Historic England

Understanding Historic Buildings

A Guide to Good Recording Practice

Summary

This Historic England guidance sets out the process of investigating and recording historic buildings for the purposes of historical understanding. It aims to assist professional practitioners and curators, managers of heritage assets, academics, students and volunteer recorders in compiling or commissioning records that are accurate and suited to the purposes for which they are intended.

For those undertaking recording themselves it provides practical advice on surveying, photography and report writing. It also assists those managing the built environment to set appropriate specifications for the recording of historic buildings by others.

This guidance note has been prepared by Rebecca Lane, based on the earlier text of Adam Menuge. It supercedes the English Heritage guidance published in February 2006, which itself replaced the RCHME guidelines *Recording Historic Buildings: A Descriptive Specification* (3 editions: 1990, 1991 and 1996). This edition published by Historic England May 2016. All images © Historic England unless otherwise stated.

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Front cover
Studying building fabric at Odda's Chapel, Deerhurst, Gloucestershire.

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1 Why Record?

1.1 Records of historic buildings are generally compiled for one or more of the following reasons:

- to inform the day-to-day and long-term management and use of buildings
- to promote the understanding and appreciation of historic buildings
- to secure an understanding of a building and its significance to inform the preparation of a scheme of conservation, repair or alteration
- to inform decisions relating to the approval or implementation of a scheme of development as part of the planning or conservation process
- to document buildings, or parts of buildings, which will be lost as a result of demolition, alteration or neglect
- to assess the significance of groups of buildings, settlements and landscapes, and provide a basis for strategic heritage management
- to provide underpinning data for thematic, topographic or period-specific works of synthesis by recording a sample of surviving structures
- to inform academic research across a range of disciplines

1.2 It is important that those creating a record should be mindful at all times of:

- the health and safety implications of working in historic buildings
- the rights and sensitivities of owners and occupants

1.3 This document is not intended to be definitive. Circumstances will often arise when those involved with the care, repair or understanding of an historic building require records with content which may differ from the levels described. It is expected, however, that the forms of record outlined here will fulfil the requirements of those for whom historical understanding is the principal objective.

1.4 The information in this document is intended for use by anyone recording buildings, both professionals and those who dedicate their spare time to investigating or researching buildings. While it is hoped that volunteer recorders will find the whole document of interest, some sections focus more on the planning-led circumstances of recording. Volunteer recorders may therefore wish to concentrate on sections 4 and 5, and the conventions provided in section 7, which include practical advice for those looking to record a building.

Figure 1: Apethorpe, Northamptonshire.
Understanding historic buildings can involve unravelling highly complex phased fabric. Here various phases of construction are revealed during stripping back of later wall coverings.

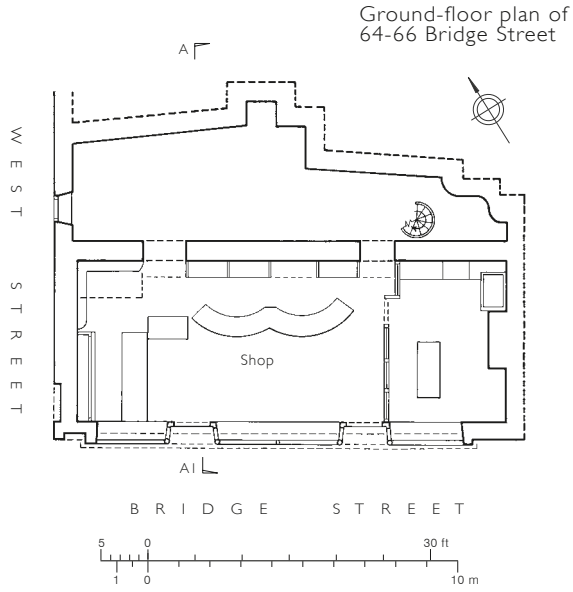
2 Prior to Recording

2.1 Previous records

2.1.1 The compilation of any building record requires a significant commitment of time. No recording should be undertaken, therefore, without first establishing whether relevant information already exists and assessing its merits. An appropriate form and level of recording will build upon existing knowledge.

2.2 Recording defined by a brief

2.2.1 Recording will often take place as a requirement of the planning process. In these cases the required form and level of recording can be set out in a brief, produced by the local planning authority (LPA) or other regulatory body. In response to a brief, or as an alternative, a written scheme of investigation (WSI) can be prepared by an



64-66 Bridge Street/57 West Street and 51 West Street
Berwick-upon-Tweed, Northumberland
NGR: NT 99770 52815 Scale: 1:200
Drawn by Allan T Adams BA FSA FSAI

Figure 2 (above and right): 64-66 Bridge Street, Berwick on Tweed, Northumberland.
Individual building records can highlight the detail of a site's development. See RRS 7-2015.

external party and agreed by the LPA. Such documents should be based on the best information available at the time. The brief or WSI will:

- indicate what is currently known about the building
- describe the circumstances (typically proposals for change) which make recording desirable
- identify the main areas in which understanding or information are lacking (referring particularly to parts of the building which may be affected by the proposals) and
- specify the level of recording needed

Outside the planning system recording may be governed by a similar brief from a commissioning or funding body, by a project design, or by a looser set of research aims and objectives.

2.2.2 Briefs and project designs are important ways of focusing recording activity on needs and priorities, but they should also be flexible enough to allow for modification as understanding of a subject develops or circumstances change. In all cases, and in accordance with the National Planning Policy Framework (NPPF), the records produced should be proportionate to the significance of a building and proportionate to the extent of any works proposed.

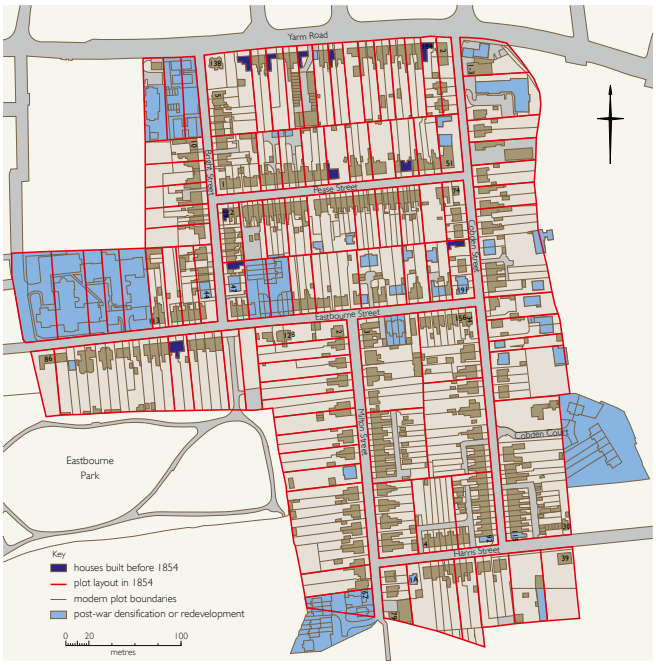


Figure 3: The Freeholders' Home Estate, Darlington, County Durham.
Different approaches are required to deal with large numbers of buildings. The Freeholders' Home Estate was the subject of an Historic Area Assessment. See RRS 44-2012.

2.3 The scope of the record

2.3.1 Most records will incorporate some form of written description and analysis, drawing on an investigation of the building's fabric, research in documentary sources, or both. They will also typically include a visual record made by photography and/or drawing. However, the time devoted to each activity, and consequently the content of the record, will vary considerably according to the nature of the building and the circumstances of the recording project.

2.3.2 For some years, four main levels of record, described more fully below (see section 5), have been widely adopted. They range from Level 1, comprising photographs and brief notes, to Level 4, containing a full historical and architectural analysis, supported by a comprehensive drawn and photographic record.

2.3.3 The benefits of these levels may be summarised as follows:

- they give guidance about how to compile records
- they define a common standard, allowing records which may vary considerably in detail and content to be categorised, grouped and compared in broad terms
- they provide guidance to those commissioning, procuring or specifying work by others with a checklist of what may be included in the record of a building, and in what circumstances
- they enable users of the completed record to know the intensity of recording employed and to understand the survey methods upon which conclusions have been based

3 When to Record

3.1 The timing of recording

3.1.1 Recording undertaken as part of general research, for example by volunteer recorders, tends not to be time critical and can be undertaken at the convenience of the recorders and/or building owners and potentially over a significant length of time. In such cases, where there is little or no prospect of additional building fabric information becoming available as part of alterations or demolition, the timing of recording is not crucial. However some of the factors identified below may still be worth consideration.

3.1.2 In the planning and conservation processes an early record is invaluable even though it may subsequently require expansion. Assessment or recording prior to the formulation of plans for alteration can guide the process of change by drawing attention

Figure 4: Milton Manor, Somerset.
Empty interiors allow unimpeded views of architectural detail but provide little social context. Photographed for the Mendip Hills project (Jamieson 2015 *The Historic Landscape of the Mendip Hills*).

Figure 5: 5 Pennyfeather Lane, Harmer Green, Welwyn, Hertfordshire.
Photography prior to the dispersal of contents adds important context. Photographed for the post-war listed buildings project, following the death of architect and owner David Medd (Harwood and Davies 2015 *England's Post-War Listed Buildings*).

to the significance of the building as a whole, or of specific features or phases of development more sensitive to damage or loss. By identifying the survival of important features, recording or assessment can help to steer proposals away from potentially damaging interventions, or highlight the need for further recording as building work progresses. Once a scheme of changes has been agreed then recording that precedes changes to a building's fabric can document features that are to be removed or altered.

3.1.3 Where possible, the timing of a record should also take other factors into consideration. Buildings typically yield more information in certain situations than in others, though the conditions best suited to one form of recording may not be the same as those best adapted to another. An empty building may make fabric analysis easier, whereas one with contents intact may result in a richer photographic record. Similarly, scaffolding may permit access to areas normally inaccessible, but is a hindrance to some survey techniques and general photography. In such circumstances compiling the optimum record may require a number of visits; where time and resources are limited the best balance of advantages must be sought.

Figure 6: The bell-foundry at John Taylor & Co of Loughborough.
Industrial buildings recorded with plant still intact adds particularly to their understanding. Photographed in 2012 when the site was under threat of closure.

3.1.4 Certain building types will benefit from different approaches. Where industrial buildings house processes which are of historic interest they are best recorded when plant is still intact and preferably when employees are present and processes are still active, safety considerations permitting. The documenting of industrial processes (sometimes termed 'process recording') can form a valuable component of the record.

3.1.5 In many historic buildings, alterations connected with later uses obscure much of the earlier fabric. Removal of later features should be sanctioned only following full assessment of their significance, and with a clear justification for the loss of fabric which may reflect an important phase of the building's history. Where deemed appropriate, a record of the fabric to be removed should also be made.

Assessing significance

3.1.6 Assessments of significance are value-based judgements, measured against criteria set out in the NPPF or in Historic England's *Conservation Principles*. Recording at the levels described below will often underpin an assessment of significance, and reports may include a statement of significance as part of the conclusion of the record. However, the value-based judgements of a statement of significance

should be clearly distinguished from the record of the building which should seek to be as objective as possible. In other cases, statements of significance may be prepared to help inform proposed work on a building, and help determine the level of recording required. Such statements may include some elements of a building record, but again a clear distinction must be drawn (in the language of the report, or in its structure) between value-based judgements and more objective evidence. In both cases it should be emphasised that an assessment of significance may need to be revised as new evidence emerges, either from the building itself (as a result of any additional recording or observation during works) or as a result of developments in the understanding of a building's wider context (material, technological, cultural, etc).

3.2 Recording during works on a building

3.2.1 In certain circumstances the removal of fabric may need to be monitored to ensure that significant features are not damaged or lost. It is important that any programme of recording as part of redevelopment or alteration to a building anticipates the scale of change to the building and makes provision for appropriate supervision of works in areas that have been identified as significant or seem likely to yield further information. Good communication with contractors working on the building can be key to ensuring that works are undertaken efficiently and with due regard for significant areas of fabric. Recording of any features uncovered should be consistent with any recording undertaken prior to work commencing and used to update, and if necessary reinterpret, earlier findings.

3.2.2 Records inevitably reflect the state of knowledge prevailing at the time they are made, and the completion of even a detailed record does not preclude re-examination of the building, or its record, at a later date. New evidence may come to light and may need recording. Both new evidence and advances in understanding may prompt a reappraisal of existing interpretations.

3.3 Buildings and archaeological excavation

3.3.1 In certain circumstances it may be necessary to carry out archaeological excavation within the floors of a building. This must be done in accordance with established excavation practice and by suitably accredited or otherwise qualified individuals. While this may be undertaken as a separate investigative scheme from any building recording the full integration of the above- and below-ground records created during such works is strongly recommended to ensure that understanding of the building is as full as possible. The same may apply to excavations conducted elsewhere on the building's plot or in its historic setting.

4 Creating a Record

Creating a record of an historic building involves a range of activities. These are often overlapping and mutually informing. Some practitioners will aim to be proficient in all of these activities, but often collaboration will be required and it is important that the insights generated by different specialists are shared promptly and are fully integrated in the final record. In many circumstances choices will need to be made: is a feature best captured by drawing, photography or written description, or by a combination of the three? Accuracy and intelligibility should be the guiding principles, together with a view of the purpose of the record. Early consultation with any archive that might receive material from the project may also help to determine the format of parts of the record.

4.1 Documentary research

4.1.1 Documentary research should form a component of every recording project. Steps should always be taken to establish whether there is an existing record of a building, and if so, whether it is sufficiently detailed, comprehensive and accurate. This may make further recording unnecessary or influence the form it takes. The likeliest repositories for historic building records include:

- the Historic England Archive (where records created and collected by Historic England, the former English Heritage and RCHME are deposited)
- local Historic Environment Records (formerly known as Sites & Monuments Records (SMRs))
- Record Offices
- Local Studies Libraries
- the archives of county and local societies
- local Buildings Records (where they exist)

In addition research on many buildings has been published in local journals and other literature. All relevant, readily available material, including historic Ordnance Survey maps, should normally be reviewed before embarking on recording. While there are advantages in investigating a building without recourse to previous interpretations, it is equally true, especially where time is limited, that preliminary research can expedite investigation.

4.1.2 The extent to which more detailed research is necessary or desirable will depend on the level of record, and the merits of available documentary sources. The range, scope and survival of these sources will vary considerably. Nearly all buildings have left some documentary or cartographic trace.

However, many record types, such as Hearth Tax records, can be matched to individual structures only if the historic ownership of the building is known, while others can be made to illuminate the history of individual buildings only after lengthy analysis. These may be used with greater efficiency in the study of groups of buildings.

4.1.3 In many circumstances exhaustive research will not be possible or cost-effective, and attention is likely to focus on those sources which lend themselves to understanding the design and development of buildings. These include:

- historic maps, plans and views
- building accounts
- title deeds
- inventories
- sale particulars
- census records
- trade directories
- building control plans (for 19th and 20th century buildings; typically found in local archives or the offices of Local Planning Authorities)
- literary references (for example, in topographical literature)

Sources require critical evaluation. Whichever documents are selected for consultation, it is important to be aware of their original purpose and limitations. It is useful to keep a record of what has been consulted and any discounted sources, to be included in any written report.

4.2 Building investigation

4.2.1 The field investigation of a building will normally follow preliminary documentary research. At its simplest, investigation involves identifying address details and obtaining a grid reference. In most cases it will involve direct observation of the building in order to ascertain what information it provides about its origins, form, function, date and development. For the lowest level of record, investigation may be limited to external observation. For more detailed levels of recording internal inspection will be required, the length and intensity depending on the purpose of the record, the complexity of the building and the resources available. An initial aim of this inspection will be the clarification of what an appropriate record needs to show, if this is not already apparent from external observation.

4.2.2 Detailed investigation entails a thorough examination of the building's external and internal fabric, paying particular attention to:

- evidence of phasing (for example, masonry joints)
- architectural styles
- plan elements
- decorative schemes
- fixtures and fittings or other details which help to date the building or its various stages of evolution

Its purpose is not only to break the building down into a series of phases of development, but to analyse how, at various stages, the building was used and how contemporaries would have understood its arrangement and decoration. Investigation, which will normally be accompanied by structured note-taking and often by

photography, will also help to identify whether a drawn record is appropriate, and if so, which drawings will make the most useful contribution to a record. Wherever possible, all parts of the exterior and interior should be examined, and a note should always be made of any areas that are inaccessible.

Systematic observation of a building

4.2.3 Strict rules for the manner in which a building is investigated cannot be laid down. The working practices of individuals vary, and constraints of time and access will frequently impose variations on ideal practice. Where possible it is preferable to commence with a quick overview, identifying functions and establishing the main phases, their physical limits and their defining characteristics. The advantage of this method is that it encourages consideration of the building as a functioning whole, not as an assemblage of parts. This prompts questions and directs attention to key evidence, allowing interpretations to be tested. It is important to bear in mind that noting architectural evidence is not an end in itself and should be used to reflect upon the form and use of a building over time. This will assist in setting the building appropriately in its regional or national context and/or establishing the relative significance of different phases of a building's evolution. The room-by-room noting of individual features, regardless of date, is not a substitute for this analysis, though it is a valuable stage in the recording process. If pursued in isolation it can result in much of the necessary analysis and interpretation being deferred until later, by which time access to the building – to seek further information – may no longer be available.

Figure 7: Members of the Chipping Norton Building Record team surveying Chipping Norton Guildhall. Systematic investigation of a building is crucial to understanding. It requires good observational and analytical skills, with an adequate record made of points observed.

Scientific dating or analysis

4.2.4 In certain situations separate specialist investigations may be desirable. These include dendrochronology (tree-ring dating) and analyses of decorative schemes (either art-historical or scientific in focus) or particular building materials. The full potential of such investigations is unlikely to be realised unless they are both informed by, and integrated with, broader investigation and research.

Invasive or destructive techniques

4.2.5 In historic building investigation, in common with other areas of building conservation and archaeology, there is a presumption in favour of non-destructive techniques, minimising the erosion of irreplaceable historic fabric. In most circumstances the investigation of historic

buildings is a non-destructive process based on careful and informed observation and analysis. Where destructive techniques offer a means of extending understanding, through sampling materials or revealing hidden fabric, it is vital to consider the loss which will result. Even techniques which entail only minimal loss, such as dendrochronological sampling or the lifting of floorboards to examine floor structures, can cause damage if carried out carelessly. More extensive physical investigations, such as the removal of areas of plaster, or the opening up of blocked features or inaccessible voids, are by definition destructive, even if the materials in question are later reinstated. In listed buildings such operations require specific consent. They should never be justified purely on the grounds of 'finding out more'.

Fabric loss through alteration

4.2.6 Keeping historic buildings in continued use will entail repairs and alterations, and these will inevitably result in some loss of fabric. Where a qualified assessment determines that significant fabric cannot, by virtue of its condition, be saved or where its removal is formally approved as part of a scheme of alterations, it is appropriate to seize the opportunity for recording and enhanced understanding. Such observations should be the subject of a formal record. Materials that will be lost irrevocably may extend beyond building materials to objects accidentally or ritually deposited in a building. These may, in themselves, merit analysis, recording and preservation.

4.3 Survey and drawings

4.3.1 Drawings are an efficient way of conveying the evidence on which an interpretation is based, and a powerful analytical tool in their own right. Drawings derived from measured survey have the additional virtue of allowing interpretations based on metric analysis (for example, of bay lengths, wall thicknesses and alignments). They can be, however, time-consuming or expensive to produce, and care is therefore needed in determining whether drawings are required, and if so, which drawings will best address the nature of the building and the needs of the recording project. In certain circumstances, for example where severe time-constraints apply, it may be appropriate to produce annotated sketch drawings. Indeed it may not be necessary to produce any drawings at all of simple or common building types, for which a photograph, or the incorporation of key dimensions in the written account, may suffice. Even with such buildings, however, drawings may on occasion be useful for illustrating representative examples or for purposes of comparison with other buildings. The act of measuring up for drawings imposes a discipline, requiring systematic observation of all parts of a structure, and it can result in additional information coming to light.

Existing surveys

4.3.2 Caution must be exercised in using drawings created for other purposes, particularly for estate agents particulars etc, as these often rationalise plans and remove irregularities which may be key to understanding a building. Detailed plans made by surveyors for purposes of design or alteration may form a satisfactory basis for drawings which aim to show the evolution of a building, but their accuracy will need to be confirmed and they will sometimes need to be adapted to show a greater range of historical evidence.

Types of drawing

4.3.3 A building record may contain one or more of the following drawing types. This list should be referred to when deciding on a record level as outlined in section 5.

Either

1 Sketched plan, section, elevation or detail drawings (when no more thorough drawn record is made). Sketches may be roughly dimensioned.

Or

2 Measured plans (to scale or fully dimensioned) as existing. These may extend to all floors, or they may be restricted to one or a selection. The latter option may be appropriate, for example, in a town-centre building where an upper floor has been little altered. Buildings with a repetitive structure may also be planned on one floor, but a note or a sketch plan should be made to indicate the arrangement of other floors. Plans should show the form and location of any structural features of historic significance, such as blocked doorways, windows and fireplaces, masonry joints, ceiling beams and other changes in floor and ceiling levels, and any evidence for fixtures of significance.

Further drawing types as required, from:

3 Measured drawings recording the form or location of other significant structural detail (for example timber or metal framing).

4 Measured cross-sections or long-sections to illustrate the vertical relationships within a building (for example floor and ceiling heights, the form of roof trusses).

5 Measured drawings to show the form of any architectural decoration (for example the moulding profiles of door surrounds, beams, mullions and cornices) or small-scale functional detail not easily captured by photography. A measured detail drawing is particularly valuable when the feature in question is an aid to dating.

6 Measured elevations, where these are necessary to an understanding of the building's design, development or function.

7 A site plan relating the building to other structures and to any related topographical and landscape features.

8 A plan or plans identifying the location and direction of accompanying photographs.

9 Copies of earlier drawings throwing light on the building's history.

10 Three-dimensional projections when these are of value in understanding the building. If these are to be considered components of the record they must always be accompanied by measured plans, sections and elevational details.

11 Reconstruction drawings and phased drawings, when these are of value. In phased drawings successive phases of a building's development may be shown by graded tone (dark to light, with the darker being the earlier) or by colour, by sequential diagrams or by annotation. Whenever phased drawings are included in a record, they must be accompanied by the unmarked drawings on which they are based.

12 Diagrams interpreting the movement of materials (process flow) or people (circulation), or the segregation of people or activities (for example permeability diagrams), where these are warranted by the complexity of the subject. As with 10 and 11, the evidence supporting the interpretations must be provided.

4.3.4 Plans and sections are particularly valuable in that they show, at a glance, a range of features which cannot be shown in a photograph. They can also highlight structural and spatial relationships and decorative hierarchies. Plans conventionally adopt a cut-line at a height which provides the maximum information (including doorways, windows, fireplaces). Detail above and below the cutting plane is also included, and is distinguished by line styles and weights (see section 7). Section lines are similarly chosen to convey the maximum information, and for this reason may be 'joggled' (show features that appear on more than one plane). Sections are especially useful for showing the structural and decorative form of timber or metal frames, including roof construction, and wherever vertical relationships have been obscured (for example, where an upper floor has been inserted in a medieval open hall). Roof trusses and any fixed features such as machinery parallel to the cutting plane are shown in elevation.

Survey techniques

4.3.5 Surveys can be made by direct measurement using tapes and rods sometimes supported by reflectorless Total Station Theodolite (TST) equipment. In recent years the use of laser scanning has become a standard technique for capturing survey information. More sophisticated survey techniques can be particularly valuable on larger and more complex

Figure 8: Total Station Theodolite survey in Ely, Cambridgeshire.
Digital survey techniques, such as laser scanning or TST survey, as here, can assist with large or complex buildings but still rely on skilled observation to interpret findings. Recording for Early Fabric in Historic Towns: Ely project (RRS 2-2016 forthcoming).

sites, where they may save time as well as improving accuracy. Measured surveys may be augmented by other techniques designed to record detail, such as rectified photography, photogrammetric drawings, and orthophotography. The advantages and disadvantages of each of these methods, including their relative costs, should be understood before they are employed in the course of recording. The technical precision of most modern surveying instruments is formidable, but their accuracy in use depends on the skill and judgement of the operator and those processing the data. All survey methods rely on human selection of suitable points for measurement, in the field and in working up survey data into finished drawings – consequently a survey is only as good as the critical observation on which it is based.

4.3.6 More information on hand survey using tapes and rods can be obtained from *Drawing for Understanding Historic Buildings* (Historic England forthcoming). For a comparison of available technical survey techniques see *Measured and Drawn* (English Heritage 2010) and for further guidance on laser scanning see *3D Laser Scanning for Heritage* (English Heritage 2011). For more guidance on how to commission and specify such surveys see *Metric Survey Specifications for Cultural Heritage* (Historic England 2015).

Producing drawings

4.3.7 Where dimensioned site-sketches are produced for drawing up off-site they form part of the primary record and should be submitted with the site archive; as such they should be made in a durable medium and should remain unaltered (see section 6). Any subsequent amendments should be clearly distinguished from the original record.

4.3.8 Drawings derived from a measured survey are produced by hand, using pen and ink, or in a Computer-Aided Design (CAD) medium. For hand drawings the scale must be appropriate to the building, typically 1:100 or 1:50 for plans, and 1:50 or 1:20 for sections. A complex structure or one with much fine detail may occasionally merit drawing at a suitable larger scale, but in most cases enlarged details will suffice. Conversely, scales smaller than 1:100 may be appropriate for plans of very large buildings or complexes. In either case it is preferable that the finished drawing is of a size which can be easily photocopied or scanned. Where an individual building record forms part of a wider project the same scales should, so far as possible, be adhered to throughout, to allow for easy comparison. The finished drawing should be legible when reduced for publication, the degree of reduction often being dependent on the amount of detail required.

4.3.9 CAD drawings are produced in a virtual 1:1 environment and can be plotted at any required scale. They must nevertheless be produced with regard to the intended scale of the final plots, and this in turn must reflect the level of detail and precision of the original site measurements. Level or layer conventions allow different versions of the same drawing to be plotted from the same computer file, so that, for example, fine detail can be omitted from small-scale plots, where it would be illegible. Levels or layers should also be allotted to ensure appropriate line weights at the scale at which plots will be required. Historic England observes a layering protocol in the production of CAD drawings to ensure consistency which is included in this guidance to provide an example of such a system (see section 7.2).

4.3.10 It is recommended that drawings aiming to convey historical understanding or to support historical interpretation adopt the graphic conventions set out in section 7 of this document. These supplement architectural drawing conventions with a range of additional symbols dealing with features of relevance to historical interpretation.

Drawing or photography?

4.3.11 Elevational information can often be obtained by photography at a fraction of the cost of a drawn record. However elevational drawings (including full elevational sections) may be justified where the elevation incorporates important information that cannot be captured in a single photograph, or where the fabric evidence is so complex as to render features difficult to interpret in a photograph. Measured drawings are also necessary where subsequent uses require precise measurements.

4.4 Photography

Like drawings, photographs amplify and illuminate a record. In many cases they are a more efficient way of capturing data than either drawing or written description, but they also supplement drawn or written records. This section provides general guidance on minimum standards for digital and film-based formats. Further guidance on all of the points below is provided in *Digital Image Capture and File Storage* (Historic England 2015).

Digital images

4.4.1 Digital cameras are now in widespread use for photography in building recording. Where a permanent archived record is being created however, concerns remain over the long-term access to digital images (for more information see section 6). The recommended first step when creating a photographic record of a building is therefore to contact the archive where the record will be deposited and confirm their policy. As a supplement to any archive guidelines the following section provides a minimum standard for digital image capture. Minimum standards for film photography are also provided below, for anyone seeking to deposit a record with an archive that still requires this.

Figure 9 : 20 Bridge Street, Hereford.
Constrained sites can make it difficult to make an adequate photographic record. Photographed for the Houses of Hereford project (Baker *et al* forthcoming *Houses of Hereford 1200-1700*).

Digital image formats

4.4.2 Digital capture can deliver good-quality images provided that a high-resolution camera is used – that is, one with sensors exceeding 10 Mega Pixels. Most cameras will shoot in JPEG format with DSLRs also typically allowing the production of RAW files. RAW files can be converted into uncompressed file formats such as TIFFs. However the processing of such formats requires specialist software which may be unavailable to some recorders. Care should be taken to ensure that any images taken to form part of a permanent record are shot at the highest resolution available on the camera.

4.4.3 TIFF and JPEG files are easily transferable and are readable on most computers. Uncompressed TIFF files are large, while JPEG files are usually compressed and therefore much smaller. However, compression results in the loss of some information, and repeated saving of JPEG files can lead to further degradation. Uncompressed file types such as TIFF are preferred by most archives that accept digital data. Images for archiving should be saved using the Adobe RGB 1998 colour space. JPEGs may also be acceptable, where no alternative is available. Unprocessed RAW (camera-specific) file types can be archived where accepted, but should always be accompanied by images converted into the more widely readable TIFF format as special software is needed to open RAW file formats and they are subject to more rapid obsolescence. The use of in-camera processing software is not recommended, as changes to the image data at this stage cannot be reversed. For information on the metadata that should accompany digital images when submitted to an archive see section 6.

Prints from digital images

4.4.4 When creating prints from digital files, clarity and longevity can be obtained through the use of photographic printing paper, preferably a silver halide paper such as Fujicolor Crystal Archive. More commonly available outputs via inkjet and laser printers have a limited life, sometimes only months if stored incorrectly. Many photographic laboratories will produce suitable prints at minimal cost. When preparing files for printing, a resolution of 300dpi at the required output size is appropriate.

Figure 10: Stable block, Wimborne St Giles, Dorset. Where the view of an elevation is unimpeded an elevational photograph, taken in good light, may make a drawing unnecessary. Photographed for research on the building to inform the Heritage at Risk programme. See RRS 1-2016.

Film

4.4.5. Photographic film may still be stipulated by some archives. Silver-based black-and-white film, when properly processed and suitably stored, remains an extremely stable archiving format. Chromogenic black-and-white film is subject to dye-based (not silver-based) processing, and therefore has an inferior archival performance. The archival performance of colour photography is inferior for the same reason, though it can be extended by careful handling and storage. Even where black-and-white images are specified for archival reasons, supplementary digital colour photography may be required to record buildings adequately.

4.4.6 35mm (135-format) film is adequate for many purposes. There will be occasions, however, when a higher-quality image is specified. The quality of images captured on the larger film formats (for example, 120 roll film or 5 x 4in sheet film) will greatly exceed those captured on 35mm film, and will allow for enlargements of specific areas whilst retaining image quality.

The selection of images

4.4.7 Photography is generally the most efficient way of presenting the appearance of a building, and can also be used to record much of the detailed evidence on which an analysis of historic development is based. It is also a powerful analytical tool in its own right, highlighting the relationships between elements of a building and sometimes bringing to light evidence which is barely registered by the naked eye.

Types of photograph

4.4.8 Site photography may include one or more of the following. This list should be referred to when deciding on a record level as outlined in Section 5.

1 A general view or views of the building (in its wider setting or landscape if 2 (below) is also to be adopted).

2 The building's external appearance. Typically a series of oblique views will show all external elevations of the building, and give an overall impression of its size and shape. Where individual elevations include complex historical information it may also be appropriate to take views at right-angles to the plane of the elevation.

3 Further views may be desirable to reflect the original design intentions of the builder or architect, where these are known from documentary sources or can be inferred from the building or its setting.

4 The overall appearance of the principal rooms and circulation areas. The approach will be similar to that outlined in 2.

5 Any external or internal detail, structural or decorative, which is relevant to the building's design, development and use, with scale where appropriate.

6 Any machinery or other plant, or evidence for its former existence.

7 Any dates or other inscriptions; any signage, makers' plates or graffiti which contribute to an understanding of the building. A transcription should be made wherever characters are difficult to interpret.

8 Any building contents which have a significant bearing on the building's history (for example, a cheese press, a malt shovel).

9 Copies of maps, drawings, views and photographs, present in the building and illustrating its development or that of its site. The owner's written consent may be required where copies are to be deposited in an archive.

4.4.9 In record photography the need to capture information about the building should be paramount, but pictorial qualities, which often give life and meaning to architectural forms, should not be neglected. Photographs which aim to convey the 'atmosphere' of a building can be evocative, but should form a supplement to a series of well-lit images. An analytical, or systematic, approach to photography can also be valuable, helping to explain features by relating them to each other rather than photographing them in isolation.

Figure 11
A DSLR camera placed on a tripod and fitted with a shift lens helps minimise distortions in elevational photography.

Photographic techniques and equipment

4.4.10 All photographs forming part of a record should be in focus, with an appropriate use of depth of field; they should be adequately exposed in good natural light, or where necessary well-lit by artificial means. In order to produce the best possible results in limited time it is useful to plan site photography to coincide with variations in natural light. For example, a north-facing elevation will often be best photographed early or late on a bright summer's day, when sunlight falls across it; or on an overcast but relatively bright day.

4.4.11 The use of a tripod is recommended since the act of placing the tripod and levelling the camera imparts a discipline to image composition as well as ensuring that images are unaffected by camera shake. When using a DSLR with a choice of lenses the least distorted image can be obtained using standard or slightly telephoto lenses. Wide-angle lenses can distort the image, and also tempt the user into nearer viewpoints than necessary, with the result that information can be lost. However, the use of wide-angle lenses is almost always necessary for interior photography. Care taken in levelling the camera will help to avoid introducing distortions. A perspective-control or 'shift' lens is particularly useful for eliminating converging verticals; for reliable results it should always be used with a tripod. When photographing details it can be helpful to position the camera straight on to the subject, and to include a clearly marked and suitably sized scale parallel to one edge of the photograph.

4.4.12 The main source of artificial light for interior photography is electronic flash. This has the advantage of being similar in colour balance to daylight, making it the most practical choice for most colour image capture. Inclusion in the composition of standard colour cards, available from

professional photographic suppliers, can help to achieve the correct colour balance during image reproduction.

4.4.13 Camera-mounted electronic flashes produce harsh shadows and have a flattening effect. Generally the use of a light source 'off-camera' will give greater relief in the subject and a better result. A bounced light, either from a suitable reflector or from a white ceiling, will produce a softer, more even light than a direct light source. Integral flash, as supplied on many compact cameras, is often not powerful enough to meet the range of demands in architectural work. In such cases the use of natural light, in conjunction with a tripod, may produce a better image.

4.4.14 Access to compact digital cameras is now ubiquitous, but for those undertaking regular building recording exercises the higher quality and greater versatility makes using a DSLR preferable in most cases. Where a compact is the only option, choosing a model that allows manual over-ride of automatic features, incorporates a tripod bush and synchronisation socket (for off-camera flash), and allows shots to be taken in JPEG and RAW format, is likely to result in better images. Knowledge of how to use a range of specialist equipment, including remote shutter releases, spirit levels, lighting, and colour cards, will help a photographer to achieve improved results.

Specialist photography

4.4.15 In some circumstances photography of a specialist nature may be necessary. Photographs may be rectified to allow accurate measurements to be derived, and are often used as a basis for elevational drawings. The technique is only really suitable for a subject which is relatively flat. Photogrammetric image capture also allows scaled drawings to be produced and has the additional virtue of enabling the three-dimensional modelling of surfaces. Specialist contractors will be required to undertake this work. For more information on these survey techniques see *Measured and Drawn* (English Heritage 2010). For specifying such work see *Measured Survey Specifications for Cultural Heritage* (Historic England 2015).

4.5 The written account

4.5.1 The written account underpins all other elements of the record by providing locational information, together with context, description, analysis and interpretation. In all but the simplest records it gathers together insights derived from the full spectrum of activities described above, interpreting a wide range of evidence. The importance of the written account cannot be overstated, as drawings and photographs on their own present evidence but seldom convey understanding.

Report sections

4.5.2 The main components of the account will generally be selected, according to the level of record adopted, from the following list. This list should be referred to when deciding on a record level as outlined in Section 5.

Introductory material

1 The precise location of the building as an address and in the form of a National Grid reference.

2 A note of any statutory designation (that is, listing, scheduling, Register of Historic Parks and Gardens, conservation area). Information on statutory designations can be found on the Historic England website. Non-statutory designations (local lists) may be added.

3 The date when the record was made, the name(s) of the recorder(s) and the location of any archive material.

4 A summary statement (when no more detailed account is intended) describing the building's type or purpose, historically and at present, its materials and possible date(s) so far as these are apparent from a superficial inspection.

5 A contents list; a list of illustrations or figures.

6 A longer summary statement. An alternative to 4. This account should summarise the building's form, function, date and sequence of development. The names of architects, builders, patrons and owners should be given if known. Its purpose is to describe the building when no fuller record is necessary. Alternatively it may serve as an introduction to the more detailed body of a record that may follow, for users who may need a summary of the report's findings.

7 An introduction briefly setting out the circumstances in which the record was made, its objectives, methods, scope and limitations, and any constraints. Where appropriate the brief for the work or the project design should be stated or appended.

8 Acknowledgements to all those who have made a significant contribution to the making of the record, or who have given permission for copyright items to be reproduced.

Main report

9 A discussion of the published sources relating to the building and its setting, an account of its history as given in published sources, an analysis of historic map evidence (map regression) and a critical evaluation of previous records of the building, where they exist.

10 An expansion of 9, drawing additionally on a range of primary documentary sources.

11 An account of the building's overall form (structure, materials, layout) and of its successive phases of development, together with the evidence supporting this analysis.

12 An account of the building's past and present use, and of the uses of its parts, with the evidence for these interpretations. An analysis of a circulation pattern or of a decorative or liturgical scheme. An account of any fixtures, fittings, plant or machinery associated with the building, and their purpose. In an industrial building, a sequential account of the way in which materials or processes were handled.

13 Any evidence for the former existence of demolished structures or removed plant associated with the building.

14 A summary of the findings of any specialist reports (for example dendrochronology or paint analysis).

15 A discussion of the building's past and present relationship to its setting: its relationship to local settlement patterns or other man-made features in the landscape; its part in a larger architectural or functional group of buildings; its visual importance as a landmark, etc. For more guidance on investigating and recording landscapes see *Understanding the Archaeology of Landscapes* (English Heritage 2007; revised edition forthcoming).

16 An assessment of the potential for further investigative or documentary work, and of the potential survival of below-ground evidence for the history of the building and its site.

17 A discussion of the architectural or historical context or significance of the building locally, regionally or nationally, in terms of its origin, purpose, form, construction, design, materials, status or historical associations.

18 Copies of historic maps, drawings, views or photographs illustrating the development of the building or its site (the permission of owners or copyright holders may be required).

19 Copies of other records of the building, including specialist reports (again with any necessary permissions), or a note of their existence and location.

20 Any further information from documentary sources, published or unpublished, bearing on any of these matters, or bearing on the circumstances of its building, designer, craftsmen, ownership, use and occupancy, with a note on the sources of the information.

21 Relevant information from owners, builders, architects or others who may be acquainted with the building, including oral history. The sources of the information must be given and it is important that the particular strengths and weaknesses of different types of information are weighed.

22 An outline of the significance of the building. This can seek to identify both the significance of different features or phases of development in the building relative to each other, and also set important aspects of the building in a regional or national context.

End material

23 Full bibliographic and other references, or a list of the sources consulted (in long reports it is preferable to include both). Websites which may prove to be ephemeral should be avoided as references wherever possible; where their use is unavoidable the full web address and the date on which the site was consulted should be noted.

24 A glossary of architectural or other terms likely to be unfamiliar to readers. If few in number, terms may be explained more economically within the text or in footnotes.

4.5.3 Whatever the chosen level of record, items 1-3, plus either 4 or 6 (above) should always appear as identifying or introductory material. These sections should appear in a form determined by existing practices and formats and the circumstances of the record and the uses for which it is intended.

4.5.4 The manner in which the other items are selected and combined within the report will similarly vary according to the nature of the building and the purpose of the exercise. Items 11-13 (the detailed historical analysis of the building) provide the range of description and analysis required at Levels 3 and 4 (see section 5), but exactly how this information is given may vary: clarity in the record is more important than a rigid structure. The items listed above are those most directly relevant to furthering historical understanding.

4.5.5 A well-structured, well-written report will convey more information in fewer words than one which is poorly constructed and badly expressed. Unnecessary description of features that are clearly shown in drawings or photographs should be avoided, and information that might be included in a written account may sometimes be more effectively conveyed by annotated drawings.

5 Recording Levels: a Description

Before selecting the level of record it is important to consider both the nature of the building and the purpose for which the record is intended. Each recording level represents a minimum specification to which additional elements may be added as required. There is usually a correlation between the scope of the written record and the degree of drawn or photographic detail which is used to support it. When surveying groups or complexes of buildings it is sometimes appropriate to record some structures at one level and some at another, depending on their relative interest. In such circumstances the value of the individual records may be materially enhanced by an account of the history and evolution of the complex as a whole.

Note: the descriptions below refer to the numbered lists in sections 4.3.3 (Survey and drawings), 4.4.8 (Photography) and 4.5.2 (The written account) in the previous section.

5.1 Level 1

5.1.1 Level 1 is essentially a **basic visual record**, supplemented by the minimum of information needed to identify the building's location, age and type. This is the simplest record, and it will not normally be an end in itself, but will be contributory to a wider study. Typically it will be undertaken when the objective is to gather basic information about a large number of buildings – for statistical sampling, for area assessments to identify buildings for planning purposes, and whenever resources are limited and much ground has to be covered in a short time. It may also serve to identify buildings requiring more detailed attention at a later date.

For more information on area assessments see *Understanding Place Historic Area Assessments: Principles and Practice* (English Heritage 2010; revised edition forthcoming).

5.1.2 Level 1 surveys will generally be of exteriors only, though the interior of a building may sometimes be seen in order to make a superficial inspection and to note significant features. Only if circumstances and objectives allow will any drawings be produced, and these are likely to take the form of sketches.

5.1.3 A Level 1 record will typically consist of:

drawing – sometimes item 1 (see numbered list in 4.3.3)

photography – item 1, sometimes item 2 (see numbered list in 4.4.8)

written account – items 1-4 (see numbered list in 4.5.1)

5.2 Level 2

5.2.1 This is a **descriptive record**, made in similar circumstances to Level 1 but when more information is needed. It may be made of a building which is judged not to require a more detailed record, or it may serve to gather data for a wider project. Both the exterior and interior of the building will be seen, described and photographed. The examination of the building will produce an analysis of its development and use and the record will include the conclusions reached, but it will not discuss in detail the evidence on which this analysis is based. A plan and sometimes other drawings may be made but the drawn record will normally not be comprehensive and may be tailored to the scope of a wider project.

5.2.2 A Level 2 record will typically consist of:

drawn record– sometimes item 1 or 2, sometimes one or more of items 3-7 (see numbered list in 4.3.3)

photography – items 1, 2 and 4 (see numbered list in 4.4.8)

written record – items 1-3 and 6 (see numbered list in 4.5.1)

5.3 Level 3

5.3.1 Level 3 is an **analytical record**, and will comprise an introductory description followed by a systematic account of the building's origins, development and use. The record will include an account of the evidence on which the analysis has been based, allowing the validity of the record to be re-examined in detail. It will also include all drawn and photographic records that may be required to illustrate the building's appearance and structure and to support an historical analysis.

5.3.2 The information contained in the record will for the most part have been obtained through an examination of the building itself. The documentary sources used are likely to be those which are most readily accessible, such as historic Ordnance Survey maps, trade directories and other published sources. The record may contain some discussion the building's broader stylistic or historical context and importance. It may form part of a wider survey of a number of buildings which will aim at an overall synthesis, such as a thematic or regional publication, when the use of additional source material may be necessary as well as a broader historical and architectural discussion of the buildings as a group. A Level 3 record may also be appropriate when the fabric of a building is under threat, but time or resources are insufficient to allow for detailed documentary research, or where the scope for such research is limited.

5.3.3 A Level 3 record will typically consist of:

drawing – normally item 2; sometimes one or more of items 3-12 (see numbered list in 4.3.3)

photography – items 1-9 (see numbered list in 4.4.8)

written account – items 1-3, 6-9, 11-13, 23; sometimes items 5, 14-16, 18-20, 22 & 24 (see numbered list in 4.5.1)

5.4 Level 4

5.4.1 Level 4 provides a **comprehensive analytical record** and is appropriate for buildings of special importance. Whereas the analysis and interpretation employed at Level 3 will clarify the building's history so far as it may be deduced from the structure itself, the record at Level 4 will draw on the full range of other sources of information about the building and discuss its significance in terms of architectural, social, regional or economic history. The range of drawings may also be greater than at other levels.

5.4.2 A Level 4 record will typically consist of:

drawing – item 2; sometimes one or more of items 3-12 (see numbered list in 4.3.3)

photography – items 1-9
(see numbered list in 4.4.8)

written account – items 1-3, 5-8, 10-23; sometimes item 24
(see numbered list in 4.5.1)

5.5 Photographic survey

5.5.1 A photographic survey differs from surveys described above in that it provides a very full visual record, but without a written or drawn survey at a comparable level of detail. A comprehensive photographic survey may be called for when recording a building which has complex and important decoration or historic furnishing but for which there is no need for detailed analysis. It may also be appropriate in recording a building of well-known type which is under threat but where existing documentation is in other respects adequate or when for some other reason drawings and historical analysis are not required.

5.5.2 A photographic survey will consist of:

photography – items 1-9
(see numbered list in 4.4.8)

written account – items 1-3
(see numbered list in 4.5.1)

5.6 Other levels

5.6.1 While the levels specified in this document will cover most eventualities when a building is recorded for historical purposes, there will be circumstances in which more detailed records may be desirable. The type of record required by an architect, builder or engineer to monitor a major conservation project or to reconstruct a severely fire-damaged historic building will be very different from those described above. The purpose of the record must always determine its scope.

5.7 Selecting the level and form of a record as part of the planning process

5.7.1 It is important to retain flexibility in the application of these levels, and records will often tend towards one level or another rather than being capable of precise classification. Other things being equal, the intensity of the record may vary with the degree of threat to historic fabric. Since destruction is irremediable a more detailed record may be required when fabric will be lost than when it will be preserved. The intensity of the record should nevertheless remain proportionate to the significance both of the fabric at risk and of the building of which it forms part as well as the nature of the proposed works.

5.7.2 Those defining the content of a record should be familiar in general terms with the type, form, materials and historical period of the building concerned. They should if possible inspect the building before arriving at firm conclusions and, if this is not practicable, should be prepared to modify the intended form of the record in the light of subsequent inspection or advice.

5.7.3 In general, it should be expected that recording which is either publicly funded, or which is privately funded in fulfilment of planning requirements, will adopt the most economical path consistent with the principal needs which the record is intended to satisfy. Table 1 (page 29) indicates the kind of record that is likely to be appropriate in certain generic circumstances. Further guidance on appropriate levels of record in different planning-led circumstances can be found in *Understanding Historic Buildings: Policy and Guidance for Local Planning Authorities* (English Heritage 2008; revised edition forthcoming).

Figure 12: Windsor Castle, Berkshire.
Catastrophic damage to a significant building, such as in a major fire, should lead to an appropriately detailed level of building recording (see Table 1). Detailed recording after the fire at Windsor Castle in 1992 informed the restoration of the building and resulted in a much greater understanding of its historic fabric.

Circumstance	Principal need	Level of record	Form of record
Strategic heritage planning at national, regional or local level; studies of landscapes, building types, areas and settlements	Information on the distribution, survival, variation and significance of building populations, defined geographically, typologically or chronologically. Understanding of their evolution, to underpin heritage management decisions and as a contribution to academic knowledge	Typically Level 1 or 2. Building-specific information may be highly selective or variable in level	May make extensive use of external photography, supplemented by written accounts of individual buildings and/or synthetic text. Drawn element may be omitted, simplified, limited to maps or restricted to key examples.
Management planning for property portfolios, and for individual buildings or sites	Baseline information on the nature and significance of buildings, providing a foundation for long-term decision-making, and identifying where further knowledge is required	For portfolios, a Level 2 or 3 record, which may vary with the perceived significance of the building; for single buildings or sites, the level may be 3 or 4	Measured drawings may form an important component, meeting a range of non-historical as well as historical needs. Where buildings form a tight geographical group, or belong to an historic estate, more extensive documentary research may be practicable.
Proposed alterations to a significant building	Understanding of the fabric at risk within the context of the building as a whole, and an assessment of its significance. This allows proposals to be formulated and evaluated, and loss minimised. Also a record of what is to be lost, where significant.	Level 2 to 4 depending on the significance of the fabric at risk, and the complexity and current understanding of the building as a whole and of the class to which it belongs	An account of the building (summary for minor alterations, more detailed for major intervention), with detailed discussion of affected areas. Measured drawings are more likely to be required for major alterations.
Extensive repairs or alterations to a significant building with complex fabric evidence	Detailed information on the nature and development of the building's fabric, in the context of an overview of its significance, and of the significance of its parts	Level 3 or 4	The drawn record may be more detailed than the norm, to inform step-by-step decision-making.
Catastrophic damage to a significant building (for example major fire)	Understanding of the nature and development of the building's fabric, in the context of an overview of its significance, and of the significance of its various parts	Level 3 or 4, depending on the significance of the building, the extent of loss and safety considerations	Attention will focus initially on areas most vulnerable to loss (debris, charred timber, water-damaged plaster, etc), which may be recorded in greater detail than normal to assist reconstruction.
Dismantling prior to re-erection	Detailed understanding of the fabric of the building, and of the craft processes which shaped it	Level 3 or 4	The drawn and photographic record is likely to be extensive, and will be carried out both prior to, and during, dismantling. The process of reconstruction, including any departure from traditional practices and materials, may also be documented.
Proposed demolition	Assessment of the significance of the building and a record of what is to be lost	Level 2 to 4, depending on the significance of the building. The level will be higher than for buildings of comparable significance which are not similarly at risk	In special circumstances, and where resources permit, it may be appropriate to undertake additional recording (including the application of excavation-derived 'finds' techniques) during dismantling, or to elucidate the context or earlier history of the site through excavation.

Table 1: Appropriate levels of record

6 Preserving the Record

If a record is worth making, it is worth securing its long-term survival and accessibility. This entails:

- considering the physical properties of the materials of which it is composed
- ensuring that sufficient information is included with the record so that both it and its constituent parts (which may become separated) are clearly identifiable
- ensuring that copies of a report are deposited with appropriate local bodies
- making appropriate arrangements for the deposit of the full record in a permanent archive
- taking advantage of online databases, so that information about the record and where to consult it is widely available
- in appropriate cases, publishing the findings of the report, or an abbreviated version of it

6.1 Materials and identifying information

The material accepted by an archive will vary, depending on their acquisition policy. Archived reports, drawings and photographs incur a cost for storage and curation, and should not be needlessly bulky or difficult to reproduce. It is recommended that recorders contact the archive where they would like to deposit their material early in the process of creating a record, in order to establish their requirements. The notes below provide a minimum standard for the archiving of different types of material, but the final format should be determined by the policy of the archive where the material will be deposited.

Drawings

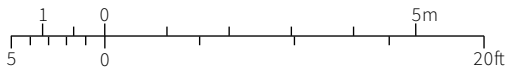
6.1.1 Final versions should be produced on an archivally permanent medium both when printed from CAD-based software programmes, or worked up by hand. For more guidance on working up drawings see *Drawing for Understanding Buildings* (Historic England forthcoming).

6.1.2 For drawings worked up without the aid of a computer, polyester-based film has been used for many years, though since the widespread adoption of CAD its use is now declining. It is chemically and physically very stable. The recommended thickness for long term dimensional stability is 75 microns or thicker. More expensive alternatives are acid-free or rag paper. For inked drawings, water-based permanent black ink should be used. Etching inks are unsuitable for use on polyester film. Any of the technical pens produced by the major manufacturers (Rotring, Staedtler or Faber Castell) are adequate in producing final copies of inked survey drawings. Dry-transfer lettering and tones are not archivally permanent. They are therefore unsuitable for use on final drawings intended for the archive.

6.1.3 CAD drawings are subject to the same general considerations as all digital data (see section 6.1.13). The production of hard copies, using stable materials and recognised scales, is therefore recommended in addition to digital data storage.

6.1.4 Whichever method is used to produce a drawing, it should include the following basic information:

- the name and address of the building, the civil parish and county, London Borough or unitary authority, and the National Grid Reference
- the name of the individual(s) responsible for the drawing, and for the survey, if different; the date of the survey; the name of the originating body or institution
- a drawn metric scale rather than, or in addition to, a stated scale (for example 1:50). A drawn scale will remain accurate if the drawing is subsequently reduced on a photocopier or for publication

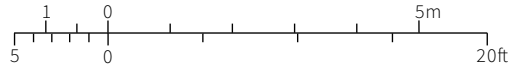


Sample 1:100 scale bar

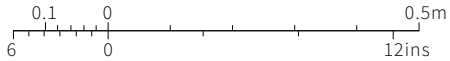
Low Park
Alston Moor,
Alston,
Cumbria

NGR: NY 70956 46592
Surveyed by ATA, LAJ, MW Sept 2010
Drawn: ATA, March-April 2011
Sheet 1 of 2.

Historic England



Sample 1:100 scale bar for plan or section



Sample 1:10 scale bar for moulding detail

2 Waterside
Ely, Cambridgeshire

NGR: TL 54492 80145
Surveyed: October 2014
Drawn by A T Adams

Historic England

Figure 12
Examples of information boxes used for reference and archive purposes.

- a grid north point on all plans. Plans of single buildings should normally place the principal entrance to the bottom. Plans of churches are conventionally orientated with ritual east to the right of the sheet. Adherence to these rules assists comparison but may sometimes need to be varied. Plans of building complexes should place grid north at the top

- all sections should give directional indications; the location of the section line, together with any 'joggles' (changes in plane), should be shown on the plan (for example A-A1, B-B1, not A-B or C-D).

- a drawn frame, to indicate the area of data for copying and so prevent the loss of titling, scale and north point

- drawings forming a set must be cross-referenced to each other (for example 'drawing 1 of 3')

Photographs

6.1.5 For digital images that are being submitted to an archive, it is important that the correct metadata, or file information, is attached to a file. For those archiving TIFFs (the preferred archive format) or RAW files (with associated TIFFs) the information should be attached to the file using the properties section of appropriate software programmes. This is preferable as it ensures that the image retains this data however it is copied or disseminated. For those who are only able to submit JPEGs, files should be numbered in sequence and given a site name to allow cross referencing with the associated prints. For film-based photography negatives should be placed in appropriate archival-quality enclosures and stored separately from the prints.

6.1.6 Record prints should be clearly labelled and cross-referenced to their negative or digital file. Black-and-white prints should be made on fibre-based, resin-coated or silver halide paper.

6.1.7 All prints, and the metadata associated with processed digital files such as TIFFs, should include a number for cross referencing, a site name, an address, a description of the subject and specify any copyright restrictions.

Reports

6.1.8 Paper used for reports should be of good quality. Recycled paper has a very short lifespan and should be avoided for any document intended for archiving. Acid-free paper represents an ideal, but expensive, alternative to standard papers.

6.1.9 Reports should contain the name and address of the body or individual(s) responsible for producing the report. The date of the survey or investigation should be included, as well as the date of the report's compilation. Illustrations used should be titled with subject and, where appropriate, orientation. Where possible a unique identifier should allow cross-reference to the original negative or digital file. The inclusion of a contents list, and the incorporation of a header or footer on each page of the text, identifying the building in question, guards against the accidental dispersal of parts of the report. The copyright of the report should be clearly stated, as should that of any images or other material included in the report by the permission of the copyright owner, if different.

6.1.10 Desktop published reports are now commonly converted to PDF format for electronic dissemination. While PDF is a stable format in present circumstances it is exposed to the same risks as any digital data format.

Digital data

6.1.11 Records are now produced wholly or partially in digital form, whether as a word-processed computer file, a TST survey of a site, a CAD drawing or a digital photographic image. Different elements may be combined in a single format, such as PDF, for convenient dissemination, but for archiving purposes the separate storage of each element is recommended. Furthermore, whilst in theory it is possible to store all such material in digital form in perpetuity, experience has shown that storage media can be rapidly superseded by technical developments.

6.1.12 Where a permanent record is being created therefore, concerns remain over long-term access to digital data, largely due to the rapid progress of technology. Continual data migration of the type promoted by repositories such as the Archaeology Data Service, addresses many of these concerns. However archives can often be unable to facilitate the large-scale storage of digital data because of constraints in budget and capacity. These factors mean that the sector has yet to fully adopt wholly digital archiving, and there is considerable variation in the form and nature of the type of record that archives will accept.

6.1.13 Where digital data is to be deposited as part of the archive record it is imperative that the intended repository is consulted before a decision is taken to rely on the archiving of digital formats. Depending on the policy and capabilities of the repository, a hard copy of deposited digital data may support access and presentation. Whilst the digital record can provide information not susceptible of reproduction on paper (for example three-dimensional views, or the ability to examine minute areas of a drawing in close detail) the paper archive at least ensures the accessibility of most of the information.

6.1.14 Where an archive is unable to accept some or all of a digital archive, or unable to guarantee long-term access to digital files, consideration should be given to deposition of copies of a digital archive with repositories such as the Archaeology Data Service. They allow the deposition of digital archive material at a fee proportional to the size of the archive. For more information see http://archaeologydataservice.ac.uk.

6.2 Dissemination and publication

6.2.1 The utility of records depends on their being available for consultation by anyone with a legitimate interest in the building concerned. Copies of reports should be sent to owners and occupants, not only as a matter of courtesy, but as a means of fostering understanding and stewardship of the historic environment. Many records will be created in connection with change which is subject to control through the planning process. In such cases it will be normal to circulate the report to the relevant officers of the LPA, and to architects and others engaged in the project. Public access to the report is also crucial. It is therefore important to ensure, as a minimum, that copies of any report are sent to the local Historic Environment Record and to the appropriate Local Studies Library. Depending on local circumstances it may also be useful to send copies to the relevant Record Office, local archaeological and historical societies and some universities (for example those hosting centres for regional studies).

6.2.2 Studies of buildings of regional or national significance, particularly where important new discoveries have been made, may merit publication in county, regional or national journals as a way of disseminating knowledge. In exceptional cases the intrinsic interest of the building, or the adoption of an innovative approach to understanding it, may justify publication in the form of a standalone publication.

6.2.3 The recording archive, which will include master copies of the report, together with photographs, drawings, and research notes, should be deposited in a repository which has suitable arrangements for the long-term preservation of such material. This may be the relevant Record Office, the local Museums Service or a Local Studies Library or Local History Centre. Where records are part of a regional or national study an institution with a wider remit, such as the Historic England Archive, may be more appropriate. Where records are compiled in fulfilment of a planning condition the Local Planning Authority must ensure that the condition provides for the deposit of the record in a public archive.

6.3 Signposting

6.3.3 Record creators should where possible signpost the existence of a record through OASIS (www.oasis.ac.uk). Although originating as a means of identifying the existence of previous archaeological work, its use has spread to encompass many other aspects of historic environment research including building recording. OASIS also allows a copy of a report to be uploaded free of charge, to aid wider dissemination and use of the record, should this be practicable, although this should not be treated as a substitute for proper deposition of the full archive. At the time of writing it is intended to replace OASIS with HERALD (Historic Environment Research Archives Links and Data), during the course of the next two years. This will provide a similar service. Updates on the progress of this project will be available on the OASIS website.

7 Architectural Drawing Conventions

As part of encouraging and facilitating the dissemination and wider use of building records the use of standard conventions in architectural drawing are encouraged. A set of drawing conventions is presented here, to provide a reference for those producing drawings. Many recorders, particularly those who work in conjunction with county recording groups or professional recording units, may have their own standard conventions in use. These may differ slightly from those presented, but should conform in their principal points. Conventions for line types in digital CAD files are also presented.

7.1 Objectives

7.1.1 The endorsement of a set of drawing conventions is intended to:

- promote standard practices within the heritage sector in the preparation of architectural drawings for research, planning and conservation purposes, for publication and the archive
- facilitate the exchange of graphically-based historical information within the planning and conservation processes
- indicate a minimum level of information that should be included in a record drawing
- facilitate the comparison of different buildings through a uniform system for recording common features

7.2 CAD layering conventions

CAD layering conventions are more likely to vary with different practitioners, but an example of a set of layering conventions is presented here to encourage consideration of line conventions, particularly the clarity of layer names for anyone engaging with archived survey data. The following layering protocol is adopted by Historic England for architectural survey drawings. It represents a core of fundamental layers or levels, which can be added to as required. The prefix '0A' in the layer name identifies the source discipline as architectural survey. For more information on CAD formats see *Metric Survey Specifications for Cultural Heritage* (Historic England 2015).

Layer name	Description	Line Type	Line weight
0A-Annotation	Text annotation for final prints	continuous	0.13
0A-Grid	Grid crosses, and indexing text	continuous	0.13
0A-Title	Titles, scales, north point, etc.	continuous	0.35
0A-Cutline	The line of the principal cut, or plan line	continuous	0.35
0A-Wall-Ground	Ground line at battered walls	continuous	0.13
0A-Overhead	Details above cutting plane	dashed	0.13
0A-Reconstruct	Reconstruction or conjectural	dashed	0.13
0A-Hidden	Info masked by other details	dashed	0.13
0A-Construction	Construction lines, for deleting prior to desktop publishing	continuous	0.13
0A-Traverse	Traverse lines & survey stations	continuous	0.13
0A-inst_cntl	Control positions – switched off for presentation	continuous	0.13
0A-Digi	Other existing or digitised surveys	continuous	0.13

Table 2: CAD layer conventions

7.3 Drawing conventions

General

Detail on cutting plane

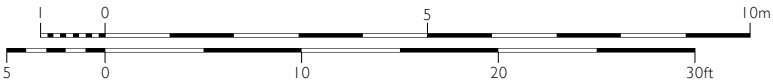
Detail beyond or below cutting plane

Former and conjectural line of building

Detail behind or above cutting plane

Centre line

Scale bar



(for small scale drawings)

Plans

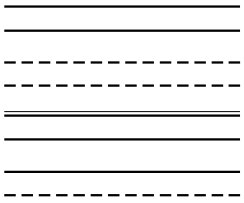
Walls

Walls

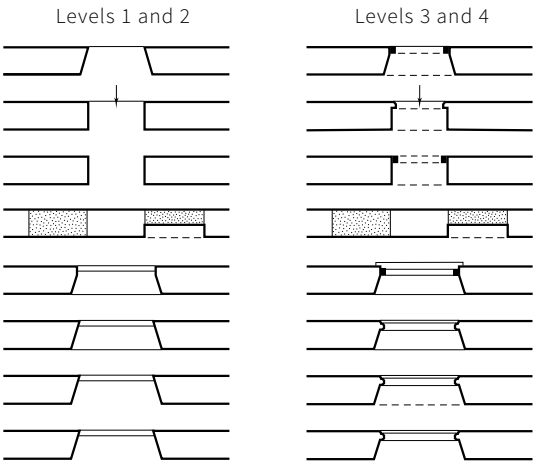
Former walls

Wall with plinth

Wall of unknown thickness



Doors and windows, etc



External door with wood frame

External door with masonry jambs and step up

Internal door

Blocked doors (stippled or hatched), label bd

Window with sill and wood frame

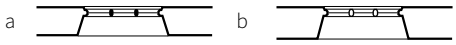
Window with masonry jambs

Walk-in window

Walk-in window (no wall over)

All levels

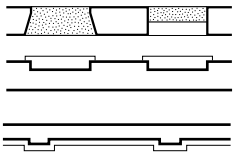
Window with mullion: (a) wood (b) stone or brick



Blocked windows (stippled or hatched), label bw

Blind windows

Architraves, pilasters, etc, to be shown where large or significant



Beams

Beam over

Beam with chamfers and stops

Beam chamfered but no stops

Beam chamfered one side, stopped one end

Beam and joists, jetty brackets

Direction of joists, not drawn individually

(a) Inserted or removed beam (normal beam labelled)
(b) Inserted beam and joists (alternative method)

Miscellaneous

Fireplace and chimneypiece (show hearth if present)

Blocked fireplace (show hearth if present)

(a) Posts and studs, cornice beam
(b) Studs, cruck blade
measured 1 metre from floor

Posts removed

Empty mortices
(a) in wall
(b) in beam soffit

Stud positions indicated by peg holes only

Inserted window (show glass line)

Detail above or below (label), drawn separately:
(a) detail
(b) principal plan

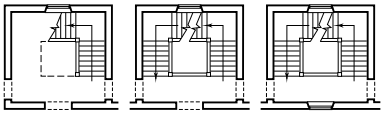
Straight joint (visible both sides/one side only)

Ragged joint (visible both sides/one side only)

Ceiling details, cornices, vault ribs, etc

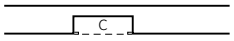
Stairs and steps (arrow pointing up, handrail conventionised)
show scroll if applicable

Stairwell: ground, intermediate, top



Cupboard above floor level

Cupboard at floor level (optional label)

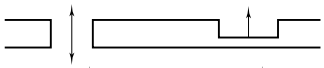


Direction indicators for sections

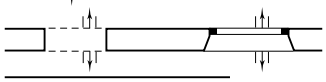
Industrial and mechanical

Box and centre line of surviving line shaft (drawn full extent)

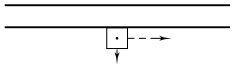
Bearing box, direction of drive



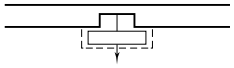
Boxes over door and window



Trap in floor with upright shaft and direction of drive

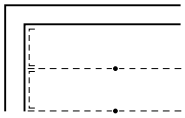


Trap in ceiling with rope drive

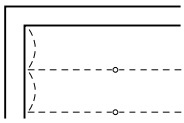


Box transferring drive from flywheel, flywheel bearing box

Flat fireproof ceiling, beams and cast-iron columns

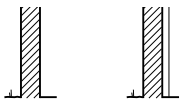


Arched jack vaulting, beams and removed columns

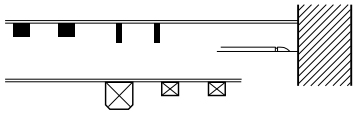


Sections

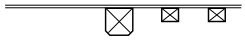
Wall, wall and framing post



Beams and joists



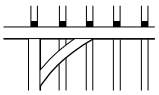
Removed beam, removed joists



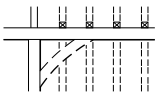
Inserted beam, inserted joists

Timber beam (when beams of different materials are in the section) and metal I beams

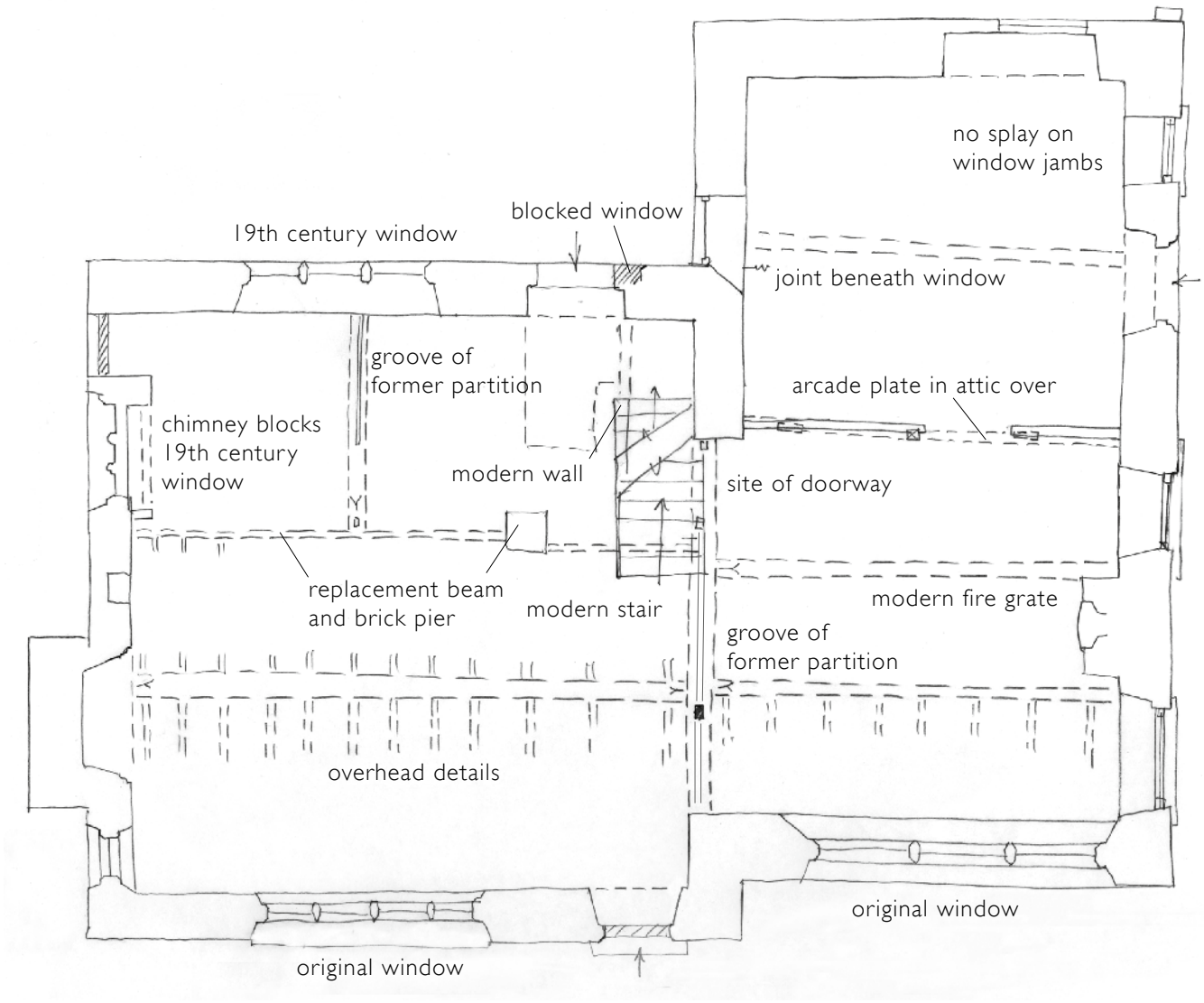
Timber framing (pegs and empty holes to be shown)



Removed framing

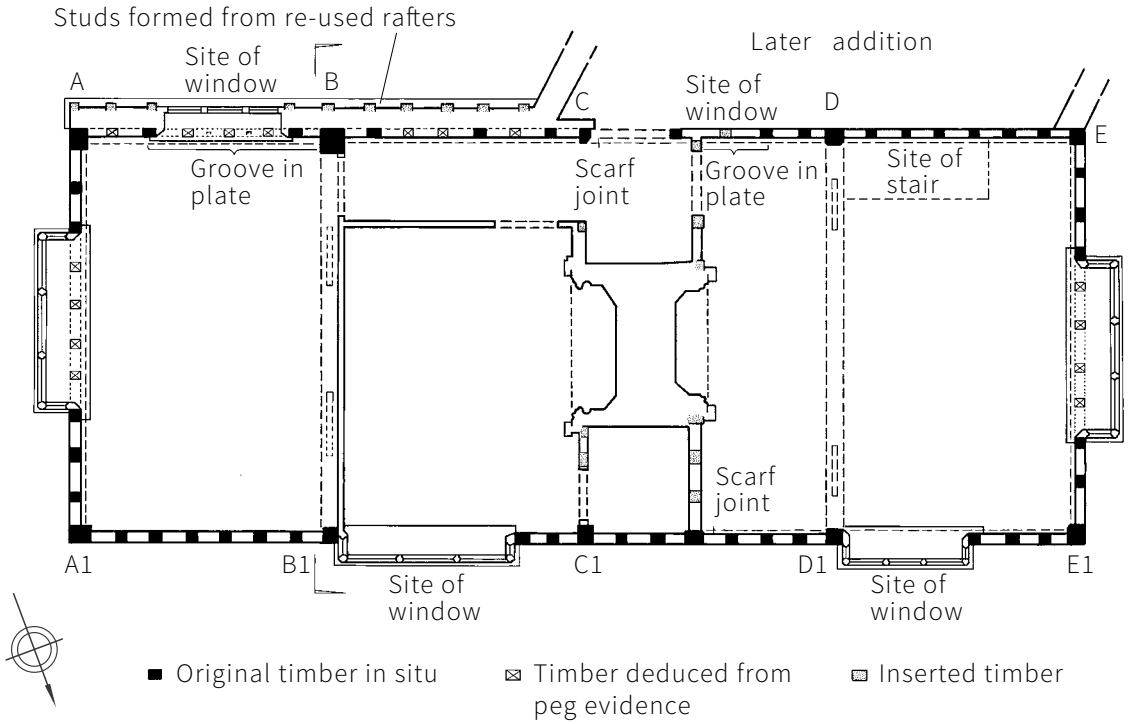


7.4 Sample drawings

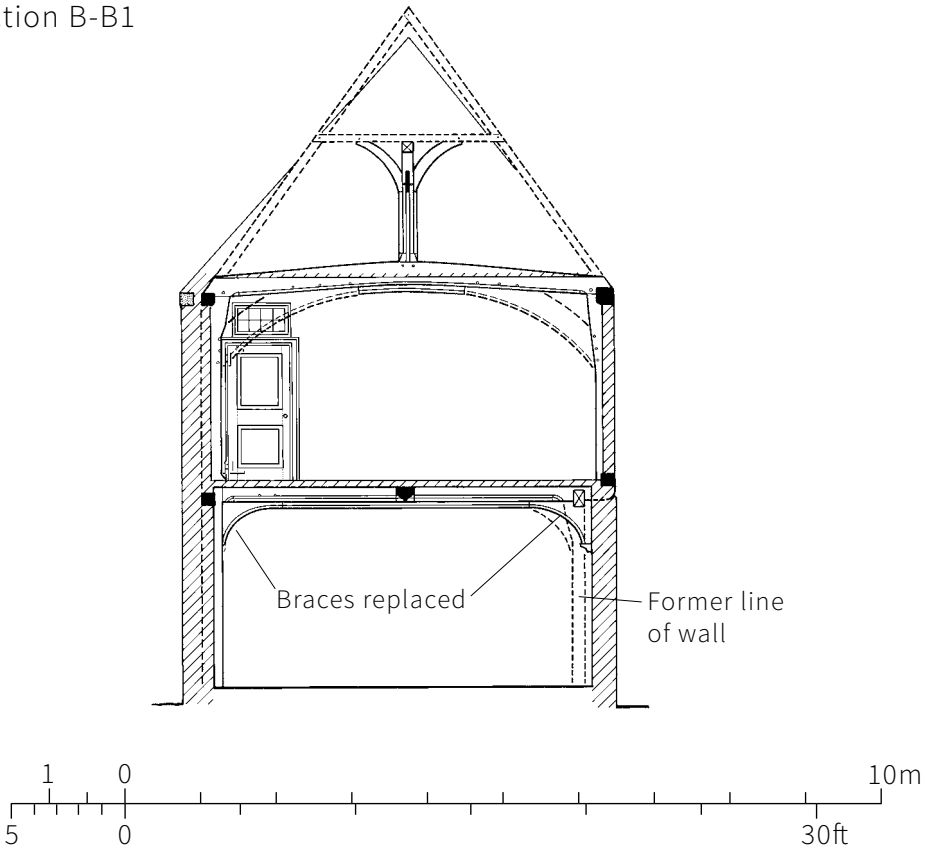


Drawing 1: Sketch plan of Old Manor House, Bradford, West Yorkshire.
Where time or access limits the possibility of a full survey a sketch plan can prove sufficient to illustrate the most important physical evidence. Old Manor House, Manningham, Bradford was hand surveyed as a building under threat in 2008 (see RRS 14-2012).

First-floor plan



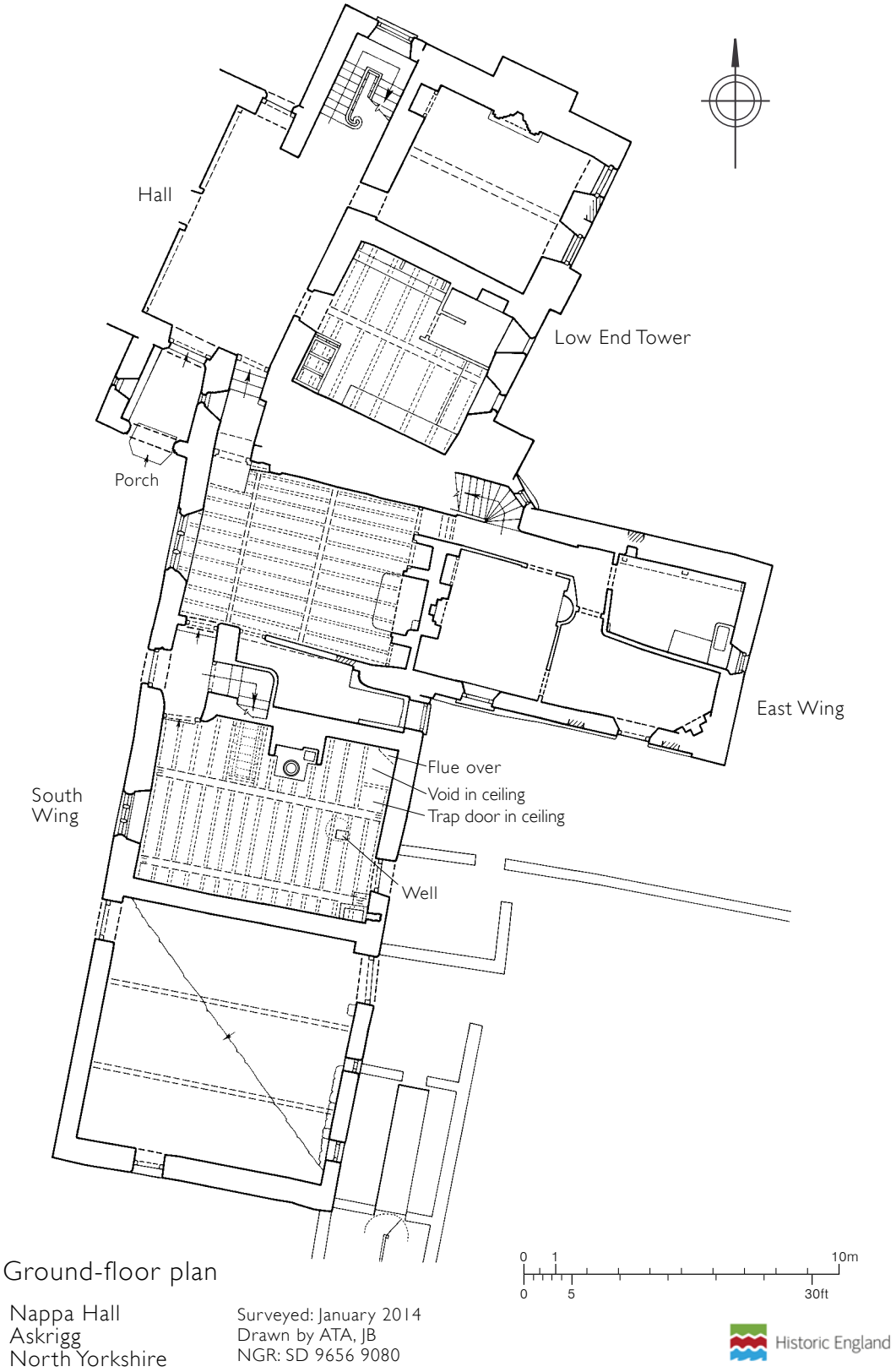
Cross section B-B1



Waterloo House,
3 West Fen Road,
Ely, Cambridgeshire

NGR: TL 53744 80393
Surveyed: April 2015
Drawn by A T Adams

Historic England

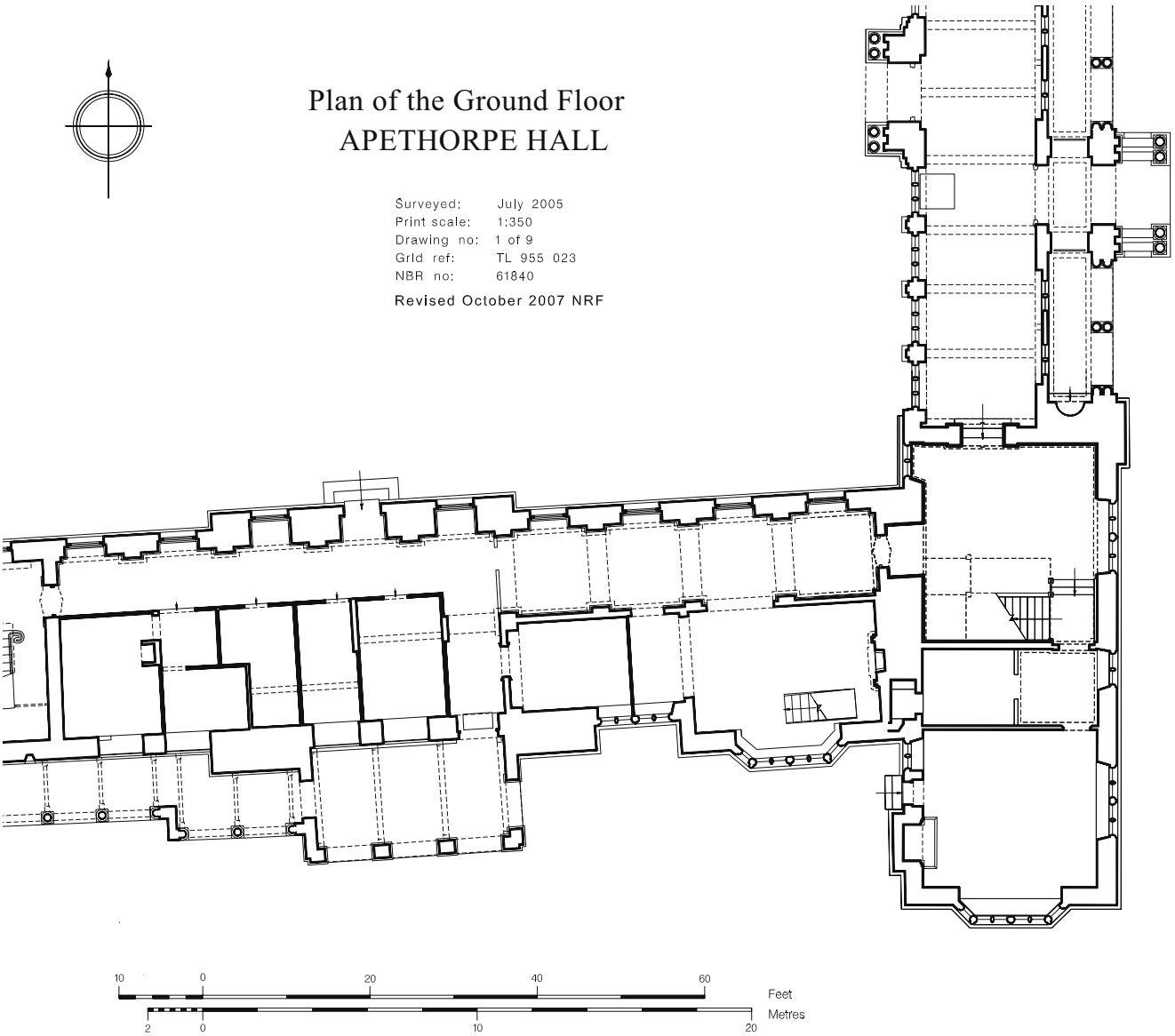


Drawing 2 (page 41): Waterloo House, Ely, Cambridgeshire.
Plans and sections can be carefully chosen to illustrate the most significant or complicated elements of a building. At Waterloo House, Ely, the first floor was hand surveyed in order to illustrate the relationship between the remaining elements of the roof structure and the main surviving structure. The position of the cross-section was chosen to illustrate the only surviving crown-post truss (RRS 2-2016 forthcoming).

Drawing 3 (above): Nappa Hall, Wensleydale, North Yorkshire.
Plans of complex multi-phase buildings can be crucial to visualising how elements fit together. At Nappa Hall a combination of TST and hand survey was used in order to cover inaccessible external areas and small, restricted internal spaces where no digital survey equipment could operate (see RRS 44-2013).

Site of kitchen
Hall
Parlour
Key
Walls erected 1470-1551
Surviving elements of Sir Guy Wolston's house, 1470-1504
Additions of 1504-1551
10 0 20 40 60 Feet
2 0 10 20 Metres

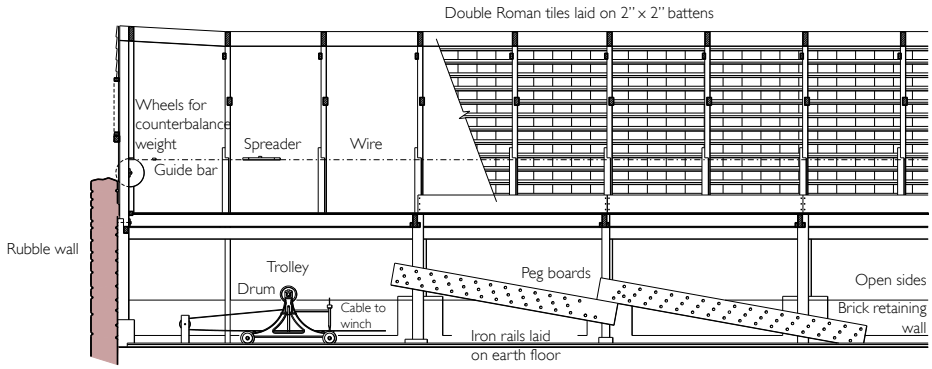
Drawings 4-5: Apethorpe, Northamptonshire
Comprehensive survey coverage of a building can be required where buildings are at risk, and/or subject to large-scale conservation programmes. A complete set of plans, sections and elevations of Apethorpe was produced. The surveys were used to create block plans suitable for use in the publication (see page 43; reduced from the original), with the detailed drawings like this extract of the southeastern corner (below) used for conservation purposes (Morrison *et al* 2016 *Apethorpe The Story of an English Country House*).



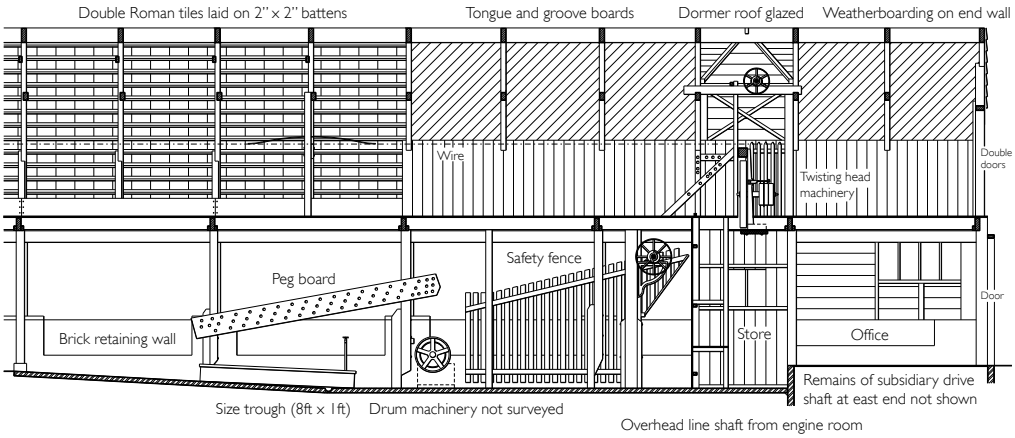
Open drain channel
Covered drain channel
Floor trap
Outline of trap under
Engine house
modern
Feet
Metres

Drawing 6 (page 45): Tone Works, Somerset.
Plans of industrial buildings or complexes can be used to show the position of power plant and machinery indicating how power transmission and process flow work within such buildings. The Finishing Works at Tone Works, Somerset was surveyed as a building at risk while all machinery was still *in situ* (RRS 72-2007). Key to drawing: 1-12 Scouring machines; 18-37 Milling machines; 42, 43 overhead Stretching frames; 46, 53 Raising gigs, 55 DC electric motors; 57 Main belt-drive pulley; 59,60 Centrifugal extractors.

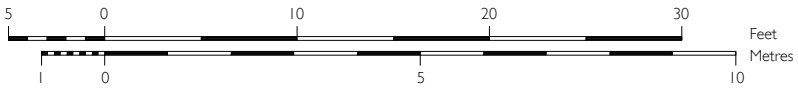
Drawing 7 (above): Boston Guildhall, Lincolnshire.
Hand drawn reconstruction drawings can help bring to life the physical evidence for how a building was used. At Boston Guildhall detailed survey drawings were used to inform the creation of this cutaway illustrating high-status entertaining rooms on the first floor and gaol cells and kitchens on the ground floor. This was reproduced in a publication on the history of the town (Minnis and Carmichael 2015 *Boston, Lincolnshire. Historic North Sea Port and Market Town*).



Part long section of west end of twine walk

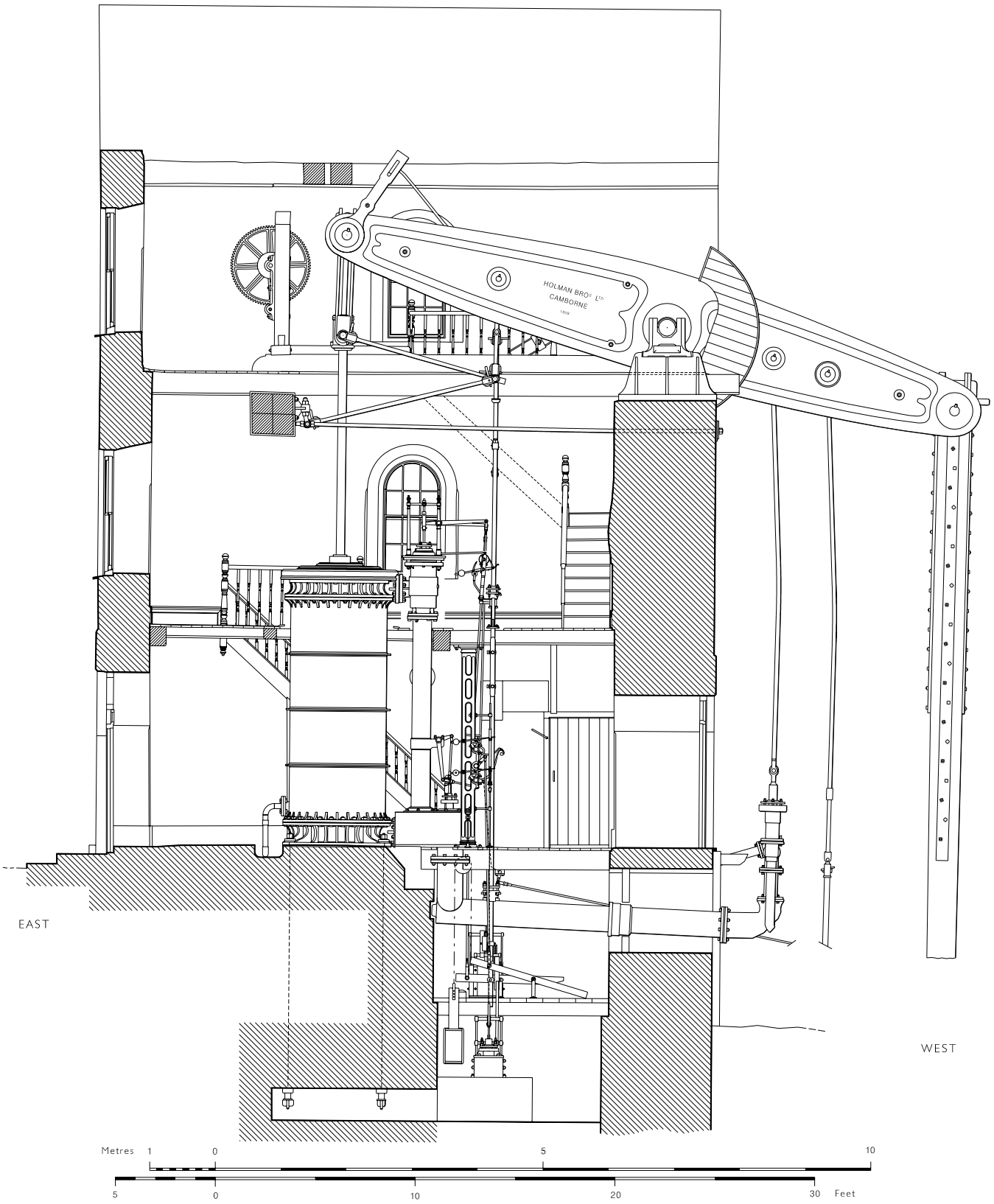


Part long section of east end of twine walk



Drawing 8 (above): Dawes Twine Works, West Coker, Somerset.
Sections are sometimes valuable for demonstrating the spatial, mechanical and functional flow through a building. The long section demonstrates power transmission and machinery in the rope walk area which was used to twist ropes. Surveyed for the South West Mills project (Williams 2013 *Textile Mills of South West England*).

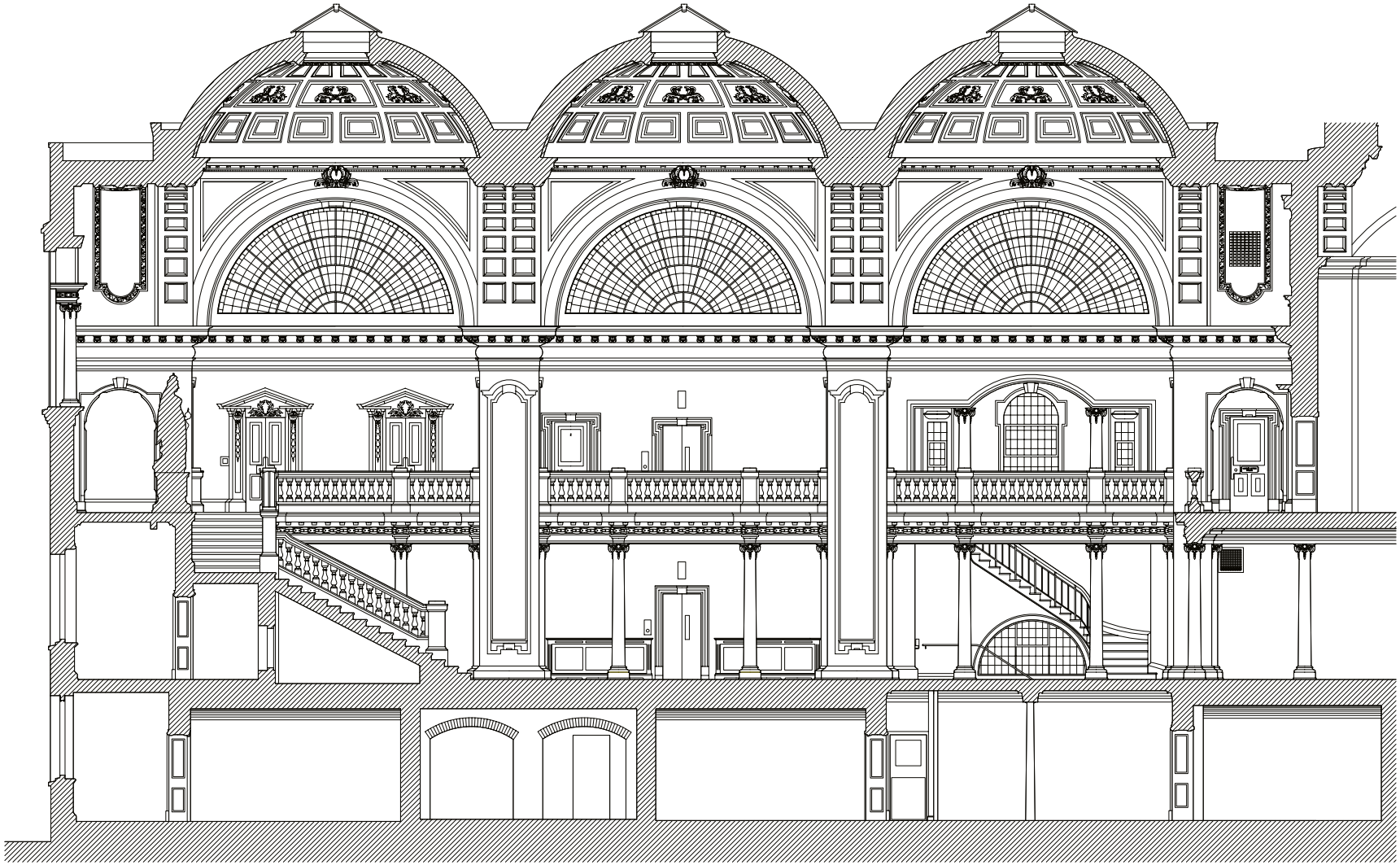
Drawing 9 (page 48): Goonvean China Clay Works, Cornwall.
Sections can also be more effective at demonstrating the form of a building. In the Engine House at Goonvean, the section demonstrates the form and relationship of the various components more effectively than a plan.



SECTIONAL ELEVATION of ENGINE HOUSE
GOONVEAN CHINA CLAY WORKS
St Stephen in Brannel
Cornwall

N R Fradgley & M J Williams

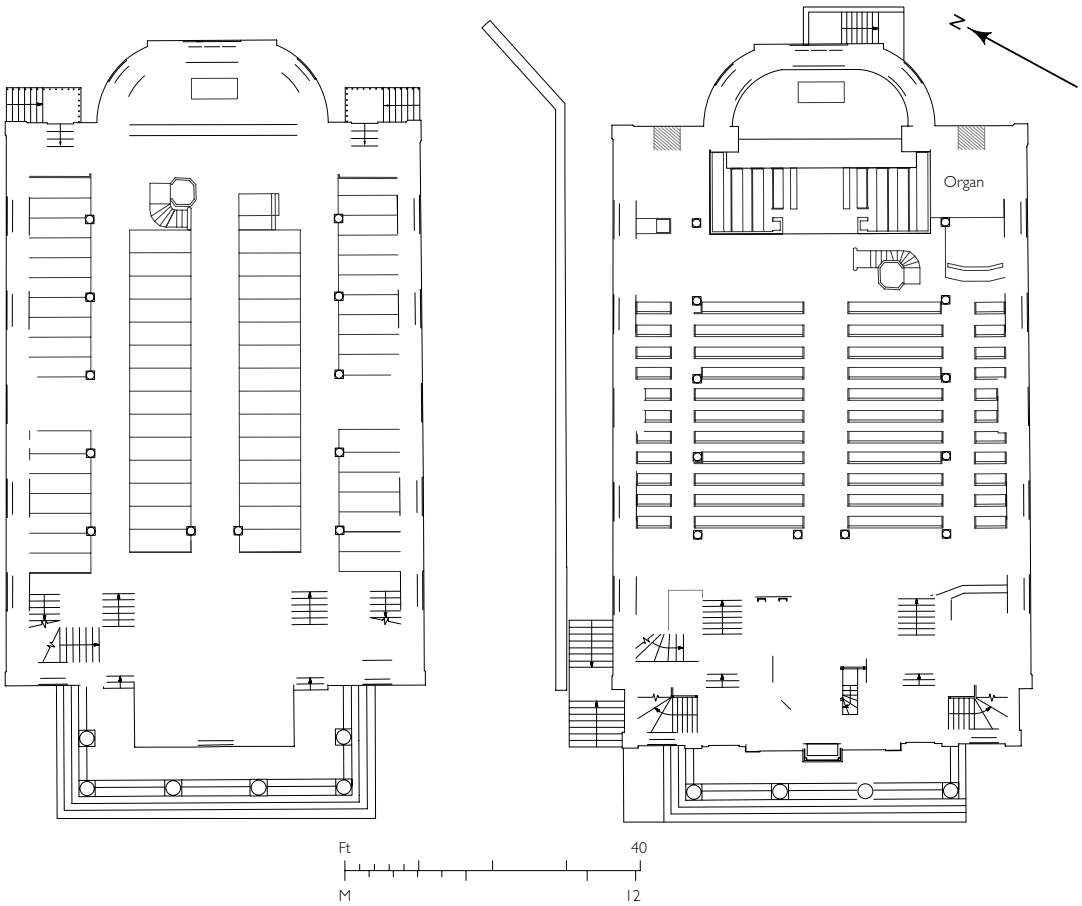
Surveyed: June 1999
Drawn scale: 1:80
Drawing no: 1 of 2
Grid ref: SW 949 553
NBR no: 55190



Ft 20
M 6

Subject	Drawn By	Date	Scale	
Woolwich Town Hall, sectional elevation through main hall. Mens: JB, HC, Del: JB	JB	31/08/11	1:100	Survey of London 1 Waterhouse Sq 138-142 Holborn London EC1N 2ST Tel: 020 7973 3638

© English Heritage



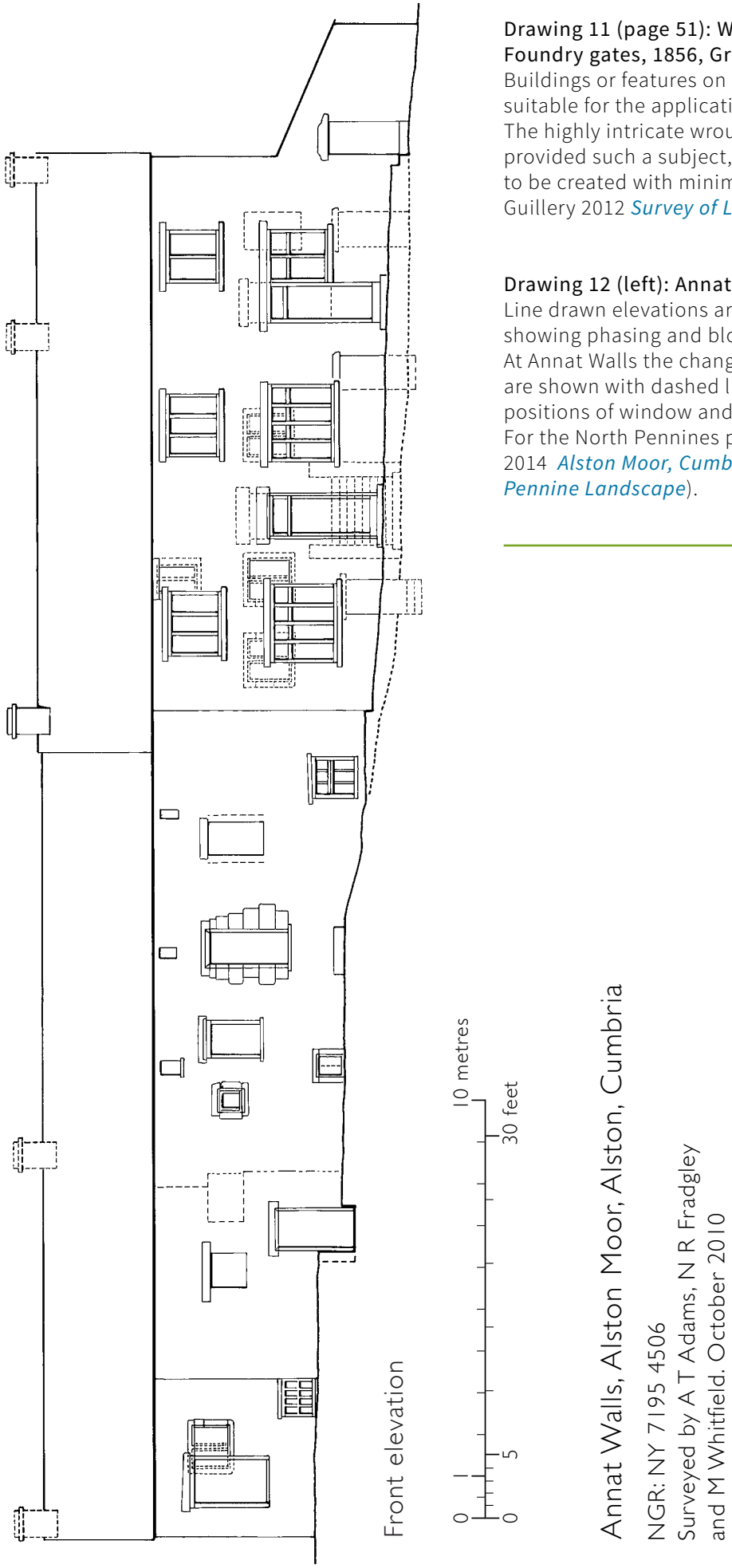
Drawing 10 (page 49): Woolwich Town Hall, Greater London.
The scale and construction detail of the complex structures can be brought out in 2D cross-sections, often produced using a combination of survey techniques. Here the dramatic form of the scale of the principal auditorium is shown, produced using a combination of survey methods including Total Station Thedolite, Photogrammetry and hand survey (Saint and Guillery 2012 *Survey of London Volume 48: Woolwich.*) Reduced from original.

Drawing 11 (above): St Mary's Church, Battersea, Greater London.
Changes in the form and organisation of internal spaces can be elucidated through plans showing internal fittings. Here changes in religious pratice can be demonstrated through comparative plans showing its form in 1777 (left) and today (Saint 2013 *Survey of London Volume 49 : Battersea I – Public, Commercial and Cultural*).

Ft 2
M 0.6

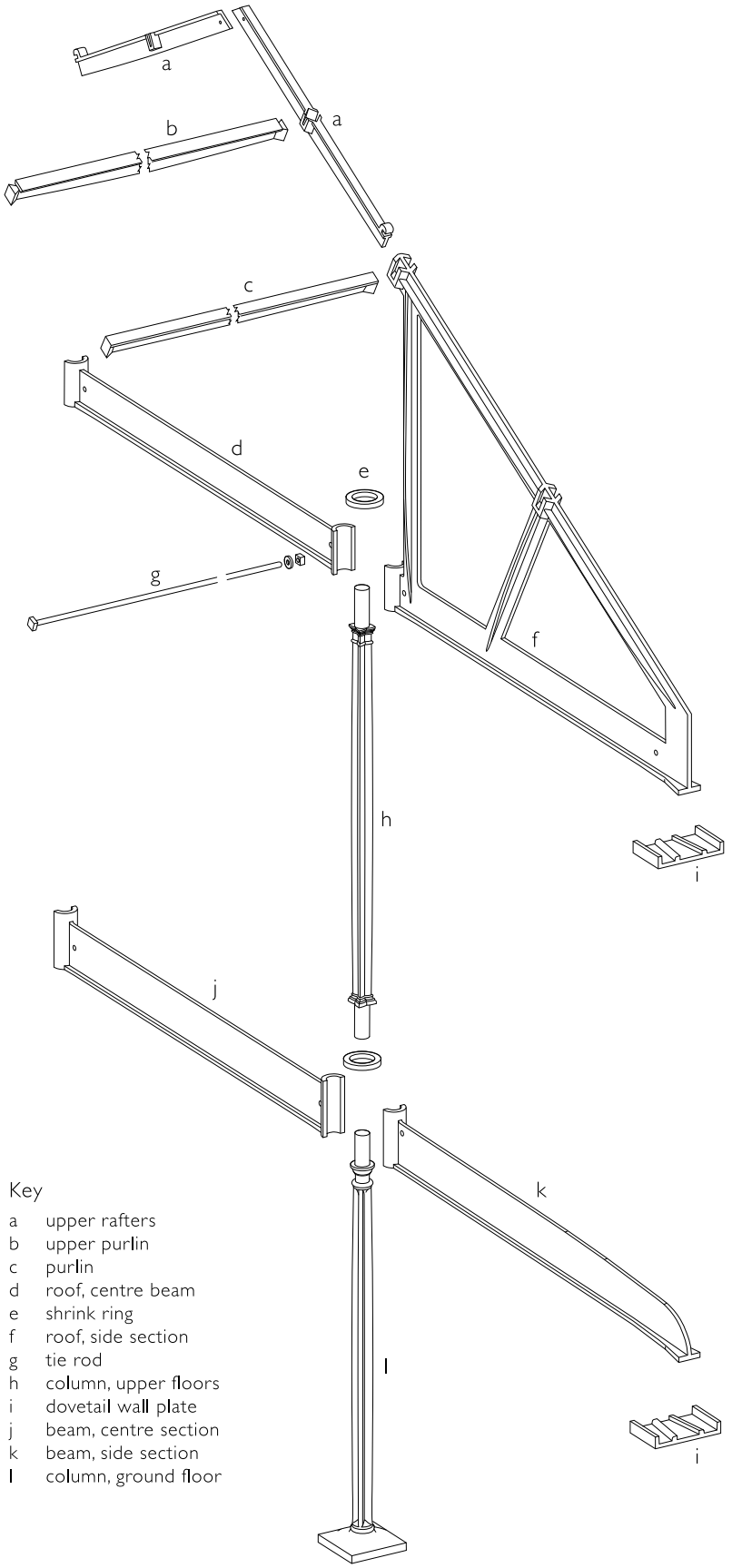
Woolwich	Drawn By	Date	Scale	Survey of London 1 Waterhouse Sq 138-142 Holborn London EC1N 2ST Tel: 020 7973 3638
Royal Arsenal Shot and Shell Foundry gates Source: EH photogrammetric survey, JB, CF	JB	29/11/09	To fit	

© English Heritage



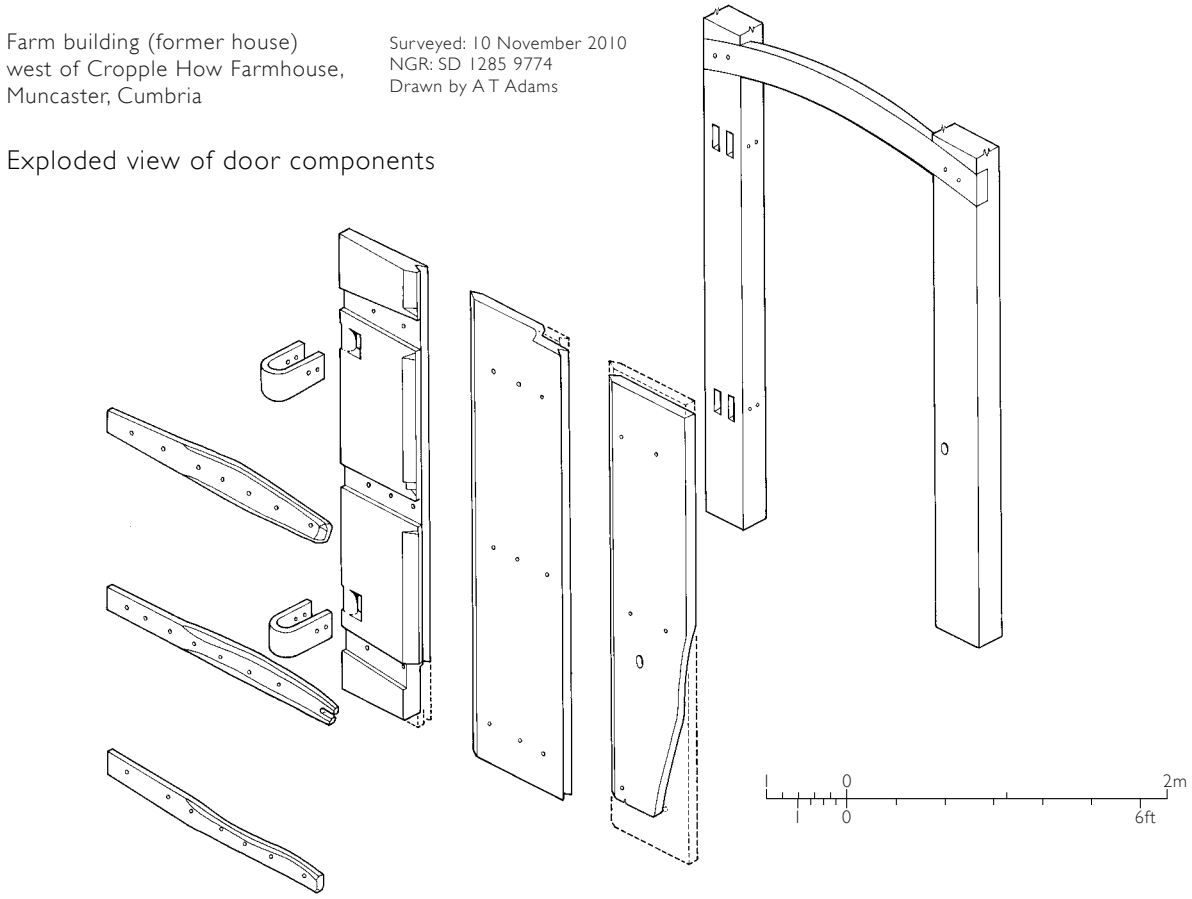
Drawing 11 (page 51): Woolwich Shot and Shell Foundry gates, 1856, Greater London.
Buildings or features on a single plane are particularly suitable for the application of rectified photography. The highly intricate wrought-iron gates to the Foundry provided such a subject, allowing detailed drawings to be created with minimal time on site (Saint and Guillery 2012 *Survey of London Volume 48: Woolwich*).

Drawing 12 (left): Annat Walls, Cumbria.
Line drawn elevations are particularly useful for showing phasing and blocked or altered features. At Annat Walls the changes in level within the building are shown with dashed lines indicating the former positions of window and doorway openings.
For the North Pennines project (Jessop and Whitfield 2014 *Alston Moor, Cumbria. Buildings in a North Pennine Landscape*).



Key

a	upper rafters
b	upper purlin
c	purlin
d	roof, centre beam
e	shrink ring
f	roof, side section
g	tie rod
h	column, upper floors
i	dovetail wall plate
j	beam, centre section
k	beam, side section
l	column, ground floor



Drawing 13 (page 53): Ditherington Mill, Shrewsbury, Shropshire. Exploded view of iron framing.
Clear view of components can be important in understanding and presenting a building. Here an exploded view of the iron framing of the Cross Mill at Ditherington is key to informing a discussion about the form of this highly-significant late 18th century iron frame (Giles and Williams 2015 *Ditherington Mill and the Industrial Revolution*, fig 5.20).

Drawing 14 (above): Cropple How Farmhouse, Muncaster, Cumbria.
Detail drawings can be useful to elucidate constructional details of timber or metal framed components of buildings. These can be derived from hand-surveyed measurements as in the case of this timber door. Surveyed to inform amendment of listing of the building in 2010.

26m
AOD
MAIN TITLE
HARMONDSWORTH GREAT BARN
TOWN
HARMONDSWORTH
COUNTY
HOUNSLOW, LONDON
SUBSIDIARY
WEST ELEVATION – SHEET 4
SCALE 1:20
1
0
1
2 metres
BENCH MARKS FIXED OSGN BY MEANS OF GPS OBSERVATION
LOCATION DIAGRAM
SURVEY BY
English Heritage
Geospatial Imaging Team
ENGLISH HERITAGE
SCALE
1:20
12/119/15

Drawing 15 (page 55): Ortho-image of elevation of Harmondsworth Barn, Greater London.
Photogrammetry allows digital images, adjusted to remove distortion, to be placed against digital survey date to create 2D ortho-images of elevations. Here this technique was used to make the distinction between old and new timber boarding clear. The image clearly shows the colour difference between the older boarding on the left hand side and the replacement boards on the right. These drawings have been used in specifying and undertaking conservation work on the building.

Image 16 (above): Isometric view of Longthorpe Tower, Peterborough, Cambridgeshire.
3D photogrammetric outputs can be used to show the form and detail of internal spaces. Here the model is derived from a 3D point cloud created using only photographic coverage, which is processed in such a way to create a model through overlapping common features. The result is intended for use in public interpretation of the site.

Image 17: Model of wall construction.
3D data from any source can also be used to present detail that may not be visible in the building's current or final state. In this generic model of a room the data is used to peel back layers to reveal the form of construction of the walls under its later furnishings. This type of product is useful for interpretation and understanding. The drawing was created for survey training purposes.

8 Bibliography

Historic England provides a range of further guidance which may be used to explore many of the topics covered in this document. All are available to download from the Historic England website. The most useful are likely to be:

English Heritage 2007 (revised edition forthcoming) *Understanding the Archaeology of Landscapes. A guide to good recording practice*

English Heritage 2008 (revised edition forthcoming) *Understanding Historic Buildings: Policy and Guidance for Local Planning Authorities*

English Heritage 2010 *Measured and Drawn* (2nd edition)

English Heritage 2010 (revised edition forthcoming) *Understanding Place. Historic Area Assessments: Principles and Practice*

English Heritage 2011 *3D Laser Scanning for Heritage* (2nd edition)

Historic England 2015 *Digital Image Capture and Film Storage*

Historic England 2015 *Metric Survey Specifications for Cultural Heritage* (3rd edition)

Historic England forthcoming *Drawing for Understanding Historic Buildings*

Historic England forthcoming *Photogrammetric Applications for Cultural Heritage*

Guidance on a wide range of other subjects is also available. For more information see the **guidance section** of the Historic England website. Other standards and guidance for building recording and associated specialisms include:

Association of Local Government Archaeological Officers 1997 *Analysis and recording for the conservation and control of works to historic buildings*

Chartered Institute for Archaeologists 2001 *Standard and Guidance for the archaeological investigation and recording of standing buildings or structures* (revised edition)

The British Standards Institution 2013 *BS7913:2013 Guide to the conservation of historic buildings* (2nd edition)

Clark 2001 *Informed Conservation: Understanding Buildings and their landscapes for conservation* London: English Heritage

Dallas (ed.) 2003 *Measured Survey and Building Recording for Historic Buildings and Structures*, Guide for Practitioners 4. Edinburgh: Historic Scotland.

Hughes (ed.) 2002 *Layers of Understanding: Setting Standards for Architectural Paint Research*. Proceedings of a seminar held on 28 April 2000, Donhead St Mary, Dorset: Donhead Publishing.

McCaig (ed) 2008 *Practical Building Conservation: Conservation Basics* Swindon: English Heritage.

9 Where to Get Advice

9.1 Contact addresses

Ancient Monuments Society, St Ann's Vestry Hall, 2 Church Entry, London EC4V 5HB: www.ancientmonumentssociety.org.uk

Archaeology Data Service: http://archaeologydataservice.ac.uk

Association for Industrial Archaeology The Ironbridge Institute, Ironbridge Gorge Museum, Coalbrookdale, Telford, TF8 7DX: www.industrial-archaeology.org.uk

Association of Archaeological Illustrators and Surveyors (AAIS): www.aais.org.uk

Association of Local Government Archaeological Officers (ALGAO): www.algao.org.uk

British Institute of Professional Photography, Fox Talbot House, 2 Amwell End, Ware, Herts, SG2 9HN: www.bipp.com

Chartered Institute for Archaeologists, University of Reading, Miller Building, Reading, Berkshire RG6 6AB: www.archaeologists.net

Council for British Archaeology, Beatrice de Cardi House, 66 Bootham, York YO30 7BZ: archaeologyUK.org

Church Buildings Council, Church House, Great Smith Street, London SW1P 3NZ: www.churchcare.org.uk

English Heritage, Customer Services Department, The Engine House, Fire Fly Avenue, Swindon, Wiltshire SN2 2EH: www.english-heritage.org.uk

The Georgian Group, 6 Fitzroy Square, London W1T 5DX: www.georgiangroup.org.uk

Historic Farm Buildings Group: www.hfbg.org.uk

Institute of Historic Building Conservation: www.ihbc.org.uk

Historic England Archive (formerly the National Monuments Record): The Engine House, Fire Fly Avenue, Swindon, Wiltshire SN2 2EH: http://archive.historicengland.org.uk

The National Trust, Head Office, Heelis, Kemble Drive, Swindon, SN2 2NA: www.nationaltrust.org.uk

OASIS (Online Access to the Index of Archaeological Investigations): https://oasis.ac.uk

Royal Institute of British Architects, 66 Portland Place, London W1B 1AD: www.architecture.com

Royal Institute of Chartered Surveyors Building Conservation Group, 12 Great George Street, Parliament Square, London SW1P 3AD: www.rics.org

Royal Town Planning Institute, 41 Botolph Lane, London EC3R 8DL: www.rtpi.org.uk

Society of Architectural Historians of Great Britain: www.sahgb.org.uk

Society for the Protection of Ancient Buildings, 37 Spital Square, London E1 6DY: www.spab.org.uk

Twentieth Century Society, 70 Cowcross Street, London EC1M 6EJ: www.c20society.org.uk

Vernacular Architecture Group: www.vag.org.uk

The Victorian Society, 1 Priory Gardens, Bedford Park, London W4 1TT: www.victoriansociety.org.uk

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ALGAO:England

National Trust

CIfA Chartered Institute for Archaeologists

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