scheme up to 80 kW. No costs are to be identified for this (for reinforcement works or e.g., excavations) as part of the tender return but some administrative costs for liaising with the DNO should be included.

The successful contractor will be required to submit all aspects of the design to the NT for approval prior to being implemented.

3.2 Financial context

This project is being delivered as part of the National Renewable Energy Investment Programme and is expected to deliver a financial return (offsetting imported electricity) as well as helping the NT take a major step towards greater energy security and business resilience.

The cost of the project *and* value for money will be very important considerations in the review of the system design,
not only the initial capital cost but also the ongoing running and maintenance costs of the system.

3.3 Environmental context

The NT looks after special places, for ever, for everyone and this includes caring for a significant amount of natural landscape and the encompassing environment. The NT's commitment to environmental care and sustainability is a significant driver for the National Trust.

These drivers also reflect in a strong environmental policy within the NT that is applied across properties and during any site works. The NT implements an Environmental Management System (EMS), with properties accredited to this standard, ensuring careful management of waste, energy and other environmental aspects.

Consideration will be given in the tender evaluation to suppliers environmental standards, policies, and their capability to manage works with due consideration of environmental impacts and mitigations.

3.4 Site, setting and significance

This project requires renewable technology to be installed in a heritage and conservation setting. The PV system at National Trust Sizergh Castle will be set amidst listed buildings and within historic grounds. The contractor will need to look at ways to reduce and manage the impact of the installation and constructions works on the property and its settings.

3.4.1 Historic buildings

The buildings at National Trust Sizergh Castle are of architectural and historic importance. Sizergh Castle is a Grade I Listed Building with the earliest elements dating to the medieval period. The Great Barn in the adjacent courtyard is a Grade II* Listed Building, thought to date to the late 16th century. There are three further Listed Buildings within the Sizergh Castle buildings and grounds – the gate piers and garden walls to the west of the castle, the house and outbuildings forming the north side of the courtyard opposite the Great Barn, and the garden walls and summerhouse to the south of the castle; all of these are Grade II Listed Buildings. In addition, the installation falls within the Sizergh Castle Registered Park and Garden, which is designated as Grade II. Although the PV system is not located on a listed building, it is essential that the greatest possible care be taken at all times to prevent any damage to adjacent buildings' fabric, contents and settings.

3.4.2 Gardens

The Gardens and parkland with features of 18th century or early 19th century date and ornamental gardens of 1926 by T Hayes and Son are Grade 11 listed. the impact of any external works must be minimised and reinstated effectively. It is not envisaged that any works or storage requirements will impact on the garden

Archaeology

It is not anticipated that any new trenching works will be required to accommodate the PV array on the visitor centre building and that the point of connection will be in the Visitor Centre.

Nature and conservation

The NT is committed to care for and sustain the natural environment and its wildlife. Initial surveys have indicated there are no ecological issues. Any work that has the potential to impact on the ecology of the immediate or surrounding area must be identified to the NT before work commences. Contractors will be required to abide by relevant legislation and work with the property and project team to prevent any damage or pollution to the natural environment and its plants and animals.

3.4.3 Existing services

Details of existing services where available will be produced prior to any trenching works (if required) required. **These are not definitive and it remains the responsibility of the contractor to ensure that they take all reasonable steps to ensure essential services known or unmown are not interfered with damaged or destroyed during construction**.

3.5 Project Delivery and Site Operations

The NT expects the contractor to work closely with NT staff and volunteers to deliver a successful project; minimising the impact of construction works and ensuring a usable PV solution is installed that can be managed by the site team after completion.

Elements of the property will or may remain open throughout the installation. The works have potential to affect a range of areas and operations at the property. The contractor must minimise disruption from works, ensuring the safe operation of the property and the safety of its visitors at all times, while also helping the NT communicate and bring to life the project for all our audiences. Close liaison with the Project Manager, and site team will be needed to ensure that construction can happen in parallel with the day to day running of the property and that work areas and equipment storage are agreed on a regular basis. In line with these requirements particular consideration should be given to ensure staff access is not impaired and deliveries can still be made to the site.

Unless specified, construction works will be confined to Monday to Friday, 8am to 5pm in line with site staffing. Tenderers should indicate whether any out-of-hours working has been allowed for in the tender.

3.5.1 Visitor Engagement

The opportunity to engage with visitors (e.g. to talk about NT's work and renewable energy) is an important part of the NT's way of working. Not only do we want to showcase the technology and tell the story of the new renewable technology, but we also want to ensure that we engage with people along the way. There may be occasions when visitors ask questions about the work; contractors on site will be expected to speak to visitors about what they are doing in a polite and engaging way.

3.6 Programme Management, Reporting and Communication

The NT has many stakeholders to manage at its properties. To ensure that this can be effectively achieved excellent programming, reporting and communication throughout the project is essential. As a minimum the following will be expected during the project in line with the NEC3 Contract:

1. A weekly programme commencing one week before beginning work on site. This programme must be submitted to the NT by 15:30 on the Thursday of the previous week. It should indicate planned work and personnel expected to be on site in the following week, an updated work plan indicating work completed, % progress against plan and any other significant issues that have occurred in the preceding week, and a summary of longer term planned works.
2. Electrical outages. The continuation of business activity at the Sizergh visitor centre is important for the National Trust's income. Any disconnections for the new electrical connection must be agreed in advance with the Project Manager.

3.7 CDM, Principle Designer and Principle Contractor

Construction, Design and Management (CDM) regulations will apply. It is anticipated that the project may be notifiable under CDM Regulations and as such the Contractor will be expected to enact the role of Principle Designer and Principle Contractor for this Project as defined under CDM regulations (2015).

The Contractor will be expected to undertake appropriate Risk Assessments and supply Method Statements for all project works on site as required by legislation prior to work being started. The NT reserves the right to request access to these documents at any time during the project.

3.8 Supervision

The contractor is expected to accept responsibility for co-ordination, supervision and administration of the works, including all sub-contractors. They must also arrange and monitor a work programme with each sub-contractor, supplier or statutory undertaker and obtain and supply information as necessary for the co-ordination of the works.

The contractor will be required to appoint a competent person in charge on site who will deal with the day to day management of the site and all works taking place. This should include, but not be limited to, morning briefings for all parties, clear application of site rules, and awareness of all works ongoing and personnel working on site at any time. The Contractor will supply the NT with contact details for this representative both in and out of hours.

3.9 Design Settings, Commissioning, Performance Tests and Guarantees

<u>Design Settings</u>

As part of producing an Accepted Design, the successful contractor will be expected to produce a list of plant and design settings that are intended to meet the Performance Specification given in Appendix A of this document.

<u>Commissioning and Tests on Completion</u>

The successful contractor will be expected to provide and undertake thorough commissioning procedures and:

- The electrical installation will be tested during and on completion of works. Appendix B contains details of the electrical installations guidance expected to be followed by the contractor during installation and commissioning.

- A copy of the Electrical Installation Certificate along with a schedule of inspections and schedule of test results will be issued. As a minimum, isolated tests will include; continuity of protective conductors, continuity of ring final circuits, insulation

resistance and polarity. Live testing will include; polarity of supply, earth fault loop impedance, prospective fault current, RCD testing and functional testing.

Tests after Completion and Low Performance Damages

Within the first 6 months a series of Tests after Completion will be required to prove:

a. The installation is operating in line with key requirements of the performance specification

A low Performance damage (5% of the contract price) will be paid if Tests after Completion are not successfully passed within 12 months.

Guarantees

The employer is looking for appropriate guarantees on installed equipment.

3.10 Handover, Maintenance and RHI Application

A comprehensive handover to the site team of all information, guidance and training to enable ongoing operation of the system is expected. This should include appropriate drawings and 'As Built', user manuals and training (in addition to that supplied as part of any HSE file).

Irrespective of handover of this information, contractors are also required to provide details of a suitable Operations and Maintenance agreement for review by the NT to provide ongoing system support.

3.11 General requirements for building works

Please see Appendix C for the NT's General Requirements for Building Works. Some additional points are noted as follows:

Health and Safety: The contractor will be responsible for the health and safety and security of the construction site until the point of completion and handover.

Contractor Compound and Laydown Area: A secure area for contractor facilities has been identified. There is limited space at the point of work for additional storage or material lay down. Any specific requirements for additional space will be discussed once a preferred contractor is identified. The contractor is responsible for bringing such equipment and facilities as required to support their works.

Access to/on site: Use of work vehicles on site will be restricted and should be minimised and agreed with the NT Project Manager. Contracting staff will be expected to leave personal vehicles in the main visitor car park (adjacent to the visitor centre), work vehicles will be permitted to use the Contractor Compound and Laydown Area. Deliveries should be co-ordinated to arrive on site at a time agreed with the NT project manager. Speed must be restricted when driving on site. All contractors will be required to sign in when on site.

Water and power: Contractors will be permitted to use the NT's existing on site mains electricity and water supply for the purposes of delivering the scope of work associated with the project; please note, however, the NT will not be responsible for the consequences of any failure or restriction in supply. The contractor is responsible for getting any such services to point of work from the existing site arrangements.

Protection: Contractors should adequately protect all parts of the works, services and their employees, throughout the contract. Wherever work is of a vulnerable nature or exposed to abnormal risks special protection should be provided to ensure that damage does not occur. Contractors are also required to check proposed methods of work for effects on adjacent structures, buildings, features and grounds inside and outside the site boundary, and provide any supports or protection necessary to preserve the stability or integrity of the structures, buildings and grounds.

Fire prevention: the Contractor must make themselves aware of the NT's fire instructions and procedures. 'Hot Work' shall not be permitted on or within six metres of any building and the Contractor must allow for alternative methods of work. ('Hot Work' is defined as being all operations involving flame, hot air or arc welding and cutting equipment, brazing and soldering equipment, blow lamps, bitumen boilers and other equipment producing heat or having naked flames). Where absolutely unavoidable, the contractor may supply risk assessments and method statements for consideration by the NT to permit hot works.

Services: for new and existing services, please ensure compliance with the Byelaws or Regulations of the relevant Statutory Authority (including notification of works, provision of information, consents, certification)

Scaffold structures: If scaffolding is required for any of the works, please request a copy of the NT's guidance on the use of scaffold structures.

3.12 Conduct

The successful tenderer, including their staff and sub-contractors, must conduct themselves in an appropriate and professional manner whilst on any NT site. A good neighbour approach must be taken to ensure that there is minimum disruption to the locality, others working on and neighbours of the site; for example, the use of radios, audio equipment or the like, will not be permitted and work places must be maintained in a clean and tidy state. The NT will investigate all complaints received and take appropriate action, and reserves the right to instruct the Contractor to expel from site any person whose conduct is prejudicial to those priorities

4 Costing and Activity Schedule

Cost Breakdown

Tenderers should complete and return the form at the end of this document giving an overall cost of works.

Activity Schedule

Tenderers are to submit an *activity schedule* reflecting the prices in the cost breakdown. This will be a document headed 'activity schedule' and will comprise a list of activities with an amount entered against each activity. This amount is the sum due to the contractor on completion of each activity.

Activity descriptions must be clear and complete so that the work included in each can be identified and the completion of each activity is easily recognised for payment.

Submit your activity schedule with due consideration of the Performance Specification as supplied in **Appendix A (section 11)**.

Please include a Schedule of contractor rates (e.g. designer, electrical) and over heads etc as per NEC3 form:

category of employee	hourly rate
…Director……..	… £……
…Project Manager..	…£……
…Designer...	…£……
…Ground Worker.. …Builder…… …Electrician…….	…£…… …£…… …£……..

The percentage for people overheads is .....%

Additional costs

1. Fees
2. add any additional cost not listed in section 11 of Appendix A, including the cost of any value added services and efficiency savings you can offer. We are also interested in any visual screens or displays that can be installed as part of the project, demonstrating to our visitors the current PV generation
3. we would be interested in any discount or savings schemes you have available

5 Tender Questions and Supporting Information

5.1 Company Structure and Details

Mandatory question:

Has the Tendering Organisation or its directors or other people with powers of representation, decision or control been convicted of any of the following offences?

1. participation in a criminal organisation,
2. conspiracy,
3. bribery,
4. corruption,
5. fraud,
6. money laundering,

If you answered “yes” please provide details that will enable the Trust to determine whether or not they are required to exclude you under the mandatory grounds for exclusion laid out in Regulation 23 of the Public Contracts Regulations 2006.

Mandatory question: Regulation 23(4) of the Public Contracts Regulations 2006 sets out grounds on which a services provider may be deemed ineligible to tender for or be awarded a public contract.
Do any of the circumstances as set out below apply?

- The bidder being an individual is in a state of bankruptcy or has a receiving order or administration order or bankruptcy restriction order made against him or has made any arrangement for the benefit of creditors.
- The bidder being a partnership constituted under Scots law has granted a trust deed or become otherwise apparently insolvent or is subject of a petition presented for sequestration of its estate.
- The bidder being a company is in the process of winding up, administration, or receivership.
- The bidding organisation has been convicted of a criminal offence relating to the conduct of its business or profession.
- The bidding organisation has committed an act of grave misconduct in the course of its business or profession.
- The bidding organisation has not fulfilled obligations relating to payment of social security contributions.
- The bidding organisation has not fulfilled obligations relating to payment of taxes.
- The bidding organisation is guilty of serious misrepresentations in supplying information required by the Buyer.
- The bidding organisation is not in possession of a licence or not a member of the appropriate organisation where the law requires it.

If you answered “yes” please provide details that will enable the Trust to determine whether the discretionary grounds for exclusion apply to you or not.

Mandatory question: Provide evidence of current Public Liability and Employers Liability Insurance, including minimum amount of cover.

Mandatory question: Are there any actual or potential conflicts of interest which might arise for you (including, where your organisation is a joint venture or consortium, one or more of the members of that joint venture or consortium) if your organisation were to be awarded the contract?

If the answer is 'yes' please provide details, including how it is proposed to deal with such conflicts.

1) What is your company structure, including any parent or subsidiary companies?
2) What has your annual turnover and operating profit been for the last 3 years? (parent and subsidiary)
3) Please provide 3 years of accounts
4) Please indicate whether you are VAT registered
5) Has your organisation had a contract terminated for failure to perform within the last three years? If you answered 'yes' please provide details including the name of the customer, reasons for termination and any action taken to avoid this happening again.
6) Have you had liquidated and ascertained damages or other similar fixed penalties, imposed for a failure to complete a contract on time or to requirements in the last three years? If you answered 'yes' please provide details including the name of the customer, reasons for Liquidated and Ascertained Damages (LADs)/penalties imposed and any action taken to avoid this happening again.
7) Has your company been served with a Prohibition or Improvement notice for any breaches of Health & Safety legislation in the last three years? If your answer was "yes" provide details of the convictions or notice(s) served and give details of any remedial action or changes to procedures you have made as a result of the prosecution or notice(s) served.

5.2 Proposed PV system

1) How would you meet and deliver the technical requirements of this contract? To include (but not limited to):
    a. Details of PV arrays
    b. Proposal for minimising aesthetic impacts on visitor centre roof
    c. Summary of your grid connection works and inverters
2) Highlight and describe any proposed deviations from the Sizergh Castle PV Specification' as given in Appendix A and explain why you propose these changes.
3) Indicate the warranties and guarantees offered, any variance from those requested in the performance Specification (Appendix A) and any additional provision proposed.
4) Provide detailed manufacturers technical specifications of the proposed PV array
5) Provide examples of any previous projects where a similar / same system has been installed

5.3 Project Management and Programme

1) How would you deliver or meet the operational requirements of this brief? (e.g. Design of the system to meet health and safety, regulatory compliance, planning requirements, working with various stakeholders etc.)
2) Identify your ability to meet our preferred timescales or any constraints to achieving this. Please identify lead time on key equipment/services supply.
3) Supply a Programme for delivery of the works (covering detailed design through to completion). This forms a key document in NEC3 contracting.
4) Identify how you would manage the project once site works are started. How would you monitor and report performance throughout the project? Please provide a draft/example of a regular project report to the client.

5) Identify how you would manage the works to minimise disruption to the site, with particular focus on enabling business continuity within the visitor centre / café.

6) Identify a plan for minimising the impact of electrical isolation.

7) Identify your anticipated maximum requirements for equipment/structures at the contractor compound area, anticipated numbers of staff and required vehicles that will be on site at any one time.

8) List items/services if any, that you are assuming to be available free of charge from the NT in support of this project and your proposed works.

9) What is your approach to customer service in consideration of the following?
   - Problem escalation, dispute resolution, complaints procedure.
   - Account or Project Management Structure i.e. Account Manager or similar.

Response Max 3 side A4 (excluding any associated drawings or example documents provided)

5.4 Commissioning, Handover, Performance

1) Please identify and summarise the key aspects, tests and checklists you will consider as part of commissioning of the full PV system.

2) Please summarise the key elements of any handover packs and information that will be passed to site following completion of the works to enable effective ongoing operation and maintenance.

Response Max 2 side A4

5.5 Health & Safety, Quality Management and Accreditations

1) Registration with Construction line is mandatory, please provide details.

2) Briefly describe your organisation's health and safety policies relevant to the provision of the goods and/or services of the type to be provided in relation to the Requirement.

3) Please provide a copy of your Health and Safety Policy statement (not manual), signed and dated.

4) Is your company registered with an industrial or occupational safety group, for example, Safety Schemes in Procurement www.ssip.org.ukor equivalent? If your answer was 'yes' please state the organisation concerned, provide your membership number, your membership level and other details of what your membership covers.

5) Has your company been served with a Prohibition or Improvement notice for any breaches of Health & Safety legislation in the last three years? If your answer was "yes" provide details of the convictions or notice(s) served and give details of any remedial action or changes to procedures you have made as a result of the prosecution or notice(s) served.

6) What checking procedures do you use to verify quality and reliability of products and services from sub-contractors and suppliers?

7) Do you conform to any recognised quality or management standards/accreditations? (e.g. quality assurance, environmental)

8) Please provide details of any Environmental and Sustainability policies you currently have in place and demonstrate how you would manage works with due consideration of environmental impacts and mitigations.

9) Please provide details of how you will abide by relevant legislation and work with the property and project team to prevent any damage or pollution to the natural environment and its plant and wildlife.

10) What percentage of your projects over the past year have been completed on or under budget (excluding any value for Variance/Contingencies)

Response Max 1 side A4

5.6 Team structure and subcontractors

1) Please provide a list of the key members of your team that will be involved in this project, plus an outline of their skills/qualifications

2) Please show how the team would be structured and resource allocated to the programme of work

3) How would subcontractors on this project be managed?

4) Please detail the subcontractors you intend to use for this work, and outline which aspects of the contract they will be used for.

5) Are you linked to or do you have an agreement with any specific PV manufacturer? [if so, please state which one(s)]

Response Max 2 side A4 (in addition please provide CV's where appropriate)

5.7 Operations and Maintenance

1) Please confirm your intention and capability to supply an Operations and Maintenance (O&M) service to support the full PV system after handover.

2) Please identify expected maintenance regimes for life of key plant and equipment identifying requirements for major and minor services.

3) Please detail minimum daily, weekly, monthly essential in house maintenance.

4) Please supply an example of a standard O&M agreement that you would supply for installations such as this.

5) Please supply a proposed service level agreement (SLA) and associated costs for this installation.

6) Please supply an example of As Built diagrams, O&M manuals and any Operating guidance that you would provide as standard.

7) What training is available and what format will this take?

Response Max 2 sides A4 (excluding any example documents provided and proposed SLA's)

5.8 Setting and significance

1) What is your experience of and sensitivity towards working with historic Grade 1 and Grade 2 listed properties? Please give examples.

2) What lessons have you generally learned?

3) How will you undertake the detailed design to ensure minimum impact on the historic fabric of the site and its gardens?

4) How will you manage works on site to ensure that the historic fabric, archaeology and nature considerations/issues are effectively managed and protected?

5) Please detail what you think will be difficult about the site and demonstrate how you will approach it.

6) Demonstrate what experience you have of working in a conservation area, in or near a SSSI and how you will manage works in order to prevent loss or damage to plant collections.

Response Max 2 side A4

5.9 Working with the National Trust

1) What is your experience of working in a public attraction? Please give examples, and indicate how this affects your approach, how you would positively engage and interact with visitors.

2) Please outline your approach to stakeholder management?

3) Do you currently provide (or have you recently provided) any goods or services to the National Trust?

   - If so, what is the annual spend of the National Trust with you, what NT sites have you worked on and what services have you provided?

   - If not, do you have any customers similar in nature to the National Trust?

4) Please recommend two clients for which you have provided similar services that we could contact or visit?

Response Max 1 side A4

5.10 Customer Information

1) Please provide at least two recent case studies (within the last 3 years) demonstrating your involvement and management of similar projects, which also reflect your approach to customer service

2) Please provide details of 2 of your larger customers that we could contact as part of our due diligence. (please outline how long you held their business and the products/services you have provided)

Response Max 1 side A4

NOTE: Please contact Garry Sharples if any of the above questions are unclear. Preferred method of contact is by e-mail.

6 Forms to complete and return

See overleaf

The National Trust

Confirmation of ITT receipt and intention to participate

Please complete and email to: garry.sharples@nationaltrust.org.uk

Name of Company: ……

Name of Contact: ……

Confirm we intend to participate: ……....

We would like to attend the site visit on 4/10/21 or 5/10/21 at (please specify time)

Our representatives at this session will be

1. ……....
2. ……....

The National Trust

COMPANY INFORMATION

Tender for the design, supply and installation of a PV system at National Trust Sizergh Castle,

Please complete and return the information below when submitting your tender:

Name of Your Organisation :

Signature: …… Date: …….

Name: …….

Position in company: ……..

Direct Tel No: ……

Fax No: …… Email: ……

Address for correspondence:

…….

…….

Post Code ……

Registered company address:

……

……

Post code ……

Company registration number: ……

Date of Registration ……..

The National Trust

FORM OF TENDER

To: Garry Sharples

Project Manager, Renewable Energy Programme

The Hollens, Grasmere, Ambleside, Cumbria, LA22 9QZ

Project: Installation of a PV System at National Trust Sizergh Castle.

I/we the undersigned hereby submit a fixed price tender and undertake to carry out the works in accordance with the plans and specifications, and to supply all necessary materials and plant for the sum of

…….. Excluding VAT

(Amount in words)…….

I/we agree to commence the works within . . . . . weeks of receipt of order and to complete the works within . . . . . weeks of commencement.

I/we understand that The National Trust does not bind itself to accept the lowest or any other tender.

Signed……. Date……....

On behalf of…….. (Company Name and Address)

……

……

……

……

THE NATIONAL TRUST

For Places of Historic Interest or Natural Beauty

EVIDENCE OF INSURANCE FOR CONTRACTORS

It is a condition of carrying out contracting work or conducting an organised activity on National Trust property that this form is completed and returned.

PLEASE PASS THIS QUESTIONNAIRE TO YOUR INSURANCE BROKER/AGENT OR INSURANCE COMPANY FOR COMPLETION.

1.

Trading Name	
Trade/Occupation/Activity	

2.

	Name of Insurer	Policy Number	Indemnity Limit	Expiry date	Indemnity to Principals
Public Liability			*		YES/NO
Employers Liability					YES/NO
Contract Works (new building contracts only)					N/A
Professional Indemnity			**		N/A

* Minimum £10,000,000 is required

. ** Minimum £2,000,000 dependent on Contract Value

3. If short period policies, please give commencement and expiry dates……

1. Are there any special terms or conditions applying to any of the above policies, e.g. heat warranty, excess etc. YES/NO If 'YES' please give details below

2. Information Supplied by:

Name (Block Capitals):
Signature:
Company:

PLEASE RETURN TO**:** Garry Sharples

Title: Project Manager, Renewable Energy Programme

Address: The Hollens, Grasmere, Ambleside, Cumbria, LA22 9QZ

Email: garry.sharples@nationaltrust.org.uk
Tel: 07825450516

SOLAR SPECIFICATION

SIZERGH
KENDAL
LA8 8DZ

TS-S-001

12th August 2021

Issue Status

Issue	Issue Date	Status
Tender	12th August 2021	Tender

INDEX

INTRODUCTION

The image below outlines the proposed location of the solar PV panels on the Visitor Centre roof. The size of the system is estimated at 57kW and should comprise of solar panels capable of an output of 325 Watts per panel.

The tendering party shall be deemed to have made a thorough examination of the tender documents, the site and all features thereof including all services, mains or other items affecting the proposed works to ascertain precisely the nature and extent of the services available to carry out a professional installation, including all Local Authority approvals.

The Contractor shall satisfy themselves of their ability to install the works based on the information indicated within this specification and all other documentation forming part of the enquiry package and the satisfaction of the current regulations and standards.

1.0 SYSTEM REQUIREMENTS

The successful company will be required to install their specific equipment aligned to this overall specification for the Sizergh site, which will include all labour and materials.

2.0 SCOPE

The contractor shall be responsible for carrying out the procurement and installation of the solar PV system. The contractor shall make provision for their specific installation at tender stage.

The contractor shall include at tender stage all costs to provide a complete functional system, which shall meet this technical specification.

3.0 TIMETABLE

Continuation of work may be interrupted due to the construction programme but we would require completion of the installation within a period provided by the Project Manager.

Once commenced, the contractor's attendance on site is to be continuous until completion of the works within the minimum possible time span aligned to the programme.

4.0 SPECIFICATION

The Contractor shall provide and install a renewable energy source by converting light energy directly into electrical energy using solid state semiconductor based photovoltaic (PV) cells, modules, inverters, and all associated control and protection equipment.

System Description
The Contractor shall provide and install a solar PV system as detailed within the Part L building regulations and detailed in this specification.

The contractor shall ensure they provide all supply cables etc. as required for the installation to provide a fully functional system.

The system shall be designed with monocrystalline silicon photovoltaics cells.

The photovoltaic units shall be mounted onto the roof within a GSE integration system to make sure there is no roof penetration to allow water ingress. It is expected that the existing roof covering will be removed, new battens and felt to allow the GSE system to be installed.

Suitable inverters will be required with a minimum 10 Year warranty.

Please Note: It is important that the solar panels are black with no silver line markings. It is also important that the solar panels are raised above the roof to a minimal level as possible, please detail on the tender return the expected height of the solar panels above the roof line.

PV System Equipment Specification

System requirements

The total solar array should have a peak output of 57kW, which with each solar panel of 325 Watts is approximately 176 solar panels. If higher output panels are to be considered with a reduced number of solar panels, then the roof layout needs forwarding to the NT project Manager for consideration prior to tendering. Simple, plug-together system components are specified in order to aid system installation, safety and maintenance.

PV Modules

The modules shall:

- be of silicon semiconductor type
- be a MCS certificated product
- carry a CE mark
- be tested to IEC61215 by an accredited test laboratory
- be safety tested to IEC61730 by an accredited test laboratory
- have a verified efficiency of at least 19.0%
- be double-insulated by construction
- be supplied with double-insulated, weather-proof flying lead cables
- be supplied with purpose-designed, weather-proof and touch-proof terminations on both poles
- have a rated output power tolerance of +10% / -5%, or tighter have a product guarantee of at least 10 years
- have a power guarantee of at least 80% after 20 years
- be supplied with a traceable serial number
- be capable of connection in either 1 or 2 strings to make up an array.
- be suitable for a grid-connected system

Inverter specification (1 per phase)

The inverters shall:

- be of single-phase type, be pre-configured for connection to the UK grid and have a G98/G99 type test certificate
- have a Euro efficiency of at least 95%
- have DC connection receptacles designed to accept touch-proof PV connectors matching supplied cabling.
- incorporate a display or indicators showing basic system status and as a minimum incorporate a display showing system performance; instantaneous power and cumulative energy or be supplied with a remote monitoring device showing system performance information or software enabling web access to system performance information or both.

Please Note: A requirement to remotely display the energy data could be required and therefore there should be allowance for this within the equipment supplied.

- be installed in a location accessible by the occupant, with the system status displays clearly visible.
- incorporate a maximum power point tracker capable of operation with the above-specified PV modules throughout all expected temperature and insolation ranges.
- have a rated power between 0.7 x array kWp and 1.2 x array kWp for each array.
- be capable of accepting the maximum open circuit voltage and maximum short circuit current of the specified modules (in 1 or 2 strings, as appropriate) without damage or malfunction.
- have an ingress protection rating of at least IP44 if mounted indoors, IP55 for outdoor mounting
- have a product guarantee of at least 10 years

Mounting frame

Any mounting frames supplied shall:

- conform with MIS3002
- shall comply with MIS3002 for all structures and structural elements, including array structures. The support frame must account for a full wind uplift calculation to make sure that the structure will not be affected by storm weather.
- the systems must be installed so that there is provision for disassembly and removal of the systems, which allows for cost effective repair or replacement of the roof.
- for rooftop installations where there is no parapet or the parapet is less than required by current CDM and HSE regulations, a suitable safety zone from the roof edge to the PV system must be maintained. A clear path of travel must be maintained to and around all rooftop equipment in accordance with current CDM and HSE regulations.

Please Note: 400mm has been allowed on each end of the solar array, top and bottom distances are approximately 200mm, therefore the specialist solar installer has responsibility to make sure that there is adequate distance provided around the solar array, therefore if the present proposal requires adjusting in size, a proposal should be forwarded to the NT Project Manager.

General

All other parts of the system shall:

- be completed (and/or commissioned by) an MCS-accredited installer.
- Be installed as per current version of BS 7671, Requirements for Electrical Installations, IEE wiring regulations.
- Conform to the most recent version of the DTI guide; "Photovoltaics in Buildings – Guide to the installation of PV systems, (DTI publication DTI/pub URN 06/1972, latest edition).
- An approved generation meter must be supplied as per “MCS Metering Guidance” (www.microgenerationcertification.org)
- All equipment shall be supplied new and undamaged
- All equipment shall be supplied with the manufacturers’ installation instructions, user manual, O&M manual and guarantees, where these exist

5.0 DESIGN PARAMETERS

Comply fully with the edition (including amendments) of each of the following, current at the time of tender:

Standards and Regulations

The following documents are of particular relevance for the design and installation of a PV system, where referenced throughout the guide the most recent edition should be referred to:

- The Electricity at Work Regulations
- The Electricity Supply Regulations
- The Health and Safety at Work etc. Act
  Comply fully with the edition (including amendments) of each of the following, current at the time of tender:
- The following documents are of particular relevance for the supply and installation of the electrical systems.
  Where referenced throughout the guide the most recent edition should be referred to:
- Engineering Recommendation G98 (current edition) – Recommendations for the connection of small-scale embedded generators (up to 16A per phase) in parallel with public low voltage distribution networks.

- Engineering Recommendation G99 (current edition) – Recommendations for the connection of generating plant to the distribution systems of licensed distribution network operators.
- BS 7671 (current edition) - Requirements for electrical installations (all parts – but in particular Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems)
- BS EN 62446 (current edition) - Grid connected photovoltaic systems - Minimum requirements for system documentation, commissioning tests and inspection
- BS EN 60439-1 Low-voltage switchgear and control gear assemblies Part 1: Type-tested and partially type-tested assemblies
- BS EN 61194 Characteristic parameters of stand-alone photovoltaic (PV) systems
  General requirements and methods of test
- BS7430 Code of standards for earthing
- BS 7671 (current edition) - Requirements for electrical installations (all parts – but in particular Part 7-712 Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems)
- BS EN 50380 Datasheet and nameplate information for photovoltaic modules
- BS EN 60891 Procedures for temperature and irradiance corrections to measured I-V characteristics of crystalline silicon photovoltaic devices
- BS EN 60904 Photovoltaic devices
- BS EN 61173 Overvoltage protection for photovoltaic (PV) power generating systems.
- BS EN 61215 Crystalline silicon terrestrial photovoltaic (PV) modules. Design qualification and type approval
- BS EN 61345 UV test for photovoltaic (PV) modules general requirements and methods of test

6.0 ELECTRCIAL SERVICES PERFORMANCE SPECIFICATION

Photovoltaics

- BS EN 61646 Thin-film terrestrial photovoltaic (PV) modules. Design qualification and type Approval.
- BS EN 61683 Photovoltaic systems. Power conditioners. Procedure for measuring efficiency
- BS EN 61701 Salt mist corrosion testing of photovoltaic (PV) modules
- BS EN 61702 Rating of direct coupled photovoltaic (PV) pumping systems
- BS EN 61724 Photovoltaic system performance monitoring. Guidelines for measurement, data exchange and analysis
- BS EN 61727 Photovoltaic (PV) systems. Characteristics of the utility interface
- BS EN 61829 Crystalline silicon photovoltaic (PV) array. On-site measurement of I-V Characteristics
- BS EN 62093 Balance-of-system components for photovoltaic systems. Design qualification natural environments.
- BS EN 62124 Photovoltaic (PV) stand-alone systems. Design verification IEC 60364-7-712 Electrical installations of buildings Part 7-712: Requirements for special installations or locations. Solar photovoltaic power supply systems
- IEC 60904 Photovoltaic devices
- IEC 61427 Secondary cells and batteries for solar photovoltaic energy systems (PVES).

General requirements and methods of test

- IEC 61646 Thin-film terrestrial photovoltaic (PV) modules. Design qualification and type approval
- IEC 61727 Photovoltaic (PV) systems. Characteristics of the utility interface
- IEC 61730 Photovoltaic (PV) module safety qualification
- IEC 61836 Solar photovoltaic energy systems. Terms, definitions and symbols
- IEC 62116 Test procedure of islanding prevention measures for utility connected photovoltaic inverters
- IEC 62145 Crystalline silicon terrestrial photovoltaic (PV) modules.
- IEC 62446 Grid connected photovoltaic systems. Minimum requirements for system documentation, commissioning tests and inspection

7.0 ELECTRICAL

DC Protection

- Reverse current
  Provide protection against reverse current within each parallel string and between the entire PV array and the inverter. Ensure protective devices are located in both positive and negative legs of each string.
- Localised shading
  Provide protection within each series string around individual PV modules against over-heating current caused by localised shading.
- Over current
  The strings shall be protected by MCB's located in the Photovoltaic consumer unit located within the property. MCB's shall be suitably rated to suit the design / requirements.

DC isolation
The Contractor shall provide manual isolators to isolate the entire PV array from the public utilities supply and the remainder of the electrical system. The DC isolators shall be located adjacent to the inverters. The Contractor shall provide a means to manually isolate each series string from the remainder of the PV array. The Contractor shall provide isolation in accordance with the requirements of clause 691.

DC cable routing
The cable shall be installed within 25mm Galvanised Steel conduit throughout the entire route of the cable to the PV installation and identified as a DC supply.

Provide G98 protection to facilitate parallel operation with the public utility supply. Allow for the system to synchronise with the main electricity supply and ensure that all protection devices, relays and the installation complies with G98/1.

AC isolation
Provide manual isolators to isolate the entire PV array from the public utilities supply and remainder of the electrical system. Locate the isolator in an accessible position adjacent to consumer unit.

A manual isolator shall be provided as a means to manually isolate each PV array from the remainder of system. Locate the local isolators adjacent to the array inverters. The position of the invertors should be agreed with the NT Project Manager.

Metering
An approved generation meter must be supplied as per "MCS Metering Guidance"

Fault current protection
The Contractor shall provide short-circuit fault protection for the feeding cables from the invertors of the mains distribution equipment. Short-circuit fault protection shall be in accordance with BS7671.

Testing and Commissioning
The electrical installations shall be fully tested and inspected in accordance with BS 7671.

On completion of his works the electrical contractor shall issue an unqualified NICEIC inspection Certificate at Practical Completion for these installations.

Containment
The Electrical Contractor shall supply, install, test, commission and set to work new cable containment systems as detailed herein.

New containment shall generally be provided in the form of concealed galvanized conduit in wall and cable supports every 450 mm above the ceiling fixed to the soffit. Final routing to be confirmed with the NT Project Manager.

The size of each length of primary containment shall be determined by the electrical contractor.

The Electrical Contractor shall make necessary provision for all secondary containment as deemed necessary.

In general twin and earth shall (6242B) type cabling shall be clipped direct to the building structure.

The Electrical Contractor shall make necessary provision for all fixings, supports and accessories etc. in order to provide a full and complete working solution.

All vertical drops shall be concealed within the building fabric behind galvanised steel conduit for the entire length. All runs are to be either horizontal or vertical.

Conduits installed within wall chases shall be galvanised steel. Conduits installed within plasterboard voids may be white plastic. All exposed conduits will be secured by saddle straps at 2m intervals fixed to the partition studwork and/or building structure.

All cable containment that shall be considered an extraneous metal component and shall be bonded to earth throughout its entirety.

Accessories and Finishes

All accessories shall be of white plastic finish or of a paintable type product.

All accessories shall be mounted as detailed previously.

Samples and Literature

All samples and literature shall be issued in good time and prior to any item being ordered by the Contractor. No item(s) shall be ordered by the Contractor until the NT Project Manager approval has been obtained by the Contractor.

8.0 COMMISSIONING AND TESTING

Commissioning and Registration

The systems must be commissioned prior to hand-over to client.
The installer is expected to provide the following:

- Certification of the systems with all warranty documentation
- Registration documentation
- Operating and Maintenance manuals

9.0 CLEARING AWAY

Remove all rubbish, debris (including that of any sub-contractor) and surplus materials as they accumulate and at completion. The site is to be left in a neat and tidy condition on completion of the works.

10.0 DOCUMENTATION

A full set of equipment manuals will be required on completion of the works.

11.0 SUMMARY OF TENDER

1.	Scaffolding	£
2.	Integration panels	£
3.	Solar Panels	£
4.	Roof materials	£
5.	Electrical	£
6.	Labour	£
7.	Earthing and Bonding	£
8.	Testing and commissioning	£
9.	12 Months Maintenance	£
10.	Builder's work	£
11.	O&M manuals	£
12.	Training 1 hr	£

Tender Return **£_____**

By

Date

Signed

Guidance
Electrical installations: Notes for Electrical contractors

Recommended practice

Overview	This guidance documents applies to all electrical installations in all buildings and structures at the National Trust. This document is produced to assist electrical contractors. It covers all electrical systems and relates to the design, installation, repair, maintenance, inspection, test and certification of electrical installations. This document which should be read in conjunction with the Guidance note guidance note for Electrical Contractors and Electrical Installations. Where electrical work is being undertaken on a property or structure, your building surveyor should be consulted.
Target Audience	This guidance applies to Building staff and those involved in the management of our buildings

1. Standards

1.1. In addition to compliance with National Trust documents, such as *General Requirements for Building Works*, *Quinquennial Surveys on Buildings held for Preservation* and *Fire Precautions at Historical Buildings*, electrical installations must meet with the following:

- BS.7671:2008 Requirements for Electrical Installations (IEE Wiring Regulations Seventeenth Edition) latest amendments.

- IET/IEE. Supplementary Guidance Notes. This is to include:
  No.1 Selection and erection of equipment
  No.2 Isolation and switching
  No.3 Inspection and testing

No.4 Protection against fire
No.5 Protection against electrical shock
No.6 Protection against over-current
No.7 Special locations
No.8 Earthing and Bonding

- British Standard product specifications and Codes of Practice as, where appropriate, BS.7671:2008 Appendix 1 (Normative) using all latest issues.

- Local authority licensing stipulations.

- Electricity at Work Regulations (EWR) 1989. In Northern Ireland this should read as 'The Electricity at Work Regulations (Northern Ireland) 1991'.

- Health and Safety at Work Etc. Act 1974. In Northern Ireland this should be read as 'Health and Safety at Work (Northern Ireland) Order 1978'.

- Statutory Regulations and associated memoranda in Appendix 2 of BS.7671:2008. (The IET/IEE 'On-Site Guide', for use by competent electricians on installations of 100A or less, is not appropriate for work within historic buildings.)

- Drawings, specifications and instructions provided by Consultants as appropriate.

- Part 'P' of the Building (Amendment) (No.2) Regulations 2014 No.1808 and Building Regulations 2010 Approved Document 'P' (Electrical Safety) when the premises is a dwelling normally in use as a residence, or that part of an historic building used for residential purposes, e.g. caretaker's flat or administrator's accommodation. This requirement does not apply to those parts of the historic building in common use of access routes to the residential areas.

1.2. Cabling standards shall meet criteria appropriate to the National Trust categorisation of Key, Enhanced or Other properties. Key properties and Enhanced Properties must be wired in Mineral Insulated Copper Sheathed (MICS) cable. For 'Other' properties the type of cable shall be based on the individual circumstances and may or may not require MICS cable. Designers shall ascertain the building's category from the Project Manager and, for other properties shall submit a report detailing the considered cable options and making their recommendation.

2. Departure from the Regulations

2.1. BS7671:2008 is currently non-statutory. Where life safety is not diminished and structures are not subject to additional fire risk, departure from the Standard may be permissible for aesthetic, integrational or restricted space purposes.

2.2. Where aspects of work unavoidably fail to fully comply with BS.7671:2008 for any reason approval of the Project Manager and authorisation by a suitably qualified Electrical Engineer in writing is to be obtained. Such departures are to be noted

on all appropriate certificates.

2.3. Many existing systems may not fully meet the current edition of BS.7671:2008. They will not necessarily be unsafe.

2.4. All new work, including inspection and testing of existing and new work, must be to BS.7671:2008 (including latest amendments) and departures from this standard noted.

3. Contractors' qualifications

3.1. Electrical Contractors must be registered as NICEIC, ECA or NAPIT Approved Contractors and meet their conditions of enrolment in full. Removal from the NICEIC, ECA or NAPIT roll for whatever reason is to be advised to the National Trust Project Manager immediately. They must be 'competent persons' under Part 'P' of the Building Regulations able to self-certify compliance where work covers installations in dwellings.

3.2. Operatives must be fully experienced with the materials specified, especially in the installation of MICS cable, and always exercise the greatest care with respect to the building fabric and its contents.

3.3. The number of apprentices on any particular contract must not exceed that of the electricians.

3.4. Contractors must not sub-let or assign the contracted works without express permission of the Project Manager or their nominated professional advisors in writing.

3.5. Only full employees of the Contractor are to be used to act as Lead Electrician and the employment of self-employed or freelance operatives shall only be permitted with the express permission from the Project Manager or Professional Adviser.

3.6. All operatives employed must be competent in accordance with the EWR 1989 for the tasks they are to perform.

3.7. Competent persons are those with the appropriate qualifications, training, experience and knowledge to avoid danger to themselves, others, livestock, the building and its contents.

3.8. Contractors must maintain such insurances and meet such terms and conditions as specified in the *General Requirements for Building Works*, the specific terms and conditions under which the contract is let shall be agreed with the Consulting Engineers or Project Manager.

3.9. Comply with all contract conditions, working hours, site regulations, security matters and such site stipulations imposed to enable the work to proceed in a

safe manner without dangers and unacceptable inconvenience to staff, residents, visitors and the public.

4. Fire Precautions

4.1. 'Hot Work' is prohibited on National Trust properties. Dispensation by the Project Manager may be given in certain circumstances 'Hot Work' is defined as 'All operations involving flame, hot air or arc welding and cutting equipment, brazing and soldering equipment, blowlamps, bitumen boilers and other equipment producing heat or having naked flames'.

5. Electrical installations (general)

5.1. Complete all electrical work to the relevant standards and as shown on the drawings and described in the specification.

5.2. Do not proceed with any installation work until approval of materials, accessories, positions, routes and associated builder's work have been given by the National Trust Project Manager.

5.3. Provide samples of equipment and materials, drawings, sketches or other details reasonably required to demonstrate that the location and appearance of the systems are acceptable and that cable, conduit, ducting, tray, trunking and other parts of the installation can be safely accommodated, easily maintained and inspected where appropriate and erected without damage to the building, finishes or contents.

5.4. Set out the works for approval by the Project Manager or Consulting Engineer.

5.5. Agree any opening up, chasing, notching, making good, boxing-in, concealment or other relevant detail with respect to associated builder's work. Do not carry out any works to the fabric or finishes without consultation and approval by the Project Manager or their nominated Professional Advisor. *Note: many of the details of the installation and associated builder's work may be subject to Listed Building Consent Applications*

5.6. Ensure all parts of the Building Regulations, as appropriate, are met.

5.7. Normally a specialist builder will be appointed to carry out associated building works. In any event provide a full builder's work schedule together with supplementary drawings and any sketches that may reasonably be required.

5.8. Provide protection approved by the Project Manager in the form of dust sheets, covers, fibreboard or similar to ensure that the building, finishes, floors, contents and similar are not damaged, marked or soiled by the operations. Maintain protection in a clean condition at all times.

6. Design

6.1. All electrical work is to be designed to BS.7671:2008 including the latest amendments. Where designs are by others e.g. Consultants, they are to be followed and Contractors are to ensure that the Designer completes the relevant parts of the Completion Certificate. Advise the Designer of any changes to the design (e.g. changes in cable length) arising on site due to whatever reason, to permit calculations to be amended.

6.2. Where full or part designs are the Contractor's responsibility, prepare calculations made on specialist software, Hevacomp, Amtech or similar, for submission to the Project Manager and sign the relevant parts of the Completion Certificate as appropriate.

6.3. The Contractor shall fully comply with the CDM Regulations in force at the time of the appointment, acting as Principal Designer, if necessary and if required by The Trust.

6.4. Where works are minor, contractors must complete a Minor Works Certificate to indicate the responsibility for design, construction, inspection and testing of the works.

6.5. Where the work includes ancillary services such as fire detection and alarms, emergency lighting and similar the designs, installation, testing, commissioning, certification and maintenance shall be to the current Code of Practice and/or British Standard.

7. Installation

7.1. Maintain full 'as fitted' records as projects progress. Especially record the nature and exact position of concealed or buried cables where their presence may cause a danger.

7.2. Upon completion of the installation provide two sets of record drawings and calculations modified from the design to include actual installed cable lengths etc. Complete the relevant parts of the Completion Certificate. Calculations, drawings and other details shall be submitted in the form of a CD-ROM. containing drawings in Autocad format and calculations and certificates in PDF format.

7.3. Where work relates to the extension or modification of existing systems obtain appropriate records from the National Trust and then update them returning two revised sets on a CD-ROM in Autocad or PDF format as above.

7.4. Drawings are to be submitted as hard copy and in Autocad format.

7.5. Provide two full sets of operating and maintenance instruction manuals containing manufacturers catalogues, drawings, sketches, operating instructions, maintenance manuals and recommendations, spares data and such relevant data and information to enable the systems to be safely and

efficiently inspected, maintained and repaired. Provide a CD-ROM of the complete documents in Autocad or PDF format as above.

7.6. Full and final payment and acceptance of the installation will not occur without full documentation, manuals and drawings.

7.7. All temporary cabling for small power, power tools and any other purpose during construction, renovation or repair work is to be properly protected and supplied from an isolation transformer with centre tapped and earthed secondary. Temporary lighting is to be provided by means of totally enclosed robust fluorescent or LED fittings securely fixed in position. The use of high temperature tungsten halogen floodlighting, whether open or closed, or GLS lamps must not be used.

7.8. Where the work involves a complete rewire, partial rewire, extension or repair to an electrical installation comply with BS.7671:2008 with respect to colour coding of cables (see Annexe 16). Provide permanent notices in the approved format for all affected distribution boards and consumers units and, by means of labelling, sleeving, numbering and records (as fitted drawings etc.), take all appropriate steps to minimise confusion and danger that may arise due to differing colour codes for cables.

7.9. Where the contract calls for low and zero carbon electricity/heat generation, include for all plant, its installation, commissioning and connection (mains and controls) together with all interlocks and safety measures for proper operation of the plant. Liaise, as appropriate, with the electricity supplier and meet their precise requirements. Provide and install all necessary metering, commission and demonstrate the plant to the National Trust staff.

7.10. For micro-generation works the Contractor must be registered for the Micro-Generation Certification Scheme, or with the approval of the Project Manager, employ suitably qualified sub-contractors.

8. Routine inspection and test

8.1. Inspect and test all new electrical work before connection to the supply in accordance with BS.7671:2008 and supplementary Guidance Note 3. Correct any defects immediately.

8.2. Advise the Project Manager and/or the Consultant of proposed tests giving at least seven days' notice so that, if required, they may be witnessed.

8.3. Complete and sign the relevant parts of the Completion Certificate.

8.4. Provide duplicate sets of all test results identifying departures from the Regulations, if any and which have been pre – approved by the Project Manager or Consultant .

8.5. Make recommendations upon the frequency of future inspection and tests.

8.6. Where installations were installed to earlier editions of the IEE Regulations,

they must be tested to the current edition of BS.7671:2008 noting discrepancies upon the certificate. Provide the original and one copy of all certificates to the Project Manager. Retain one copy for future reference.

8.7. Where responsibility for design, construction, inspection and test is with one person, the declaration as outlined in BS.7671:2008 Appendix 6 (Informative) or such equivalent certification is to be provided for retention by the National Trust; see Annexe 3.

8.8. BS.7671:2008 Regulation 622.2 will not apply since, generally, continuous monitoring and maintenance will not be provided by electrically skilled persons in all circumstances.

9. Quinquennial inspection and test

9.1. Where Contractors are commissioned to undertake a quinquennial type inspection of existing electrical installations, the following procedures must be adhered to:

- Check that the systems are safe and meet the EWR 1989 and H.S.E. Memorandum of Guidance HS(R) 25.
- Provide or check records to meet the EWR 1989 Guidance Note 4(2) clauses 6-10 and confirm, as far as it is possible to establish, that the records are correct.
- Confirm licensing authority requirements are met if appropriate.

Verify compliance with current BS.7671:2008 including the latest amendments, or note otherwise.

- Identify alterations arising since the previous report.
- Locate dangers, significant wear and tear, faults or deterioration.
- Assess repair/replacement priorities and probable costs to enable financial and programme planning to take place.
- Although normally not part of the electrical installation, Contractors discovering an asbestos hazard are to report the facts in writing immediately.
- Any PCB hazard in electrical equipment is to be reported and proper measures for disposal proposed.

9.2. The duties involve a visual inspection, observing standard safety procedures and avoiding live working unless completely unavoidable, e.g. measuring Ze, verifying compliance and contravention of this document.

9.3. Follow with tests and measurements, undertaken in the order outlined in

BS.7671:2008 Guidance Notes 3 Section 6.2 Part 3 Section 7, to provide completed test certificates for all circuits.

9.4. Supply two copies of a report, including the results of inspection and test procedures and containing appropriate recommendations, together with costs.

9.5. A Consultant may be appointed to visually inspect the work and provide a report using the services of the Contractor to perform the tests and measurements, in which case the Contractor is to operate under the Consultant's direction.

9.6. **Periodicity:** recommend the frequency of future inspection and test procedures.

9.7. **Earthing arrangements:** earthing requirements for circuits with high protective conductor currents. During inspection and test pay particular attention to those sections of the building containing IT equipment to BS EN62638-1:2014. Take particular note within installations with TT earthing arrangements.

10. Demonstration

10.1. Demonstrate completed systems so that systems may be operated and maintained with safety.

11. Correction of defects

11.1. Where design and installation is by the Contractor, a Trust representative may inspect the Contractor's work, examine test results, documentation and certification.

11.2. Defects discovered and notified to the Contractor for remedial action must be corrected expeditiously to comply with the agreed programme. Confirm to the Trust in writing when all defects are cleared.

11.3. Following rectification of any non-compliance or defects, the tests and any preceding tests, the results of which may have been influenced by the faults indicated shall be repeated after the faults have been rectified.

12. Certification

12.1. Provide full documentation and certification to meet BS.7671:2008 and the Building Regulations, if appropriate. In particular, provide the following standard NICEIC, ECA or NAPIT forms as applicable:

- **Electrical Installation Certificate**
  Provide written confirmation that the installation work has been designed, constructed, inspected and tested to BS.7671:2008.

- **Domestic Electrical Installation Certificate**

To be provided where work relates to a single dwelling (single phase, less than 100 Amps and under 12 circuits).

- **Minor Electrical Installation Work Certificate**
  This is to be used only where a minor alteration or addition is made to an existing installation without involving a new circuit.

- **Periodic Inspection Report**
  This is to be used to report on the safety condition of an existing installation. It must not be used to certify new installation work carried out by others.

- **Domestic Periodic Inspection Report**
  To be used to report on the safety condition of the existing electrical installation in a single dwelling.

- **Emergency Lighting Completion Certificate**

- **Emergency Lighting Periodic Certificates and Testing Certificates**

- **Fire Detection and Alarm Certificates for Dwellings**

12.2. Where the work is in a dwelling covered by Part 'P' of the Building Regulations, provide the National Trust with a compliance certificate signed by a competent person and deposit such records with the Building Control Department of the appropriate Local Authority and/or Regulatory Body.

12.3. Each certificate must bear a traceable serial number with the top copy marked 'original' passed to the National Trust.

12.4. The documents must be signed by a competent person and endorsed by the qualified supervisor on behalf of the contractor. The contractors NICEIC or ECA enrolment number must appear on the certificate.

13. Portable appliance testing

13.1. **Contractor's portable appliances:** Subject to verification, Electrical Contractors may connect their portable electrical appliances into the fixed system. The Contractor must ensure that sufficient capacity is available and connection will not be detrimental to the system or other users and that safety is preserved. Approval is given subject to written assurances that all Contractor's appliances have been regularly tested and passed the appropriate tests to comply with the EWR 1989.

13.2. The right is reserved to inspect any Contractor's appliances in use, or proposed to be used, together with associated documentation, registers and test results and to prohibit the use of any appliance if appropriate.

13.3. **Trust appliances:** Where it is agreed that Contractors may use National Trust appliances it will be for the Contractor to satisfy himself that they are safe.

13.4. Before carrying out any work in conjunction with important or historic fittings or appliances, especially lighting fittings (luminaires), liaise with the Project Manager and the Curator to confirm the extent of the work and to agree procedures; see Annexe 2.

13.5. Where Contractors are commissioned to test appliances, guidance on procedures, including records and labelling, will be provided. Comply with HSE Guidance Note HSG107 (Latest Edition) 2004 Maintaining Portable & Transportable Electrical Equipment together with INDG236: Revision 3 September 2013.Maintaining Portable Electrical Equipment in office and other low risk environments.

Reference: National Trust Health and Safety Instruction No. 4.

14. Completion on site

14.1. Contractors completing contracts must meet all contract conditions and leave the site in a clean, tidy and safe condition removing all waste materials as appropriate.

Conservation Directorate Guidance Note Information

(Appendix 2 to Electrical Installations)

Contact: Edward Wood, National Specialist M&E

Author: Peter Lawson-Smith – Revised by Martin Thomas

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Guidance

Electrical Installations

Recommended practice

Overview	This guidance applies to all electrical installations in all buildings and structures at the National Trust. It provides information on: • Sources of independent advice • Dangers • Standards • British standards • Departure from the Regulations • Electricity at Work Regulations • Responsibilities of the parties • Electrical installations – providing a brief, including testing periods • Lightning protection Systems • Portable Appliance Testing (PAT) • Operational tests by Trust staff • Records • Asbestos and PCB Hazards • Warranties The appendices Guidance Note for Consulting Engineers and Guidance note for Electrical Contractors should be read in conjunction with this document. Where electrical work is being undertaken on a property or structure, your building surveyor should be consulted. Please refer to the relevant Acorn pages for up-to-date lists of Key, Enhanced and Other properties, and full details of the standards applicable to each.
Target Audience	This guidance applies to Building staff and those involved in the management of Trust buildings.

Electrical installations

Introduction

1.1 This document supersedes the document and appendices noted below, which are now rescinded. This document comprises:

- Electrical Installations guidance (this document) - for staff use
- Appendix 1 - Guidance Notes for Consulting Engineers
- Appendix 2 - Guidance Notes for Electrical Contractors.

1.2 The document, together with the appendices and annexes, applies to all buildings and structures. They deal with electrical design, installation, inspection, testing and essential records of electrical installations in National Trust properties. Each section may be issued individually as appropriate.

1.3 Throughout this document the principal regulations referred to are the IEE Wiring Regulations (seventeenth edition). For brevity, the Electricity at Work Regulations 1989 are abbreviated to EWR 1989.

1.4 The Wiring Regulations (Requirements for Electrical Installation) is publicised jointly by the Institute of Engineering and Technology (IET) and British Standards Institute (BSI) under BS.7671:2008 entitled IEE Wiring Regulations.

1.5 The Annexes are for the general and particular information of National Trust staff. Specifications and information of Annexe 3, 6, 9, 10, 13 and 14 should always be issued to Consultants and Contractors together with Annexe 4 alerting them to potential dangers. From the remaining Annexes, only issue those which are particularly relevant to the parties concerned and for the work they are undertaking, e.g. Annexe 9 for re-wiring historic lighting fittings or Annexe 17 for occupied domestic buildings.

1.6 When wiring or re-wiring electrical installations in National Trust buildings, safety is paramount and must not be compromised by aesthetic or similar matters.

1.7 The cabling standards in National Trust buildings shall meet appropriate criteria for to the National Trust categorisation of Key, Enhanced and Other properties. Key properties and Enhanced properties must be wired in Mineral Insulated Copper Sheathed cables (MICS) cable. For ‘other’ properties the type of cable shall be based on the individual circumstances and may or may not require MICS cable. For these buildings designers shall submit a report detailing the considered cable options and providing a recommendation accordingly.

1.8 It is recommended that Trust regions/countries employ a competent Consulting Electrical Engineer (defined at 8.4 below) when installing, renewing or modifying electrical systems.

1.9 A Consulting Electrical Engineer, when employed, may design an electrical system, in part or in whole, selecting whatever materials and cable types considered appropriate, providing a high level of safety is achieved and appropriate consideration is given to long life, freedom from mechanical damage, aesthetics, environmental and rodent/insect damage (with the exception of Key and Enhanced properties).

2. Sources of independent advice

2.1 Where independent technical help is needed on particular electrical aspects, the following organisation may be able to help:

Electricity Safety First (ESF)

The ESF is the UK charity dedicated to reducing deaths and injuries caused by electrical accidents. Their aim is to ensure that everyone in the UK can use electricity safely.

30 Great Guildford Street
London
SE1 0HS

Tel: 020 3463 5100
Website: www.electricalsafetyfirst.org.uk
Email: enquiries@electricalsafetyfirst.org.uk

2.2 Other useful organisations include:

IET
Michael Farady House
Six Hills Way
Stevenage
Herts
SG1 2AY

Tel: 01483 313311
Website: www.theiet.org
Email: postmaster@theiet.org

CIBSE
222 Balham High Road
London
SW12 9BS

Tel: 020 8675 5211/Fax: 020 8675 5449
Website: www.cibse.org

Institution of Structural Engineers
47-58 Bastwick Street
London
EC1V 3PS

Tel: 020 7235 4535
Website: www.istructe.org

Insurers

The insurance company that, from time to time, covers the National Trust buildings risks.

3 Dangers

Electricity can be dangerous. Death or injury can occur due to touching live parts or exposed metalwork which has become inadvertently live and is improperly earthed. Fire may arise due to arcing, explosion and overloads. Legislation and regulations are in force to prevent danger and penalise contravention in criminal courts.

4 Standards

4.1 In addition to compliance with National Trust documents *General Requirements for Building Works; Quinquennial Survey Recommended Practice; Fire Precautions at Historic Buildings; and Health and Safety Instruction No 4 (EWR 1989)*, electrical installations must meet the following standards:

- **British Standard BS.7671:2008** (IEE Wiring Regulations)
- **British Standards** and International Electrotechnical Commission (**IEC) Standards** listed in **Appendix 1** (Normative) of BS.7671:2008 as appropriate. Reference should be made to the BSI 'Standards Online' www.bsigroup.com for a title search of current standards. Also comply with the Health & Safety At Work etc. Act 1974. In Northern Ireland this is 'The Electricity at Work Regulations (EWR) (Northern Ireland) 1991' and 'The Health & Safety At Work (Northern Ireland) Order 1978'.
- **Local authority licensing stipulations** if applicable. Regulations and associated memoranda as BS.7671:2008 Appendix 2 (Informative) as appropriate. Special attention is needed to the Electricity Safety, Quality and Continuity Regulations 2002 as amended, the Building Regulations and the EWR 1989 (amended). In Northern Ireland refer to the Building Regulations (Northern Ireland) latest edition.
- **Statutory regulations** as **Appendix 2** (Informative), to BS.7671:2008.
- **Guidance notes to IEE Regulations**.
- **Building Regulations**

4.2 Under the Building Act 1984, the Building Regulations 2000 (as amended) were enacted. It is a legal requirement to comply with the Building Regulations in England, Wales and Northern Ireland. In Northern Ireland they are called the Building Regulations (Northern Ireland) 2000.

4.2.1 It is important that, for all properties, electrical contractors comply with ALL parts of the Building Regulations which are grouped as follows:

A. Structure
B. Fire safety
C. Site preparation and resistance to contaminants and moisture.
D. Toxic substances
E. Resistance to passage of sound
F. Ventilation
G. Sanitation& Hygiene & Water Efficiency
H Drainage and waste disposal
J. Combustion appliances and fuel storage systems
K Protection from falling, collision and impact

L. Conservation of fuel and power
M. Access to & use of buildings
N. Glazing – safety in relation to impact, opening and cleaning
P. Electrical safety – dwellings

4.2.2 The government has issued illustrated practical guidance upon ways to comply with the functional requirements of the Building Regulations in the form of approved documents for each part.

4.2.3 The installation of new electrical circuits or rewiring in historic buildings may where unavoidable involve cutting, chasing, notching and the perforation of joists, beams, partitions, walls, ceilings etc, some of which may be fire barriers. There are some instances where floorboards or seemingly non-structural elements may provide a structural function, and their lifting, cutting or removal may jeopardise structural integrity. Approved document 'A' (*Structure*) contains guidance on how to avoid weakening the structure when cutting wall chases. The following may also have relevance to electrical installations: 'B' *Fire Safety*, 'E' *Resistance to the Passage of Sound*, 'F' *Ventilation* and 'L' *Conservation of Fuel and Power*. '*M' Access to and Use of Buildings. Before any of the above works commence it is essential that the contractor seeks approval from the National Trust Building Surveyor*

4.2.4 Part 'P' of Schedule 1 of the Building (Amendment) (No.2) Regulations 2004 where the building concerned is a dwelling that is, or is intended to be, occupied for residential purposes. Approved document 'P' (*Electrical Safety*) gives guidance. Minor work is not included (see NT Annexe 17).

5 BS.7671:2008 (IEE Wiring Regulations)

5.1 BS.7671:2008 was issued on 1 January 2008. All installations or extensions designed after 30 June 2008 are required to comply with the new standard latest amendment.

5.2 Existing installations made according to earlier editions of the IEE Wiring Regulations are unlikely to be unsafe unless circumstances have changed, e.g. Protective Multiple Earthing (PME) introduced, or the Electricity Distributor's (ED) fault levels increased. However, the introduction of a new colour coding and numbering regime under BS.7671:2001 Amendment 2 2004 means that some historic houses will inevitably contain several generations of wiring colours which has the potential to create confusion and possible danger. In particular, black coloured conductors have been used as earth, neutral and now, for three phase systems, live at 400 volts. Annexe 16 explains the situation and how to minimise danger with the aid of notices, sleeving, numbering etc. **It is important that <u>every</u>** distribution board feeding mixed coloured cabling systems carries a <u>permanent</u> label to that effect as detailed in the Annexe.

5.3 **Scope**

It should be noted that the Regulations Part 7 in particular apply to events, exhibitions, fairs and other installations in temporary buildings. It is important that electrical installations associated with membership promotional stands at exhibitions, country fair demonstrations and similar meet the Regulations.

5.4 **Proper functioning**

All previous editions of the Regulations limited responsibility of designers and erectors to safety. BS.7671:2008 now includes a requirement for **proper functioning for the intended use.**

5.5 In support of the BS.7671:2008 the IET have and will continue to update its guidance notes which are currently:

- *Selection and Erection of Equipment* (No.1)
- *Isolation and Switching* (No.2)
- *Inspection and Testing* (No.3)
- *Protection Against Fire* (No.4)
- *Protection Against Electric Shock* (No.5)
- *Protection Against Over-Current* (No.6)
- *Special Locations* (No.7)
- *Earthing and Bonding* (No.8)

5.6 Copies of BS.7671:2008 documents 1-3 and 7 and 8 should be held within the Consultancy and used as the principal standards for electrical work. Compliance will normally ensure that the relevant regulations of Clause 7 below are met.

5.7 The IET publish an ‘on site’ guide for use by ‘competent’ electricians to design, construct and verify small installations 100A and under. This guide is suitable for non-historic domestic installations only.

5.8 The IET publishes a *Code of Practice for In Service Inspection, Testing and Maintenance of Electrical Equipment*, which is the standard and which should be applied for all portable appliance work.

5.9 Domestic electrical installations lie within the scope of the Building Regulations, compliance with BS.7671:2008 and the use of suitably competent and experienced contractors (see Clause 8.4) will minimise future risks.

6 Departure from the Regulations

6.1 BS.7671:2008 is currently non-statutory. Where life-safety is not diminished and structures are not subject to additional fire risk, departure from the Standard may be permissible for aesthetic, integrational or restricted space purposes. Deviations from

the Regulations must be authorised in writing by a suitably qualified Electrical Engineer (see Annexe 1) and Clause 7.5.1 of this section, and risk assessments and other facts recorded upon relevant certificates.

6.2 Contravention of the EWR 1989, the consequences of which are serious, is not permitted. *Reference: BS.7671:2008 Appendix 2 paragraph 4 and Regulation 114.1.*

7 Electricity at Work Regulations 1989 Statutory Instrument 1989 No.635

7.1 The EWR applies to all places where people work and electricity is used.

7.2 Failure of the duty holder* to comply absolutely in some cases or when it is reasonably practicable to do so in others (see NT Annexe 6), may result in prosecution of an individual or an organisation.

7.3 It will be for the accused to prove that all reasonable steps had been taken to avoid danger.

7.4 The duty holder's financial standing is not a consideration.

Reference: HSE publication HS(R) 25 Memorandum of Guidance on the EWR 1989.

* **Duty Holder**: The National Trust, their employees, advisers, contractors, etc and/or anyone else with duties and responsibility under the EWR 1989 for the design, installation, inspection, testing, commissioning, supervision or use of National Trust electrical installations or control over any of them.

7.5 The EWR recommend that compliance can be achieved by:

7.5.1 The use of **competent*** persons to design, install, test, maintain and, in some cases, use electrical installations which are defined as the fixed electrical installation and current using equipment together with anything that is (or may be) connected to it.

* **Competent** persons are those with the appropriate qualifications, training, experience and knowledge to avoid danger to themselves and others. Non-technical Trust staff may have difficulty in evaluating competence in electrical matters. Guidance is given in Section 8 of this document.

Note: 'Competent persons' under the EWR 1989 differs from 'competent persons' defined by the government under the Building Regulations Part 'P'

(the latter being competent to complete installations to the current Standards and self-certify compliance with the appropriate Regulations).

7.5.2 The operation of correct, regular, training programmes.

7.5.3 Regular planned maintenance of installations and connected equipment, apparatus/ appliances.

7.5.4 Obtaining, retaining, maintaining and providing necessary information, records and data.

7.5.5 Taking precautions to ensure that all appropriate systems and equipment are dead before work commences. Unless absolutely unavoidable, no live working is to be allowed.

8 Responsibilities of the parties

8.1 Trust staff

8.1.1 In most cases the Trust will be the 'duty holder' under the Regulations. However, volunteers, employees and the self-employed may also be duty holders and have responsibilities, especially when circumstances are under their control or direction.

8.1.2 There is a legal obligation of the Trust and their appropriate employees to:

- Appoint competent electrical professionals and contractors when appropriate;
- Ensure routine periodic inspection and testing occurs;
- Confirm good electrical housekeeping;
- Arrange timely repairs and maintenance;
- Organise, retain and update information, records and data, re-issuing it as appropriate;
- Organise instruction/training of other relevant personnel on electrical matters;
- Provide a safe working environment for Consultants and Contractors and supply details of any known hazards or materials such as asbestos, PCBs, buried live cables etc.

Note: Working at Height Regulations 2005

This is applicable to all operations and brings together the relevant sections of the Construction (Health, Safety & Welfare) Regulations 1996 and the Workplace Regulations 1992. The Trust will have an obligation to employees, contractors and volunteers who are

required to work at height, for example, cleaning/replacing luminaires or lamps that would involve obtaining access by other than a permanent staircase, e.g. by using a ladder or stepladder. The Trust must take all necessary action to avoid working at height activities, prevent falls by selecting appropriate working conditions and mitigate the consequences of a fall. This necessarily involves undertaking a risk assessment, careful planning and equipment, when provided, is appropriate, properly erected, maintained and, if applicable, tested. Access to roof spaces, deep floor voids, cellars and roofs may need special consideration.

8.2 Volunteers

8.2.1 Take care when engaging volunteers to act in the capacity of Adviser, Consultant or Contractor. Responsibility rests with the duty holder. Length of service, knowledge of the property, free advice, etc, will not absolve the Trust from establishing electrical competence to current standards. Any Volunteer that is engaged must have the relevant qualifications and competency requirements that we would expect from any other member of the project team.

8.2.2 The Trust has a duty of care to volunteers ensuring they do not control, switch, operate, interfere with or use electrical equipment/systems without appropriate, proper training or supervision by competent persons and clear written instructions.

8.3 Consulting Engineers

8.3.1 The Regulations require duty holders to appoint only competent electrical professionals relative to the work undertaken. Such competent professionals should be members of The Association of Consulting Engineers (ACE), 12 Caxton Street, London SW1H 0QL (Tel: 020 7222 6557; Fax: 020 7222 0750; email: consult@acenet.co.uk), The IET or CIBSE each of which maintain lists of members with appropriate electrical qualifications and experience in historic buildings. Members are obliged to abide by codes of professional conduct. Such engineers are suitable for all situations likely to arise, should meet the qualifications for licensing verification, and are normally acceptable to HSE on matters of safety. They are able to assist in determining the competence of other electrical advisers, contractors and staff.

8.3.2 Consulting Engineers should preferably be appointed direct and not as a sub-consultant to other professionals.

8.4 Contractors

8.4.1 All electrical work, (design, alteration, erection and verification of electrical installations), is to be undertaken by Contractors enrolled with the following:

- National Inspection Council for Electrical Installation Contracting (NICEIC), Warwick House, Houghton Hall Park, Houghton Regis, Dunstable, Beds LU5 5ZX (Tel: 0870 013 0382; Fax: 01582 539090; email: enquiries@niceic.com).

- The Electrical Contractors Association, (ECA), Lincoln House, 137-143 Hammersmith Road, London W14. (Tel: 020 7313 4800)

- NAPIT, 4th floor, Mill 3, Pleasley Vale Business Park, Mansfield, Notts. NG19 8RL. (Tel: 0345 543 0330); email info@napit.org.uk

The above organisations register qualified and experienced Contractors, meeting their selection criteria, of both small and large scale and with varying spheres of experience. Membership of the above is a minimum requirement in selecting Contractors to work on National Trust buildings. In addition to membership of the above proposed Contractors must be evaluated against their capabilities and experience of work similar to that proposed. A Contractor suitable for carrying out small scale work on Let Estate buildings, for example, may not be suitable for carrying out work on our Key or Enhanced properties.

8.4.2 Trust Consultancies can acquire CD ROM format lists of enrolled Contractors for both the NICEIC and the ECA. These lists are also available from the relevant web sites.

8.4.3 Both the NICEIC and ECA investigate complaints, inspect work at random and provide a Guarantee Of Standards Scheme.

8.4.4 Although using an NICEIC or ECA-enrolled contractor may possibly discharge the legal obligation to use electrically competent persons under the EWR 1989, there is no absolute guarantee and verification checks are still necessary.

8.4.5 In order to cater for contractors whose main activity is not electrical contracting but who undertake electrical work in association with their trade, the NICEIC and ECA operate a series of limited approval schemes and, where appropriate, these contractors may be used. For example, when employing a heating contractor, it would be beneficial if the associated electrical work came under NICEIC or ECA scrutiny. The schemes offered include:

- Approved contractors enrolled to BS.7671:2008 and in accordance with UKAS accreditation to BSEN450011
- Approved contractors to BS.7671:2008
- Contractors in hazardous areas
- Domestic installers
- Competent persons under the Building Regulations. e.g. electrical, ventilation, plumbing, heating, energy efficiency etc
- Portable appliance testing contractors

- Contractors only undertaking periodic test and inspections

8.4.6 Other organisations offering enrolment for contractors undertaking work in buildings

Full competence scheme

BRE Certification Limited
Bucknalls Lane
Garston
Watford
Herts WD25 9XX

Tel: 0333 321 8811
Email: enquiries@bre.co.uk

British Standards Institution (BSI)
389 Chiswick High Road
London
W4 4AL

Tel: 020 8996 9001
Website: www.bsi-global.com

ELECSA Limited (ECA)
Mansfield Business Centre
Ashfield Avenue
Mansfield
Notts NG18 2AE

Tel: 0333 321 8220
Website: www.elecsa.org.uk

Defined competence schemes

These are designed primarily for those who undertake electrical installation work as an adjunct to or in connection with their primary work activities, eg. gas installations, plumbing, kitchens, bathrooms, heating installations, security, fire systems etc.

APHC (Association of Plumbing & Heating Contractors) (Certification) Ltd
14 Ensign House
Ensign Business Centre
Westwood Way
Coventry CV4 8JA

Tel: 02476 470626
Website: www.aphc.co.uk

Gas Safe Register
PO Box 6804
Basingstoke
RG24 4NB

Tel: 0800 408 5500
Web site: www.gassaferegister.co.uk

OFTEC (Oil Firing Technical Association Ltd.,)
Foxwood House
Dobbs Lane
Kesgrave
Ipswich IP5 2QQ

Tel: 0845 658 5080
Website: www.oftec.co.uk

Defined competence schemes are also administered by ELCSA Ltd., NAPIT Registration Ltd., and NICEIC.

8.4.7 Other qualification schemes

Construction line – a scheme devised to enable all types of contractors to enlist for tendering purposes, mostly for local and central government and overseas contracts. Whilst financial probity is included, the electrical technical Standards and the periodic inspection procedure is likely to be a lower standard than the NICEIC and ECA schemes. It is not considered to have any technical merit above the NICEIC and EIC schemes.

8.5 Electricity Suppliers

8.5.1 Legislation has permitted the separation of the function of Electricity Supplier (ES) and Electricity Distributor (ED). ES companies are no longer regionally restricted and operate competitively, nationally. They are responsible for the supply and reading of meters, including their accuracy, for tariff negotiations and for submission of accounts and collection of payments. ES companies may also be ED companies in some areas. The Trust negotiates nationally with electricity supply companies for beneficial tariffs.

8.5.2 Local ED are responsible for the distribution networks, transformers, sub-stations and cabling up to the building intake position, including any cut-outs or fuses. A voltage of 230/400 volts plus +10% -6% must be provided at 50Hz. The Electricity Supply Regulations make ED companies responsible for providing an appropriate earthing terminal unless otherwise agreed with the consumer. (In the past this responsibility rested with the consumer.)

8.5.3 ED companies may offer to undertake electrical installation contracting work as Clause 8.4, not necessarily in their local area. Such Contractors must be suitably experienced and NICEIC, ECA or NAPIT enrolled to undertake contracting work for National Trust properties.

8.6 Replacement of Electricity Supply Regulations

See www.dti.gov.uk/electricity-regulations

The Electricity Supply Regulations have been replaced by the Electricity Supply, Safety, Quality and Continuity Regulations (2002 plus amendments). These impose statutory conditions upon Electricity Distributors and Suppliers covering issues such as protection and earthing provisions, substation safety, underground supply cable installations, overhead line supplies and other issues related to incoming power supplies from the supply network.

9 Electrical installations: providing a brief

9.1 This section is to assist Project Managers to clearly brief Consultants, Contractors and others upon the requirements for the design, erection, inspection, testing and recording of installations. A checklist for the initial briefing is given in NT Annexe 5.

9.2 Consultation for re-wiring, upgrades or significant changes

As appropriate consult:

- Local Electricity Supplier
- Electricity distributor
- Telephone companies
- Fire Prevention Officer
- Licensing/Local Authority
- Planning Authority/Building Control (see NT Annexe 17 re Part ‘P’ of the Building Regulations)
- Architect
- National Trust Operational Risk Business Partners
- The Health and Safety Executive
- Historic England
- Other internal specialists relevant to the project

9.3 Designs

9.3.1 All new and refurbished electrical work, including additions and modifications, must be designed, calculations produced, and a Completion Certificate signed, and retained by the region/country and a copy held on the property system.

9.3.2 Designs, whether for a completely new installation or simple additions, eg. a new power point, or modifications to an electrical installation, must now be performed to verify that the objectives of the BS.7671:2008 Regulations and other Statutory Regulations are met. These relate to the protection of persons, property and livestock from shock, fire, burns, and injury.

9.3.3 The process involves careful evaluation of existing conditions, the effect of the changes, calculations with respect to loads, voltage drop, disconnection times, cable ratings and a selection of the methods to be used to achieve correct, safe operation during normal and fault conditions. BS.7671:2008 requires that, in addition to the existing requirements, both the existing earthing and bonding arrangements must be adequate.

9.3.4 In choosing protection methods for safety (Part 4 BS.7671:2008) and in the selection and erection of equipment (Part 5 BS.7671:2008) the designer should be provided with records of the existing installation, past test results and reports together with confirmation of the purpose of the new installation and of any constraints imposed by the building or the Trust on a room by room basis.

9.3.5 Where reliable records do not exist consider commissioning competent persons to produce them. They will improve safe working and make future surveys, modifications and extensions much easier and less expensive.

9.3.6 Designers, fully briefed, usually produce sketch designs and, if requested, a feasibility study with options for aesthetic, minimum disturbance, cost effective, and practical solutions.

9.3.7 Designers must, thereafter, undertake designs with appropriate calculations, specifications and drawings.

9.3.8 The marking of outlets on drawings by architects, surveyors, interior designers and Trust staff constitute an *indication of requirements and not a design* and forms *part* of a specification, *unless* accompanied by calculations and formal certification by a competent person that BS.7671:2008 and the EWR have been met. Where the Specifier cannot provide the necessary written declaration, the design responsibility must be passed to a competent Consultant or Contractor.

9.3.9 Electricians accepting instructions as designers in 9.3.1 to 9.3.7 and who fail to design systems and so certify in Part 1 of the Completion Certificate will leave the Trust, as Duty Holders, vulnerable in the event of an accident or Enforcing Authority spot inspection.

9.3.10 All of the design documents and evidence of compliance with the Regulations should be included as part of the property operational maintenance manual, a copy of which should be stored electronically on the property system. They will form the basis of the Contractor's working drawings, selection of equipment, setting out and installation.

9.4 Installation - Construction

9.4.1 Select approved Electrical Contractors to interpret the Designer's documents, to provide working installation drawings, material samples (when required) and to set out the work for approval.

9.4.2 Designer's drawings are seldom working drawings and, where appropriate, must be converted to such by the Contractor.

9.4.3 Upon completion the Installer must sign and provide Part 2 of the Completion Certificate (See Clause 9.5.3).

9.5 Standards of workmanship

9.5.1 Standards of workmanship will normally be covered by the Designer's specification and reviewed by visits to site, as the installation proceeds.

9.5.2 Take particular care with respect to small *ad hoc* additions or modifications. Unless they are electrically competent, avoid allowing fire alarm, site lighting, security alarm, catering, communications, horticultural and similar specialists to make permanent connections, other than by plug and socket, to the electrical installation. Employ only NICEIC or ECA-enrolled Contractors for this work and obtain the correct calculations and certification. Some non-electrical contractors may have NICEIC or ECA limited approval to enable them to carry out electrical work as an adjunct to their principal trade. These contractors may be used, as appropriate, rather than employing a separate NICEIC or ECA-enrolled specialist electrical contractor.

9.5.3 **Certificates** - Obtain an original and one copy of the completed test certificates for the Consultancies records. One copy must be held electronically on the property system. The following certificates are normally available.

- **The Electrical Installation Certificate.** This provides written confirmation that the electrical installation work to which it relates has been designed, constructed, inspected and tested in accordance with BS.7671:2008, the National Standard for the safety of electrical installations. The Standard requires an Electrical Installation Certificate to be issued for all new electrical installation work.

- **The Domestic Electrical Installation Certificate.** This is intended for a single dwelling (single phase installations up to 100 amps with twelve circuits or less), including that part of an historic building's electrical installation used for domestic or residential purposes.

- **The Minor Electrical Installation Work Certificate.** This is intended to be used only where a minor alteration or addition has been made to an existing installation which does not involve the provision of a new circuit.

- **Periodic Inspection Report.** This is used to report on the safety condition of an existing installation and should not be used to certify new installations or work carried out by others. It should accompany any quinquennial inspection and testing exercise.

- **The domestic Periodic Inspection Report**. This is used to report on the safety condition of an existing installation in a single dwelling.

- **Emergency Lighting Completion Certificate and Emergency Lighting Periodic and Testing Certificates.** These are issued by NICEIC and ECA enrolled contractors for installation and testing of emergency lighting.

- **Building Regulations Part 'P' Certificates for Domestic Dwellings.** These will be issued by Electrical Contractors able to self-certify compliance with Part 'P' of the Building Regulations.

The Electrical Contractor should issue the certification above on propriety standard forms, each of which bears a traceable serial number. The form should be marked 'original' with duplicates retained by the Contractor and should not be photocopies. The documents must be signed by a competent person and endorsed by the qualified supervisor on behalf of the Contractor. The form should contain the enrolled Contractor's registration number.

9.5.4 **'As Fitted' Drawings** - obtain 'as fitted' drawings and Contractor's revised calculations based upon actual materials installed, measured cable lengths and test results.

9.6 Inspection and test - new installations

9.6.1 BS.7671:2008 and legislation give great prominence to inspection and testing.

9.6.2 The inspection must be thorough and backed by written design details and 'as fitted' drawings.

9.6.3 All new electrical work must be inspected and tested prior to being connected and used.

9.6.4 Certificates as Clause 9.5.3 must be provided to the Trust by the Contractor and held both at the property and on the property system.

9.7 Periodic inspection, testing, certification and reporting - existing installations

9.7.1 Electrical installations of all buildings and structures must be inspected and tested regularly whether or not the Trust is duty holder (see BS.7671:2008 Chapter 62).

9.7.2 The following periods are recommended after initial inspection and test:

Key properties	**Traditional fixed wire inspection - once every 5 years** (based on the 5th anniversary of the previous test). Test of the entire system and 100% of the circuits present. **Thermographic inspection – mid way through the cycle at 2.5 years**
Enhanced properties	**Traditional fixed wire inspection - once every 5 years** (based on the 5th anniversary of the previous test). Test of the entire system and 100% of the circuits present.
Other properties	**Traditional fixed wire inspection - once every 5 years** (based on the 5th anniversary of the previous test). Test of the entire system and 100% of the circuits present.
Fire alarms	**One year** (BS 5839)
Refer to National Trust *Guidance on Fire Protection in Historic Buildings* for detailed testing information.	
Emergency lighting	See Section 11.
Licensed premises	As required by the Regulatory Authority, usually annually.
Temporary installations	Three months.

9.7.3 BS.7671:2008 Clause 622.1 requires an assessment of the frequencies of tests to be made. Completion and periodic test certificates require the tester to recommend when the installation should be retested.

9.7.4 An NICEIC or ECA-enrolled Contractor may be employed but:

- Avoid Electrical Contractors regularly inspecting work they have themselves installed in the past.
- Where significant deterioration, or departure from the Trust's standards, are reported a Consultant's services must be used.

9.7.5 Inspectors must have a thorough understanding of the current edition of the Wiring Regulations, including IEE Guidance Notes No.3 on Inspection and Testing, British Standards, legislation, and the EWR 1989. Where installations were installed to earlier editions of the IEE Regulations they must be tested to the latest edition of BS.7671:2008 noting discrepancies upon the certificate.

- Electrical testing involves a degree of danger (see section 3). HSE Guidance Note GS 38 on electrical test equipment for use by electricians should be applied.
- BS.7671:2008 Clause 514-09-01 and sections 131, 311–313 The Health and Safety at Work etc Act 1974 and the EWR require the Trust to provide details

about their systems to those inspecting and testing electrical installations. This includes the maximum demand, nature of incoming supply, type of earthing, type and composition of circuits, outlet points, size and rating of conductors, protection and isolating devices and the methods used for shock protection together with details of any risks present.

- Section 6 of the Health and Safety at Work etc Act imposes obligations upon equipment suppliers to provide safe equipment and proper instructions. If testers need to open, operate or use equipment for test purposes the Trust should endeavour to provide appropriate instructions in the form of drawings, manufacturers' leaflets and similar.

- Many properties may not be able to provide records, drawings, instructions, manuals and other relevant details. Regions are strongly advised to ensure that, as soon as practicable, the necessary data is obtained, maintained, updated and made available at the property.

- Where such information is not available a written undertaking should be obtained that the tester will be responsible for his own safety under Section 7 (Health and Safety at Work etc Act) 1974 and Regulation 14 or 16 of EWR 1989.

- If records are absent, incomplete or inaccurate, Trust staff should confirm in writing to Consultants/Contractors that dangerous conditions may exist, that the greatest caution must be taken to ensure all circuits are dead before work starts and, in such circumstances, a high level of competence will be required of personnel.

- It may be more expedient and economical to commission a Consultant to undertake the inspection with a Contractor, under the Consultant's direction, to perform the tests, the interpretation of which will be included within the Consultant's report.

9.8 Inspection and test - temporary installations

9.8.1 BS.7671:2008 applies to both permanent and temporary installations and to construction sites (see BS.7671:2008, Part 6, Section 704), events, exhibitions (section 711), fairs and other installations in temporary buildings, and additional requirements will apply (see BS.7671:2008 Part 2).

9.8.2 Where the Trust is in charge of construction sites for new build, repairs, alterations, extensions, demolitions, earthworks or similar, stringent regulations apply to the voltages which can be present, disconnection times of circuits and earthing principles.

9.8.3 ‘Temporary’ must not mean makeshift or sub-standard and proper consideration, design, installation, test and maintenance are necessary, all properly recorded.

Reference: IEE Guide No.3; SI 1988 No 1057, Electricity, Safety, Quality and Continuity Regulations 2001; SI 1989 No 635 - The EWR 1989.

9.9 Common faults on existing installations

Inspection of old electrical installations usually reveal a predictable pattern of faults and defects, many of which are fire or shock hazards. Guidance upon typical recurring defects is contained in Annexe 4. Approved document P of the Building Regulations contains Appendix ‘C’ ‘Older Practices That Can Be Encountered In Installation Work’ It has descriptions and illustrations of problems found in older domestic installations. These may also be found in some non-domestic installations.

9.10 Lightning protection systems

Consider commissioning an ATLAS registered lightning protection company to carry out a system inspection and test, including examination of protective cross bonding, in conjunction with electrical tests. The frequency of such tests is given in BS EN62305 2006. Subject to approval by a competent Electrical Engineer and the Head of Buildings Conservation it would seem reasonable to extend the period of inspection and test to those given in the *National Trust Guide for Lightning Protection of Historic Buildings and Monuments.*

10 Portable appliance testing

10.1 The EWR 1989 include in the definition of an electrical installation all equipment that is, or may be, connected to it.

10.2 The HSE Memorandum of guidance (HS(R)25) suggests that safety can only be assured by regular inspection, testing and recording.

10.3 Duty Holders should ensure that the relevant details of all electrical appliances are recorded, that they are inspected and tested by competent persons, the results recorded and the appliances labelled or otherwise clearly identified.

10.4 The frequency of test depends upon the environment and use and could vary between three months and five years. Typical defects include damaged flexes, plugs pulled from flexes allowing strain to be placed upon conductors and terminals, wrong fusing, fractured components, insulation failure and earthing faults.

10.5 Contractors employed for repair, maintenance or renewal tasks, caterers, entertainers and similar, connecting appliances to the Trust's electrical installations must be instructed not to connect their electrical equipment unless it is safe and has a current test certificate. It is advisable to give persons wishing to connect to the Trust's electrical installations sufficient notice of this requirement, e.g., when bookings are confirmed or when enquiries are issued.

11 Operational tests by Trust staff

11.1 Subject to agreement within the region/country and the receipt of proper instruction and training, staff may test, inspect and record parts of the installations. These may include:

- **Fire Alarms.** The periodic testing of sounders and verification that panel annunciation lamps are functional.
- **Emergency Lighting.** Self-contained emergency light fittings depend for their health upon regular testing and partial discharge as BS 5266 part 1 - 2011. Safe facilities should be provided to allow them to be tested periodically (especially prior to a licensed entertainment performance) and to the following programme:
    - Monthly - energise from battery for short period.
    - Annually - energise for full rated capacity period.

11.2 Comply with Enforcing Authority requirements if they differ from the above.

11.3 Maintain a logbook of the tests performed.

12 Records

12.1 The Regulations place great importance upon records maintained throughout the life of the installation. Without effective records, Duty Holders cannot be sure that the regulations with respect to safety and maintenance have been met.

12.2 For each property the ideal set of records would include:

- Calculations showing the Designer's intentions and installation parameters.
- Drawings/sketches showing the location of all circuits, outlets, equipment, points of supply and isolation.

- Drawings of any concealed dangers, especially underground cables, earthing pits, overhead power lines, etc

- Schematic drawings indicating system inter-connections and points of isolation or maintenance switching.

- Circuit charts and lists (also displayed in or near distribution equipment).

- Portable and fixed appliance schedules and data.

- Past inspection and test reports including certificates. The BS.7671:2008Completion and Inspection Certificates (See BS.7671:2008 (informative) Appendix 6) requires three signatures for Design, Construction, Inspection and Test which, for each contract, should be completed in full together with particulars of the signatories. For minor works the BS.7671:2008 Model Certificate or propriety alternative should be completed. Minor work is electrical work which does not include the provision of new circuit/s.

- Copies of Local Authority or Fire Service licences.

- Test certificates relating to fire alarms, emergency lighting, lightning protection and similar associated systems.

- Building Regulation Part 'P' compliance document self-certified by the Electrical Contractor where work is within domestic accommodation or a dwelling.

- Public entertainment licence – where appropriate

12.3 Copies should be also held within the Consultancy and a copy of each stored on the property system. (NB: For key properties an electronic copy of the electrical inspection certificate must be sent to Operational Risk on receipt)

12.4 Records should be updated as changes occur and should form part of the contracted responsibilities of those undertaking the changes.

12.6 The above recommendations are ideal and may only be achievable gradually since many electrical systems are old with no formal design or documentation.

13 Asbestos and PCB hazards

13.1 All stripped out unwanted electrical equipment must be disposed of in accordance with The Waste Electrical and Electronic Equipment (WEEE) and Restriction of Hazardous Substances in electrical and electronic equipment (RoHS) directives

14 Warranties

14.1 Work undertaken by NICEIC or ECA-enrolled Contractors is covered by their Guarantee of Standards Scheme valid for a period of twelve months following practical completion. Domestic Contractors working under Part 'P' of the Building Regulations will be able to offer warranties for purchase.

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Further information: Edward Wood, National Specialist M&E

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Guidance
General requirements for building (construction) work

Recommended practice

Overview	This guidance sets minimum requirements and conditions for all persons and contractors undertaking construction work (as defined in the Construction (Design & Management) (CDM) Regulations) for the Trust. Where appropriate it should be included as part of the specification for a building project. This document provides recommended practice on implementing statutory requirements: project-specific conditions may also be agreed.
Target Audience	All external contractors and consultants undertaking building work for the National Trust and also as information for National Trust staff and volunteers.

1. Introduction

1.1. Most National Trust buildings are of great architectural importance and are located in high status environmental sites. It is essential that the greatest possible care be taken at all times to prevent any damage to the structure and fabric and adjacent environmental interests.

1.2. Unless otherwise specified it is always the intention to carry out the minimum repair works required and to avoid over repair. Existing elements of the structure are to be retained where at all possible and treated with great care.

1.3. Contractors are responsible for informing their sub-contractors of the requirements and standards.

1.4. Contractors must identify to the Trust a person in charge.

1.5. Where applicable, the details for both payment procedures and provision for statutory adjudication will be agreed between the parties to the contract.

1.6. Where applicable, Contractors will comply with the latest version of the Construction (Design & Management) (CDM) Regulations.

CONSERVATION REQUIREMENTS

2. Protection of historic fabric

2.1. The structure, fabric, decoration and contents of the buildings are to be suitably protected by the use of dustsheets, solid protection, sealing of doors, etc.

2.2. The appropriate method of protection is to be agreed with the Trust.

2.3. Equipment and materials must not be propped against decorated surfaces, fittings or furniture.

2.4. When dust or vibration is anticipated the Trust or Tenant is to be given advance warning.

2.5. Footwear is to be appropriate to the part of the building or structure in which the work is being undertaken to avoid damage to floor finishes and coverings.

2.6. No contents or fixtures and fittings shall be moved by the Contractor without the written permission of the Trust.

2.7. Commissioning Conservators as part of the work should be done in compliance with National Trust guidance.

3. Wildlife and nature protection

3.1. There is a presumption that bats will be present in all our buildings and structures. In the UK all bats and their roosts are protected by the Wildlife and Countryside Act (1981) plus amendments, the Wildlife Order 1985 plus amendments (NI), and the Habitats Regulations (2010). Contractors should be aware that all works should plan for the possibility of bats or their roosts being present. If bats or their roosts are discovered, work should stop and the Trust contacted immediately. Consult procedures in Bats and Traditional Buildings. For anything but the simplest building work, a European Protected Species licence may be required.

3.2. Several species in addition to bats are legally protected by legislation, including the great crested newt and the badger. Also rare or protected mosses, lichens, higher plants and insects might be present at Trust sites. The Trust shall advise the Contractor about the likely presence of any of these species prior to commencement of the works and all efforts should be taken to protect them. If there is any doubt the Trust should be contacted immediately.

3.3. The Contractor should advise the Trust if they consider that protected species surveys are required, if any specific mitigation measures are needed and how these will be managed as part of the works.

4. Archaeology

4.1. The Trust will be responsible for determining whether excavation sites, roof voids etc, are of archaeological sensitivity and whether works require any specific archaeological monitoring.

4.2. Further discoveries may be encountered during works. Any structures, foundations, fossils and other objects of interest or value which may be found on site or during excavations are National Trust property. On discovery of such objects the Contractor must cease work immediately, advise the Trust and await further instructions.

GENERAL

5. Insurance

5.1. Different strata will apply to the insurance level based on the contract value and Trust designation of the building (ie. insurance reinstatement value of the building):

Contract Value	**Building Reinstatement Value**	**Public Liability Indemnity**
Up to £10,000	-	£2,000,000
Up to £250,000	Up to £5,000,000	£5,000,000
Up to £250,000	Over £5,000,000	£10,000,000
Over £250,000	i. £5,000,001 - £10,000,000 ii. £10,000,001 - £15,000,000 iii. £15,000,001 - £20,000,000 iv. £20,000,001 or over	£10,000,000 £15,000,000 £20,000,000 £25,000,000

5.2. Contractors will be required to supply evidence of insurance through PROACTIS. Evidence of insurance may already be supplied by way of Constructionline. The Principal Contractor will ensure that Contractors provide evidence of their insurance or will ensure that their own policy covers the Contractors' work.

6. Skills, knowledge and experience

6.1. The Trust has a duty to ensure that the people and organisations they appoint have the skills, knowledge, experience and (if an organisation) the organisational capability to manage health and safety. All building contractors are required to be fully approved members of Constructionline and Safety Schemes in Procurement (SSIP).

7. Materials, goods and workmanship

7.1. Materials, goods and workmanship shall conform to the appropriate British Standards and Codes of Practice (unless by explicit instruction), where none exists, shall be of the best quality of the respective kind and conform to the manufacturer's recommendations.

7.2. The work must be carried out by skilled operatives under the supervision of a competent person in charge and in a manner consistent with good building practice and to the satisfaction of the Trust.

8. Rectification

8.1. The Contractor must promptly make good at his own expense any defects which appear during the first twelve months (or other agreed period specified in the works contract) after completion of the work.

9. Plant, tools and equipment

9.1. The Contractor should provide all labour, materials, plant, tools and transport for the proper execution of the works. No equipment is to be borrowed from the Trust. If in extreme circumstances it is necessary for the Contractor to use Trust equipment, the Trust is responsible for the maintenance and inspection of the equipment when initially provided, and for providing any necessary information and instruction to enable its safe use by the Contractor. The Trust will require the Contractor to be competent to use the equipment and include relevant information in the risk assessment. The Contractor is responsible for its safe use whilst in their possession, for any necessary risk assessment, and for ensuring that their operatives are trained and competent. Permission to use Trust equipment must be obtained from the Insurance Office.

9.2. All plant equipment and vehicles used by the Contractor should be fit for purpose and properly maintained. They should be used in accordance with the manufacturer's instructions. Operators should be trained and competent, holding appropriate Construction Plant Competency Scheme certification.

9.3. All plant and equipment must be of suitable specification for the work, guarded to current safety standards and immobilised and secure when unattended.

10. Security

10.1. All drawings and other information supplied by the Trust or produced on its behalf are to be treated as confidential. Such documents are to be kept safe at all times and are not to be copied or passed to third parties without the Trust's written permission.

10.2. Access for all work must be by prior arrangement with the person responsible at the property. The Contractor must notify their arrival at and departure from the site.

10.3. When the site is not being worked all scaffolds must have the first lift ladder removed and placed under lock and key. All loose ladders on the site must be similarly chained and locked or removed from the site. Where stair access is provided to the scaffolding, entry to this area must be prevented.

10.4. Use of scaffolding requires the installation of security to prevent climbing & access to buildings and consideration should be given to alarms or a guard patrol where appropriate.

10.5. Notice boards and publicity

10.5.1. Contractors' notice boards will not be permitted unless agreed with the Trust.

10.5.2. Documents or photographs relating to Trust properties or works undertaken shall not be reproduced or publicized in any way without the written consent of the Trust.

11. Site administration

11.1. Working hours

11.1.1. No working in excess of normal National Trust working hours will be permitted unless specifically requested and agreed by the Trust.

11.2. Site induction and briefings

11.2.1. Inductions should be appropriate to the level of risk, the activities on site and will include specific health and safety risks associated with the project.

11.2.2. Inductions for site visitors should be carried out on a contractor or visitor's first visit to the site. This induction should identify the key site risks and health

and safety rules that they must adhere to whilst on site.

11.2.3. Method statements should be briefed to ensure that workers have understood it.

11.3.Welfare facilities and first aid

11.3.1. Arrangements for hand-washing facilities, lavatories, changing areas and access to water must be made by the Contractor or alternatively the use of onsite facilities by prior agreement with the Trust or Tenant. All facilities used must be kept clean at all times.

11.3.2. The Contractor is responsible for the provision of first aid cover and equipment for their employees.

11.4.Services

11.4.1. The Trust will agree before commencement if reimbursement for use of the Trust's own electricity or water supplies, whether metered or otherwise, whether a Tenant's private electricity or where metered water is used during the course of the work. A sub-meter may be required to be installed for a major contract.

11.4.2. Water services connections must comply with Water Byelaws for backflow prevention and pollution prevention.

11.4.3. Connections or discharges to the Trust's drainage infrastructure (foul or otherwise) will require prior consent from the Trust.

11.5.Site access and tidiness

11.5.1. The Contractor should maintain clear and safe pedestrian and vehicle entrances and exits.

11.5.2. The Contractor shall clear away all dust, dirt and other debris as it accumulates or on a daily basis. Positioning of a skip, if necessary, must be agreed with the Trust or Tenant and must not be within 6m of any built structure.

11.5.3. Keep and leave the site clean and tidy at all times and on completion.

11.5.4. Contractors should ensure that the highest standard of materials & waste storage, housekeeping and litter control are established and maintained on site at all times.

11.5.5. Work should be organised so road-going vehicles do not drive mud off site. Site management should regularly monitor conditions outside the site during periods of material movement. Contractors may consider a wheel-wash area and

arrangements for calling in a road-sweeping machine at short notice.

12. Risk Management

12.1. The Contractor is entirely responsible for health and safety on site during the construction phase. Risk assessments, Method Statements and permits should be produced in a style, language and level of detail suitable for the employees who will be working to them.

12.2. Contractors should ensure a Register of Risk Assessments and Method Statements is produced for significant activities during construction and included in or with their Construction Phase Plan. The register must be updated when changes occur on site or new hazards/activities come to light. Revised registers must be forwarded to the Project Manager, the Site Supervisor.

12.3. Designers and Contractors must take account of the general principles of prevention throughout the project.

13. Auditing

13.1. Sites working for 30 days or more should be visited by the Contractor's own competent H&S Advisor normally at two week intervals with at least one visit being for the purposes of an inspection which will be recorded.

13.2. Following each inspection, the H&S Advisor's report is to be provided to the following, as appropriate, within four working days of the visit:

- Project Manager
- NT Site Contact
- Site Supervisor

13.3. Each Designer and Contractor should ensure that arrangements are in place to assess the skills, knowledge and experience of professional and supervisory staff against the requirements of their own company's health and safety management systems.

13.4. Each month Contractors should supply, electronically, details of the number of near misses recorded by them on National Trust projects.

13.5. The National Trust may conduct a Health and Safety Audit on construction sites at an agreed time. The audit is designed to begin in the site office to look at the management of the site and then check whether it is being put into practice.

14. Site-specific Toolbox Talks

14.1. The Contractor should deliver tool box talks throughout the construction phase. These should be relevant to the construction activity and stage of construction.

15. Mandatory Personal Protective Equipment (PPE)

15.1. The Contractor's risk assessment and method statement will determine which PPE must be worn, and this must be observed at all times on site.

15.2. Any persons failing to adhere to the PPE requirements must not be permitted to continue working on site.

16. Activities taking place in close proximity to the public

16.1. The National Trust has a high public profile; how the public perceive our approach and activities is critical to us. We expect that Contractors and Consultants working on our behalf will recognise this and make every effort to reduce the impact of activities on the public. This includes reducing noise, dust and vehicle/plant movements as far as reasonable.

16.2. Every effort must be made to assess and manage the risks to the public on all sites. This includes construction work taking place adjacent to, or impinging upon public highways, footpaths and bridleways. In general the standards normally applied by Chapter 8 of the New Roads and Street Works Act will apply.

16.3. Contractors should seek to engage with the community and respond promptly to complaints, put things right and seek feedback.

16.4. Contractors should behave responsibly and with courtesy at all times. They should respond promptly to any complaints and make the relevant Trust contact aware of any such issues accordingly.

SAFETY

17. Fire precautions

17.1. During construction of any building (e.g. new build or refurbishment of existing property), strict procedures must be followed to ensure adequate levels of fire safety are maintained.

17.2. If any works disturb existing fire separation, fire compartmentation or fire resisting element (by creating gaps, holes or service penetrations) these breaches must be

made good by using certifiable (e.g. BM Trada, Certifire, BRE, IFC etc) products to reinstate the fire rated insulation and fire rated integrity. These works must be certified in writing by accredited specialist contractors (e.g. FIRAS, BRE, IFC etc)

17.3. The principal document for managing fire safety on a construction site is *'Fire Prevention on Construction Sites: Joint Code of Practice on the protection from fire of construction sites and buildings undergoing renovation, 9th Edition'* by the Fire Protection Association.

17.4. The scope of this Code applies to projects with an original contract value of £2.5m or above and applies equally to smaller value contracts where these are part of a large project (a large project is one with a value of £20m and above).

17.5. The Code must also be read in conjunction with all current legislation and HSG168: Fire Safety in Construction.

17.6. Where construction works are being carried out on an existing building the property specific fire risk assessment (FRA) must be reviewed. An assessment of the means of escape, fire warning system, evacuation procedures and other general fire precautions must be made and the FRA amended accordingly. Where significant findings have been identified these must be satisfactorily resolved.

17.7. Hot works

17.7.1. It is National Trust Policy that no operation involving flame, hot air or arc welding and cutting equipment, brazing and soldering, bitumen boilers or other equipment producing naked flame or heat shall be permitted on or within a building except:

- where prefabrication and Hot Work can be carried out a minimum distance of 6 metres outside the building or adjacent buildings, and with no combustible materials within 6 metres of the Hot Work operation.

- where it is considered that there is no practical alternative to avoid the use of heat-emitting apparatus, then guidance from the *Fire Prevention on Construction Sites: Joint Code of* Practice *on the protection from fire of construction sites and buildings undergoing renovation 9th Edition (section 16, page 18) s*hould be read and the National Trust Hot Works Permit System guidance must be followed by completing Parts 1-3.

17.8. Smoking is not allowed within 6 metres of any Trust building at any time.

17.9. The burning of rubbish is strictly prohibited.

17.10. The use of temporary halogen lights is not permitted.

17.11. Easily flammable materials, such as fuel, must not be stored on site without the written permission of the Trust. (If permitted, refer to section 23 in this document.)

18. Insulation

18.1. If using materials to insulate Trust properties they may need to meet specific life safety requirements and insurance requirements. Some materials may be great for insulation but have a poor fire-rated performance.

18.2. When selecting a material or product it should be non-combustible or of "limited combustibility" as described in Table A7 of Approved Document B, (volume 2, buildings other than dwelling houses, p.130) and further specified in National Standards e.g. BS 476 Parts 4 and 11 and European Standard BS EN 13501-1:2007 class A1 or A2-s3. *(Please note details can be found in Table A7 (p.198) for the Wales Building Regulations 2010 and 1.7 - 1.10 (p.26 for Northern Ireland Building Regulations 2012 (Technical Booklet E).*

18.3. You will need to make contact with individual companies to assess their product range for suitability and check it conforms to these standard(s). Confirmation of certification can be found in the Loss Prevention Certification Board's (LPCB) Red Book Live or International Fire Consultants Certification Ltd (IFC) and Certifire.

18.4. The LPCB approves passive and active fire-rated materials. Its Red Book is a key reference for specifiers, regulators, designers and end users of fire and security products and services. All products and services listed will have been checked by independent experts to ensure that these deliver, and will continue to deliver, the performance expected.

18.5. The Red Book Live lists some companies that provide fire-rated insulation materials, such as Rockwool and Knauf Insulation UK,

18.6. For clarification please contact the National Trust representative who will then liaise with the relevant Operational Risk Business Partner (ORBP) accordingly.

19. Health and safety

19.1. All work undertaken for the National Trust must comply with the Health and Safety at Work Act 1974 [Health and Safety at Work (NI) Order 1978] and other relevant statutory provisions. The Act requires every employer (or self-employed person) to carry out their work in such a way that any other persons, whether employees of the Contractor, employees of the National Trust or members of the public, are not

exposed to risks to their health and safety.

19.2. The Principal Contractor/Contractor will be required to submit a Construction Phase Plan to the Principal Designer for review prior to construction work commencing on site.

19.3. In addition, the guidance in "Health and Safety in Construction (HSG150) should be followed, available from the HSE website.

19.4. The Trust will instruct the Contractor, or any person working for the contractor, to suspend work immediately if their work poses a potential or imminent risk of injury to any person, or if the manner or work significantly deviates from the agreed methods of work without prior agreement.

19.5. The Trust must ensure that Principal, sub or other Contractors are supplied with all relevant information relating to potential hazards on the site and access routes to and from the site before any work is undertaken. This will be supplied in the pre-construction information form as part of the procurement process.

19.6. The Trust will require the Contractor to produce evidence that they are complying with relevant statutory provisions. In particular, the Trust is likely to require the Contractor to demonstrate that they have properly assessed the risks to their own employees and others arising from the nature of their work.

19.7. The Trust will require the Contractor to answer a competency questionnaire in addition to requesting insurance details, collecting references and using the Trust's professional judgement to assess the Contractor's competency to undertake the work specified. Using Constructionline (www.constructionline.co.uk) and SSIP means that evidence of competency will have been supplied.

19.8. Safety Notices must be clearly displayed on site.

20. Accidents

20.1. In the case of any accident or dangerous occurrence, the Contractor should inform the Trust's representative on site and the Principal Contractor without delay.

20.2. The responsibility for statutory reporting of accidents and reporting of injuries, diseases & dangerous Occurrences (RIDDOR) to the enforcing authority rests with the Contractor. A copy of the relevant form (F2508) should be given to the Trust.

20.3. All RIDDOR reportable events, accidents requiring medical attention, and near

misses with a potential serious consequence must be reported by the Contractor to the relevant statutory authority and at the earliest opportunity to the National Trust representative.

20.4. A final and comprehensive investigation report must be provided by the Contractor to the National Trust representative within 14 days. This period can be extended for complex incidents following agreement with the National Trust client representative.

20.5. The quality of accident investigation must make due consideration to the guidance contained in the HSE publication HSG 245, 'Investigating Accidents and Incidents'.

Incident Reporting Procedure for Contractors

Stage	Description
1	Follow your internal procedures and legal duties for reporting under RIDDOR.
2	Report the incident to the NT as soon as possible.
3	Investigate the incident. You must perform the correct level of investigation and circulate the lessons learned.
4	Provide a written report to the following NT staff: • Project Manager You must provide a written report within 14 days of the incident, unless otherwise agreed with the Project Manager.

21. Noise and vibration

21.1. The Contractor must comply with the Control of Noise at Work Regulations 2005.

21.2. The Contractor shall advise the Trust or Tenant in advance where excessive noise is likely.

21.3. Radios and other audio units (including the use of headphones) are not permitted without prior agreement.

21.4. The Contractor must comply with the Control of Vibration at Work Regulations 2005.

22. Electrical safety and services

22.1. The Contractor must comply at all times with the Electricity at Work Regulations 1989 [Electricity at Work Regulations (NI) 1991] and the National Trust guidance on Electrical Installations.

Reference: HSE 'Electricity in Construction'

22.2. All temporary wiring installations provided by the Contractor should be inspected, tested and certified by a competent person before use for the first time and at three-monthly intervals thereafter. Certification to be supplied if requested.

22.3. All portable electric tools should, as far as practicable, be supplied from a reduced voltage (i.e. 110v or less) system. Where this is not practicable, the supply must be protected by a residual current device (RCD) complying with the current British Standard; the device must operate if the earth leakage current exceeds 30 mA. Battery chargers for portable hand tools must be charged in an area fully visible to the operator and be turned off when unattended.

22.4. All portable electrical equipment must be properly maintained and shall be subject to a regime of inspection and periodic testing. Documentation may be requested by the Trust.

22.5. All electrical connections must be through correctly fused plugs, sockets and extension leads. All such equipment must be unplugged at the end of each working day.

22.6. The Contractor shall take appropriate precautions when working in the vicinity of overhead power lines and underground services.

Reference: HSE Guidance Note GS6 – 'Avoiding danger from overhead power lines'

22.7. All electrical work must be carried out by NICEIC, ECA or NAPIT registered Contractors.

22.8. Allow for any necessary lighting for the protection and security of the works.

23. Gas, solid fuel and oil appliances

23.1. Gas installations and appliances

All persons carrying out work in relation to gas installations, fittings or storage vessels must be qualified, competent and registered with the Gas Safe Register. National Trust will require the Gas Safe registration number to be included on any certificate of

work. All work must comply with the Gas Safety (Installation & Use) Regulations 1998. Operating and maintenance instructions for all appliances and fittings must be provided to the Trust at the time of installation.

23.2. Oil heaters and boilers

These must be installed in full accordance with the manufacturers' instructions. Manufacturers' operating and maintenance instructions must be provided to the Trust at the time of installation. All persons carrying out work in relation to oil installations, fittings or storage vessels must hold OFTEC certification. The Trust will require the OFTEC registration number to be included on any certificate of work.

23.3. Solid fuel heaters and boilers

These must be installed in full accordance with the manufacturer's instructions. Manufacturers' operating and maintenance instructions must be provided to the Trust at the time of installation. All persons carrying out work in relation to solid fuel installations, fittings or storage vessels must hold HETAS certification. The Trust will require the HETAS registration number to be included on any certificate of work.

24. Hazardous substances

24.1. The Contractor must comply at all times with current legal requirements relating to the storage, handling, use and disposal of hazardous substances, in particular, but not limited to:

The Control of Lead at Work Regulations 2002
The Control of Pesticides Regulations 1986 (as amended 1997)
The Control of Asbestos Regulations 2012
The Control of Substances Hazardous to Health Regulations 2002
The Dangerous Substances and Explosive Atmospheres Regulations 2002
The Control of Pollution (Oil Storage) (England) Regulations 2001
The Control of Pollution (Oil Storage) (Wales) Regulations 2016
The Disposal of Hazardous Waste Regulations 2005
Hazardous Waste (Miscellaneous Amendments) Regulations 2015
Hazardous Waste (England and Wales) (Amendment) Regulations 2016

24.2. Chemicals and other harmful substances must not be discharged into open watercourses or drains. They must not be disposed of onto land, and can only be disposed of via a licensed waste contractor, licensed to take that type of waste. Keep consignment notes for three years. See Section 31 for further information on waste disposal.

24.3. Where chemicals and other harmful substances are being used, stored or re-fuelled, drip trays should be in place and spill kits to hand in case of any leak of substances.

24.4. Toxic and inorganic substances such as paintbrush washings, concrete clean up and caustic cleaning products should not be disposed of in NT drains, particularly where they drain to a Private Sewage Treatment System.

24.5. The Contractor must not commence any works until they have checked and signed the Asbestos Register. This will be available from the Asbestos Monitor at the property connected to the works. The let estate however would come under the supervision of the Building Surveyor and the Building Surveyor must ensure that an appropriate survey is in place before any works are undertaken and that the contractor is made aware of any asbestos which is present prior to works commencing.

24.6. Procedures must be in place to deal with waste generated from painting and decorating operations.

25. Area of work

25.1. The Contractor is to confine their activities to the smallest possible area of the site for the execution of the works and storage of materials, unless otherwise defined.

25.2. Parking of vehicles will at all times be by arrangement with the Trust or Tenant, and must not impede any access or exit.

25.3. The Contractor must avoid damaging trees, shrubs, plants and grass and root systems thereby avoiding compaction of the ground.

25.4. The Contractor must maintain adequate warning signage wherever there is a risk to any person.

26. Working at height

26.1. General

26.1.1. All work undertaken at height where there is a risk of injury from falling, shall comply with the Working at Height Regulations 2005

26.1.2. All work at height must be properly planned, organised and supervised

26.1.3. All work at height must take account of weather conditions

26.1.4. People involved in working at height must be trained and competent

26.1.5. The place where work at height is done must be safe

26.1.6. Equipment for work at height must be subject to appropriate inspection

26.1.7. Risks from fragile surfaces must be properly controlled

26.1.8. Risks from falling objects must be properly controlled

26.1.9. Details of extent of scaffold structure and management of scaffold structure must be detailed within the Principal Contractors construction phase plan as a requirement under the CDM Regulations 2015.

26.2. Independent scaffolding

26.2.1. Access and working scaffolds should be designed, constructed and used in accordance with BS EN 12811-1 2003 *TG20 – 'Temporary Works Equipment. Scaffolds. Performance requirements and general design'.*

26.2.2. All scaffolds must be independent or freestanding; no putlog scaffolds are allowed. Ties to wall faces and anchorages to external walls will only be permitted by prior arrangement with the Trust.

26.2.3. All scaffolds must only be erected, modified or dismantled by NASC Registered competent persons or audited members of the Scaffolding Association.

26.2.4. The risk of lightning should be considered for scaffolds. If scaffolding is associated with an existing structure which has an external lightning protection system (LPS), it should be bonded to the earth termination network and the air termination network of the LPS. Where no LPS exists on the structure the scaffolding should be provided with an LPS at a design level where indicated by a risk assessment performed in accordance with BS EN 62305. In both cases the materials used for the construction of the scaffold must meet with the requirements of BS EN 62305.

26.3. Mobile or tower scaffolds

26.3.1. Tower or mobile scaffolds should be used on firm ground with wheels or feet properly supported and outriggers or stabilisers correctly employed where required.

26.3.2. Persons must be trained in the use of tower or mobile scaffolds and shall have completed an approved course by the Prefabrication Access Suppliers' and Manufacturers' Association (PASMA). Assembly and dismantling shall be conducted by using either the Advanced Guard Rail (AGR) or Through the Trap (3T) systems – refer to HSE guidance for further detail.

26.4. Mobile Elevated Working Platforms (MEWP)

26.4.1. The Contractor must adhere to the International Powered Access Federation (IPAF) “Operators’ Safety Guide for Mobile Elevating Work Platforms”.

26.4.2. Where a MEWP is used for working at height, the type and size of the machine must be carefully assessed, considering the tasks and constraints of the site e.g. dimensions of the machine, weight, maneuverability, ability to stabilise the base, ground conditions, presence of vulnerable underground services or structures, etc.

26.4.3. The MEWP shall only be used by operatives who are authorised as competent and have undergone training through a recognised scheme; such as those run by Construction Industry Training Board (CITB) or IPAF.

26.4.4. Operatives must wear fall protection equipment secured to an anchored point within the platform in accordance with the manufacturer’s instructions

26.4.5. The MEWP must have the following information clearly marked on the platform:

- Safe working load and the maximum number of persons on the platform
- Maximum permissible wind speed for operation
- Maximum gradient on which the equipment can operate.

26.4.6. The MEWP should come with a full operating manual and a current valid examination report to confirm fitness for use.

26.5. Ladders and steps

26.5.1. When using ladders and stepladders reference should be made to the relevant HSE guidance .

26.6. Work restraint and fall arrest systems

26.6.1. Where a work restraint or fall arrest system has been installed at the property, and the Contractor selects to use whole or part of the system for access purposes, they must adhere to the following requirements:

- The work is always undertaken by a minimum of two people at all times
- An emergency rescue plan has been considered and approved in advance
- The fixed wire system and/or anchorage points have been inspected and thoroughly examined by a competent person, in accordance with current legislation and the test certificate has been checked.

- The PPE provided by the property has been checked and certified
- The Contractor is competent to use the PPE and system and is willing to receive specific on site instruction by a designated trained member of staff at the property.

SPECIFIC SITUATIONS

27. Excavations

27.1. Where relevant information on the location of underground services exists in plans or drawings, the Trust will make this available to the Contractor prior to any excavation work.

27.2. The Contractor must take appropriate precautions to determine the location of any underground services, before excavation work commences. When carrying out excavation work, the Contractor must use safe digging practices.

Reference: HSE booklet HSG 47 'Avoiding danger from underground services'.

27.3. All excavation work must comply with the requirements of the CDM 2015**.**

27.4. The Contractor must ensure that any excavation does not undermine or affect the stability and condition of any adjacent structure, building, scaffold or tree.

27.5. The Contractor must ensure that precautions (eg. trench support or battering back to a safe angle) are taken to prevent the sides of any excavation in which a person has to work from collapsing. Excavated soil should not be stored, and vehicles and plant should not be parked or used close to the side of an excavation.

27.6. All excavations, when unattended, must be securely covered or protected by substantial barriers and lighting. The detail of barriers and lighting should be agreed with the Trust.

27.7. Excavations must be inspected by a competent person at the start of each day, and after any fall of rock or earth, or any other event likely to have affected their strength or stability.

28. Confined spaces

28.1. A "confined space" is defined by regulations as, any place, including any chamber, tank, vat, silo, pit, trench, pipe, sewer, flue, well or other similar space, by virtue of its enclosed nature **AND** where there arises a reasonably foreseeable specified risk.

28.2. There are a number of specified risks:

- Serious injury to any person at work arising from a fire or explosion
- Loss of consciousness of any person at work arising from an increase in body temperature
- Loss of consciousness or asphyxiation of any person at work arising from gas, fume, vapour or the lack of oxygen
- Drowning of any person at work arising from an increase in the level of liquid
- Asphyxiation of any person at work arising from a free flowing solid or the inability to reach a respirable environment due to entrapment by a free- flowing solid.

28.3. National Trust staff and volunteers are **not** permitted to enter such spaces at any time. All work involving such spaces must be contracted out to a competent contractor.

28.4. The Contractor must ensure that entry into, and work in the confined space is carried out following a written safe system of work and in accordance with the Confined Spaces Regulations 1997.

Reference: HSE Approved Code of Practice L101 'Safe work in confined spaces'.

28.5. Contractors and their employees who enter confined spaces must have undergone appropriate training, which will be checked by the Trust to ensure that Contractors are competent to undertake the work.

28.6. The Contractor must have detailed arrangements in place for the rescue of persons in an emergency from a confined space.

29. Work in restaurants and kitchens

29.1. When undertaking work in any area where food is stored, prepared or eaten, additional precautions are necessary to ensure compliance with food hygiene regulations. Suitable precautions, agreed with the Trust, should be taken to minimise the creation of dust and debris in these areas. All affected areas are to be thoroughly cleaned on completion of work.

ENVIRONMENTAL COMPLIANCE

In accordance with the National Trust's Environmental Management System, Contractors and Consultants must follow the instructions set out below. Any environmental incident or damage to infrastructure (eg. pipes, drain covers, cables etc) should be reported as soon as possible to the Trust.

30. Environmental risk management

30.1. The Trust will require the Contractor to provide an assessment of the environmental risks associated with the works. This should include a description of any methods used to control the risks and the roles and responsibilities for managing the risks.

30.2. The requirement for any statutory consents should be identified by the Contractor and if applicable, the Contractor should describe how the consents will obtained and how the conditions of consents will be adhered to.

30.3. The Trust will require the Contractor to produce evidence that they are managing environmental risks and complying with relevant statutory provisions.

31. Waste disposal

31.1. All waste from a Trust site remains the responsibility of the National Trust even when a contractor disposes of that waste. The Trust has a legal responsibility to ensure that it is stored, transported and disposed of in accordance with the waste hierarchy set out in the regulations, and may be prosecuted if the waste is not handled correctly. All waste disposal is subject to the Waste (England and Wales) regulations 2011, the Duty of Care regulations in Environmental Protection Act 1990 and Environmental Permitting regulations 2010.

31.2. All materials should be stored on site to prevent contamination or damage in order to reduce wastage.

31.3. All stored waste must be segregated to facilitate recycling.

31.4. All hazardous waste must be stored separately and disposed of according to the Hazardous Waste regulations.

31.5. Only registered waste carriers are to be used for carrying any waste from a Trust site. Where the Contractor moves waste from site, a copy of the Contractor's Upper Tier Waste Carrier Registration must be made available to the Trust prior to the removal of the first load of waste. Waste carrier registration can be checked on line at the Environment Agency's web site.

31.6. Any contractor removing waste from site must provide evidence that the place where the waste is being moved to is licensed & has appropriate permissions to accept the waste.

31.7. Accurate written information notes (waste transfer notes) must be used for every load of waste removed from site and copies provided to the Trust. Notes must be checked to make sure they are fully completed with the correct waste descriptions, SIC codes and quantities of waste. They must be kept for two years.

31.8. Consignment notes are to be used for all hazardous waste. The contractor must inform the Trust of all movements of hazardous waste from the site; these are to be kept in the properties hazardous waste register. The Trust has a system for issuing consignment note numbers which provides an audit trail for hazardous waste. In Wales, any property disposing of more than 500kg of hazardous waste (in one year) must register as a hazardous waste producer with Natural Resources Wales. Consignment notes must be kept for three years.

31.9. The Trust recognizes the benefits to building projects of using site waste management plans and expects to see site waste management plans for all building projects over value of £200k, using the BRE tool to complete.

31.10. All secondary trades people who carry waste (carpenters, electricians, carpet fitters, plumbers etc whose work means that they carry waste in their vehicles must also have their waste carrier registration checked with the Environment Agency public register, and written information (waste transfer notes) obtained and kept for 2 years.

32. Water resource protection

32.1. A risk assessment must be carried out by the Contractor to assess the potential impact of the works on any water resource (including groundwater and surface water), along with any necessary mitigation measures required to protect the resource. This may form part of the general environmental risk assessment as described above.

32.2. In any case, arrangements must be made by the Contractor to ensure any potential sources of pollution can be isolated or contained as soon as practicable. The Trust will require the Contractor to describe all methods of pollution control that are planned to be used and how these will be managed and maintained during the works.

32.3. The Trust may advise on specific water resource protection requirements but there will always be a need to follow appropriate regulatory guidance and comply with regulations.

33. Sustainable materials

33.1. The Trust will specify the use of sustainable materials for construction, services and decoration. These will need to be acquired, stored &used in an appropriate way that may differ from conventional practice. Contractors & sub-contractors may need to be inducted or trained upon starting the project. The Trust may need to check that materials & services have been procured as specified and meet the required sustainability standard.

33.2. Forest Stewardship Council (FSC) certified timber must be used on all projects where timber is being purchased on behalf of the Trust.

If you have any questions about this document please contact the Head of Buildings.

FORM OF AGREEMENT

For Sizergh Castle Photovoltaic Project

THE NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY and XXX	(1) (2)

Ref: SJ07
Burges Salmon LLP
www.burges-salmon.com
Tel: +44 (0)117 939 2000
Fax: +44 (0)117 902 4400

CONTENTS

THIS AGREEMENT is made on [**…….**]

BETWEEN:

(1) **THE NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY** (Registered Charity Number: 205846) of Heelis, Kemble Drive, Swindon SN2 2NA (the **"*Employer*"**); and

(2) (the "Contractor").

WHEREAS:

The *Employer* is desirous that the following *works* should be carried out being the design, engineering, procurement, construction and commissioning works required to deliver the Sizergh Castle Photovoltaic Project as more particularly described in this Agreement including, without limitation, the Works Information.

IT IS HEREBY AGREED as follows:

1 INTERPRETATION

In this Contract Agreement words and expressions shall have the same meanings as are respectively assigned to them in the *conditions of contract* hereinafter referred to.

2 THE CONTRACT

Save as expressly provided for in this Agreement, the following documents shall be deemed to form and be read and construed as part of this Agreement, namely

(a) the *conditions of contract*, referred to below;

(b) the Contract Data part one; attached at Schedule 1, Part 1 hereof;

(c) the Contract Data part two; attached at Schedule 1, Part 2 hereof;

(d) the Works Information; attached at Schedule 2 hereof;

(e) the Site Information; attached at Schedule 3 hereof; and

(f) the Activity Schedule; attached at Schedule 4 hereof

3 THE WORKS

The *Contractor* shall carry out the agreed design, engineering, procurement, construction and commissioning works necessary to deliver the Sizergh Castle Photovoltaic Project as identified in the Works Information, in accordance with this Agreement.

4 CONDITIONS OF CONTRACT

The *conditions of contract* shall be the core clauses, the clauses for main option A, dispute resolution option W2 and secondary options X2, X16, X18, Y(UK) 2 and option Z of the NEC3 Engineering and Construction contract April 2013 published by Thomas Telford as stated in Contract Data part one included at part two hereof.

5 CONSIDERATION

In consideration of the payments to be made by the *Employer* to the *Contractor* as hereinafter mentioned the *Contractor* hereby covenants with the *Employer* to carry out and complete the *works* in conformity in all respects with the provisions of this Agreement and to otherwise comply with and fulfil all his obligations and duties arising under this Contract.

6 PAYMENT

The *Employer* hereby covenants to pay to the *Contractor* the amount due at the times and in the manner specified in the *conditions of contract*.

7 LAW AND JURISDICTION

Save as provided for in this clause, this contract shall be governed by and construed according to the laws of England and Wales and shall be subject to the exclusive jurisdiction of the English courts.

IN WITNESS WHEREOF these presents have been executed by the Parties hereto as a **DEED** and delivered on the day first above written

EXECUTED as a **DEED** by affixing the)
COMMON SEAL of **THE NATIONAL TRUST**)
FOR PLACES OF HISTORIC INTEREST)
OR NATURAL BEAUTY in the presence of:)

……

Authorised Signatory

……

Number in Sealing Registry

EXECUTED as a **DEED** by **XXXXXXXX**)
Company)
LIMITED acting by ……..…) ……
a director, in the presence of:-)

Signature of witness ……

Name (in BLOCK CAPITALS) ……

Address ……

……....

……

……

Occupation …… .....

Schedule 1

Contract Data

Part 1

Data provided by the Employer

Statements given in all Contracts	
1 General	The *conditions of contract* are the core clauses, the clauses for main option **A** dispute resolution Option **W2** and secondary Options **X2, X16, X18, and Y(UK) 2** and Option **Z** of the NEC3 Engineering and Construction Contract April 2013 The *works* are the design, engineering, procurement, construction and commissioning works necessary to deliver the Sizergh Castle Photovoltaic Project The *Employer* is Name: National Trust Address: Heelis, Kemble Drive, Swindon SN2 2NA The *Project Manager* is Name: Address: The Hollens, Grasmere, Ambleside, Cumbria, LA22 9QZ The *Supervisor* is Name: Address: The Hollens, Grasmere, Ambleside, Cumbria, LA22 9QZ The *Adjudicator* is The person appointed in accordance with the Technology and Solicitors Construction Association adjudication rules current at the time the dispute is referred
	The Principal Designer is

	Name: XXXXX Address:
	The Principal Contractor is Name: XXX Address:
	The Works Information is in the documents attached and/or referenced at Schedule 2 hereto The Site Information is in the documents attached and/or referenced at Schedule 3 hereto
2 .	The *boundaries of the Site* are set out on drawing Annex I – Site Boundaries The *language of this contract* is English The *law of the contract* is the laws of England and Wales The *period for reply* is 1 weeks The *Adjudicator nominating body* is the Technology and Construction Solicitors Association The *tribunal* is litigation The following matters will be included in the Risk Register ……
3 Time	The *access dates* are The Site National Trust Sizergh Castle Date TBC . Specific dates and times for access to buildings will need to be arranged with the *Project Manager* or the National Trust Property Team. Any deviation from this schedule to be through agreement with the

		Project Manager The *Contractor* submits revised programmes at intervals no longer than 1 week
4	Testing and Defects	The *defects date* is 104 weeks after the completion of the whole of the works The *defects correction period is 3* weeks. Defects which occur in any part of the Site not in the *Employer's* possession or control shall be corrected at the convenience of the owner or occupier of the Site.
5	Payment	The *currency of this contract* is the Pound Sterling (£) The *assessment interval* is 2 weekly The *interest rate* is 2 % per annum above the Base Lending Rate of HSBC Bank plc
6	Compensation events	The place where weather is to be recorded is to be Walney Island (Met office MIDAS weather station) The *weather measurements* to be recorded for each calendar month are • the cumulative rainfall (mm) • the number of days with rainfall more than 5 mm • the number of days with minimum air temperature less than 0 degrees Celsius • the number of days with snow lying at 09:00 hours GMT • and these measurements: The *weather measurements* are supplied by the Met Office The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at Ronin Hoods Bay (Met office MIDAS weather station and which are available from the Met

		Office **Where no recorded data are available** Assumed values for the ten year return *weather data* for each *weather measurement* for each calendar month are not applicable
7	Risks and insurance	The minimum amount of indemnity for insurance in respect of loss of or damage to property (except the *works*, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the *Contractor*) caused by activity in connection with this contract for any one event is £10,000,000 (ten million pounds) The minimum amount of indemnity for insurance in respect of death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract for any one event is £10,000,000 (ten million pounds) The minimum amount of indemnity for insurance in respect of failure to use the skill and care normally used by professionals (Professional Indemnity Insurance) in connection with this contract for any one event is £1,000,000 (one million pounds)
Optional Statements		**If the *tribunal* is arbitration (Not Applicable)** • The *arbitration procedure* is .....N/A….. • The place where arbitration is to be held is …..N/A…. • The person or organisation who will choose an arbiter o If the Parties cannot agree a choice or o If the *arbitration procedure* does not state who selects an arbitrator……N/A…..
		If the *Employer* has decided the *completion date* for the whole of the *works* • The *completion date* for the whole of the *works* TBC
		If the *Employer* is not willing to take over the *works* before the Completion Date • The *Employer* is not willing to take over the *works* before the Completion Date.

If Option X1 is used (NOT USED)

- The proportions used to calculate the Price Adjustment Factor are

0…… linked to the index for ……

0…… ……

0…… ……

0…… ……

0…… ……

0…… ……

non-adjustable

1.00

- The *base date* for indices is ……..
- The indices are those prepared by ……..

If Option X3 is used (NOT USED)

- The *Employer* will pay for the items or activities listed below in the currencies stated

items and activities	other currency	total maximum payment in the currency
……	……	……
……	……	……
……	……	……
……	……	……

- The *exchange rates* are those published in …….. on …… (date).

If Option X5 is used (NOT USED)

- The *completion date* for each *section* of the *works* is

section	description	*completion date*
1	……	……
2	……	……
3	……	……
4	……	……

If Options X5 and X6 are used together (NOT USED)

- The bonus for each *section* of the *works* is

section	description	amount per day
1	……	……
2	……	……
3	……	……
4	……	……

Remainder of the *works* ……..

If Options X5 and X7 are used together (NOT USED)

- Delay damages for each *section* of the *works* are

section	description	amount per day
1	……	……
2	……	……
3	……	……
4	……	……

Remainder of the *works* ……..

If Option X16 is used

- The *retention free* amount is nil
- The *retention percentage* is 5%

	If Option X18 is used
	• For any one event, the *Contractor's* liability to the *Employer* for loss of or damage to the *Employer's* property is limited to £2,000,000 (two million pounds)
	• The *Contractor's* liability for Defects due to his design (if any) which are not listed on the Defects Certificate is limited to £1,000,000 (one million pounds) for any one event or series of connected events
	• The *Contractor's* total liability to the *Employer* for all matters arising under or in connection with this contract, other than excluded matters, is limited to 100% of the Prices
	• The *end of liability date* is 12 years after Completion of the whole of the *works.*

Option Z- the *additional conditions of contract* are

Z1

In **Clause 11.2(2)**, replace the second bullet point with: "corrected all Defects excepting those Defects the *Project Manager* has agreed may be corrected after Completion".

Add the following new bullet points:

- cleared all surplus materials from the Site and cleaned the *works*;
- provided the Principal Designer with all information relating to the *works* required to enable him to produce the Health and Safety File or where the *Contractor* is not the Principal Designer but is the Principal Contractor and the Principal Designer's appointment concludes before Completion of the *works,* provided the Health and Safety File to the *Employer*;
- procured and handed over to the *Employer* the Manufacturer Warranties and any collateral warranties required from Subcontractors in the agreed forms;
- completed and handed over the operations and maintenance manuals, provided the training to the *Employer* and passed the Tests on Completion specified in the Works Information."

In **Clause 11.2(4)** delete "this contract came into existence" and insert "the Parties entered into this Contract".

In **Clause 11.2(5)**, second bullet point delete: “applicable law” and replace with “Applicable Law”

In **Clause 11.2(17)** in the third bullet point after “Materials” insert “or Equipment”.

Add a new bullet point “design the *works* or any part or element of the *works*”.

At the end of **Clause 11.2** add the following:

"(34) “Applicable Law” means any England and Wales statute, law, order, regulation, by-law, statutory instrument, decision, rule, order, consent or delegated or subordinate legislation or any legislative act of the Council of the European Union or the European Commission which (without further enactment) has legal effect within England, or any modification or amendment of any of the foregoing having the force of law.”

“(35) “CDM Regulations” means the Construction (Design and Management) Regulations 2015 and any Approved Code of Practice issued by the Health and Safety Commission in relation thereto together with any guidance or requirements issued from time to time by the Health and Safety Executive, as all of the above may be amended, revised or supplemented from time to time.”

“(36) “Documents**”** means data, records, reports, documents, manuals, designs, drawings, plans, specifications and other works or materials of any nature in any form or medium (excluding proprietary software).”

“(37) “Intellectual Property Rights” are any current and future legal and equitable interests in patents, trademarks, design rights, copyright, know-how and other similar rights, whether or not registered or capable of registration.”

“(38) “Working Day(s)” means any day other than a Saturday or Sunday or a public or bank holiday in England.”

“(39) “Works” means the *works”*

“(40) Not used

“(41) The Construction Phase Plan is the construction phase plan prepared by the Principal Contractor under the CDM Regulations and any later amendment to it.”

“(42) The Health and Safety File is the health and safety file referred to in the CDM Regulations”

“(43) The Principal Contractor is the principal contractor under the CDM Regulations”

“(44) The Principal Designer is the principal designer under the CDM Regulations”

“(45) "Good Industry Practice" means using standards, practices, methods and procedures as would be expected of an adequately resourced contracting organisation experienced in the provision of design and works similar in nature scale and complexity to the works with knowledge of the Contractor's obligations under this contract.”

"(46) “Environment" means any and all of the following: air (including without limitation air within manmade structures or natural structures); water; land (including without limitation the surface and the subsurface of land); and organisms (including without limitation human beings), ecosystems and habitats.”

“(47) "Environmental Harm" means any adverse impact on or deterioration in the quality of air, land or water or the Environment as a whole, harm to the health of human beings or other organisms, offence to the senses of human beings, impairment or interference with ecosystems and habitats, impairment or interference with the amenity of the Environment or any release, discharge or spillage of Hazardous Substances.”

“(48) "Hazardous Substances" means any substance whatsoever (whether a solid, liquid, gas or any other state of matter and whether alone or in combination with any other substance) which is capable of causing Environmental Harm (including without limitation substances defined as hazardous in the European Waste Catalogue).”

“(49) “Regulator" means any statutory authority being any governmental or local authority, statutory undertaker or other body of competent jurisdiction which has any jurisdiction with regard to the works and/or the performance of the Contractor's obligations under this contract and/or with whose requirements the Employer is required or accustomed to comply and/or with whose systems the works are or will be connected.”

“(50) "Regulatory Requirement" means any legally enforceable requirement of any Regulator and any condition, stipulation, proviso, restriction or requirement of any licence, authorisation, consent, omission, order, permit, warrant, approval or notice (whether obtained by the Employer or by the Contractor) required in order to enable the Contractor to carry out the works or otherwise required in connection with the works and any condition precedent or other requirement of any Regulator which must be satisfied prior to the grant, issuance, renewal, variation, extension, continuation and/or reconfirmation of any such licence, authorisation, consent, permission, order, permit, warrant, approval or notice.”

"(51) "Holding Company" has the meaning given in Section 1159 of the Companies Act 2006."

"(52) "Subsidiary" has the meaning given in Section 1159 of the Companies Act 2006."

"(53) "Change in Law" means the coming into effect of:

- Applicable Law, other than any Applicable Law which on the date of this Contract has been published:
  - in a draft Bill as part of a Government Departmental Consultation Paper;
  - in a Bill;
  - in a draft statutory instrument; or
  - published as a proposal in the Official Journal of the European Communities, or
- Any applicable judgment of a relevant court of law which changes a binding precedent."

"(54) "Employer Data" means all data, text, drawings, diagrams, images or sounds (together with any database made up of any of these) which are embodied in any media (including without limitation electronic, magnetic, optical and tangible media) and which are supplied to the *Contractor* by or on behalf of the *Employer* and any Intellectual Property Rights relating to the same which are vested in the *Employer*."

"(55) "Licence" means any permit, consent, approval, authorisation, agreement, no objection certificate, waiver or licence which must be obtained from any person (including both private persons and public sector entitles) in order for the *works* to be performed and for any goods to be transported, imported or exported."

"(56) "Tests on Completion" are the tests specified as such in the Works Information".

"(57) "Tests after Completion" are the tests specified as such in the Works Information (if any)."

"(58) "Manufacturer Warranties" means the 5 year defects warranty in relation to the boilers to be supplied as part of the *works* and the 10 year defects warranty in relation to the heat main to be provided as part of the *works* in the forms set out in the Works

"(59) "Emergency" means, in relation to a Defect, a Defect which has stopped the operation of the *works,* and/or which gives rise to any health and/or safety risk."

Delete **Clause 12.1** and replace with:

"12.1 In this Contract, unless the context otherwise requires:

- the headings are for convenience only and shall not affect its interpretation,
- any reference to this Contract or to any other document shall include any permitted variation, amendment or supplement to such document,
- any reference to any statute shall include references to the same as it may have been, or may from time to time be amended/modified, consolidated or re-enacted and to any regulation or subordinate legislation made under it (or under such an amendment, modification, consolidation or re-enactment) subject to the provisions of this Agreement which relate to change of law,
- reference to the plural shall include the singular and vice versa, and reference to one gender includes reference to all genders. Any reference to a person shall be a legal person of whatever kind whether incorporated or unincorporated and to its successors, permitted assigns and transferees, and
- words shall not be given a restrictive interpretation by reason of their being preceded or followed by words indicating a particular class of acts, matters or things."

Delete **Clause 12.4** and replace with:

"12.4 In relation to its subject matter, this Contract sets out the entire agreement between the Parties and supersedes all prior agreements, arrangements or understandings between them. The Parties acknowledge that they have not entered into this Contract in reliance upon any statement, representation, assurance or warranty which is not set out in this Contract. Nothing in this Clause shall limit or exclude any liability for fraud."

In **Clause 13.2** insert the following sentence at the beginning of the clause:

"Except for any:

- notice of intention to refer a dispute to adjudication or the tribunal;
- notice to terminate the contract;
- notice by the *Contractor* to suspend part or the whole of the *works (*together the **"Excluded Communications"**),

a communication may be sent by email, and if sent before 5:30pm, shall have effect on the day it is sent, or if sent after 5:30pm, shall have effect the day after it is sent."

Amend the second sentence by replacing "A communication" with "Any Excluded Communication".

In **Clause 15.1** delete the second sentence, and replace with:

“A reason for not accepting is that the proposed area is either;

- not necessary for Providing the Works, or
- not used for work in this contract, or
- the *Employer* has no rights over the area proposed.”

Add **Clause 17.2**

“To the extent that there is any conflict between the meaning of terms and conditions within the core clauses, main and secondary options of the *conditions of contract*, the *additional conditions of contract* under the Z clauses and anything contained within any schedules, appendices or the Works Information, the *additional conditions of contrac*t under the Z clauses followed by the core clauses, main and secondary options of the *conditions of contract* shall prevail.”

Add **Clause 17.3**

“The Contractor is liable for any ambiguities or inconsistencies between or within any documents comprised in the Works Information which have been created by the Contractor or on its behalf by others and no Compensation Event shall be given in respect of the same.”

Delete **Clause 18.1** and replace with the following:

“18.1 At the Contract Date, the *Contractor* agrees that the Works Information does not contain any illegal or impossible requirements. Throughout the course of the *works*, should an instruction be given in accordance with this contract that amends or adds to the Works Information, the *Contractor* notifies the *Project Manager* as soon as he considers that the instruction requires him to do anything which is illegal or impossible. If the *Project Manager* agrees, he gives an instruction to change the Works Information appropriately.”

Delete **Clause 19** and replace with the following:

"19.1 If an event or circumstance occurs which is beyond the control of a Party and which makes it impossible or illegal for that Party to perform its obligations under or in relation to this contract:

- the *Project Manager* gives an instruction to the *Contractor* stating how he is to deal with the event or circumstance; and
- neither the *Employer* nor the *Contractor* shall be liable for any delay or for the consequences of any delay in the performance of any of their respective obligations under this contract due to the event or circumstance."

After **Clause 20.1** insert the following:

"20.2 The *Contractor* shall execute the *works* diligently, with all reasonable skill and care, in a good and workmanlike manner, using good quality and suitable materials of their respective kinds and in accordance with:

- the contract;
- Good Industry Practice;
- Regulatory Requirements; and
- Applicable Law.

20.3 Not used

20.4 The *Contractor* will throughout the progress of the *works*:

- take full responsibility for the safety of all persons entitled to be upon the Site;
- keep the Site and the works (so far as the same are not occupied by the *Employer*), in an orderly state in order to avoid danger to such persons; and
- in connection with the *works* provide and maintain at his own cost all lights, guards, fencing, warning signs and watch when and where necessary, or as reasonably required by the *Employer* or by any competent statutory or other authority for the protection of the *works* or the safety and convenience of the public or others.

20.5 The *Contractor* will ensure that the *works* and any part of the Site upon which the *works* are carried out shall be kept secure at all times.

Protection of the Environment

20.6 The *Contractor* shall at all times be responsible for and take reasonable and proper steps for protecting the *Environment* and shall ensure that in carrying out the *works* he does not cause *Environmental Harm*.

20.7 In doing so, the *Contractor* shall comply with all *Regulatory Requirements*.

20.8 The *Contractor* shall be liable for, and shall indemnify the *Employer* against any expense (including without limitation site investigation and remediation costs), liability, loss, claim, proceedings (including without limitation informal and formal enforcement proceedings brought by a *Regulator*), or *Regulatory Requirements* (including without limitation compulsory remediation required by a *Regulator*) arising in respect of *Environmental Harm* as a result of any breach of contract, breach of statutory duty or negligence by the *Contractor* or any of its subcontractors, operatives, employees or agents."

Add to the end of **Clause 21.1**

"The *Contractor* shall be fully responsible and liable for the design of the *works*, including the selection of any Plant and Materials in connection thereto, save to the extent that responsibility for the design of any part of the *works* is expressly allocated to the *Employer* in the Works Information."

In **Clause 21.2** replace “applicable law” with “Applicable Law”.

Delete the existing text of **Clause 22** and replace with:

“22.1 As between the Parties, the *Contractor* shall retain the copyright and other intellectual property rights in the Documents and other design documents made by (or on behalf of) the Contractor. The *Contractor* grants to the *Employer*, with immediate effect, an irrevocable, non-exclusive, non-terminable, royalty-free licence to copy and make full use of any Documents prepared by or on behalf of the *Contractor* and to reproduce the designs contained in them for any purpose relating to the *works*. This licence carries the right to grant sub-licences and is transferable to third parties without the *Contractor's* consent.

22.2 The *Contractor* makes available to the *Employer* all such Documents created by the *Contractor* or any Subcontractor in relation to this contract for use by the *Employer* to carry out any statutory duty or for any purpose connected with construction, alteration or demolition of the *works* and for other purposes stated in the Works Information. The *Contractor* makes available the Documents in the format and manner specified in the Works Information or any other format in which the Documents exist. While the *Employer* shall be entitled to utilise and copy documents comprising the Documents for an extension of the *works*, the *Employer* shall not be entitled to reproduce the

designs contained in the Documents for any such extension. The *Contractor* shall not be liable or responsible for any use of the Documents for any purpose other than that for which it was originally prepared and provided. The *Contractor* makes available the Documents in the format and manner specified in the Works Information.

22.3 The *Contractor* warrants that the *Employer's* exercise of any such Intellectual Property Rights shall not infringe the Intellectual Property Rights of any third parties and the *Contractor* shall indemnify the *Employer* against any claims, damages, losses, costs or expenses suffered by the *Employer* (or its assignees or licensees) as a result of the Employer's exercise of such Intellectual Property Rights or for which the *Employer* is otherwise liable arising out of or in connection with any infringement of any Intellectual Property Rights of any third party caused by or arising out of performing any statutory duty or for any purpose connected with construction, alteration or demolition of the *works* and for other purposes stated in the Works Information.

22.4 The *Contractor* has the right to use Documents provided by the *Employer* only to satisfy its obligations under this contract. The *Contractor* may make this right available to *Contractor's* Subcontractors for the same purpose. On Completion the *Contractor* returns all the Documents to the *Employer.*

22.5 The *Contractor* has confirmed that the only specialist software system required to operate and maintain the *works* and access the Documentation is the xxxxx online system, which can be accessed by standard web browsers already used by the *Employer* and the *Employer* will be permitted to have an online account in xxxxx. The *Contractor* confirms that all other Documents can be accessed via standard software. To the extent that it becomes apparent that any other specialist software is required to operate and maintain the *works* in line with Good Industry Practice the *Contractor* will provide the *Employer* with such software as required, at the *Contractor's* cost. For the avoidance of doubt the *Employer* has agreed that licence for the xxxxx Software (used for detailed system interrogation) is not required by the *Employer* in relation to the *works*.

22.6 The *Employer* and the *Contractor* do anything necessary to confirm the terms of any assignment of Intellectual Property Rights or license to use the Documents.

22.7 As contemplated by the Copyright, Designs and Patents Act 1988, to the extent the *Contractor* or. or any Subcontractor is the author of Documents which comprise Intellectual Property Rights, the *Contractor* waives and shall ensure that the Subcontractor waives its rights against the *Employer,* the *Employer's* assignees and licensees to the extent that the exercise of such rights would prevent or impede the *Employer's* exercise of the Intellectual Property Rights licensed by this clause 22.

In **Clause 23.1**, third bullet point, delete “applicable law” and replace with “Applicable Law”.

Add **Clause 24.3**:

“The *Employer* may replace the *Project Manager* and/or the *Supervisor* with other people suitably qualified and experienced to undertake those roles. The *Employer* will notify the *Contractor* in writing of any such change.”

Add **Clause 24.4** as follows:

"24.4 The *Contractor* shall demonstrate to the reasonable satisfaction of the *Employer* that it has in place, and shall use best endeavours to procure that its Subcontractors shall have in place, appropriate procedures for ensuring the welfare of their respective employees or other persons engaged in Providing the Works, including procedures for reporting and handling instances and perceived instances of fraudulent behaviour and procedures protecting whistle blowers."

Insert the following at the end of **Clause 26.2**:

"No sum due under a subcontract is eligible for treatment as Defined Cost, or as part of the Price for Services Provided to Date, if and for so long as the requirements of this Clause 26.2 are not satisfied in relation to that subcontract."

Insert the following at the end of **Clause 27.1**:

"The *Employer* obtains all Licences required for the carrying out of the *works,* except for those which the Works Information expressly states will be obtained by the *Contractor*.

In relation to Licences which it is the *Employer's* responsibility to obtain, the *Contractor*:

- provides such support as the Works Information states the *Contractor* is to provide to the *Employer* in applying for and obtaining such Licences, and
- provides such other support as the *Employer* reasonably requires.

The Contractor ensures that the *works* complies with all Licences, Applicable Laws and Regulatory Requirements (including, without limitation, those relating to the protection of human health and the Environment) (and procures that its Subcontractors so comply) in providing the Works."

Add **Clause 27.5**

“Notwithstanding any other provision of the *contract* the Contractor will comply with and ensure that at the Completion Date, the works comply with all Applicable Laws and Regulatory Requirements”.

Add **Clause 27.6**

"27.6.1 The *Contractor* warrants it has exercised and shall continue to exercise Good Industry Practice not to specify nor authorise, cause or allow to be used any material which does not comply with the Works Information or is known to or is reasonably believed to pose a hazard to the health of any person or to the environment or which, at the time of specification or use in the *works* is generally accepted as being deleterious ("Prohibited Materials").

27.6.2 The *Contractor* shall immediately notify the *Project Manager* if he suspects or becomes aware of any proposed or actual use within or in connection with the *works* of any of the Prohibited Materials."

Add **Clause 27.7** CDM Regulations

"27.7.1 Where and to the extent that the CDM Regulations apply to any works and, to the extent specified in the Contract Data, the Contractor is appointed as "principal contractor", the "principal designer" and/or "designer" (as those terms are defined in the CDM Regulations) and performs all the functions and obligations of these appointments. The Contractor hereby confirms and agrees that in relation to the preparation of any design in any works for which he is responsible under this contract:

- he shall (and shall ensure that all Subcontractors, or suppliers who undertake any responsibility in relation to the preparation, development and completion of such design or any part thereof shall) carry out and fulfill in all respects the duties of a designer under the CDM Regulations;

- he has or shall be deemed to have made all due allowance in the programming, planning and pricing of the works for compliance with this clause.

27.7.2 The Contractor warrants and undertakes that he is competent for the purposes of the CDM Regulations and that he has allocated and will continue to allocate adequate resources to comply with the duties and obligations imposed on him by the CDM Regulations.

27.7.3 Where the Contractor is not or ceases to be the principal contractor, the Contractor shall (and shall ensure that all Subcontractors or suppliers shall) comply with its duties and obligations as a contractor under the CDM Regulations and, to the extent that the Contractor is not appointed as the Principal Designer, liaise and co-operate fully with the Principal Designer for the works.

27.7.4 The Contractor shall not commence any work on site until an adequate Construction Phase Plan is in place, as required by the CDM Regulations.

27.7.5 Where the *Contractor* is not the Principal Designer but is the Principal Contractor and the Principal Designer's appointment concludes before practical completion of the *works*, the *Contractor* shall review, update and revise the Health and Safety File in accordance with the CDM Regulations without charge."

Add **Clause 27.8** Transfer and Third Party Rights

"27.8.1 The Contractor does not without the prior written consent of the Employer assign novate or otherwise transfer any benefit or obligation in a part or the whole of this contract.

27.8.2 The Employer may assign the benefit of this contract: (a) on two occasions to any person; and (b) without counting as an assignment under this clause to and from any Subsidiary or Holding Company or other associated companies within the same group of companies as the Employer without the Contractor's consent.

27.8.3 The Parties hereby confer on National Trust (Renewable Energy) Limited (company no: 8763161) the equivalent rights as those granted to the Employer under this contract pursuant to the Contracts (Rights of Third Parties) Act 1999."

Add **Clause 27.9** Archaeological Finds

"27.9.1 All fossils, antiques, archaeological artefacts and other objects of interest or value which may be found on the site or in excavating it during the process of the *works* shall become the *Employer's* property. Upon discovery of any such object the *Contractor* shall forthwith:

27.9.1.1 use his best endeavours not to disturb the object and cease the work is and insofar as its continuance would endanger the object or prevent or impede its excavation or removal;

27.9.1.2 take all steps necessary to preserve the object in the exact position and condition in which it was found; and

27.9.1.3 inform the *Employer* and *Project Manager* of its discovery and precise location.

27.9.2 The *Project Manager* shall issue instructions as to action to be taken concerning any object reported under clause 27.10, which may require the *Contractor* to permit the examination, excavation or removal of the object to a third party.

27.9.3 Any instructions given by the *Project Manager* under this clause 27.10 shall be regarded as a compensation event."

In **Clause 35.2**, add as a final bullet point:

- ”to meet an emergency situation.”

Add the following to the end of **Clause 43.4**:

"The *Contractor* corrects Defects in a manner that does not affect or otherwise minimises the impact upon the *Employer's* operations and business and does so at times reasonably specified by the *Employer*."

Add **Clause 43.5**

“In addition to the foregoing provisions of clause 43, if a Defect is an Emergency, the *Contractor* shall attend the *works* within 5 days of being notified of such Defect to assess and search for the Defect and (where the Defect cannot be rectified at the time of the *Contractor's* attendance at the *works*) provide to the *Employer* within a further 2 days a plan for rectifying the Defect.”

Add **Clause 46**

"The *Contractor* shall not be liable for any Defects in the *works* (or any low performance arising from such Defects) to the extent that:

- the Defect arises because the *Employer* failed to regularly maintain and service the *works* in accordance with the *Contractor's* operation and maintenance manual provided to the *Employer*,
- the Defect arises as a result of fair wear and tear or wilful damage

provided always that the same is not attributable to any act or omission of the *Contractor*.

In **Clause 50.1** add as final paragraph

“One week before each assessment date the *Contractor* submits to the *Project Manager* an application for payment setting out what the *Contractor* considers to be the amount due. The application is

- in a form acceptable to the *Project Manager* and
- includes substantiation of the amounts that the *Contractor* considers to be due.”

In **Clause 50.3** after: “Contract Data” in the first line insert the following:

“or the *Contractor* fails to submit a revised programme to the *Project Manager* in accordance with this contract”.

In **Clause 50.3** after: “first programme” in the third line insert the following:

“or revised programme”.

At the end of **Clause 50.3,** insert the following:

“provided that the maximum amount retained in respect of each programme is limited to the amount due in the assessment period in which such programme was due to be submitted.”

Add new **Clause 50.6**

“The *Contractor* does not include amounts in any application for payment and the *Project Manager* does not include such in his assessments in respect of the following any Plant and Materials in which he does not have title."

In **Clause 51.1**

Delete “one week of each assessment date” and replace with: “10 Working Days of each assessment date. The day on which a payment becomes due is 10 Working Days after the relevant assessment date”

Add at the end of the clause:

“The *Contractor* raises an invoice for the amount shown on the *Project Manager’s* certificate together with the amount of VAT due and issues that invoice to the Employer's Finance Service Centre with a copy to the *Project Manager*.”

In **Clause 51.2**, replace the first sentence with:

"The final date for payment is 30 days from the date on which the *Employer's* Finance Service Centre receives the Contractor's invoice.”

Add as **Clause 51.5**:

“Where under this contract any sum of money is recoverable from or payable by the *Contractor* such sum may be deducted from or reduced by the amount of any sum or sums then due or which may at any time after may become due to the *Contractor* under this contract or any other contract with the *Employer.*”

Add the following new **Clauses 52.2 to 52.6**:

"52.2 The Contractor keeps these records:

- Full accounts of all costs relating to the *works*;
- Accounts of payments of Defined Cost;
- Proof that the payments have been made;
- Copies of enquiry or instructions to tender documentation and tender clarification documents in respect of Subcontracts;
- Other records as stated in the Works Information.

All such records are kept in accordance with good accountancy practice and shall include all details and levels of breakdown specified in the Works Information.

52.3 The *Contractor* provides to the *Project Manager* reports fortnightly summarizing the costs relating to the *works* in the preceding month and in respect of the works to date in the form set out in the Works Information. Such report also contains the *Contractor's* estimate of the costs to be incurred in respect of the works to completion.

52.4 The *Contractor* allows the *Project Manager* to inspect at any reasonable time within working hours and upon reasonable notice the accounts and records which the *Contractor* is required to keep and provides such access and verification as the *Project Manager* reasonably requests.

52.5 The *Project Manager* is entitled to receive further information and explanations from the *Contractor* as he reasonably considers necessary to enable him to form an opinion on these records and accounting methods.

In **Clause 60.1** line 1 after "are" insert:

"to the extent they do not result from any error, omission, negligence or default of the *Contractor* or the *Contractor's Persons*".

In **Clause 60.1(1)**, in the second subparagraph delete: “for his design”.

At the end of the second bullet point remove "." and insert: "or". Add the following new bullet points to **Clause 60.1(1)**:

- "a change made as a result of or to overcome or to mitigate the effects of a breach of contract by the *Contractor."*

Insert the following at the end of **Clause 60.1(11)**:

"but delay is not unnecessary if it arises only from the proper carrying out of a test which is provided for in the Contract and/or the Service Information."

In **Clause 60.1(17)** add at the end: “unless the correction was necessary due to inaccurate, or incorrect information provided by the *Contractor*.”

Insert "or other act of prevention" after "breach of Contract" in Clause 60.1(18).

Insert the following new **Clause 60.4**.

“Provided that the *Contractor* complies with his obligations in Core Clause 6 [*Compensation Events*], the *Contractor* is entitled to an extension to the Completion Date, a Key Date or such other adjustment to the Accepted Programme for the performance of his obligations under this contract to take account of delay due to a compensation event pursuant to Clause 60.1(19). Notwithstanding Core Clause 6 [*Compensation Events*], the *Contractor* is not entitled to a change in the Prices due to a compensation event pursuant to Clause 60.1(19).”

In **Clause 61.3** delete “unless the event arises from the *Project Manager* or the *Supervisor* giving an instruction, issuing a certificate, changing an earlier decision or correcting an assumption".

Insert "Subject to Clause 63.2" at the beginning of Clause 63.1.

Delete **Clause 63.2** and replace with the following:

"The changes to the Prices are assessed either in accordance with Clause 63.1 or this Clause 63.2, at the *Project Manager's* election. If they are to be assessed in accordance with this Clause 63.2, the changes to the Prices are assessed as follows:

- for compensation events that concern works and/or services similar to those contained in the Activity Schedule, the change to the Prices is assessed by multiplying the quantities of such works and/or services by Prices in the Activity Schedule adjusted as appropriate to make due allowance for any change in the conditions under which such work or services are to be undertaken and/or any significant change in the quantity of the work to be undertaken. If, in the *Project Manager's* reasonable opinion there are no Prices in the Activity Schedule for work of a similar character to the work and/or services applicable to a compensation event the *Project Manager* may instruct the *Contractor* to assess the change to the Prices either on the basis of any schedule of rates contained in the Contract or by submitting the *Project Manager* an unit rate for the work based on the anticipated costs to be incurred by the *Contractor* in carrying out the work plus a reasonable margin for overheads and profit. Within 5 Business Days of receipt of any such unit rate the *Project Manager* shall either notify the *Contractor* that it approves the unit rate or set out reasons why it does not approve the unit rate. If the *Project Manager* approves

the unit rate it shall be known as a "star rate" and the *Employer* shall be entitled to request that future works and/or services instructed by the *Employer* of the same type shall be assessed using the star rate. If the *Project Manager* rejects the unit rate proposed by the *Contractor* the change to the Prices shall be assessed in accordance with Clause 63.1."

Add a sentence to the end of **Clause 63.4** as follows:

"If the *Contractor* does not take reasonable steps to mitigate the consequences of a compensation event, he is only entitled to a change in the Prices, the Completion Date or a Key Date as he would have been entitled to had he taken such steps."

Delete **Clause 63.8**.

Delete **Clause 70.1** and **70.2** and substitute:

"70.1 Title to Plant and Materials, whether in or outside the Working Areas, shall pass to the *Employer* at the same time as the *Employer* makes payment in full under this contract in respect of such Plant and Materials.

70.2 The *Employer* does not make any warranty in relation to the condition and/or suitability of any equipment made available to the *Contractor* in relation to the *works*. The *Contractor* shall carry out all necessary inspections of any equipment made available to the *Contractor* by the *Employer* in relation to the works to satisfy itself that such equipment is fit for the purpose for which the *Contractor* intends to use such equipment. If the equipment is found to be unsuitable the *Contractor* shall inform the Employer. The *Contractor* shall also ensure that:

- it maintains insurance against any liability for loss of or damage to the equipment arising from or in connection with the *Contractor's* Providing the Works; and

- its personnel and/or Subcontractors are provided with adequate training and all other appropriate facilities so as to ensure the equipment may be operated safely and in accordance with any operation and maintenance manuals and Good Industry Practice.

70.3 The Contractor indemnifies the Employer against claims, proceedings, compensation and costs due to an event arising from any failure by the Contractor to comply with its obligations under Clause 70.2."

In **Clause 84.2,** delete "are in the joint names of the Parties and"

In **Clause 84.2**, after: “issued” add: “and are:

- with reputable insurers lawfully carrying on such insurance business, and
- on customary and usual terms and conditions prevailing for the time being in the insurance market and not subject to any material excess or unusual exclusions

The terms and conditions of the insurances do not include any term or condition

- to the effect that any insured must discharge any liability before being entitled to recover from insurers, or
- which might adversely affect the rights of any person to recover from insurers under any Applicable Law relating to the rights of any third parties against the insurers."

In **Clause 84.2** in the fourth row, second column delete: "applicable law" and replace with "Applicable Law".

In **Clause 85.1** add at the end of the Clause:

"The *Contractor* is to notify the *Employer* immediately of any lapses in any insurance cover and shall postpone the *works* until such cover is obtained. It is the responsibility of the *Contractor* to furnish the *Employer* with a copy of any relevant insurance renewal certificate over the period of this contract."

Insert the following at the end of **Clause 85.3**:

"and (insofar as it is reasonably within its power) shall not permit anything to occur in relation to them which would entitle any insurer to refuse to pay any claim or avoid, suspend or defeat (in whole or in part) any insurance policy under which that Party is insured or benefits from an 'indemnity to principals' clause."

In the TERMINATION TABLE, in the first row, second column, replace the first reference to "R21" with "R22" and after "R18" add "or R22".

In **Clause 90.2**

Amend the termination table in the "the *Employer"* row as follows:

In **Clause 91.1** at the end of the seventh bullet point before "(R5)" add:

- "'or passed a resolution for voluntary winding up without a declaration of solvency"

In **Clause 91.1** delete the tenth bullet point and replace with:

- "'entered administration in accordance with any of the provisions of the Insolvency Act 1986 (R8)"

In **Clause 91.2:**

At the end of first bullet add:

- "which includes any persistent or material failure".

Add as the final bullet point:

- "Assigned or transferred any benefit in any part or the whole of this contract without the *Employer's* consent (R22).

Delete **Clause 91.3** and insert

“The *Employer* may terminate if the *Project Manager* has notified that the *Contractor* has substantially hindered the *Employer* or Others and not stopped defaulting within one week of the notification (R14).

The *Employer* may terminate forthwith if the *Project Manager* has notified that the *Contractor* has substantially broken a health or safety regulation (R15).

In **Clause 91.5** delete “law” and replace with: “Applicable Law”.

Delete **Clause 91.7** and replace with the following:

“The *Employer* may terminate if an event or circumstance occurs in respect of which the *Contractor* is entitled pursuant to Clause 60.4 to a delay to the Completion Date for a period that is longer than 13 weeks (R21).

In **Clause 92.2 P4** insert at the end: “and makes good the Site to the satisfaction of the *Employer*”.

Insert **Clause 92.3**:

“Following any termination the *Contractor* co-operates with the *Employer* and provides all assistance necessary to enable another person to complete the *works* and, where P4 and/or A4 applies, the *Employer* pays the *Contractor* a fair and reasonable sum in respect of whatever work is required to be done by the *Contractor* in providing such co-operation and assistance.”

In **Clause 93.1** at the end of the second bullet point add the words:

“which is not already included in the amount due”

Delete **Option W2** and insert:

"W2.1 Any party to this Contract can refer a dispute or difference (other than a matter as to which a decision is provided by this contract to be final and conclusive) to adjudication in accordance with the Housing Grants, Construction and Regeneration Act 1996 and any adjudication shall be undertaken in accordance with the TeCSA rules version 3.2 (2011) or any later version of the rules at the time a notice of intention to refer a dispute is issued by the referring party ("the Rules")

W2.1.1 The Adjudicator is the person appointed to decide a dispute in accordance with the Rules.

W2.1.2 Apart from the rules and procedures set out in the Rules, the Adjudicator shall not be bound by any other rules or procedures whatsoever (including, without limitation, any rules or procedures relating to evidence, the conduct of hearings, or the conduct of litigation or arbitration).

W2.2 The *Contractor* shall ensure that any sub-contract contains similar adjudication provisions particularly allowing for joinder of related adjudications as between the *Employer, Contractor* and any *Subcontractor*.

W2.3 Subject to the above, any dispute or difference which arises between the Parties shall be referred to the High Court of England and Wales for resolution as business of the Technology and Construction Court."

Delete **Option X2** and replace with the following:

"**Option X2: Changes in the law**

A Change in Law (except any changes to the National Minimum Wage which are reasonably foreseeable at the Contract Date) is a compensation event if it occurs after the Contract Date and requires a modification or addition to, or a change in, or replacement of any part of the *works* required by or required in order to achieve compliance with the Change in Law and which would not be required under the terms of the Contract but for such Change in Law. The *Project Manager* may notify the Contractor of a compensation event for a Change in Law and instruct him to submit quotations. If the effect of a compensation event which is a Change in Law is to reduce the total Defined Cost, the Prices are reduced."

If Option X13 applies:

In **Option X13.1**:

At the end of the sentence ending "to carry the bond" insert "or has a credit rating of less than A- from Standard & Poors, A3 from Moody's or A- from Fitch, as the case may be."

At the end of the Clause add:

“failing which the *Employer* may withhold any amounts due pursuant to Clause 50-55 of this Contract up to the amount of the bond, as stated in the Contract Data.”

Add new **Clause X13.2** as follows:

“The *Contractor* maintains the bond until Completion.

If **Option X16 applies:**

In **Option X16.2** delete the final paragraph starting "The amount retained remains at..." and replace with:

“The amount retained remains at this amount until:

- the date falling 1 year after the date of Completion (provided that there are no Defects at such date; or
- the date on which the Contractor makes good all Defects that may have arisen up to and including the date falling 1 year after the date of Completion,

the “**Retention Release Date**”. No amount is retained in the assessments made after the Retention Release Date.

If Option X17 applies:

In **Option X17.1** replace "If a Defect included in the Defects Certificate" with "If the Contractor fails to pass the Tests after Completion and such failure".

Insert **Clause X17.2:**

"Any low performance damages payable pursuant to this clause X17 shall be reduced to the extent that any low performance of the *works* is due to any of the reasons stated in clause 46."

If **Option X18 applies:**

In **Option X18.1** after "indirect or consequential loss" insert:

"(excluding any liability to pay liquidated damages arising under this contract, including (without limitation) delay damages under Option X7 (if applicable), low performance damages under Option X17 (if applicable), or in relation to Accreditation Damages)"

In **Option X18.4** insert the following additional excluded matters:

- any sums recoverable under any of the insurance policies required to be maintained by the Contractor;

- any liability under clause 22.3;
- any liability in any case of wilful default, deliberate fault and/or reckless misconduct of the *Contractor*.

In **Option Y(UK)2 Clause 2.2** delete the first two paragraphs.

In **Option Y(UK)2 Clause Y2.3** add as final sentence

"If the *Employer* issues such a pay-less notice, the *Contractor* raises a credit note for the difference between the amount certified by the *Project Manager* and the amount notified by the *Employer* as due together with the difference in the amount of VAT due and issues that credit note to the *Employer*."

Z2 Freedom of Information

Z2.1 Definitions:

"EIR" means the Environmental Information Regulations 2004.

"FOIA Information" has the meaning given to under section 84 of the FOIA.

"FOIA" means the Freedom of Information Act 2000 and any subordinate legislation made under this Act from time to time together with any guidance and/or codes of practice issued by the Information Commissioner in relation to such legislation.

"Request for Information" means a request for information under the FOIA or EIR or any other request for information received from a member of the public.

Z2.2 The *Contractor* understands and acknowledges that the *Employer* is subject to the requirements of the FOIA and EIR. The *Contractor* shall assist and co-operate with the *Employer* to enable the *Employer* to respond to any Request for Information which relates to the *works*.

Z2.3 The *Contractor* shall and shall use best endeavours to procure that any Subcontractor of any tier of the *Contractor* shall (i) transfer to the *Employer* any Request for Information as soon as reasonably practicable after receipt and in any event within 3 days of receiving a Request for Information and (ii) provide all necessary assistance as reasonably requested by the *Employer* to enable the *Employer* to respond to a Request for Information as soon as practicable after receipt and in any event within twenty days.

Z2.4 The *Employer* shall be responsible for determining in its absolute discretion whether any information is to be disclosed in response to a Request for Information.

Z2.5 The *Contractor* understands and acknowledges that the *Employer* is under no obligation to consult with it prior to responding to any Request for Information relating to the *works* but will take reasonable steps, where appropriate, to give the *Contractor* advanced notice, or failing that, draw the disclosure to the *Contractor's* attention after such disclosure.

Z2.6 The Contractor shall not respond directly to a Request for Information unless expressly authorised to do so by the Employer.

Z2.7 The Contractor shall ensure that all FOIA Information is retained for the agreed information periods as set out below and shall permit the Employer to inspect such records as requested from time to time:

(a) six years following the issue of the *Project Manager's* certificate showing the final amount payable in relation to this contract or such later date as identified in clause (b).

(b) in relation to this contract six years following expiry or earlier termination of this contract.

Z2.8 The provision of this clause Z2 shall survive the termination or expiry of this contract.

Z3 Confidentiality

Z3.1 The *Contractor* shall take all reasonable steps, by instruction, display of notices or other appropriate means, to be agreed periodically with the *Employer*, to ensure that all staff employed on any work and/or services in connection with this contract have notice that these provisions apply to them and will continue to apply to them:

(a) after the end of or termination of this contract, and

(b) after termination of their employment.

Z3.2 The *Contractor* shall not disclose this contract, or any provision thereof or any information or documentation provided under or pursuant to the same to any person other than a person engaged in connection with this contract or to any insurer and only then to such extent as may be necessary for the performance of this contract, except with the written consent of the *Employer*. Such disclosure shall be made in confidence and shall be limited to disclosure necessary for the purposes of this contract.

Z3.3 The *Contractor* shall not make use of this contract, or any information issue or furnished by or on behalf of the *Employer* otherwise than for the purposes of this contract, except with the written consent of the *Employer*.

Z3.4 Where the *Contractor*, in carrying out his obligations under this contract, is provided with information from or by the *Employer* or by a third party on behalf of the *Employer*, the *Contractor* shall not disclose or make use of any such information otherwise than for the purpose for which it was provided, unless the *Contractor* has sought and obtained the consent of the *Employer*.

Z3.5 Notwithstanding any of the provisions of this clause, nothing herein shall prevent disclosure of information:

(a) by either party to his professional advisers, provided that the *Contractor* shall have procured their agreement to be bound by provisions no less onerous than the provisions of this clause with respect to such information; or

(b) when such disclosure is a requirement of law placed upon the party making the disclosure, including any requirements for disclosure under the FOIA, Code of Practice on Access to Government Information or the EIR pursuant to clause Z2 (Freedom of Information); or

(c) relating to the outcome of the procurement process for this contract as may be required to be published in the Official Journal of the European Union or elsewhere provided that this is in accordance with the requirements of EC Directives or United Kingdom Government policy on the disclosure of information relating to Government contracts; or

(d) by or on the part of the *Employer* to any other department, office or agency of the Crown, or to any person engaged by the *Employer* in connection with this contract.

Z3.6 The *Contractor* shall ensure that all staff, whether employed by him, or by a subcontractor, or self-employed, are under an obligation of confidence owed not only to the *Contractor* but also the *Employer* not to disclose any information acquired during the course of their employment otherwise than in the proper discharge of their duties or as authorised by the *Employer*.

Z3.7 Notwithstanding any other term of this contract, this clause Z3 shall survive the expiry or, if earlier, termination of this contract for a period of six years.

Z4 Construction Industry Scheme

Z4.1 For the purposes of this Clause, the *Employer* is "a Contractor" for the purposes of the Construction Industry Scheme "CIS") under the Finance Act 2004 ("Act").

Z4.2 The *Employer* is not obliged to make any payment unless he is reasonably satisfied that, at the time of making the payment, the *Contractor* is registered for gross

payment. If the *Employer* is not reasonably satisfied that the *Contractor* is registered for gross payment, the *Employer* shall be entitled to deduct and withhold from the monies due to the *Contractor* under this Contract a sum equal to the appropriate relevant percentage (as specified by order of the Treasury in force at the date of payment) of so much of the monies due to the *Contractor* under this Contract as is required under the Finance Act 2004 Section 61 (Sub-Section 1) and, if any such deduction is required, the *Contractor* shall only be entitled to payment of the balance of the monies due to it under this Contract from the *Employer*.

Z4.3 The *Contractor* shall be liable to the *Employer* against any reasonably foreseeable and mitigated damage, loss and against any damage, loss and/or expenses suffered or incurred by the *Employer* arising out of or in connection with any breach by the *Contractor* of his obligations under this Clause and/or under the Act.

Z4.4 Where any error or omission has occurred in calculating or making any statutory deduction the *Employer* corrects that error or omission by repayment to, or by deduction from payments to, the *Contractor* as the case may be subject only to any statutory obligation on the *Employer* not to make such correction.

Z4.5 If compliance with this Clause results in the *Employer* or the *Contractor* in not complying with any other provision of the contract, then the provisions of this Clause prevail.

Z4.6 The *Contractor* shall immediately following the Contract Date provide the *Employer* its unique tax reference and accounts office reference to allow the *Employer* to verify the *Contractor's* registration status with Customs. The *Contractor* agrees to notify the *Employer* immediately of any change in its status for the purposes of the CIS.

Z5 Nuisance and Trespass

Z5.1 The *Contractor* shall:

(a) at all times prevent any public or private nuisance (including, any nuisance caused by noxious fumes, noisy working operations or the deposit of any material or debris on the public highway) or other interference with the rights of any adjoining or neighbouring landowner, tenant or occupier (including occupiers of completed sections of any *works*) or any statutory undertaker arising out of the carrying out of the *works*;

(b) at all times prevent the escape of any dangerous, harmful or damaging substance on any site or from such site and, further, prevent any escape (of whatever nature) which causes any injury, damage or actionable loss;

(c) assist the *Employer* in defending any action or proceedings which may be instituted in relation to such nuisance, interference or escape; and

(d) indemnify the *Employer* from and against any and all expenses, liabilities, losses, claims and proceedings whatsoever resulting from any such nuisance, interference or escape, save and to the extent that such nuisance, interference or escape is caused by or as a result of an instruction of the *Employer*.

Z5.2 The *Contractor* shall ensure that there is no trespass on or over any adjoining or neighbouring property arising out of or in the course of or caused by the carrying out of the *works* outside the boundaries of the Site.

Z6 Professional Indemnity Insurance

Z6.1 Without prejudice to the *Contractor's* obligations under this contract, or otherwise at law, the *Contractor* shall effect and maintain in full force and effect for a period commencing on the Contract Date and expiring no earlier than 12 years from the date of Completion of this contract, professional indemnity insurance with a limit of indemnity of not less than the sum specified in the Contract Data for each and every claim in respect of any claims against the *Contractor* provided that such insurance continues to be available in the insurance market at commercially reasonable premium rates and on commercially reasonable terms. Any increased or additional premium required by reason of the *Contractor's* own claims record or other acts, omissions, matters or things particular to the *Contractor* shall be deemed to be within commercially reasonable rates.

Z6.2 The insurance required by this Clause Z6 is to be maintained with a reputable insurance company or underwriter licensed to carry on business in the United Kingdom and shall not be subject to any material excess or unusual exclusions.

Z6.3 When required to do so by the *Employer*, the *Contractor* shall provide to the *Employer* satisfactory documentary evidence (in the form of a letter from its broker) that the insurance required by this Clause Z6 is being maintained, and the *Contractor* hereby warrants and undertakes to the *Employer* that, if and when required in order to maintain such insurance in full force and effect, this contract has been or shall be disclosed to the Contractor's professional indemnity insurers.

Z6.4 The *Contractor* shall immediately inform the *Employer* if such insurance ceases to be available at commercially reasonable premium rates and/or on commercially reasonable terms in order that the *Employer* and the *Contractor* can discuss means of best protecting the respective positions of the *Employer* and the *Contractor* in the absence of such insurance.

Z7 Manufacturer Warranties and Collateral Warranties

Z7.1 The *Contractor* shall ensure that the *Employer* is the beneficiary of the Manufacturer Warranties (including any Manufacturer Warranties in respect of repaired or replaced Plant and Materials or any other elements of the *works*). The *Contractor* shall deliver such Manufacturer Warranties to the *Employer* as soon as reasonably practicable following the *Employer's* request. Delivery to the *Employer* of such Manufacturer Warranties shall be a condition precedent to Completion.

The provision of any Manufacturer Warranties shall not relieve the *Contractor* of his obligations under this contract.

Part 2

Data provided by the Contractor

Completion of the data in full, according to the Options chosen, is essential to create a complete contract.	
Statements given in all contracts	The *Contractor* is
	Name: XXXXX
	Address: XXXXXXXX
	The *direct fee percentage* is -
	[Note: This is the mark up on the Defined Cost for Contractor direct resources]
	The *subcontracted fee percentage* is -
	[Note: This is the mark up on the Defined Cost of any subcontracted works]
	The *working areas* are the Site
	The key people are
	(1) XXXX
	XXXXXX
	Responsibilities ....
	Qualifications .....
	Experience ....

	(2) Name .....
	Job .... …….
	Responsibilities ....
	Qualifications .....
	Experience ....
	The following matters will be included in the Risk Register……
Optional Statements	**If the *Contractor* is to provide Works Information for his design**
	The Works Information for the *Contractor's* design is in .....Schedule 2 - Works Information..…
	If a programme is to be identified in the Contract Data
	The programme identified in the Contract Data is in …….Annex C of the Works information – Programme of Works ……
	If Option A or C is used
	The *activity schedule* is …that identified in Schedule 2....
	If Option A, B, C or D is used
	The tendered total of the Prices is **£** XXXXX **excluding VAT** (XXXXXXX).

	If Option A or B is used		
[Note: The following information needs to be completed as it may be relevant to the assessment of Compensation Events]			
Data for the Shorter Schedule of Cost Components	The percentage for people overheads is ...XX%.....		
	The published list of Equipment is the last edition of the list published by the appropriate SPONS Price book 2017		
	The percentage for adjustment for Equipment in the published list is .....N/A.....% (state plus or minus)		
	The rates of other Equipment are		
	Equipment	size or capacity	rate
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	The hourly rates for Defined Cost of design outside the Working Areas are		
	category of employee	hourly rate	
	…Director……..	£	
	…Project Manager..	£	
	…Designer...	£	
	…Ground Worker..	£	

	…Builder…… …Electrician……. …Heating Engineer..	£ £ £
	The percentage for design overheads is …0……%	
	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are	
	……Not specified……	
	……	
	……	
	……	

Schedule 2

Works Information

Annex A:

Annex B:

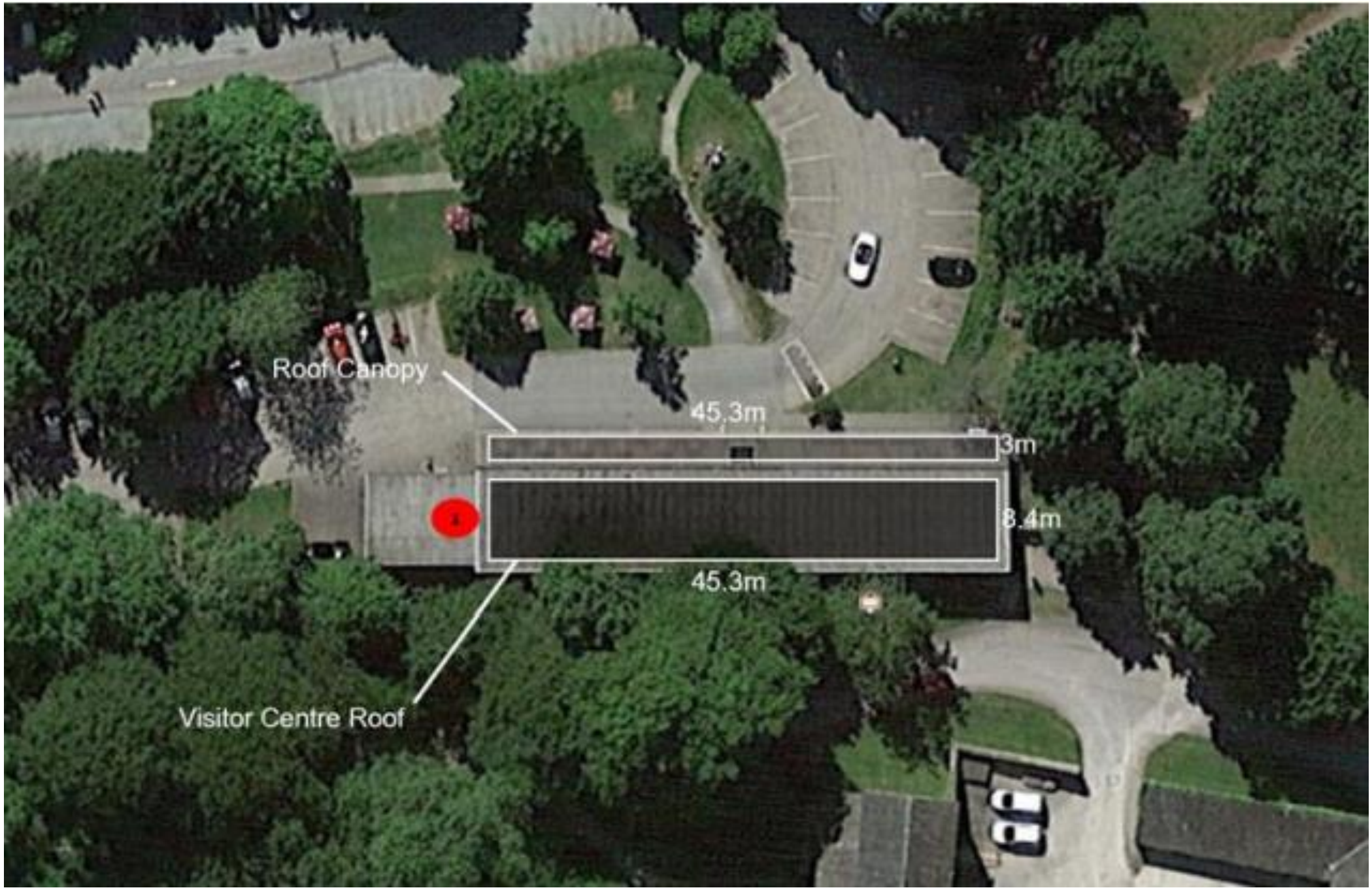
Annex C

Appendix 1

Form of Performance Bond

N/A

Schedule of works


Roof Canopy
45.3m
3m
8.4m
45.3m
Visitor Centre Roof

Annexe E

Sizergh Castle Visitor Centre (Ashness Lodge)

Guidance

Scaffold structures

Recommended practice

Overview	The Trust undertakes, as part of its safety policy, to monitor the activities of contractors on its properties to ensure in particular that their work does not expose Trust staff, volunteers or the public to risks to their health and safety. The diverse range of buildings in the ownership of the Trust and the complexity of work, from major projects to minor maintenance requires special considerations and arrangements with regard to scaffolding and other related matters. The guidance sets out criteria for the selection of scaffolding, contractors and the design of temporary structures This document provides recommended practice on implementing statutory requirements.
Target Audience	This guidance applies to staff and, where appropriate, consultants.

1. General requirements

- Trust staff, consultants, designers and contractors must comply with the Health & Safety at Work Act 1974 and the Construction, Design & Management (CDM) Regulations 2015.

- Scaffolding contractors must be full members of The National Access & Scaffolding Confederation (NASC) (and follow the NASC Guidance notes as set out below) or audited members of the Scaffolding Association.

- Access and working scaffolds should be designed, constructed and used in accordance with European Standard BS EN12811-1, Code of Practice For Access & Working Scaffolds & Special Scaffold Structures in Steel and TG20:08 Scaffold Guidance.

- Copies of consultants', designers' and contractors' health and policy statements shall be inspected prior to appointment by the Project Manager or Building Surveyor

before each contract. These should be displayed on the site office and mess room notice boards throughout the contract.

Title	Code
Temporary Edge Protection for Sloping and Flat Roofs	TG1
Erection, Use and Dismantling of Temporary Rubbish Chutes on Scaffolding	TG3:11
Anchorage Systems	TG4:11
Timber scaffold boards – An introduction to the revised standard BS2482:2009	TG5:10
Care and maintenance of scaffold boards	TG6:10
Scaffold Board Nail Plates	TG7:07
Fire Damage	TG8:10
Guide to the Design and Construction of Temporary Roofs and Buildings	TG9:12
Fire Retardant Treatments for Timber Scaffold Boards and Battens	TG10:06
Stress Corrosion Cracking in HT Steels and Alloys	TG11:10
Tying Down of Scaffold Boards	TG12:10
Non-Standard Boarded Platforms	TG13:03
Supplementary Couplers and Check Couplers	TG14:03
Site Hoardings and Signboards	TG15:03
Anchoring to the Ground	TG16:06
Identification of EN74 Scaffold Fittings	TG17:10
Guide to Good Practice for Scaffolding with Tubes and Fittings (including Supplement 1)	TG20:08

- It is incumbent on the Trust to ensure sufficient resources are provided to enable those involved in the contract to fulfill their health and safety responsibilities and ensure that only competent people are used in the capacity of consultant, designer, contractor and Principal Designer (see the Approved Code of Practice) to ensure work is carried out in compliance with health and safety law.

- Method Statements and, where required, Risk Assessments, from consultants, designers and contractors for the purpose of the health and safety plan should be submitted to the Principal Designer, well in advance of the commencement date. Copies must also be provided to the main contractor and included in the Construction Phase Health and Safety Plan. No change from an approved method should be permitted without a written agreement clearly stipulating the changes.

2. Structural requirements

The main contractor is responsible for safety standards during erecting and dismantling of scaffolds. Scaffold structures will usually fall into one of two principal categories:

1. Standard Scaffolds
2. Special Scaffold

Standard scaffold

This category includes putlog and independent tied scaffolds. System Scaffolds should always be in accordance with NASC Code of Practice System Scaffold Compliance List (2012). **Note: Putlog scaffolds are not permitted on National Trust buildings.**

Conditions for Basic Scaffolds

Basic Scaffolds may be constructed to the safe heights shown in this guide, provided they are constructed in accordance with the recommendations set out below:

- It is a standard scaffold
- Loading classes, maximum bay lengths and scaffold widths conform to the table below
- There are only two working lifts in use, one fully loaded and one no more than 50% loaded
- The lift heights are not greater than 2.0m, except that the first lift may be up to 2.7m high
- If the bottom lift is more than 2.0m high, the scaffold must be tied at the first lift, or alternative arrangements made, see TG20 Clause 6.2.2
- The scaffolds are not subject to the loading of materials, by mechanical means such as by rough terrain fork trucks. Loading bays should be specifically designed, see TG20 clause 20
- The wind loading factor S, defined in TG20 clause 4.4.3 is not greater than 40
- Alternate pairs of standards are ledger braced
- At least 50% of ties should be fixed to ledger based standards
- The vertical interval between ties shall not exceed two lifts or 4.0m
- In any line of ties the distance between ties shall not exceed 4 lifts of 4 bays.
- Plan bracing is fitted at least once every 12 bays and 4 lifts, unless the façade bracing is across two bays between two lines of ledger braced standards to create a tower braced on three sides or the façade bracing is continuous
- When the scaffold is sheeted or covered by debris netting, the covering is attached to the ledgers and the principle guardrails as a minimum, and in accordance with the supplier's instructions. It is recommended that the sheeting and netting should be fitted to the outside of the scaffold members
- When the scaffold is fitted with sheeting or netting the top platform level is tied at alternate standards as a minimum
- Façade bracing is fitted, see TG20 clause 6.3
- Scaffolding shall not be tied to the structure without prior written consent from the General Manager.

Access and working scaffolds:

Load Class	Duty	Use of Platform	Distributed load on platforms KN/M'	Max. number of platforms	Commonly used widths using 225mm boards	Max bay length M
1	Inspection and very light duty	Inspection, painting, stone cleaning, light cleaning and access	0.75	1 working platform – 1 fully loaded and 1	5 boards	2.7

				loaded no more than 50%		
2	Light duty	Plastering, painting, stone cleaning, glazing and pointing	1.50	1 working platform – 1 fully loaded and 1 loaded no more than 50%	5 boards	2.4
3	General purpose	General building work including brickwork, window and mullion fixing, rendering, plastering	2.00	1 working platform – 1 fully loaded and 1 loaded no more than 50%	5 boards or 5 boards +1 or 2 inside	2.1
4	Masonry or special duty	Masonry work, concrete blockwork, and very heavy cladding	3.00	1 working platform – 1 fully loaded and 1 loaded no more than 50%	5 boards +1 or 2 inside	1.8
This table should be read in conjunction with the remainder of the code, and European Standard BS EN12811-1						

Special scaffolds

These will include all access and working scaffolds other than those identified under standard scaffold limitations. A competent person should design all special scaffolds. System Scaffolds should always be in accordance with NASC Code of Practice System Scaffold Compliance List (2012).

These will generally cover:

- Access birdcages
- Adder towers
- Cantilever loading bays
- Cantilever scaffolds
- Free-standing towers
- Guys and struts
- Hoist towers
- Lifting gantries
- Masts
- Pedestrian bridges and walkways
- Power line crossings
- Protection fans
- Scaffolds deriving lateral support from buttressing
- Scaffolds including a standard bearing on a bridging beam or bracing
- Sheeted scaffolds including Debris Netting
- Shores
- Slung scaffolds
- Spectator terraces and seating stands
- Stair towers
- Temporary buildings
- Temporary ramps and elevated roadways
- Temporary roofs and Shelters
- Temporary storage on site
- Transmission towers
- Truss out scaffolds

Temporary Roof

- Temporary roofs should be designed to TG9:12 with any temporary works factors removed for all structures that will be erected for more than 104 weeks.
- It is essential to ensure that where holding force is derived from kentledge (deadweight mass), anchors or connections to a sufficient mass of masonry, the holding devices and connections to them are in place and effective before roofing sheets and site sheets, if used, are installed as per TG9:12.
- Use of water-filled drums for kentledge is not permitted due to possible leakage, freezing or vandalism.
- Roof coverings should always be system built in accordance with NASC Code of Practice System Scaffold Compliance List (2012). Galvanized steel corrugated sheeting shall not be used.
- Wind loading to be in accordance with BSEN1991:1-4 2005 and UK National Annex.
- Snow loading to be in accordance with BSEN1991:1-3 2003 and UK National Annex

Fixings and ties

- Ties and anchorages to external walls need the careful consideration of the Trust, designers and consultants and must be agreed by them, in writing, prior to start of scaffold design.
- Where metal sockets are agreed and left for future maintenance they must be of stainless steel, grade 316 or other non-ferrous material.
- NASC guidance notes TG04:11 should be followed when designing and installing all ties and anchors.

Contractor design

- It will be the overall responsibility of the Principal Designer to co-ordinate the health and safety aspects of project design and planning.
- It will be necessary to ensure good communication between Trust staff, consultants, designers and contractors.
- Contract documentation should set out Trust requirements clearly, e.g. fire precautions, security, access, safety areas, buttressing, lightning protection, protection measures to the building, limitations to tying the scaffold to the building etc., together with criteria common to all designs such as design wind speed and snow loading.
- The contract documents should make the main contractor responsible for ascertaining the requirements of all sub-contractor including the use of each platform, the number to be fully boarded, those to be sheeted, location and purpose of joists, fans, hoardings, loading bays, hoists and the length of time the structure will be in position, together with other relevant information.
- The Main Contractor should be responsible for obtaining a documented design with calculations for the erection, use and dismantling of scaffold structures and for the integration of these activities within the overall work programme including sufficient time for checks by the consultants where appropriate.
- It is ultimately the duty of the main contractor to check the design; this is not absolved by checks by others.

- Contract documents must require the Main Contractor to submit details of the following, when requested to do so:
    - design
    - full set of drawings, clearly showing loads considered and loads imposed by the scaffold to the buildings and ground
    - Calculations, clearly showing loads imposed by the scaffold to the buildings and to the ground and deflections within the scaffold system.
    - number and location of working levels,
    - loading bays,
    - Manufacturer's details for specialist equipment such as ladder beams and cluster props etc.
    - Method Statements and Risk Assessments covering erection, use and dismantling.
- In certain cases, before work starts, it is advisable to authorise an independent check by a competent person. This shall be relayed to the contractor in the tender documents in order that adequate time is included within the procurement and building program.
- An alternative is to obtain design drawings and calculation details from specialist contractors and have the details checked by a competent person.

Independent design

- Independent design by a consultant is an alternative to contractor design. The independent designer shall work to a scaffold specification that clearly defines the Trust's requirements with respect to loadings, fabric protection, restrictions to scaffold tying, fire precautions, security, access, safety areas, buttressing, lightning protection etc.
- It will be necessary for full details of all requirements to be available in the form of drawings and supporting documents at the time of tender. **Note: The use of independent design has in the past led to variations, particularly on complicated structures, owing to lack of information at the planning stage. It should be also noted that independent designs do not usually include contractor input and often modifications may be required to suit the main contractors working preferences. The contractor should therefore declare at tender, they are happy with the design, or that they have allowed for minor adjustments.**

Contractors

- Contractors must be **full members** of the National Access & Scaffolding Confederation (NASC) or **audited members** of the Scaffolding Association. Contractors should be removed from the list of any region for the failure to comply with Trust standards within a reasonable period, and details should be circulated to remaining regions.
- Consideration should be given to the establishment of a regional list of approved NASC Contractors. For inclusion on such a list, Contractors would have to demonstrate:
    - A current Health & Safety Policy, (with stated review methodology)
    - Adequate Employers & Public Liability Insurance,

    - Scaffolding operatives should be registered under the Construction Industry Training Board (CITB) Minimum of 90% of employees, Scaffolds Record Scheme to identify the level of competence,
    - All operatives are fully trained, registered and competent in activities undertaken and systems used,
    - All work is adequately supervised by competent trained Supervisors,
    - Materials conform to the specified standards and are regularly checked and maintained. These include EN39 Tube, EN74 Fittings and BS2482 Timber Boards.
    - Work is carried out in accordance with relevant codes of practice (NASC TG codes)
- Project Managers and Building Surveyors should regularly check compliance with the above and always prior to the placing of a contract. This will involve detailed checks on contractors used for the first time.
- Insurance - A minimum of £5 million public liability insurance is required for contractors/designers. However, if the work affects a large number of people, or impacts upon significant assets, a higher level of cover may be required and will be based on the contract value and Trust designation of the building. Contractors/designer will be required to supply evidence of insurance.

Control of work on site

- Notwithstanding the overall responsibilities of the main contractor for site activities and health and safety, adequate supervision must be provided by the scaffolding contractor at all times during erection and dismantling of scaffolding and temporary structures.
- Designers of special scaffolds should, under the terms of contract, be required to attend site on the first day of erection to liaise and brief the scaffolding supervisor on the requirements of the design.
- Designers should be required to emphasise that any variations to the design will not be permitted, without the designer's written authority. Any agreed variations must be clearly documented and must go through the main contractor and Principal Designer to be checked by a competent person.
- Designers should also be required to visit the site at least weekly during erection. On completion the designer should certify (on F91 part 1 section A) to the main contractor that the scaffold has been erected fully in accordance with the design and any approved variations. Copies of the certification should be passed to the Principal Designer.
- All scaffolds and structures should be inspected at least every seven days (and after weather conditions likely to have affected their strength or stability) in accordance with the requirements of the working at Height Regulations 2005 by a competent person. Records of such inspections together with necessary action must be made in register F91 and signed by the person making the inspection. Copies should also be held with the Construction Phase Health and Safety Plan.
- No alterations must be made at any time without written authority from the designer and the main contractor.
- It is the duty of the Trust's consultant, where appointed, or other competent person, to make spot checks whilst the erection is in progress and during

construction work. Any irregularities or deficiencies must be drawn to the main contractor's attention immediately.
- At all times during erection, dismantling or alteration to scaffold structures, access to the working areas needs to be clearly defined by suitable barriers and notices. Notices warning 'incomplete scaffold' should be secured as necessary in an appropriate place.
- All work on external scaffolding should be stopped during a thunderstorm.

Protection

- Tubes bearing on masonry should be provided with suitable timber bearers. Against leadwork, felt or other suitable packing should be used between the timber and leadwork.
- Scaffold tube ends which are likely to come into contact with the fabric of the building during erection, dismantling or as a consequence of lateral movement should be provided with plastic end caps.
- All scaffolding and temporary structures must be adequately earthed against lightning strikes. Reference should be made to NASC SG3:14 Earthing of Scaffolding Structures which provides further detail and guidance on how to assess the need.

Hot work

- Hot work is generally prohibited on National Trust properties.
- 'Hot work' is defined as 'All operations involving flame, hot air or arc welding and cutting equipment, brazing and soldering equipment, blow lamps, bitumen boilers and other equipment producing heat or having naked flames'.
- Where fabrication and 'hot work' can be carried out a minimum distance of 6 metres outside and away from the building or adjacent buildings, projecting legs of scaffolding, may, with the approval of the Project Manager or Building Surveyor, be included. In such circumstances all scaffolding boards and cladding must be of non-combustible material. (Also see section on Shrink wrap below)

Shrink wrap

- Shrink wrap sheeting is a strong and durable plastic cladding typically used as an alternative to conventional scaffold sheeting to encapsulate scaffold cladding for the temporary weather protection or containment of construction work..
- A scaffold which is to be shrink wrapped should be erected in line with the NASC's TG20:13 guidelines.
- As with all types of scaffold sheeting, advice and guidance of a qualified scaffolding designer should be sought to ensure the structure can withstand the additional wind loading that will result from the application of sheeting.
- The Trust's insurers require compliance with the Joint Code of Practice for Fire Prevention on Construction Sites (Item 10). The materials used to clad the scaffolding must therefore conform to the requirements of LPCB's Loss Prevention Standard LPS 1215 most specifically 10.3 highlighted below.

> 10.3 When flexible materials are used to clad scaffolding, these materials must conform to the requirements of LPS 1215: *Flammability requirements and tests for LPCB approval of scaffolding materials* (ref 15) or equivalent standard (for example, ref 16). The material shall be manufactured in accordance with a quality assurance and certification programme, and the scaffolding covering material shall be approved by a third-party certification body accredited by the United Kingdom Accreditation Service. The relevant approval mark shall be printed on the material.
>
> JCOP for Fire Prevention on Construction Sites, October 2015

Using a shrink wrap film that is not flame retardant to these requirements may lead to the insurance cover being invalid in the event of a fire. Please also note specifically item 10.6 that states that a means of escape must be maintained.

- Whichever method is used for the purpose of shrinking it must be carefully considered in the circumstances and a hot works permit must be completed to mitigate the risk(s). (Reference Section 16, JCOP)

Public access

- During erection, modification or dismantling, care must be taken to exclude the public and staff from a clearly defined area around the work.
- Authorised access thoroughfares must have effective protection in the form of fans, netting, sheeting, brickguards etc. to protect persons from falling objects.
- Ladders must not be left unattended when accessible to the public.
- Ladders at ground floor level and other risk areas should be removed and securely locked away at the end of each working day.

For further information about this topic, please contact Rory Cullen, Head of Buildings, on 01793 817798 or email rory.cullen@nationaltrust.org.uk