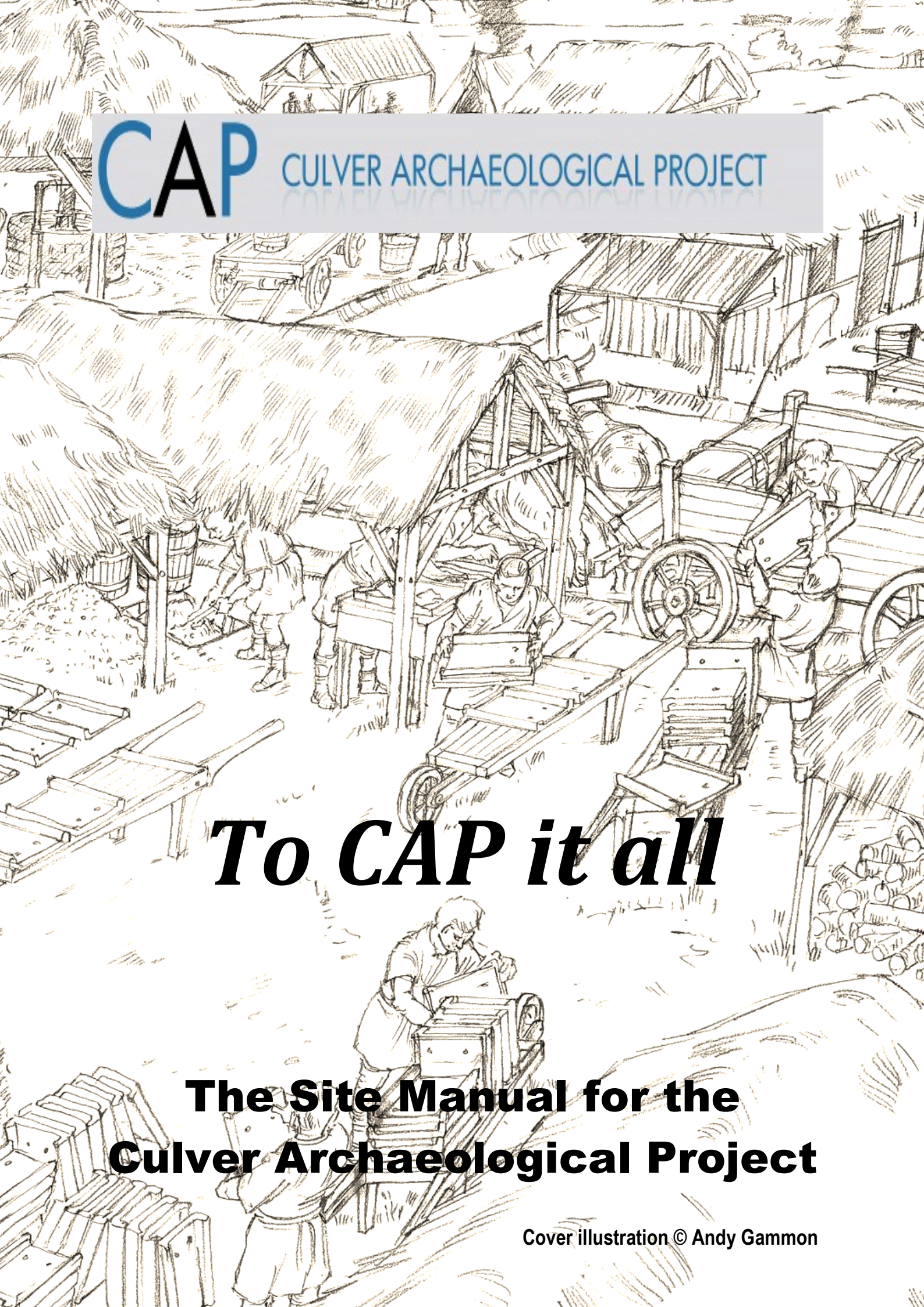

CAP CULVER ARCHAEOLOGICAL PROJECT

To CAP it all

The Site Manual for the Culver Archaeological Project

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The Site Manual for the Culver Archaeological Project
2022 (REVISED 7th edition)

Compiled by David Millum BA, MA, MCIfA
with the assistance of other members of the CAP team.
Inspired by and based heavily upon the MoLAS Site Manual (1994)

Preface

'To CAP it all' has been produced from 2015 in order to gain greater consistency for all projects carried out under CAP supervision. It is based on reviewing the practices, successes and mistakes on the various sites that CAP have excavated over the last decade. Whilst it was primarily aimed at volunteers and students it applies to ALL who participate in CAP projects. It mainly follows accepted methodologies but there are specific areas where CAP practice varies from those used by commercial and other research units. We do not suggest that it is a model to be followed elsewhere, however flattering that might be, but right or wrong it is the way it will be done on CAP excavations. So don't say we didn't tell you!

It has been produced as a private research document for the use of those participating in CAP projects. This guide is free to download and will not be offered commercially in any form. CAP is a non-profit making, volunteer-based, research project. We freely acknowledge that this manual relies heavily on other recognised guides, especially the 1994 MoLAS guide (now free to download) and believe that any material based on Museum of London copyright items and/or any other copyright owners here reproduced will fall under the "fair dealing" exceptions to copyright as outlined within the UK's Copyright, Designs and Patents Act 1988, as amended and revised. Any copyright owner who identifies material and objects to its inclusion should contact david@culverproject.co.uk so that we can remove any content proven to be from that source. David Millum 2022

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CAP CULVER ARCHAEOLOGICAL PROJECT

Contents

1 General introduction **5**
1.1 Acknowledgments and recommended sources 5
1.2 Keeping a Field Notebook 6
2 CAP; its general aims, history and current objectives **7**
2.1 General philosophy 7
2.2 CAP since 2005 7
2.3 Bridge Farm from 2011 ongoing 7
3 Health and safety on site; some general principles **10**
3.1 Health and Safety statement 10
3.2 Health and Safety on site – the basics 10
3.3: The site risk assessment & health and safety risk control and action plan 11
3.4 Some important risks to be aware of 11
3.5 Sunny and Warm weather precautions 12
4 Basic surveying; and the site grid **13**
4.1 Traditional methods 13
4.2 Making a square and laying out a grid 13
4.3 Locating features from a grid or base line 15
4.4 Locating a point to a base line 15
4.5 The swing method 16
4.6 Site grid referencing & coordinates 16
4.7 Site levels 17
4.8 Levelling with a surveyor's (dumpy) level 18
4.9 Using a Dumpy to record a traverse 19
4.10 Using stadia and degree ring on Dumpy to undertake a basic survey 20
4.11 The Total Station – what is it? 21
4.12 SOKKIA Series 30RK Total Station – set up and use 21
4.13 Survey Grade GPS devices 26
4.14 Further reading for traditional surveying 26
5 Less intrusive methods of investigation **27**
5.1 Desk Based Assessment (DBA) 27
5.2 Field-walking 27
5.3 Metal Detecting 28
5.4 Geophysical Surveys 30
5.4.1 Ground resistance (aka Resistivity) 30
5.4.2 Magnetometry 33
5.4.3 Dumping data and plotting images 35

6 Excavation; the basic methodology; 36
6.1 Removing the overburden 36
6.2 Common machines 36
6.3 Services 36
6.4 Trial trenches (evals) 36
6.5 Open area excavation 37
6.6 Single context recording 37
6.7 Basic method of all excavation 37
6.8 Large hand tools 37
6.9 Finer hand tools 38
6.10 Excavation method 39
6.11 Leaving the site 40
6.12 Further reading for excavation methodology 40
6.13 Flow diagram of site procedures 41
7 Deposits, fills, layers, cuts; stratigraphy, Harris matrix; site formation 42
7.1 Deposits, layers, fills and cuts 42
7.2 Stratigraphy 43
7.3 Contexts 43
7.4 The Harris Matrix 44
7.5 Contexts example – Section Drawing & Harris Matrix 44
7.6 Site formation processes 45
7.7 Further reading for contexts, Harris matrix and site formation 46
8 The written record; pro-forma single context recording 47
8.1 Context and Feature Register 47
8.2 Recording a Fill 50
8.3 Recording a Cut 60
9 The drawn record; excavated sections and site planning 66
9.1 Measured scale drawings and the Section and Plan Registers 66
9.2 Line and hachure drawing conventions 67
9.3.1 Drawing a Section 68
9.3.2. An example of Site Photograph & Section Drawing 70
9.4.1 Drawing a Plan 71
9.4.2 Use of CAD and producing drawings for publication 73
10 Photography; general site information and specific features & artefacts 76
10.1 Equipment and purpose 76
10.2 Taking official site photographs 77
10.3 Taking official artefact photographs 80
10.4 3D Imaging 82

11 Finds general and special; which is which, what to do and what NOT 83
11.1 On site: general finds and special; finds 83
11.2 In the finds unit: onsite conservation 87
11.3 Ownership and Treasure 87
11.4 Further reading for finds 88
11.5 CAP Finds Processing Guidelines 89
11.6 CAP general policy for artefacts 93
12 Environmental sampling and floatation 94
12.1 What can environmental sampling provide? 94
12.2 What can you expect to find and how? 94
12.3 Some Key Points on Environmental Procedures from Dr Mike Allen 96
12.3 What we do at CAP 97
12.4 Flotation 97
12.5 Geoarchaeology 98
12.6 Geochemical surveys 99
12.7 Further reading for environmental sampling 99
12.8 CAP environmental sample form 100
13 What happens next; archiving and reporting 101
13.1 After the trench is closed 101
13.2 Sussex Archaeological Standards (2014) format of the Report 102
13.3 And into another year 103
13.4 For further reading about the site 103
14 Some notes on recording Vernacular Buildings 104
14.1 Basic equipment and procedure for recording a building 104
14.2 Guide to the main terms used to describe traditional timber frames 107
14.3 An example of an 'assumed square' reconstruction drawing 108
14.4 Examples of common brick bonds 109

1: Introduction

This manual is the guide to **how things will be done on CAP sites**. It deals with safety issues, working procedures and recording techniques. It should enable anyone on site to undertake most of the basic tasks that they are likely to encounter, but there are always instances that are more unusual. With archaeology you often only get one chance, so if you are unsure ask someone in authority before proceeding.

The manual has been designed both as a pre-excavation crammer and onsite guide for novices and an *aide-memoire* for those of us who **think** we know. But most importantly it sets the parameters by which most tasks must be undertaken on CAP projects. It is intended to be dynamic, being updated and amended as techniques develop and as methodologies, written at a desk, prove less than fit for purpose when applied in the field. We will welcome constructive suggestions with those coming after using the guide in the field being the most carefully considered. The manual is available as a free pdf to be downloaded from our website, www.culverproject.co.uk with the most recent version being posted there as updated.

We have endeavoured to compile the manual in a logical sequence reflecting the likely order in which tasks may be undertaken on site. Whilst it may be viable for the use of other organisations at other locations it is written specifically with CAP procedures in mind and for the conditions prevailing in the Sussex Upper Ouse Valley in the Barcombe and Ringmer parishes. Our sites are often subject to annual flooding leading to post depositional gleying and the sandy silt base is ideal for rapid pedogenesis (soil formation). Both of these characteristics can make for frustrating digging when the interface between a feature and the surrounding soil can disappear before your eyes. However, the conditions can also lead to exciting discoveries in the permanently water-logged lower levels of features where timbers and other organic materials can survive for millennia *(see our website publication page for the full report on the unique carved timbers excavated in 2014).*

1.1: Acknowledgments and recommended sources

In compiling this manual it was impossible not to rely heavily on the various manuals and books that have been our guides over many years. The main sources and recommendations are listed below for your further reading. We also acknowledge the assistance of many of our specialist consultants and tutors in making useful suggestions to improve the basic script.

1.1.1: MoLAS, 1994. The excellent MoLAS site manual is now available for free download at http://www.museumoflondon.org.uk/files/1413/7243/1495/MoLASManual94.pdf
It's free and still highly relevant and this manual would not exist without it.

1.1.2: Drewett, P. L. 2011. ***Field Archaeology: An Introduction.*** 2nd ed. Routledge
CAPs basic methodology comes via the late Peter Drewett, who was Professor of Archaeology at the University of Sussex, and we highly recommend this book to all participants as it has proven to be a key handbook for volunteers, students, supervisors and directors alike.

1.1.3: Roskams, S. 2004. ***Excavation.*** Cambridge University Press**.** One of the excellent range of archaeological text books published by Cambridge UP.

1.1.4: **Collis, J. 2004. *Digging Up the Past.*** Pb.ed. Sutton
Particularly lucid on the Harris Matrix as well as some matters of site etiquette.
1.1.5: Sussex Archaeological Standards should be available to download from **East Sussex County Council (ESCC)** website.
1.1.6: Chartered Institute for Archaeologists (CIfA) Standards and Guidelines available from CIfA website at https://www.archaeologists.net/codes/cifa
1.1.6: Renfrew, C. & Bahn, P., 2004. *Archaeology: Theories, Methods and Practice.* Thames and Hudson. There have been many editions of this over the years so second-hand older editions are available quite cheaply (check in the Castle Bookshop, Barbican House, Lewes).
1.1.7: Historic England has produced guides on most aspects of archaeology. Many have been consulted and are referred to within this manual.
Go to https://historicengland.org.uk/advice/ for a range of free pdf downloads.

1.2: Keeping a Field Notebook

We consider the keeping of a Field Notebook as an essential part of the training for field archaeology. It encourages looking in detail at what you are doing, asking yourself why you are doing it, why you are using this method, and what the result will tell you about the archaeology. It also produces a useful work journal both to refer back to and to form part of a future portfolio of practical archaeology. You may notice that CAP Directors/Supervisors keep field notebooks to this day as, despite the copious recording of the single context method, personal notes are of vital importance when writing reports, planning future investigations, or just trying to remember everyone's names! Being traditionalists, we use Chartwell Laboratory Books, with alternate lined and graphed pages, but any durable notebook or even a digital tablet could be used. It's what suits you and allows you to take and subsequently access your personal excavation record/project diary.

1.2.1 Guidelines for a good Field Notebook

You should record immediate observations and on the spot analysis/commentary.
As a work journal you should make entries on at least a daily basis. What you did. What were the aims of the activities you undertook? How were the results of this work recorded? Did this work result in any revisions to the interpretation of, or approach to, this part of the site/project? What did you get out of it?
Relevant sketch drawings, other illustrations and photographs should be included and provided with clear and detailed captions.
In addition to the day-to-day work journal, you should also include brief statements about:

- The background to and wider context of the site/project including a location map if available and details of your own background reading
- The aims and approach to the project
- The recording systems used including copies of any forms used (blank or filled in)
- Why you chose to go on this project

- What the project provided in terms of practical training
- A self-evaluation of your progress in practical archaeology

You should also include honest reflection on your contribution, improvement, and future goals at the end of your participation.

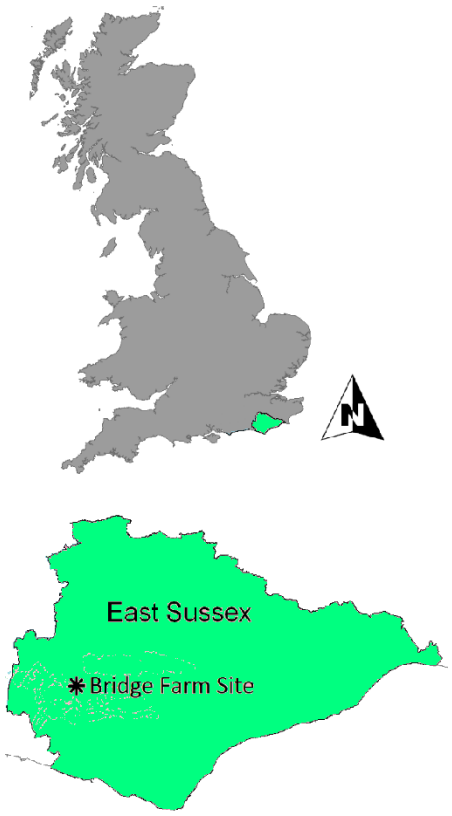
Each page of the notebook should be numbered consecutively and an index made of the main sections and/or important topics for future reference.

As a matter of site courtesy permission should initially be sought from the site supervisor or director for recording data of the site in a private notebook.

2: CAP: General Aims, History and Current Objectives

2.1: General philosophy

The investigation of the Romano-British settlement at Bridge Farm forms part of the wider research of the **Culver Archaeological Project (CAP),** founded by Robert Wallace in 2005, to investigate the historical environment of the alluvial plain of the Upper Ouse Valley in the parishes of Barcombe and Ringmer in East Sussex. CAP has always endeavoured to conform to a high standard of archaeological research whilst seeking to actively involve the local community in the discovery and interpretation of their landscape heritage and archaeological remains, as well as offering practical experience and training for archaeological students. In conjunction with open area archaeological excavation of targeted areas, the project includes magnetometer and resistivity surveys of the wider area and supervised metal detecting.



2.2: CAP since 2005

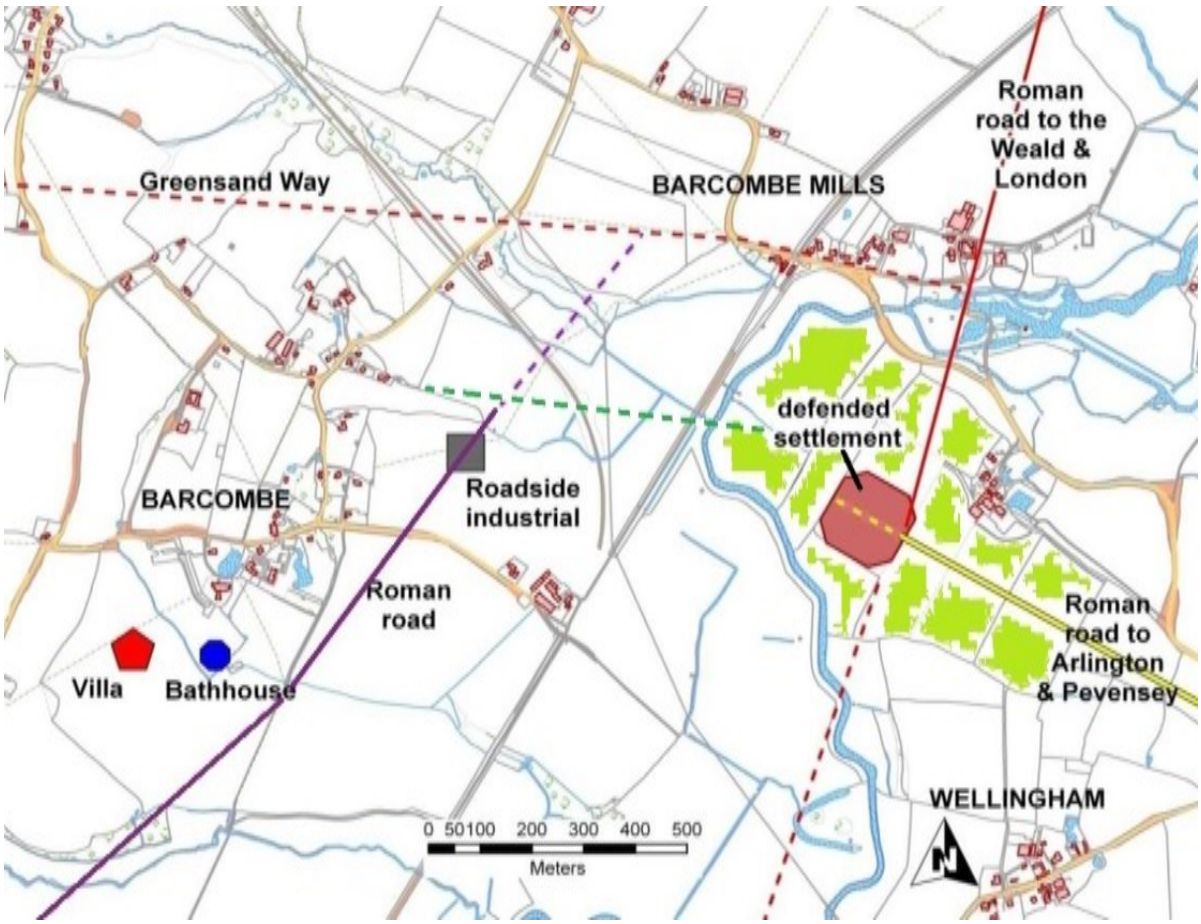
Prior to Bridge Farm CAP discovered and excavated a substantial Roman road running down the western side of the Ouse with roadside industrial activity as well as noting the prehistoric activity in the area, including a mid-Bronze Age cremation and potential waterlogged timber structure.

2.3: Bridge Farm 2011 ongoing

In 2011 preparatory geophysical surveys at **Bridge Farm** indicated a substantial amount of below ground archaeology, with a magnetometer survey showing a large double-ditched enclosure cutting across a grid of road and boundary ditches. The initial interpretation as a potential Romano-British settlement site was supported by the results from the 2013 excavations. The settlement site is situated on the projected junction of three major Roman roads, which met at a point on the River Ouse where it was still navigable; making it an

attractive site for a trading, and/or as an administrative centre. The evidence from the site and surrounding landscape suggests that the archaeology within this previously unknown settlement dates from the early period of Roman occupation in the late 1st century AD, with the earthwork defences constructed in the late 2nd century, and was occupied until its decline in the late 4th.

The settlement forms an important part of a **wider Romano-British landscape** of the area which includes, a villa complex, detached bathhouse, industrial sites, roads and field system. The evidence from Bridge Farm will aid the understanding of the development of Roman-period activity in this area as within this single site, there is the potential for uncovering both the beginning and the end of the Roman-British life in a Rural Nucleated Settlement, whilst importantly offering indications on how this affected the native British community.



Map showing the Roman-period archaeology in the Barcombe area

Today the Bridge Farm site comprises both permanently grassed meadows and intensively farmed arable land, the latter subject to regular ploughing using soil compaction avoidance techniques. The site lies between 4-8m above O.D. and is substantially within the River Ouse flood plain. Regular flooding has the potential for damaging and/or altering the archaeology and this, combined with a danger of 'night-hawking', shallow depth, and intensive agriculture, puts the archaeology on this rural site at risk. The potential risk to the site and the regional, if not national, importance of the archaeology, especially if evidencing how British people lived under Roman authority, supports the use of the intrusive techniques used in this project.

Excavation of targeted areas of the site is an ongoing process with different priorities arising as each area is investigated and the results assessed.

Geophysics image of the settlement showing the excavations to date

For more details of what has been achieved so far see the interim summary, *Bridge Farm: the excavation of a Romano-British riverside settlement, Part 1 2011-2017*, on the 'publications' page of our website, www.culverproject.co.uk

Also available at

https://www.academia.edu/27297177/Bridge_Farm_2011-17._The_excavation_of_a_Romano-British_defended_riverside_settlement_an_interim_report

and

https://www.researchgate.net/publication/323665763_Bridge_Farm_The_excavation_of_a_Romano-British_riverside_settlement_Part_1_2011-2017

3. Health and Safety on Site; Some General Principles

3.1. Culver Archaeological Project – Health and Safety Statement

It is the policy of CAP to give prime importance to the health and safety of its employees, students and volunteers whilst officially on site. This is considered to be a responsibility equal to that of any other function. As well as recognition that in order to achieve and maintain the high standard required, all personnel and volunteers must be aware of and accept their own respective responsibilities.

To comply with the Health and Safety at Work Act 1974 and its associated legislation CAP will take all steps that are reasonably practicable to ensure the health and safety at work of its personnel and volunteers and all persons likely to be affected by its operations, including sub-contractors, licensees and the public, where appropriate, and will provide:

i. A safe and healthy working environment and a safe system of work.
ii. Safe plant and equipment.
iii. Adequate information, instruction, training and supervision.
iv. Safe storage for all inherently dangerous materials and substances.
v. Facilities for the treatment of any injuries occurred at work.
vi. A system to record all accidents and dangerous occurrences.

Project Director Robert Wallace has overall responsibility for health and safety for CAP.

Please report any Health and Safety issues to an appropriate supervisor as soon as possible.

Read and refer to the following '*Health and Safety on site – the basics'*, but remember this is only a summary so consult a supervisor if in doubt or concerned about anything specific.

3.2: Health and Safety on site – the basics

Most safety issues on archaeological sites come down to common sense – **please use yours!**

NEVER WORK ON SITE ALONE. **Keep away** from any mechanical diggers and always comply with **direct Health & Safety orders** from the site staff. **Always notify a supervisor when entering or leaving site during a session.**

Look where you are going; excavation sites are inevitably full of pits, stakes and strings, **never rush, run or jump**. **Be careful** when using any hand tool both for your safety and that of the other people on site.

Cover up or protect against sun and **drink plenty of fluids** to avoid dehydration.

Tiredness: listen to your own body. If you start to feel tired ease up and/or notify a supervisor and take a break. A tired worker is a bad worker and potentially a danger to self and others.

Where stout footwear (steel toecaps and insteps ideal), **gloves** help against blisters and cuts, **goggles** if chipping stone etc. **knee pads/kneeling mats** encourage correct excavation posture as well as protecting knees from sharp stones and other hazards.

Wash your hands and/or use sanitiser before meal breaks.

3.3: The SITE RISK ASSESSMENT & HEALTH AND SAFETY RISK CONTROL AND ACTION PLAN: is prepared annually and is available on site and on our website (www.culverproject.co.uk). It is **your responsibility to read these documents** and query any points you do not understand and to inform us of any health issues that affect you personally. You must have a current tetanus vaccination**.**

3.4: Some important risks to be aware of

WEILS DISEASE: from animal urine in standing water: wear gloves and wash hands before meals

LYMES DISEASE: from tick bites in long grass from infected animals i.e. deer, sheep and other mammals: look for tell-tale ringed inflammation and if seen consult a medical practice. Lymes is becoming more prevalent in the UK so wear suitable clothing especially in long grass.

TETANUS: carried in the ground infects exposed cuts and grazes: **vaccination mandatory**.

MACHINES: If working close to a mechanical digger, stay outside the arc of its extended arm, wear high visibility clothing, steel toe-capped boots and hardhat. Obey any instruction from the **'banksman'** (trench supervisor). Just because you can see the digger does not mean the driver can see you! At CAP sites you will not work close to any machining.

HAND TOOLS: All hand tools can cause injury if used wrongly or carelessly. Follow the instructions given to you in the introductory session. Inform a supervisor if you missed it so we can make sure you are suitably trained before potentially injuring yourself, another person or the archaeolgy.

TRIPS AND SLIPS: Keep the site tidy; look where you are going; keep away from baulk and trench edges; be careful on the spoil heap. Be particularly careful in wet weather when a site that was formerly safe can become very slippery, very quickly. Advise a supervisor if you notice anything potentially dangerous.

TRENCH COLLAPSE: Do not enter any trench that is over 1.2m deep unless it is shuttered, stepped or battered, without checking with a supervisor. Be watchful especially during wet weather. Wear a hard hat if your head is below the surrounding surface. Keep away from the edge of any trench where someone is working. Do not sit or stand close to the trench edge and always enter and leave the trench at the approved points.

3.5: SUNNY AND WARM WEATHER WORKING PRECAUTIONS

Outdoor workers are often exposed to high temperatures for long periods, and are at a higher-than-average risk of exposure to UV radiation. **This can lead to heat stroke, heat exhaustion and skin damage, which in turn can lead to an increased risk of skin cancer.**

To **protect against these risks:**

Try to stay out of the sun during the hottest part of the day. We know that this is almost impossible when in the field, so try to rotate between indoor/shaded and outdoor tasks to minimise exposure. Perhaps save up less strenuous tasks (like paperwork) for the hottest part of the day and do them in the shade if possible.

Wear sunscreen, especially if it is windy. Ideally this should be of a high factor (30-50) and re-applied regularly. Cover up using lightweight clothing where you can. The best way to avoid being burned by the sun is to keep it away from your skin. **Long sleeves and trousers** might seem like a hassle but may be more pleasant than a mixture of sun cream and dirt.

Stay hydrated by drinking plenty of cool water. Make sure you have sufficient drinking water ideally using your own reusable water bottle. Drink small amounts of water regularly. **If you feel thirsty, you're already dehydrated**. You should wipe down taps and any other surfaces you have touched with appropriate cleaning products after you have filled your vessel.

Heat stroke is more likely during heavy physical work, so pace yourself and vary your tasks.

Heat exhaustion is caused by the loss of salt and water from the body by excessive sweating. Left untreated it can lead to heat stroke so it is important to take care of yourself and others around you.

Signs to look out for include:

• Headache, dizziness and confusion • Loss of appetite and nausea • Sweating, with pale, clammy skin • Cramps in the arms, legs or abdomen

Heat stroke is the most severe form of heat-related conditions, and is caused by the failure of the body to regulate temperature, resulting in the body becoming dangerously overheated.

Symptoms in addition to above include:

• Hot, flushed and dry skin • Body temperature of above 40°C

Take extra rest breaks, whenever you feel you need one (but this is not an excuse for slacking) and make sure there is shade in rest areas, remove protective clothing when resting to help encourage heat loss, and clothing should ideally not be tight or restricting, it should allow body heat to escape.

Report any symptoms of heat stroke/exhaustion/burning to your supervisor or onsite first aider as soon as noticed.

4: Basic Surveying; the Site Grid and Site Levels

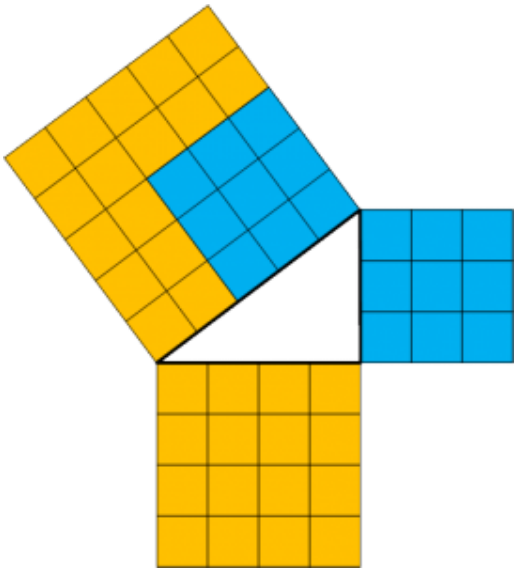
4.1: Traditional methods

This section will deal with traditional surveying methods using tapes, right angles and triangulation, to lay out a grid and locate features in 2 dimensions (**plan**) plus the use of a surveyor's level (aka **dumpy level**) to add the 3rd dimension (**site levels**). Increasingly you will find that Total Stations (TS) with built in Electronic Distance Meter (EDM) are being used which replaces tapes for most measurements. But if the technology fails some knowledge and some tapes can come to your rescue. All the following depend on having accurate tapes; fibre tapes can stretch and should be checked against a steel tape regularly and discarded if not accurate.

4.2: Making a square and laying out a grid

Before commencing any geophysical survey, undertaking field walking or systematic metal detecting, you will need to construct a grid as a framework to work within and to locate the results into the wider landscape. A similar procedure is used to lay out the site grid over the area of any excavation. Whilst the size of the grid squares may differ the process is the same.

The Theory is based on **Pythagorean Theorem** i.e. that in a right angle triangle the square of the hypotenuse (side opposite the right angle) is equal to the sum of the squares of the other two sides. This is shown in the diagram to the right using the classic example of a triangle with sides in a **3:4:5 ratio**.



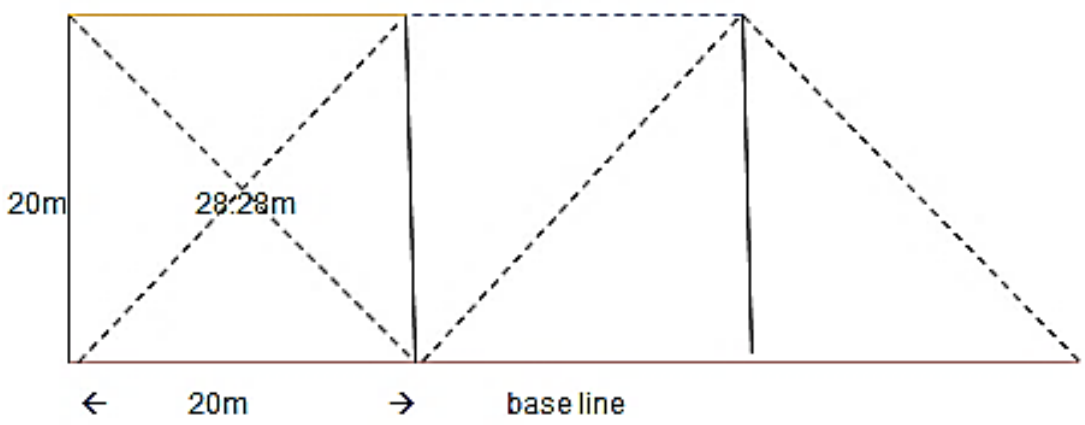
3 x 3 = 9, 4 x 4 = 16, 9 + 16 = 25, i.e.5 x 5.

The basic rule applies to **ALL** triangles containing a **right angle** whatever the ratio of the sides.

If we want **to create a square with 10m sides** we begin by creating a triangle with two 10 metre sides adjacent to the right angle with the 3rd side **14.14m** long. The arithmetic behind this is (10 x 10=100) + (10 x 10=100) = 200 of which the square root is 14.14213562373095 or **14.14** to two decimal places. This is more than accurate enough given the inaccuracies that can occur due to stretch of tapes, and the slopes, bumps and hollows of the land. For a 20m square the diagonal is 28.28m *(see the table below for a fuller range of diagonals and the appropriate size of square for different uses*).

The first thing to do is decide the best direction of the grid to cover the area required and then lay out a tape as a **base line** to work from. Keep the baseline as taut and straight as possible and stake, cane or peg your chosen grid divisions (e.g. 10, 20 or 40m etc). Your base line does not have to be at one side and can be laid across the centre, particularly if the area you are gridding has irregular boundaries. From a staked point on your baseline create a right-angle offset. This can be at one end but may create fewer errors over the whole grid if located from a central point. Do this using the 3:4:5 ratio but as big as practicable (e.g. 30m x 40m x 50m)

and then stake the chosen divisions up the offset. You have now established and staked the two axis of your grid and can now continue to establish your grid. If we use a 20m grid for example, then lay out a 20m side at a rough right angle from 20m along either axis. Then take a diagonal of 28.28m from the original point on the axis and adjust the tapes until they cross at 20 and 28.28 respectively. Insert a stake at this new point. This has created a 20m grid square. If the tapes are then swung to create the other diagonal and used for the alternative dimensions you can check the accuracy of your square. Now repeat the process in any direction laying out



the rest of the grid squares.

Grids can be laid out with 2 people but 3-4 is ideal. It is usually sufficient to just use one diagonal to each square, but occasionally measuring the other diagonal is a good check that you are still laying squares rather than rhomboids as the grid grows. It is a process that takes time and repetitive precision especially if the grid is large. Small errors, especially in the initial squares can grow to massive errors the further you precede.

A grid laid exclusively for field walking can accommodate **some** errors as the results only give indications of material scatter within the top soil and therefore prone to re-depositional processes. However, a grid for geophysical surveying must be more accurate and a site grid should be as exact as time and precision allow as the accuracy of the site plans depend on it.

At **Bridge Farm** we usually lay a **10m site grid** with each grid square requiring 4 sheets of graphed drawing film, that equates to a 5m square at the standard 1:20 scale, when being planned. The table below gives the most practical grid sizes for various fieldwork.

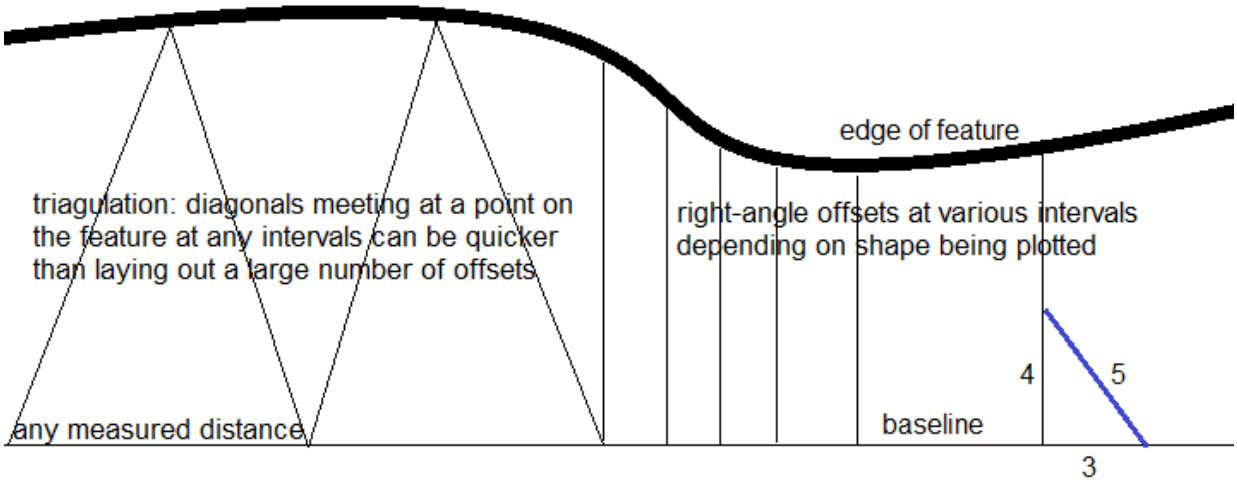
Size	Diagonal	Used for	Pros	Cons
5m	**7.07m**	Site grids (open area trenches)	Aids more precise location of features and artefacts. At 1:20 matches square drawing film.	Time consuming to lay out and makes more holes in the trench
10m	**14.14m**	Site grids and total surface artefact collection	Still reasonably precise and can make locating simpler as each peg is a whole 10m apart	Still takes time laying out even when using a TS
20m	**28.28m**	Resistivity surveys and field walking	A good compromise size	Too large for a site grid
30m	**42.43m**	Some geophysics and field walking	Used by some commercial units	Strange halfway house not generally used by CAP

40m	**56.57m**	Magnetometer surveys and metal detecting	Quicker to lay out as less squares and can be divided in 4 quite easily for resistivity	Too large for resistivity unless divided by 4. Needs a 100m tape to do diagonal
50m	**70.71m**	Initial landscape survey	Could be useful over a large area.	Imprecise and hard to keep accurate. Limited potential.

4.3: Locating features from a grid or base line

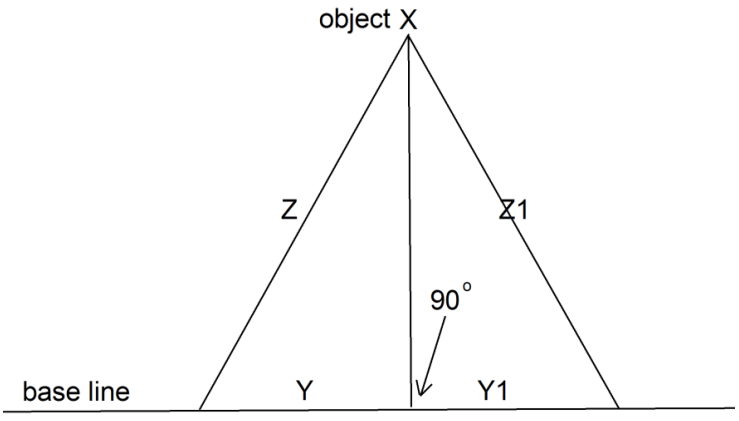
The same principle of using a right-angle triangle (**offsetting**) can be used to locate features by setting out a series of **3:4:5 triangles** (or multiples thereof e.g. 6:8:10 etc) at appropriate intervals along a base line and extending the perpendicular to the feature (an **offset**).

Alternatively, two diagonals can be measured from points on the base line to any point on the feature (**triangulation**). No specific angle is required but it is better in practice (both measuring and drawing) if the angles or kept moderate (not too obtuse or acute). The points thus measured can be drawn at scale using a pair of compasses. This is often a quicker and more practical method of measuring larger areas.



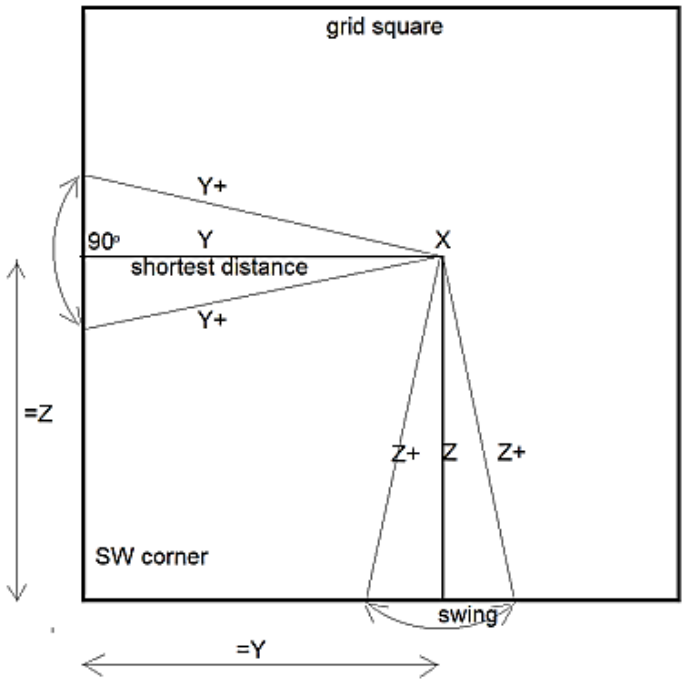
4.4: Locating a point to a base line

To locate a point (X) you should take a tape from the point to the base line (Z) at a moderate angle (try to hit a nice whole number on the base line) mark or note the intersection. Then swing the tape to the other side of object along the base line at the same length from point X to make a triangle (Z1), the distance midway between the 2 intersections along the baseline (Y = Y1) is the point at which the 90° perpendicular to the object can be measured (i.e. offset) on the base line.



4.5: The swing method

The above methods provide a good degree of accuracy if done precisely but are time consuming and may give a degree of accuracy that is unnecessary for small scale plans and here the **swing method** may be applicable. This is best done with two people.



The swing method: shortest distance = perpendicular

Hold the end of the tape at the point to be measured (X) and stretch it back to the base line or grid line at a rough 90° then swing the tape from side to side (Z+ or Y+). The point where the measurement to the base line is shortest is the perpendicular and gives both the measurement out to the object (Z or Y) and that along the baseline (=Y or =Z). If operating from a grid, higher accuracy can be achieved by carrying out the process in both directions and only using the perpendicular measurements in each case (Z & Y). This will double the time the operation takes so should only be done if higher accuracy is needed.

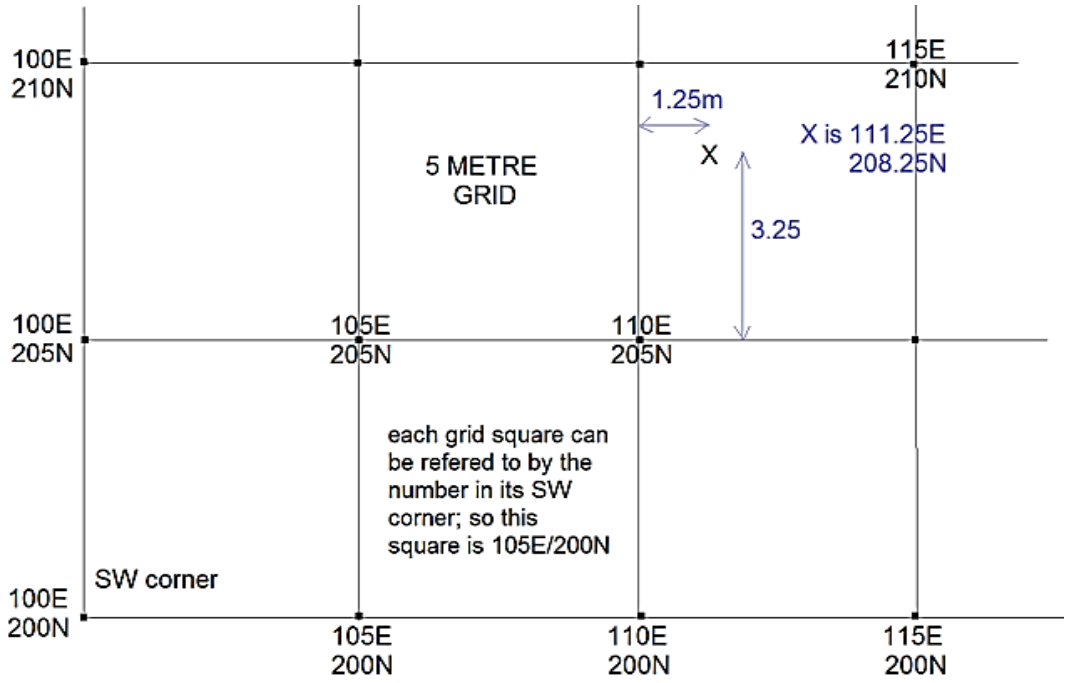
The posts in the corners of your grid square should each have either a national grid reference or more commonly an arbitrary site grid reference marked on them and therefore the measurements Y & Z can now be referred back to a corner to tie the object (X) into the grid. If a site level is taken of the object as well (see sections 4.7-4.9) you will have located the object in 3 dimensions.

4.6: Site grid referencing & coordinates

Whilst it is possible to reference a site grid direct to the National Grid (NG) it is often quicker and clearer to set up an arbitrary site grid and then tie the whole grid to the NG. **A site grid and therefore the site plan is no use if you don't know where it is!**

On our sites, grid **coordinates** are started from the **SW corner** (i.e. the corner closest to SW) with an **Easting** (divisions along grid) of **100m** and a **Northing** (division up grid) of **200m** and subsequent grid posts laid at **5m or 10m intervals**, to provide a 5m or 10m grid repsectively.

In the example below on a 5m grid, a **point X** has been measured in using the swing method to 1.25m out from the eastern axis and 3.25m up from the northern axis of grid square 110E/205N. Adding these measurements to the grid reference of the SW corner of the grid square in which the point is located, gives the **site grid coordinates for X of 111.25E** (east) by **208.25N** (north)**.**

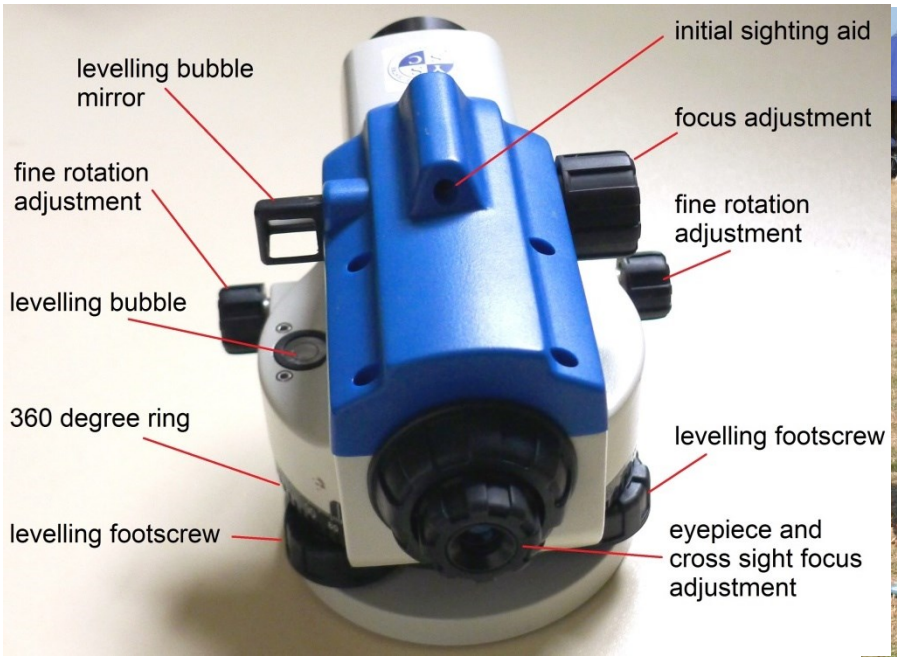


We use a different starting number for eastings (100) and northings (200) so that even if recorded wrongly, i.e. 208.25**E**/111.25**N**, we can instantly see the mistake and transpose the numbers. We do not start at 0 for either eastings or northings in case the trench has to be extended west and/or south giving negative grid references, which can cause confusion.

4.7: Site levels

Whilst the levels taken on site can also be to an arbitrary fixed point or **'temporary bench mark (TBM)** of say 10m, it is best to set a TBM that is the actual level of a set point above sea level or **above Ordinance Datum (AOD)** from the start. For Great Britain zero or **OD** as set by the Ordnance Survey is **ODN** (**Ordnance Datum Newlyn**), defined as the mean sea level at Newlyn in Cornwall between 1915 and 1921. In this way all altitudes in England are referred to one point and are therefore comparable. At CAP we arrange for at least two TBMs on the top of short stakes, well secured in the ground, using survey quality GPS equipment. These TBM are tied to the NG and also measured into the arbitrary site grid. These 2-3 immovable GPS points then give enough reference points to triangulate our site grid to the NG in case we are unable to get the actual grid subsequently referenced by GPS (it's always good to have a back-up to the unpredictability of satellite-based technology). **The TBM is used to set up all forms of levelling equipment** (**beware anyone who knocks into it**)**.** Subsequently when GPS is available we locate every site grid post to the National Grid as well so that the site is fully located.

4.8: Levelling with a surveyor's (dumpy) level



The 'dumpy' level is a basic yet highly reliable and robust piece of equipment, which crucially requires no batteries or overnight charging for it to work. It comprises a sighting telescope with attached levelling bubble, 3 levelling footscrews, 360° marker plate, focusable eyepiece, sighting focus adjustment, precision rotation adjuster, main cross hairs (cross sight) to read the measurement from the staff, 2 short cross hairs (stadia) only used to take an approximate distance to the staff (cms between the stadia on the staff being equal to metres in distance).

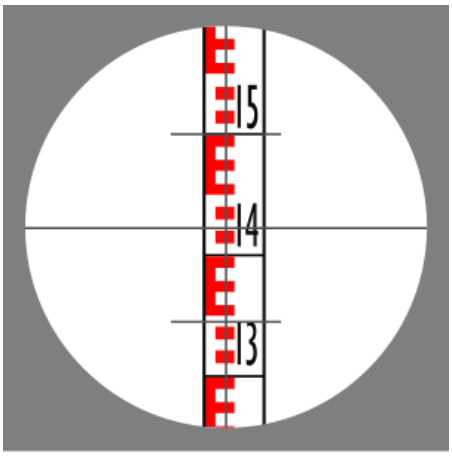
The dumpy is used on a tripod and firstly has to be levelled by twisting the 3 footscrews until the levelling bubble is in the middle of its ring. Test it's level by turning at right angles: the bubble should stay centred. Adjust the eyepiece focus so you can see the cross hairs clearly.

Tips: *1. get the tripod top as level as possible before attaching dumpy.*

2. do not set up the dumpy too close to TBM or you will not see the staff measurements

3. make sure the dumpy is in a position where you can see all the site and where no part of the site will be above the 'sighting height'

You now need to establish the height of the cross sight (sighting height) against datum. Get your partner to hold the staff on the TBM and look along the sighting aid on top of the dumpy and turn it manually to line up with the staff. Then look through the eyepiece and use the focus adjuster to bring the staff into focus whilst alternately using the rotation adjuster to move the line of site from side to side until you can clearly see the staff. You then need to read the measurement from the staff. Most staffs are marked in an E design with each E being 5cms and each division (white, red & black) being 1cm. The staff is divided into 10cm bands with the height shown metres e.g. 1.4. The measurement on the example is just above 1.42. Most measurements taken on site are taken to the nearest whole cm although we do take them to



0.5cm if the cross sight is clearly in the middle of a division. This first process is called taking the **backsite**.

To obtain the sighting height above datum you must ADD the backsight to the TBM. If the TBM was 7.085 AOD and your backsight 1.420 your sighting height (*or height of collimation*) would be 8.505 above sea level. This height is used to calculate all subsequent reduced levels until the dumpy is moved to another location.

To get the height of a place or object on the site get the staff held on the point you want and take a reading as per above. This is called a **foresight** and the measurement you have taken is the distance up the staff from your required level. You therefore have to **SUBTRACT this measurement from the sighting height to obtain the reduced level** (the level AOD of your object). So, following on from the example above if your foresight was 4.355 then the reduced level would be 8.505-4.355 = 4.150 AOD. If this was point X from Section 4.6 above then you would have located, it in 3 dimensions to the site i.e. 111.25m east by 208.25m north by 4.15m AOD and be able to compare it to any other point or object similarly recorded on the site or elswhere.

These measurements are recorded in the Site Levels Register which obligingly carries a reminder to the arithmetic needed to calculate the various sights, as shown below: -

CAP CULVER ARCHAEOLOGICAL PROJECT

SITE LEVELS SHEET for BRIDGE FARM 2015

Code: BRF15 TBM 7.085 *** Sheet No.***1*

Datum plus Backsight = Sighting Height: Sighting Height Minus Foresight = Reduced Level

No.	READING	SIGHTING HEIGHT	REDUCED LEVEL	GRID CO-ORDS	LOCATION/WHEN/WHO
1	*1.420*	*8.505*	*------*	*-------*	*8th July 2015 - DHM Backsite to TBM 7.085**
2	*4.355*	*8.505*	*4.150*	*111.25/208.25*	*Tying in point X - DHM*

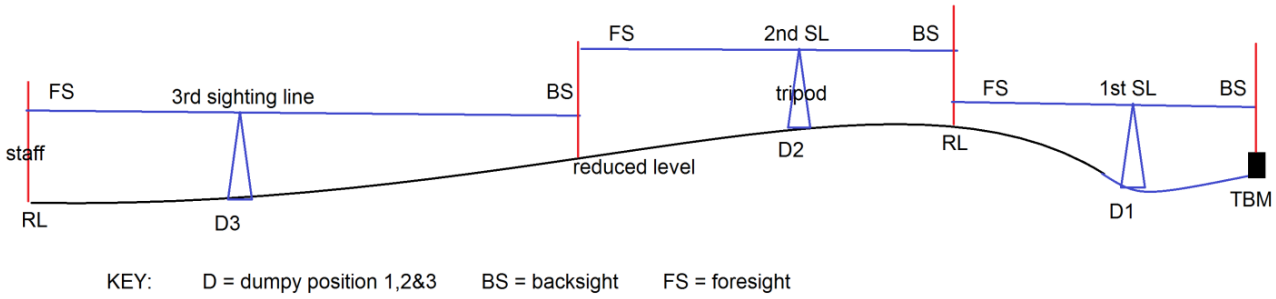
**NB. This is a fictional TBM the real one will be marked on the post and on the Levels Sheet*

4.9: Using a Dumpy to record a traverse

Another use for a surveyor's level is when you want to get a series of levels across a piece of land to bring a TBM to a new location or produce a profile of the ground. First set up the dumpy as above, taking a backsight to the TBM and foresight out to the staff (1st Sighting Line). The staff must then be left where it is although turned through 180° to face the 2nd dumpy location. The dumpy is then moved to the new position (D2) in the direction you wish to traverse and after being levelled a backsight is taken to the staff in its first position. The new sighting line of

the dumpy is now established and so the staff can now be moved to a new position further along the traverse and the procedure repeated until the traverse is completed.

NB. Never move both staff and dumpy at the same time or before taking a reading.



Having reached the desired destination, the preferred procedure is to traverse back to the starting point (closing the traverse) and if all has been done correctly then the last reduced level will be the same as the TBM level at the start.

Traditionally TBMs were set up by making a traverse from the nearest OS bench mark. Location and height details of these are listed on the OS website. They are often situated, as at Barcombe, on the village church or similar prominent and permanent locations and usually appear as a line above an upward facing arrow carved into the fabric of the building.

The line is the bench mark. If you do not have access to accurate GPS equipment (handhelds are not sufficient) then making a traverse from a known OS bench mark could be your only alternative to having to use an arbitrary TBM.

4.10: Using the stadia and degree ring on the dumpy to undertake a rough survey

If you want to undertake an approximate survey of something like a group of indistinct barrows, you can produce a reasonable result fairly speedily with just 2 surveyors. This is done by taking readings off the staff in the normal manner but adding the distance between the 2 stadia lines x 100 and the direction of sighting from the 360° horizontal ring. You also need to site in several (at least 3) OS locatable points such as field corners or buildings so that you can locate the position of the dumpy and thereby the surveyed features to an OS base map. Alternatively a hand-held GPS would be sufficient for the degree of accuracy required for this type of survey.

Tip: *Start with sighting your fixed location points and make one of them at 0° on the dumpy or you could set the dumpy up with a compass turning the 0° mark to magnetic north.*

4.11: The Total Station – what is it?

A total station is a piece of equipment that combines a theodolite (an instrument that measures angles), with an EDM (Electronic Distance Meter) that measures distances with a laser: angles are measured in degrees, minutes and seconds, and distances in metres & millimetres. Each total station has its own idiosyncrasies. Basic instructions for the SOKKIA SET630RK, the TS currently owned and used by CAP, are provided below with practical instruction sessions given on site. The manufacturer's manual is clear and also worth reading (see 4.12.1).

The TS speeds up regular site measurement such as locating special finds and sections but is only as good as its setup and so **a check of two known points must always be made after setup** or long periods of non-use, especially in windy conditions.

4.12 SOKKIA Series 30RK Total Station – setting-up and use.

4.12.1. Know your machine:

These directions will use the names given in the diagram below taken from the SOKKIA Series 30RK total Station Operator's Manual.

Manufacturer's Manual: ideally read through at least the relevant parts of the SOKKIA Series 30RK operator's manual which is both clear and very helpful. Download from https://www.scribd.com/doc/205256016/Manual-Sokkia-Series-30rk-Set230rk-Rk3-Set330rk-Rk3-Set530rk-Rk3-Set630rk-En

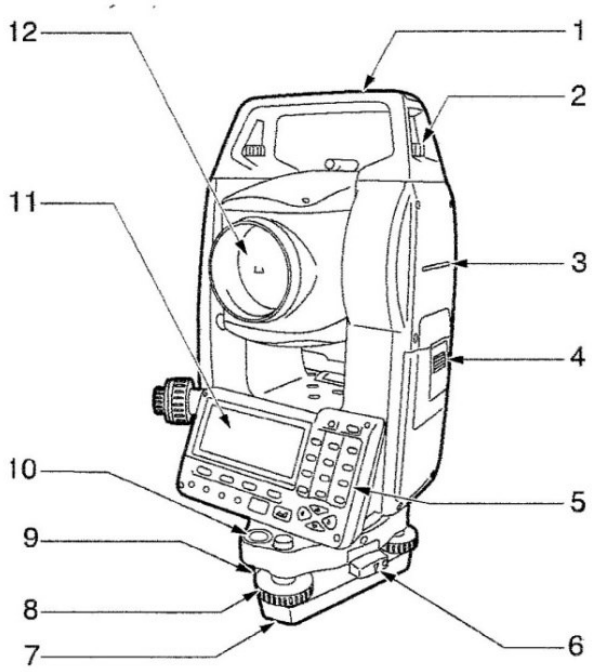
4.12.2. Before you begin

Total Stations are battery powered: so check at least 2 hours before starting that you have a fully charged battery and also charge up the spare.

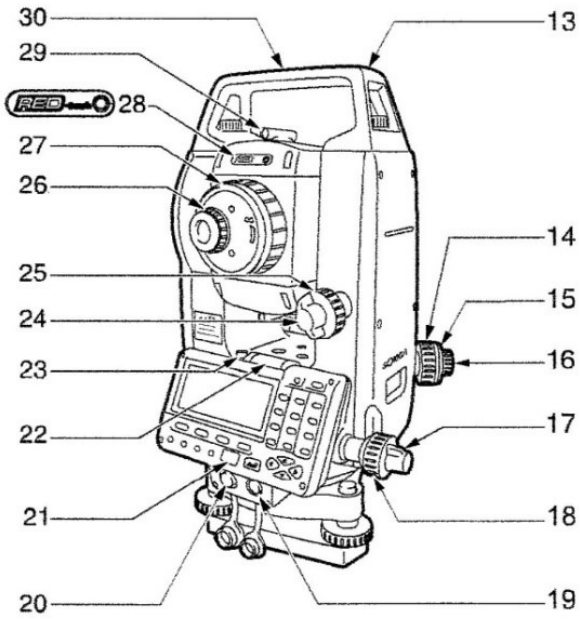
Total Stations use laser beams: always operate the instrument to avoid striking anyone in the eye. Do not point the laser at mirrors, windows or highly reflective surfaces as the reflected laser could cause serious injury.

4.12.3. Manual levelling procedure

Set up the tripod as level as possible and with a view to attaching instrument at a convenient height for all operators and centred over the site TBM (I find using the plumbob and spirit level to get the tripod level and centred makes levelling the instrument much easier). Attach the instrument loosely, but securely using the tripod centre screw. Use the ***optical plummet eyepiece (16)*** to target the TBM.

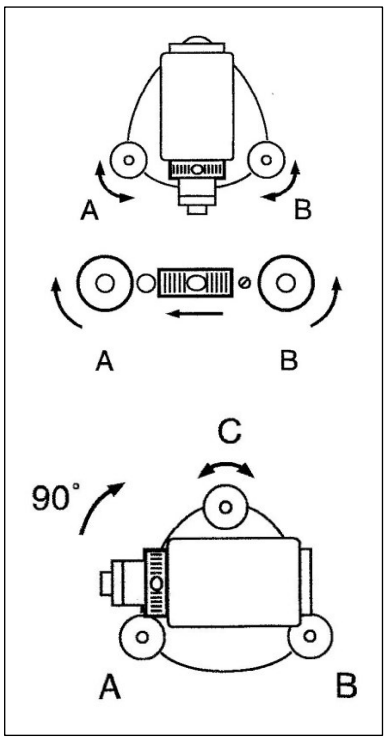


1 Handle
2 Handle securing screw
3 Instrument height mark
4 Battery cover
5 Operation panel
6 Tribrach clamp
7 Base plate
8 Levelling foot screw
9 Circular level adjusting screws
10 Circular level
11 Display
12 Objective lens (Includes Laser-pointer function)



13 Tubular compass slot
14 Optical plummet focussing ring
15 Optical plummet reticle cover
16 Optical plummet eyepiece
17 Horizontal clamp
18 Horizontal fine motion screw
19 Data input/output connector (Beside the operation panel on SET630RK)
20 External power source connector (Not included on SET630RK)
21 Beam detector for wireless keyboard (Not included on SET630RK)
22 Plate level
23 Plate level adjusting screw
24 Vertical clamp
25 Vertical fine motion screw
26 Telescope eyepiece screw
27 Telescope focussing ring
28 Laser radiation warning indicator (Not included on SET230RK /330RK/530RK/630RK)
29 Peep sight
30 Instrument center mark

Centre the bubble in the ***circular level (10)*** by either shortening the tripod leg closest to the off-centre direction of the bubble or by lengthening the tripod leg farthest from the off-centre direction of the bubble. Adjust one more tripod leg to centre the bubble.

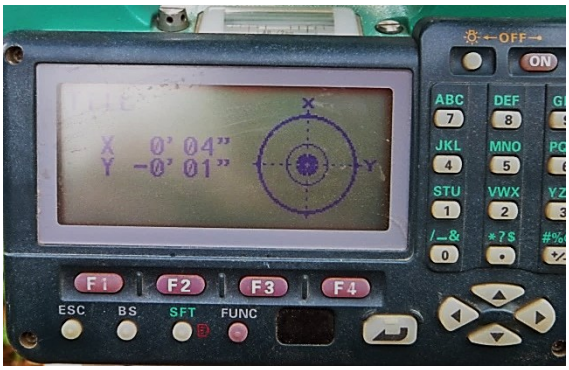


Turn the ***levelling foot screws (8)*** while checking the circular level until the bubble is centred. Use the ***optical plummet eyepiece (16)*** to check that the TBM remains centred.

Loosen the ***horizontal clamp (17)*** to turn the instrument until the ***plate level (22)*** in parallel to ***levelling foot screws*** **A and B** (see diagram). Centre the air bubble using ***levelling foot screws*** **A and B** simultaneously. Turn the instrument through 90° and centre the air bubble in the ***plate level*** by turning ***levelling foot screw*** **C.**

Loosen the tripod centre screw slightly and looking through the ***optical plummet eyepiece (16)*** slide the instrument over the tripod head until the TBM is in the centre of the reticule (crosshairs). Retighten the tripod centre screw securely.

4.12.4. Using the key board



Power on – press red **ON** button top right

Power off – **ON** button and adjacent ***light button*** pressed together

Lighting display – press the **light** button to the left of the **ON**.

Laser guide light – press and hold the **light** button until it beeps

F1-F4 - press to operate the function displayed on the screen immediately above each button

FUNC – press to toggle between **MEAS** mode screens

SFT – press to switch from upper to lower case and to numbers on key pad

ESC – press to cancel input data

BS – press to delete last character

↵ - press the **enter** button to select or accept

Use **up, down, left, right arrows** to navigate around the screen

4.12.5. Final levelling on screen

Switch on the instrument (press **ON**). The default screen should be the MEAS mode. If not, press **ESC** button to reach this screen. In [**MEAS**] press **FUNC** button and navigate to 2nd screen and look for [**TILT**] (2nd along the bottom). Press the **F2** button below [**TILT**] to enter the TILT screen. Turn the instrument until the telescope is parallel to ***levelling foot screws (8)*** **A & B**

then tighten ***horizontal camp (17)*** Try to get the tilt angle X & Y to as close to zero as possible by using minute adjustments of the ***levelling foot screws (8)*** **A & B** for the X display and **C** for the Y.

Press **ESC** button when levelling is complete.

4.12.6. Setting up the instrument

Press **FUNC** button to Toggle between the three [**MEAS**] screens until you see [**COORD**] in the bottom right and press the **F4** button to enter the [**COORD**] screen. Select [**Stn.Orientation**] by pressing the enter button. You can then enter or check the following data regarding the instruments location.

[**N0**]: type in the Northing coordinate of the TBM, toggle down

[**E0**]: type in the Easting coordinate of the TBM, toggle down

[**Z0**]: type in the height of the TBM above Ordnance Datum, toggle down

[**Pt**]: type in name of this position e.g. TBM2 or similar

[**Inst.h**] – type in the instrument height by measuring the height from TBM to the ***height mark (3)*** on the side of the instrument with a tape measure

Press ↵ (**enter button)** when all has been inputted correctly

This will bring you to a screen that asks for **CODE** and **OPERATOR**. These remain the same throughout the current season, e.g. **BF22** and **SITE**.

Press ↵ **(enter)** twice to confirm these entries.

The time and the date in the next screen are not relevant as we do not retrieve the data from the total station as they are kept as a written record- do not edit or correct these.

Use **F3** to select **[COORD].**

4.12.7. Setting a backsight to locate the instrument and taking further readings

As part of the total station set-up, it is now necessary to set the backsight. This must be done using another known point for which the coordinates and elevation are known. There should be at least one other TBM that you can use to do this.

On the current screen of the total station, input the backsight coordinates in the same way as previously.

[**N0**]: type in the Northing coordinate of the TBM, toggle down

[**E0**]: type in the Easting coordinate of the TBM, toggle down

[**Z0**]: type in the height of the TBM above Ordnance Datum, toggle down

Select **OK** by pressing **F4**.

Send someone with the prism to the TBM that you are using as the backsight. Ensure that the detail pole of the prism is set to **1.5m**.

Set backsight by pressing **YES** when ready to take reading *(see section 8 for how to adjust the eyepiece)*. Please note that the machine will **NOT** click when it takes the backsight reading.

Check that the total station has been setup correctly by taking an observation over one of the grid points *(see section 8)*. The reading should be as close as possible to the coordinates on the grid point and elevation should be logically reasonable when considering the location of the TBMs.

If this is not the case, you will need to go back and re-take the backsight reading. If it still does not work, you may need to begin the start-up process again or ask for help.

4.12.8. Taking a reading

Look through the telescope of the instrument at a featureless background and adjust the ***eyepiece screw (26)*** to focus the reticule so crosshairs are clearly visible.

Loosen the ***vertical (24)*** and ***horizontal (17) clamps*** and use the ***peep sight (29)*** to bring the target into the field of vision then tighten both clamps. Look through the telescope and focus it on the target by adjusting the ***telescope focussing ring (27)*** and turn the ***fine motion screws (18)*** *and* ***(25)*** to align the centres of the target and the reticule.

In the [**COORD**] screen toggle to [**Observation**] then press ↵ (**enter)** to take the reading.

The machine will click as it takes the measurement and the final coordinates and elevation to be written down will be displayed on the screen.

By pressing the **F2** button to go to [**HT**] you can check/alter the height of the target as shown on the prism pole (this is usually set at 1.5m at Bridge Farm). If you alter the height press **F4** for [**OK**] to accept the new figure.

REMEMBER TO CHANGE IT BACK TO 1.5m AFTER YOU HAVE FINISHED.

After completing your reading turn the Total Station off by pressing the **ON** and **Light** buttons simultaneously.

The following instructions are used if readings are being stored in the Total Station

[**REC**] records a measurement: [**AUTO**] starts measurement and records results after [**STOP**] has been pressed: Press [**STOP**] to quit a measurement

Remember that at CAP we do not store readings on the TS but write all measurements manually into the Site Levels file which is subsequently added to the site database.

Data taken from the SOKKIA Operator's Manual adjusted to CAP procedures with the help of Lindsey Banfield.

4.13: Survey Grade GPS devices

Increasingly site grids and TBMs are set out using a Survey Grade GPS device. They make and log 3 dimensional measurements from satellites and allow a single operator to walk freely around a site taking and recording locations. This is not only less prone to human or accumulative error but is also remarkably quicker; the only problem being the cost and therefore access to such devices. Equipment comes in many forms and price ranges although none are currently affordable for a small volunteer unit such as CAP. There are many makes including Javad, Sokkia, Leica and Trimble amongst others.

Fortunately, we have contacts with a few people who have access to survey grade equipment, including Javad and Trimble devices, who are able to setup our site TBMs and plot the trench and site grid posts accurately.

The screen and controls of a Javad Triumph-LS survey grade GPS device

4.13: Further reading for traditional surveying

Coles, J. 1972. *Field Archaeology in Britain,* pp. 60-117. Methuen (buy second hand if cheap).

Drewett, P.L. 2011. *Field Archaeology: An Introduction.2nd ed.* Ch.4. Routledge.

5: Less intrusive methods of investigation

Before even considering any form of intrusive investigation, of which excavation is by far the most destructive, less or 'non'-intrusive methods should be undertaken.

5.1: Desk Based Assessment (DBA)

The first of these is a thorough DBA. This involves a search of the local Historic Environment Record (HER) which in our case is hosted by the East Sussex County Council at The Keep, Woollards Way, Brighton, BN1 9BP,
(see http://www.thekeep.info/east-sussex-historic-environment-record-her/)
Another good source is the digital index of the Sussex Archaeological Collections (SAC) which is available on the Sussex Past website at http://sussexpast.co.uk/research/sussex-archaeological-collections/sac-database with all but the last 2 volumes now available from ADS at https://archaeologydataservice.ac.uk/library/browse/series.xhtml?recordId=1000229
The museum and library at Barbican House, High Street, Lewes, have many original documents and artefact collections as well as an unparalleled local collection of reference books including the complete SAC. Enquiries of the County Archaeologist, Sussex Archaeological Society Library and local Portable Antiquities Scheme Finds Liaison Officer will quickly check if any work has been undertaken on the site you are researching.
Previous research is there to be used, although it should always be regarded with some caution until proved reliable. I once carried out a survey in a field that both HER and SAC reported finds of Roman tile only to find out later that the National Grid Reference was recorded incorrectly; the tile site was a kilometre south; it pays to be sceptical of even reliable sources!

5.2: Field-walking

This can only be undertaken on ploughed, preferably harrowed, soil. It can range from casual walking and observing, where concentrations of relevant materials are noted and approximately located, to systematic collection of material from a tightly laid grid for subsequent careful analysis and interpretation. Field-walking is often undertaken in tandem with systematic metal detecting to increase the range of finds collected and geophysics to increase the information gained.
An initial field walk will often be done by walking transects (lines) and collecting from a set distance on each side of the line. The line should be divided into set divisions (e.g. 20m) and the finds for each division bagged separately. A 4m strip allows walkers to take one step each side within an area which can be easily observed from the line. A set time must be established for each division and all parties moved on to the next division so that a balanced sample can be obtained. **Field walking is normally undertaken to sample a possible target area not for the collection of artefacts**. For economy of time and personnel an initial survey may be done at 40m intervals collecting 2m each side i.e. 4m per transect giving a 10% sample. This does not preclude subsequent collection on the intermediate 20m lines to give a 20% sample if results

of the initial survey suggest this to be desirable. Initial surveys can be done by pacing the divisions after getting everyone to measure their standard walking pace over a set distance. You can even use the tramlines left by farm machinery for transects once you have established their average distance apart. All transects must be tied into locatable features e.g. field corners, buildings etc. or checked by GPS (hand held GPS units are fine for this level of accuracy).

In certain instances, the field walking sample is the final aim and a more intensive sampling regime is then put in place. For example, 2 people covering a 20m square for up to 10 minutes and collecting everything they discern as of archaeological interest. On a large field this would take both considerable time and personnel so would be done only if the aims of the project necessitated this level of search. It also turns a moderately non-intrusive method of investigation that leaves most of the archaeology intact into a fairly intrusive method which removes the majority of the archaeological record from the surface soil.

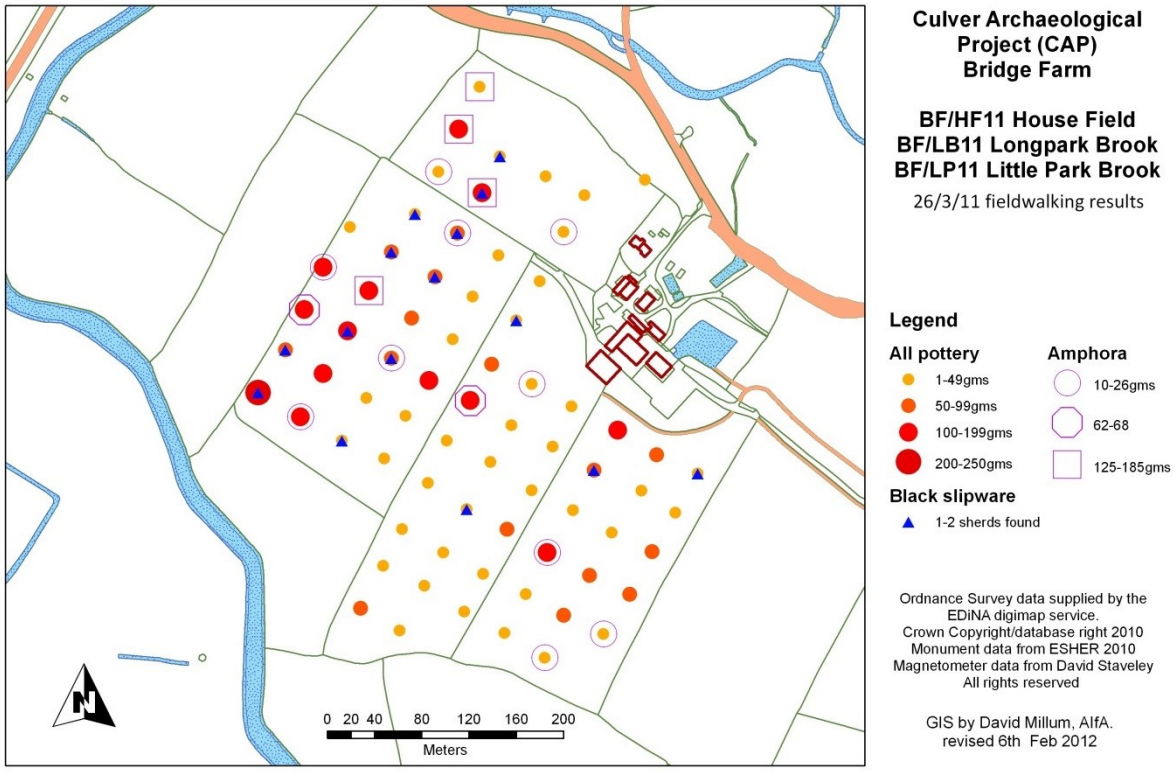
The resulting artefacts are then sorted into their respective types and tabulated using a spreadsheet to show the varying amounts collected from each division. To facilitate interpretation these results are then shown in the form of scatter diagrams on a base map of the area surveyed with icons to represent set amounts of artefact collected.

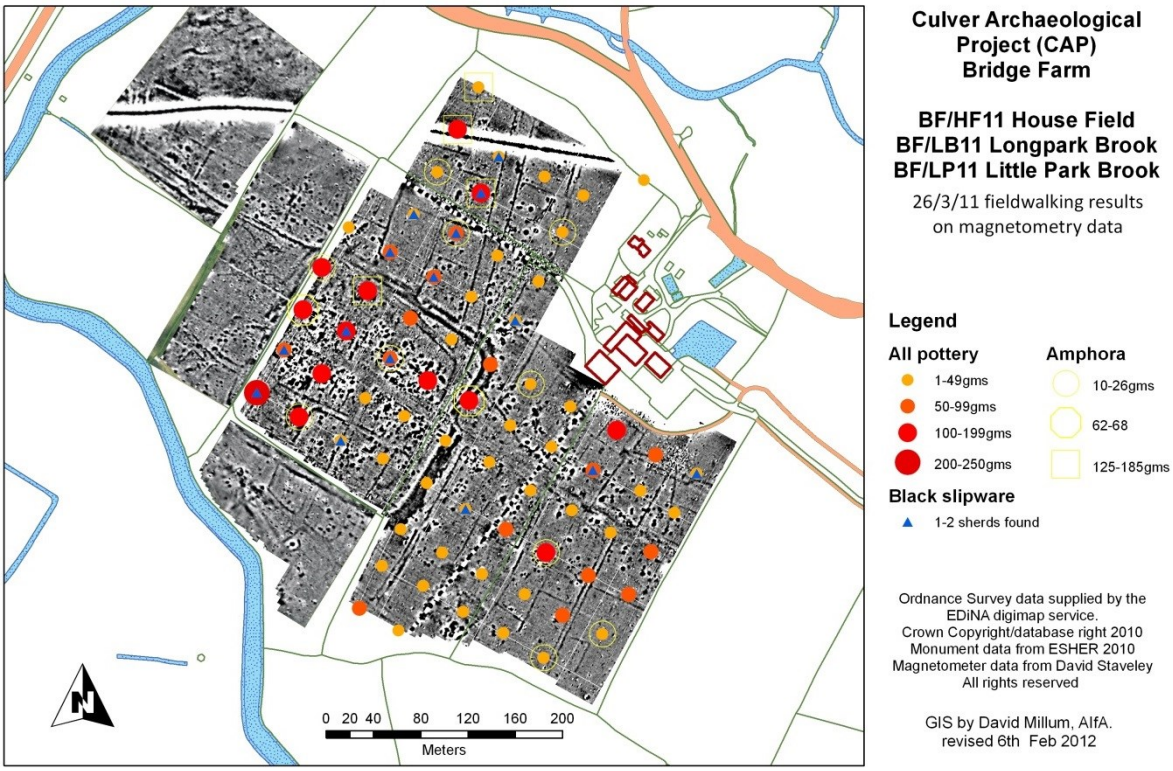
In 2011 a 40m x 4m transect field walk was undertaken on House Field at Bridge Farm using a grid laid out for a magnetometer survey and the results were plotted on **surface scatter diagrams** using a geographical information system (GIS) (see examples below). There are now some free downloadable GIS programmes such as QGIS which is available at http://www.qgis.org/en/site/.

5.3: Metal detecting

Whilst a lot of metal detecting is undertaken casually by individuals this can still be very valuable if the results are reported to either the project investigating the area or the local Portable Antiquities Scheme finds liaison officer (www.finds.org.uk). At Bridge Farm we were incredibly lucky to find David Cunningham, a local detectorist, who had for many years collected items from the site with permission of the previous landowner. He had located and retained all items collected and made them fully available for our inspection, recording and interpretation. His collection gave us an immense amount of information about the potential of the site as it included over 50 Roman coins ranging from c.90BC to AD380. Our introduction to him came from organising a systematic metal detecting survey of House Field with local detecting groups in 2012 which produced a further 19 Roman coins amongst other interesting metallic finds. The survey followed a procedure similar to that laid out above for the surface collection survey.

Metal detecting specialist are increasingly becoming part of the mainstream of archaeological research and many recent sites owe their discovery to a lone individual plodding across a muddy field in the height of winter and then being responsible enough to report the findings to the appropriate authority. Barcombe Roman villa is just one example.





*Scatter maps of the pottery sherds collecting in field-walking at House Field, Bridge Farm***.**

NB. *Amphora and black colour coat wares were chosen as the most readily diagnostic of the sherds collected.*

5.4: Geophysical surveys

Geophysics has become an essential tool for any archaeological investigation. It can often provide a clear indication of what is below the ground surface without having to damage the archaeology or take anything from the site except information.

The first thing needed for most geophysics is a grid in which to lay out the lines that must be traversed with the various types of equipment used (see Section 4.2). This will usually be a 20m squared grid for Earth Resistance and 40m for Magnetometry. Generally, the larger the area covered by your survey the better any anomalies will stand out against the background. A single 20m square can be virtually uninterpretable until matched with those surrounding it. This brief section is mainly about basic operations and is no substitute to reading the appropriate machine manual or more detailed instruction from sources such as David Staveley's Snuffler website http://www.sussexarch.org.uk/geophys/snuffler.html.

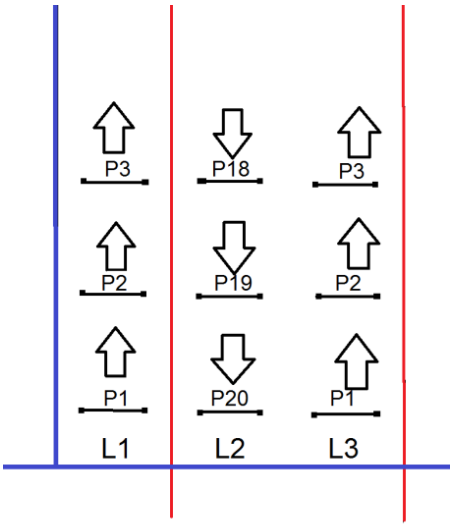
5.4.1: Earth Resistance Survey (aka Resistivity)

An Earth Resistance meter measures differences in electrical resistance and therefore shows those areas which are damper or dryer than others. This is ideal for hard (dry) structures such as road surfaces and wall foundations but will also show negative (damp) features such as ditches and pits. Because of this it does not work well in very dry conditions or on very porous, stony, soils.

Lines are laid out to assist the survey. The end lines at the top and bottom of the grid square have points marked every 2m starting at 1m. Between these points the tracking lines are laid out. These have points marked at every 1m starting at 0.5m. A different colour marker (black at Bridge Farm) indicates the zero and 20m points and these should lay over the two end lines. The starting half distances allow the squares to be joined together by the processing software with adjoining squares to give a continuous image of the complete survey.

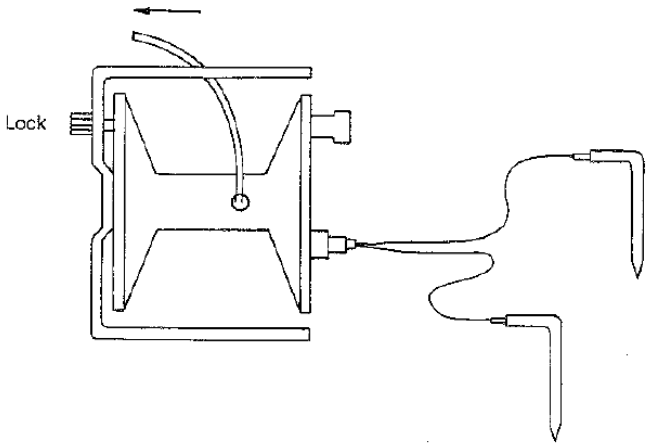
The team should have 2 people shifting the lines along the grid as the lines are completed. You will often find only 2 end lines and 2 tracking lines are supplied or sometimes none at all and you have to use tapes. At Bridge Farm we have 3 sets of end lines and 15 tracking lines enabling one and a half squares to be lined out ready to survey and help the lines crew to stay well ahead of the meter and wire operators.

Readings commence from this first 0.5m mark in the first 1m wide column (**G1:L1: P1**). On a 2 probe machine the gap between the probes is 0.5m so you should position the nearest probe about 0.25 (10") from the tracking line, but this is not critical. Continue up the line taking the first 20 readings. You will hear an electronic warble every time you take a reading except on reading 20 which should be 2 sharp notes. If not check your reading and if it doesn't say G1:**L2**:



P1 (the next point to do) then you will have to delete that line and do it again! If all OK, turn the machine round without putting it down and continue down the other side of the first line (L2) until you get to L2:P20 then turn and head back up L3 etc. Keep an eye on the readings to check that each has been logged especially at the end of each row. It is frustrating enough to have to do one row again without finding the display showing L18 when you should be on L20 and the only recourse is to scrap the whole square and start again. If you see a significantly different reading it is worth deleting it and doing it again, i.e. in case you have hit a stone. The probes should take a reading from being lightly pressed on to the ground without being pushed too far in or it could be a very long and tiring day!

Before commencing the pair of remote probes need inserting into the ground (one red and one black) at about 1m apart. It is important to always have these the same way round so make a note of which way you have set them up. I tend to always put the red probe to the right whilst facing the survey area. These remote probes have to be set up a minimum of 30 times the distance between the mobile probes (**15m for standard twin array)** from where the nearest reading position of the mobile probes will be. With the standard length of wire on the drum it is normally possible to set these probes mid-way along the second square and 15m out and be able to complete 3 squares before having to move them. It is a good idea to secure the empty drum so the probes cannot be pulled out.



Always start with the portable probes (the Resistance meter) in the identical corner of each square. Make a note of this on a rough sketch showing the grid and number them in the order completed. I tend to opt for the bottom left of both the squares and the grid. Without the order and staring point you will not be able to plot your results correctly when you download them into the processing software such as 'Snuffler'.

A wire runs from the remote (stationary) probes to the portable probes and this can get tangled so always have someone feeding and controlling the wire as the RES' meter is moved up and down the lines. The ends of the wires have unique connectors as well as labels by the connections to help you wire up the meter correctly. Make sure that the logger is screwed

firmly onto the frame as it will have to take quite a lot of vibration whilst being used. The res' meter you will use at Bridge Farm is likely to be a basic Geoscan RM15 twin electrode probe array.

Always leave the logger on battery charge overnight before the day of the survey.

Switch the logger on using the knob on side to the **'ON/Internal battery'** position.

The word ***Initialising*** will be displayed followed by the display shown in the box on the right:

32 ohms	
PA1	**1mA**

If it says ***open circuit,*** then check the wiring especially the remote probes in case one has become unconnected. In the example above the meter is reading 32 ohms.

(This guide is for general use of the machine for setup please see the Geoscan RM15 manual)

Now study the keypad of the logger below:

FINISH LINE +	**IMAGE LINE 0**	**DUMMY LOG 1**	**LOG 2**
ENABLE LOG -	**CLEAR MEM ← 3**	**DELETE LINE → 4**	**DELETE 5**
ENTER	**↑ 6**	**↓ 7**	**MODE 8**
CANCEL	**DUMP**	**MENU**	**START 9**

Press **ENABLE LOG** to go into logger display mode and the message should change to one similar to that on the right:

32 ohms		
G 1	**L 1**	**P 1**

This indicates that the machine is ready to read position one **(P1)** of line one **(L1)** of grid one **(G1).** Whilst this display will tell you the last ohms reading on the top line it indicates the next point to be taken below it.

If you are sure that the previous user has 'dumped' their readings (i.e. saved them), then press **CLEAR MEM;** this will clear all previous readings from the logger. Press the **START** button to enable the autolog and a capital **A** will appear in top right of the message screen. Take the first reading and the righthand indicator on the bottom line should become **P2.**

If you want to delete one reading and take it again then press the **DELETE** key. If you mess up a line press **DELETE LINE** and display will go back to P1 of that line.

Sometimes you cannot physically take a reading due to an obstruction. In this case press **DUMMY LOG** to get a single dummy reading. If you cannot complete a line press **FINISH LINE**

to produce the rest of the line as dummy readings and if you want to start the next line at the same point along that line, then also press **IMAGE LINE.**

For more details on using a RM15 or later model machines see the pdf manual online at http://www.geoscan-research.co.uk/page22.html.

5.4.2: Magnetometry

Extracted from Staveley. D, http://www.sussexarch.org.uk/geophys/geomag.html

The other commonly used piece of equipment is the magnetometer. It is more expensive to buy and somewhat trickier to use, but is favourite with a lot of people because you can do a survey a lot quicker than with a resistance meter.

Magnetometers measure the local magnetic field strength, as well as the Earth's magnetic field. Many archaeological features have a measurable magnetic field; burning will cause substances to become magnetised, metals such as iron have a strong magnetic field, and even the fill of a ditch will show up because there are magnetic particles in soil. Because there is no contact between the ground and the instrument, a survey can be done by just walking along a line at a set pace. This allows more readings to be taken in less time than with the resistance meter. Rather than pressing a button to log a reading, modern meters take readings at pre-defined time intervals, so the user must walk at a fixed rate to the rhythm of a beep per metre. A bit of practice is needed as this is not as easy for beginners as handling the resistance meter. A magnetometer is not affected by groundwater so surveys can be taken throughout the year, but certain magnetic bedrocks will render the machine useless, as will iron fences and power cables. The operator has to dress metal free which can be difficult as even joggers often have metal zips on pockets. They are not good at picking up walls, unless there is a substantial foundation trench or the wall is comprised of a burnt material such as bricks.

The main commercial machines used for archaeology are both Fluxgate Gradiometers, the FM256 by Geoscan Research and its predecessors, the FM36 and the FM18, were until recently, used by most people. There is now a cheaper, but still expensive option on the market in the form of the Grad601 by Bartington. Both meters come in two gradiometer options so you can take two sets of readings at once, thereby increasing the speed of your surveys.

Because of the directional sensitivity to the Earth's magnetic field, fluxgate gradiometers need to be balanced, so that both sensors in the gradiometer column provide an equal response to the ambient field, whichever direction they are facing, otherwise you could get a different reading at the same spot simply by turning slightly. This balancing should result in a background

reading of zero nT. This state is achieved by finding a magnetically quiet spot in the survey area, to use as a 'Zero point'. It is important that this spot is magnetically quiet, as the device will not be able to be balanced correctly if there is a significant magnetic signal in the ground in addition to the Earth's magnetic field. Such a spot is found by wandering around with the device in scanning mode and finding a spot where the reading doesn't change significantly over a small area.

Once such a spot is found, the device can be balanced. This involves using a compass to set up non-magnetic pegs at the four cardinal points, and going through the balancing process as specified for the individual machine. This process differs by manufacturer, and will be described fully in their manual. Older machines will have a manual balancing process that involves turning knobs to adjust the orientation. This can be difficult, and the resulting setup is not usually very stable, as knocking the machine can have an effect on the balance. More modern machines have fixed sensors, and balance electronically, which is a lot simpler and a lot more stable. Once the machine is balanced, the zero point pegs should be left in place until the survey is done, as rebalancing the machine during the survey is often needed. Rebalancing may be needed due to the machine being knocked; thermal drift, where the temperature of the sensor changes and give a different reading, or because the survey is being conducted over several days. It is worthwhile keeping an eye on the readings whilst surveying, which should hover around zero nT. If you survey a line where the readings hover around 1 or 2 nT, for example, then return to the zero point at the end of the grid, and rebalance it.

Whilst it is possible to take individual readings manually with a magnetometer, for a survey of any size that would be frustratingly slow. Generally, the method of collection involves the machine taking readings at a constant rate over time. For these readings to be correctly assigned to their proper place in the survey results, the machine needs to know where it is. For any given line in a survey grid, the process works like this. Firstly, before the survey is started, the machine is told how big the survey grids are. Both how many lines, and how long the lines are. Magnetometry grids tend to be 30x30m or 40x40m, as you are not restricted by remote probe cable. Once the machine is set up to know how big the grids should be, the survey can begin. A button is pressed to start a line, and the machine will start taking readings. It will also beep at a constant rate, once when the line starts after the button is pressed, and again for each metre along the line you are travelling, until it gets to the expected end of the line. The operator’s job is to match the beeps to the real distance travelled along the ground, usually by following metre marks on an adjacent string laid across the grid. Once a line is finished, the next line is started, usually in a zig-zag pattern rather than starting at the beginning of the line again, until the grid is finished. Whilst the machine will only beep once per metre, that is not when it is taking its readings, the beeps are purely for the operator’s benefit. Magnetometers can take several readings per metre, with four being pretty standard, though this is usually adjustable,

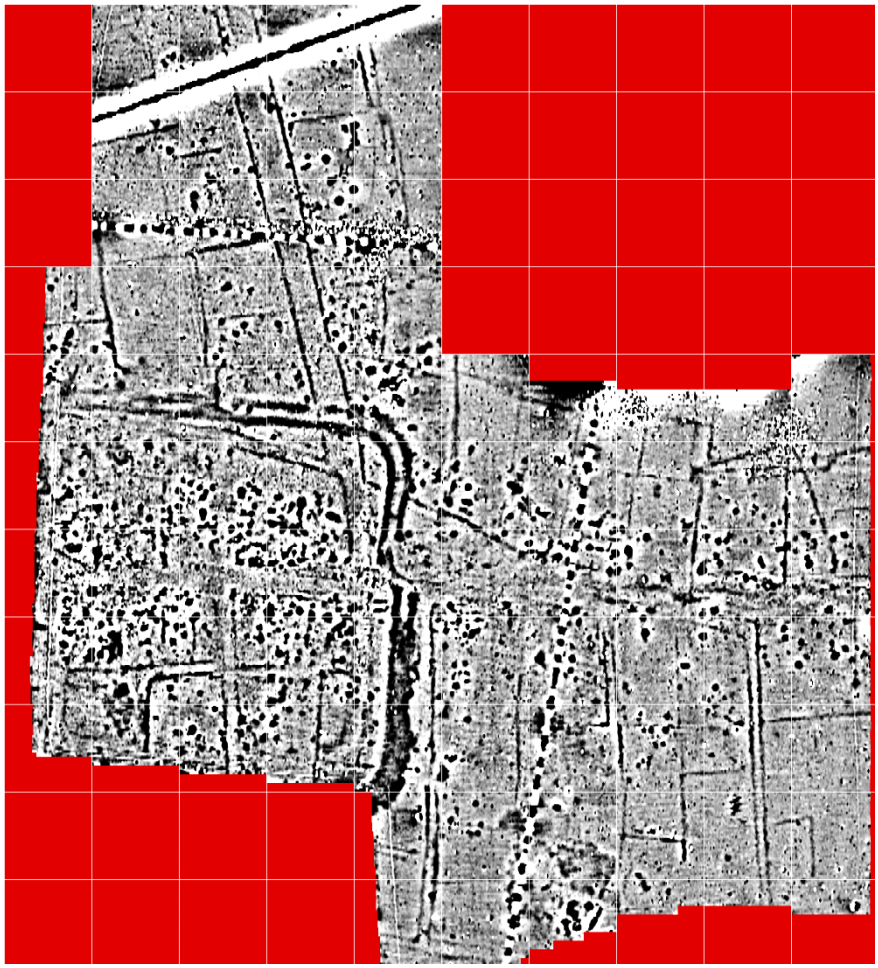
so in between each beep it will be taking a number of readings. For most surveys, the lines are 1 metre apart. You need to remember to take readings in the middle of the line.

It would be nice, if in the course of a grid, no obstacles were ever encountered, but in the real world, there are things like trees and funny shaped partial grids. Readings can be stopped at any time along the length of a line. You can enter dummy readings, as with the resistivity meter. You can fill the rest of the line with dummy readings if you have come to a fence, or you can enter a few to get past a tree, and then resume the survey. When entering just a few readings and resuming the survey of a line, you must remember how many readings per metre the machine is set to record. For example, if the machine is recording 4 readings per metre and you want to move on 3 metres to get past a tree, you need to enter 12 dummy readings.

5.4.3: Dumping data and plotting images

At Bridge Farm we have had a long and very fruitful association with David Staveley who developed his own software for processing geophysical data called 'Snuffler' which has produced fantastic results for us and which we have no hesitation in recommending. For dumping and processing the survey data and for the free download of the software please see the full instructions on David's excellent Snuffler website.

http://www.sussexarch.org.uk/geophys/snuffler.html



The initial magnetometer plot from Bridge Farm in 2011 as produced using the 'Snuffler' software written by David Staveley who also undertook the survey (40m grid)

6: Excavation - The Basic Methodology

6.1: Removing the overburden

Mechanical diggers are quick but incur cost of hire and delivery. Clearing by hand, using heavy hand tools, is much slower and so costlier on commercial projects but often favoured by volunteer and student units or on sites where machines are not practical, not allowed, or where the archaeology is very shallow. **The size of the excavation usually dictates the size of machine.**

6.2: Common Machines

The largest types used are **7 to 25 ton tracked excavators** with 360˚ rotation of arm. Tracks are good over rough terrain and spread the weight on wet ground; there are also no tyres to puncture. They can slide on steep grassed slopes. Tracked vehicles must be delivered by low loader at additional cost and requiring good access.

Wheeled JCB-types always used with back arm and usually with 1.6m wide smooth bucket unless going through tarmac etc. when a toothed bucket is used. Wheeled machines can be driven to site but if a tyre gets punctured they become expensive in time and money. They have a higher centre of gravity so can be less stable.

Tracked mini diggers are useful on restricted sites but otherwise not favoured.

Never stand down-slope of any machine. Stay outside the widest arc of the arm. Alert the driver and get the arm into a stationary ground position before entering the trench, even for that 'gold hoard'!

6.3: Services

Find out if any services (gas, water, electricity, drains) are running through the site. Use a CAT (cable avoidance tool) to scan the site and locate services after making pre-excavation enquiries of service providers. Service plans are not always accurate so look for inspection chambers and other site hardware.

Check for contamination on 'brown field' sites and if required use face masks, gloves and other protective clothing.

It is a good idea to quickly metal detect over any area to be excavated both as a final services check and to recover any artefacts in the top soil that would otherwise be removed with machining the overburden.

6.4: Trial trenches (evals):

Initial trenches often of 1m width, or 1.6m if machined, are dug at strategic points to **evaluate** the site and the state and depth of the archaeology. '**Evals**' can also be used as the full excavation if the aims of the project allow e.g. sections across a Roman road.

6.5: Open area excavation:

This is now the standard technique in the UK for research projects. It allows large areas to be interpreted and is particularly suited to sites such as Saxon timber buildings, where a range of post holes must be seen for the structure to be recognised. However, it is time consuming, expensive, can be very destructive and provides a vast amount of recording and subsequent post-excavation work. It should only be undertaken if an extensive post-excavation programme is feasible and funded.

6.6: Single context recording:

Archaeology is based on stratigraphy or layers where the lowest is deemed the oldest. Each different layer, structure and fill is given its own context number. The interfaces between features, e.g. the cut of a ditch or surface of a floor, also have their own context number. Features such as walls are often given an overall context number as well although at Bridge Farm we use specific Feature Numbers (i.e. F39) to define specific features such as buildings, ditches and larger pits. This allows all the context numbers for a specific feature to be easily found. There is more guidance on this and how they are recorded in **Section 8**.

6.7: Basic method of all excavation:

All excavation is done towards you, moving backwards, whether by 25ton machine or hand trowel. **Do not tread on ground just excavated or cleaned** and keep all equipment, e.g. bucket and finds tray, behind you; then work backwards thus avoiding trampling over the area you have just worked.

Never dig blind; clear your spoil regularly and use your eyes and ears as much as your hands.

Dig small: think big; think how your small area of excavation will fit into the greater picture of the interpretation of the site, then add your thoughts to the context record.

6.8: Large hand tools

Pickaxe: Good lever and will break through compacted stony ground – but digs deep and irregularly. No good for cleaning back a surface.

Mattock: Flat blade is used to break ground or to shave away layers as little as 20mm. Vertical blade can be used to roughly trim sides of a trench. Gripped with both hands and with feet wide apart and never lifted above waist height. Check that

the handle is secure before use as the head is designed to slide down the handle to lodge at the butt end. If loose submerge in water to swell the butt end of the handle. At CAP training sessions are given for proper use of this tool.

Spade: Flat blade types are best; use vertically to edge trenches and horizontally to lift turf. **Not ideal for shovelling**.

Shovel: Used horizontally for shovelling spoil into a wheelbarrow. It can even be used for removing water from a trench. Always leave face down when not in use. **Not a cutting tool**.

Fork: Rarely used but useful in very stony ground or for passing hose pipe though the handle to keep it off a cleaned trench surface.

Hoe: Effective tool to quickly clean large areas instead of trowelling and for weeding the site. To be effective use with hands down the shaft rather than at the top end.

Wheelbarrow: Used to take spoil to the heap. Bend knees when lifting. **Do not overfill,** you may be the one required to move it. Check that the tyre is fully inflated before taking on site – **a flat-tired wheelbarrow is hell to push and doesn't do much for the tyre**.

6.9: Finer hand tools

Finds tray: This is one of the most important items you need to take on site (remember each context needs a separate tray unless you have marked finds bags). **Find out the context** number you are digging so you can label your tray/bag. On new areas a number may not have been allocated – it is **your** responsibility to see that the finds supervisor knows where the finds have come from so that a context can be issued for it. **Finds, no matter how important, become archaeologically obsolete if they are not kept in context.** If you have any doubt about any object's relevance put it in the tray, it can always be discarded later.

Note book and pencil: I would also put this high on my list. Note down your contexts and any observations you have whilst digging, these can be refined and added to the context record form. Your observations whilst digging are a once and only resource to later interpretation.

Trowel: Ideally 4" blade forged in one piece of steel; trowels with welded-on blades quickly break and are too flexible. This is your most important piece of **personal equipment**, 'an excavator's Swiss army knife' so don't skimp – if it costs less than £15 it's unlikely to do the job. It is used in 2 ways: primarily as a scraper with the blade angled slightly away from vertical so it can cut as well as scrape to either excavate by small increments or to clean the ground surface to expose differences in colour and texture. Secondly in specific circumstances it may be desirable to use the point for precision loosening of compacted soil. **Watch your knuckles especially on sites with sharp flint flakes.** You should hold your trowel by the handle, even though your supervisors may grip the tine!

Hand shovel and bucket/polytub: 'Loose' made by trowelling is gathered up by hand shovel into a bucket for transfer either to the wheelbarrow or direct to the spoil heap. Don't overfill buckets and **NEVER USE ONE AS A SEAT.**

Tip*: two ¾ filled buckets carry more and are easier to transport than one that is over-filled.*

Hard brush: Used to clean dry/sandy soil away from features particularly walls. Also used to clean excavated areas prior to photographing. **Never use in damp conditions** as this will smear the feature and leave the archaeology indistinct; better to use a trowel. Best used in quick flick type movements rather than slow long brushing. **ALSO USEFUL TO CLEAN EQUIPMENT AT THE END OF DAY!**

Kneelers & gloves: Blisters and aching knees will gain no sympathy if sensible precautions are not taken. Essential in cold and stony conditions.

NB. Gloves are considered as personal clothing and not supplied by CAP.

Sieves: In dry conditions it is often beneficial to dry-sieve spoil especially where small items are expected as these can often be missed whilst trowelling.

Metal detectors: Metal detecting excavation areas at various levels and the spoil as it is dumped is often desirable and has revealed coins, nails and jewellery at Bridge Farm. Finds can still be assigned to a context and location if the fill has been kept separate.

Silver ring bevel only 9mm wide engraved UTERE FELIX detected at Bridge Farm

Even finer tools: On occasions your trowel will be too big and clumsy for delicate work and a **plasterer's leaf** or an old paint scrapper/putty knife are ideal for more delicate work. Excavation of organic finds requires non-metallic tools such as plastic modelling tools or even the humble ice-lolly stick. A bent spoon is often used as a mini shovel. A soft 1-1½" paintbrush is also useful. Generally dental picks on site hint at more money than sense (other than for conservators and finds specialists)!

6.10: Excavation method

Excavation can really only be taught by practical demonstration in the field.

Generally: Initial excavation is undertaken in controlled layers keeping the surface level rather than digging pits and craters. A newly scraped level surface can reveal features by showing changes of soil colour. When digging a feature, it is usual to try to follow the edge (the cut) down but still in controlled layers. Initially it is best to only remove half of the feature **(Half Section)** or on bigger features a quarter **(Quartering**) and on linear features a measured length usually 1m is chosen which can also be half sectioned with the next metre having the opposite side taken out. In some cases, where the cut is indistinct a **Box Section** is undertaken. The box section ignores the stratigraphy of the feature and takes out half the feature plus an area of

natural surrounding it. This often allows the previously hidden stratigraphy to be seen either immediately or after the face of the section has weathered. All these techniques give a section through the contexts which can be recorded both in the **written** and the **drawn record** (see relevant sections). **This is crucial to the interpretation of the feature.**

Try to remember that it is the feature you are excavating and that will be interpreted, the finds, whilst important, are only a part of the total picture. If an artefact sits firmly within the section, then leave it there until the section is recorded.

As well as looking for changes in colour be aware for changes in sound, texture and compaction, these could also suggest a change of **context**.

Finds: Do not winkle out finds but leave in situ until the area you are excavating is cleared and you can see how they relate to any other adjacent items which may need to be recorded before removal. Do not try and clean finds as you may cause damage or destroy vital evidence – in many cases cleaning is a skilled job carried out by the site conservator or finds specialist.

Many **metal, glass and organic finds** are regarded as **'Special Finds' (SF)** and need to be located by measurement to the site grid and to the sites levelled bench mark (TBM), seek guidance but if to be removed insert a marker in the find spot until recording has taken place. Check with the site supervisors/directors as to what is to be regarded as a **Special Find** as this can vary from site to site.

Be careful and observant but don't be over cautious – excavation paradoxically cannot be undertaken without some destruction of the archaeology it seeks to uncover and interpret.

ACCURATE AND FULL RECORDING IS IMPERATIVE OTHERWISE WE ARE NO BETTER THAN NIGHTHAWKS AND TREASURE HUNTERS – use those notebooks and context forms!

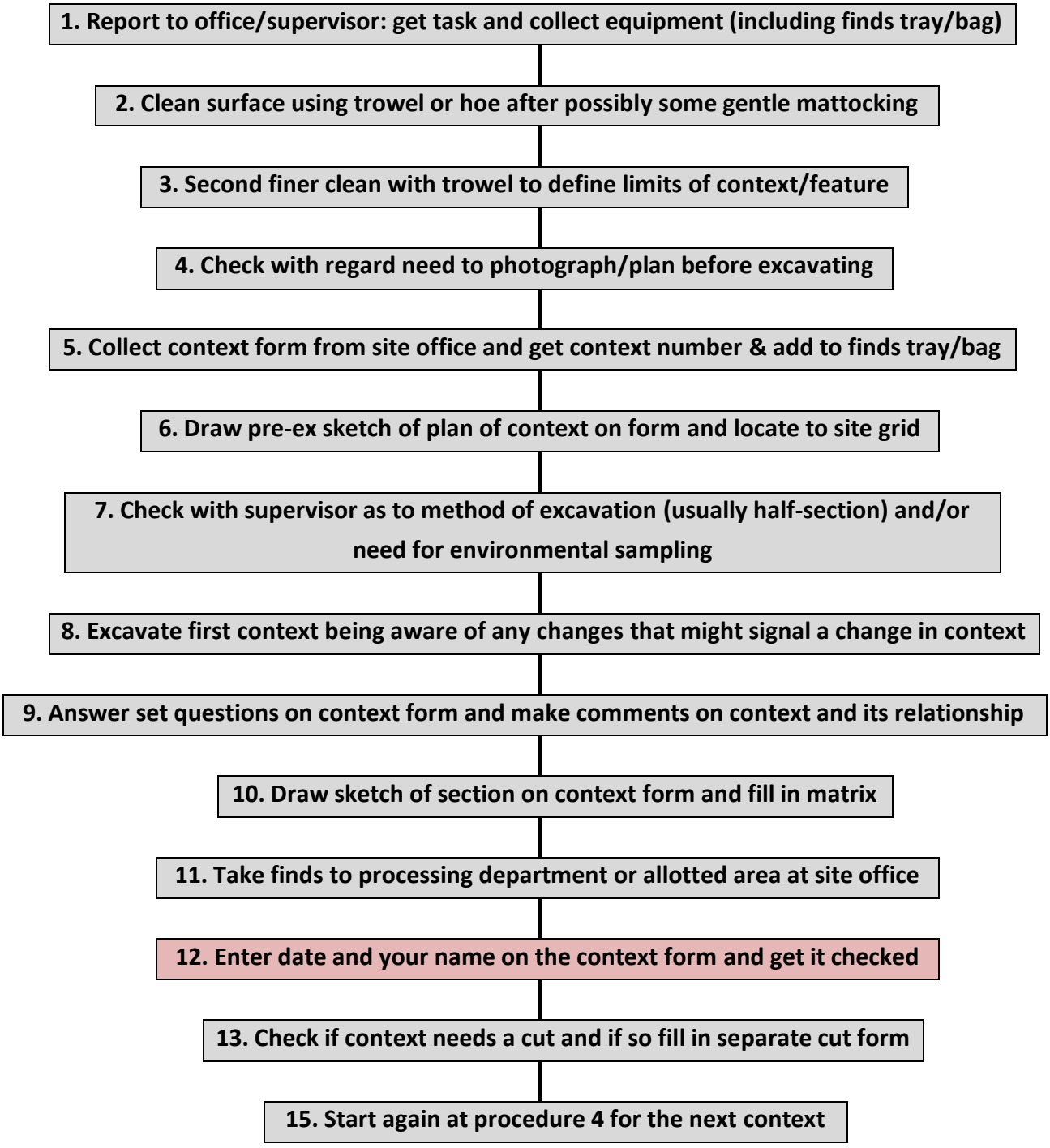
6.11: Leaving the site:

Always leave the site neat and tidy. **At break times clear up all loose soil, empty buckets and barrows and leave upturned over other equipment**. If it rains during lunch, or the site is sprayed to make digging easier and/or features more prominent, you are the one who will be using a bucket or barrow half full of sticky mud not to mention the state of your excavation if left covered with loose soil that has turned to mud. **At the end of the day take all equipment back to the tool store** – use the barrows to transport other items! **Make sure when moving your finds trays that they are labelled** otherwise contact a supervisor to get the context before removing. However, this is not a licence to leave piles of finds cluttering the site which is potentially dangerous as well as extremely bad practice. **Clean any tools that require it especially in wet weather**. Generally, leave things as you would like to find them!

6.12: Further reading for excavation methodology

Drewett, P.L. 2011. *Field Archaeology: An Introduction,* Ch. 6. Routledge (recommended).
Collis, J. 2004. *Digging up the past*, Ch. 3. Sutton.
Roskams, S. 2004. *Excavation,* Ch. 5. Cambridge University Press.

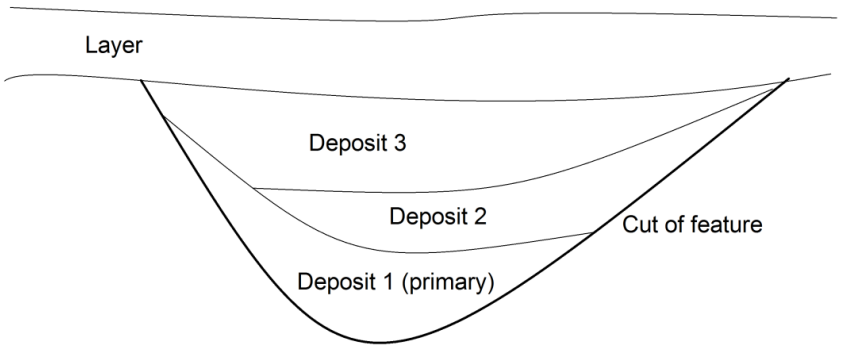
6.13: Flow Diagram of Basic Excavation Procedures



7: Deposits, fills, layers and cuts; stratigraphy and the Harris matrix

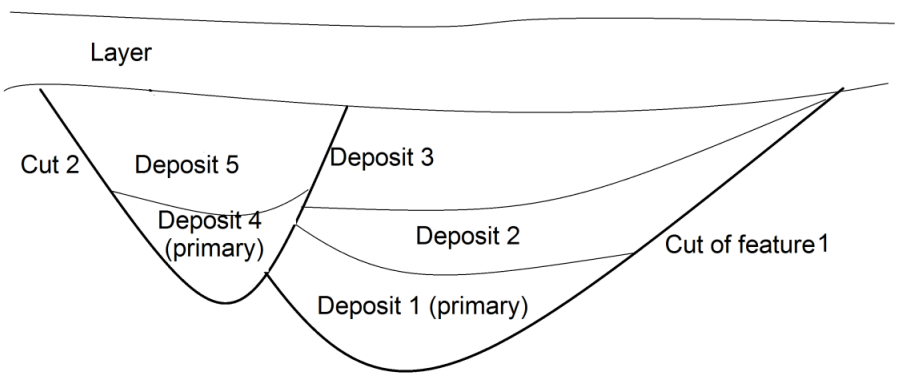
7.1: Deposits, layers, fills and cuts

Deposits, layers and cuts represent past events on the site both natural and manmade (anthropogenic). **Deposits** are the sediment that forms in and over the site or **Fills** as they are more familiarly called. **Layers** are just a specific form of deposit and the term is used at CAP to describe a deposit that lies over a large area often having no real edge or cut. A **Cut** is the interface between the natural deposits and those caused by man or between distinctly different manmade features either of space or time.



In the above section diagram, we have a single cut representing the edge of the feature when it was first dug out. It is likely that unless continually recut this feature will start to fill up with sediments (deposits/fills). Deposit 1 (the primary deposit) has slumped into the cut from the left followed at some later time by Deposit 2 slumping in from the right. The cut has been subsequently filled by Deposit 3. This could be by sedimentary movement or a deliberate act. We have in this example called the 4th deposit, as that is what it is, a layer because it covers a general area. This may be a general habitation layer, movement of soil by ploughing (colluvium) or at Bridge Farm it may well be a deposit laid down by flooding (alluvium).

Things get a little more complicated when, after this first feature (Cut 1) had been fully filled with deposits 1-3 and had therefore gone out of use, a second feature (Cut 2) was dug into its left side (see diagram below). This not only gives us a sequence for the two cuts but also for the overlying layer which must have been lain down after the second feature was filled. If this 2nd cut had gone through this top layer then the cut would be younger than the layer, as the layer would have to be there to be cut.

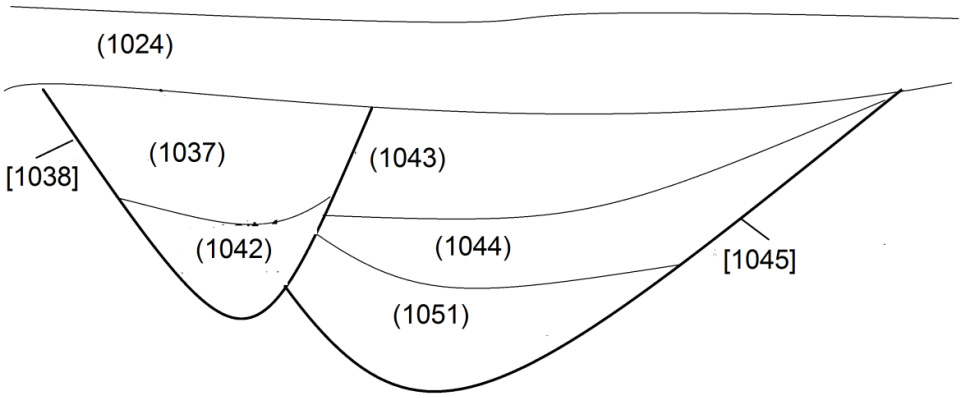


7.2: Stratigraphy

This brings us neatly on to stratigraphy which is a term borrowed from geology to refer to a sequence of superimposed deposits where the highest, excepting exceptional circumstances, is regarded as the youngest and the lowest as the oldest. Deposit 2 can only be laying on Deposit 1 if it came after Deposit 1 was in position, and so on. Cut 2 must be later than Cut 1 as it 'cuts' through and truncates it and all its fills. This also means that any of the deposits in Cut 2 must be younger than those of Cut 1 even if they were deeper but the overriding layer must be the youngest of all and was laid down after both other features had been refilled and therefore gone out of use. The contexts alone can tell us the order but not when the events took place, whether over time or following on almost immediately. This is where assessment of the finds from the various contexts comes in and **why they must be kept separate**.

7.3: Contexts

For recording purposes, we define each of these events as a Context and they are all given individual Context Numbers whether cut, fill or layer. The second example when numbered could look like the diagram below. Remember that context numbers are being issued all over the site and therefore may not be consecutive but the deeper fills should have larger numbers as the first numbers will be given to the contexts that are nearest the surface and therefore excavated first. Interfaces between deposits that have not been manufactured are not considered events and therefore are not given cut numbers on CAP sites.



The above diagram is the sort of sketch you should make in your field notebook and/or on the context forms for each context (see Section 8).

7.4: The Harris Matrix

The Harris Matrix was developed as a way of showing the stratigraphy of intersecting features in a form that clearly showed their sequence. Using the example above you can produce a **table/flow diagram of the contexts** with the newest at the top and the oldest at the bottom, as shown to the right.

You may notice that contexts 1038 and 1045 are shown in square brackets whilst all the others are in segmental brackets. This is a way of defining cuts from deposits when typing.

On drawings cuts are more usually shown within a rectangle and deposits within an oval.

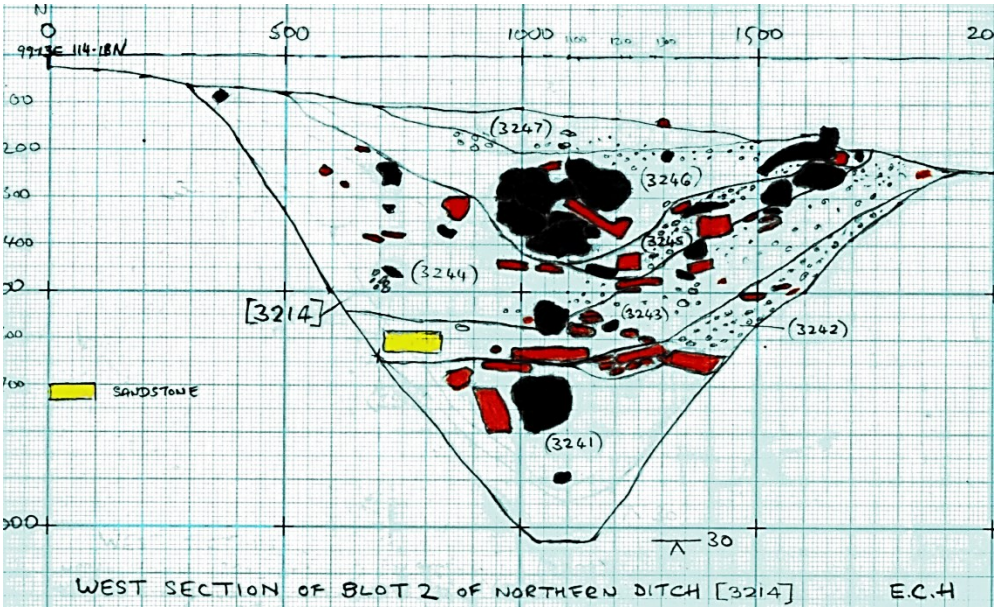
If you have 2 contexts that appear to be of the same age, then they can be shown side by side e.g. **(2054) - (2022).**

Whilst on the context form you must insert the immediate contexts above and below the one being recorded an extended matrix will help explain a sequence and assist interpretation.

(1024)
I
(1037)
I
(1042)
I
[1038]
I
(1043)
I
(1044)
I
(1051)
I
[1045]

7.5: Contexts example – Section Drawing & Harris Matrix of a Romano-British ditch

This example of a ditch section at Barcombe bathhouse shows how the early fills (3242) and (3243) have slumped in from the right and the one above (3244) has slumped in from the left.



(3247)
I
(3246)
I
(3245)
I
(3244)
I
(3243)
I
(3242)
I
(3241)
I
[3214]

NB. Site drawings not only include the contexts but also any finds that are on the section line

7.6 Site Formation Processes: a brief introduction

7.6.1: Site formation by C- & N-transforms

In archaeology, the term Formation Processes refers to the events that created and affected an archaeological site after its creation. Site Formation Processes are a core concept in archaeology which the American scholar Michael Schiffer developed in the 1970s by defining two classes of formation process:

1. **C-transforms -** culturally created transformations being caused by the accidental or deliberate actions of humans. **C-transforms** include purposeful and accidental discard of objects, burning and demolition of structures and ploughing of farmland (e.g. Bridge Farm).

2. **N-transforms** - naturally created transformations being natural events that affect the survival of sites. **N-transforms** include flooding (e.g. Bridge Farm), volcanic eruption (e.g. Pompeii), rodent burrowing and vegetation growth, especially roots, (aka bioturbation), and chemical decay (e.g. oxidation of metals).

These distinctions may at first seem somewhat pedantic but can be vital to the reconstruction of past human activities.

In order to interpret an archaeological site or feature as it was in the past from its appearance today you need to consider how it was **formed** and how it may have **transformed** over time. Take the large enclosure ditches around the Bridge Farm settlement. If they have one consistent fill then it suggests they may have been deliberately backfilled, a C-transform. But if they have multiple fills unevenly sloping into the ditch from various directions then this would suggest natural silting, a N-transform. The latter could imply that the ditch was left open longer or that it was more neglected, i.e. not regularly cleaned-out, compared to the first example. I hope you can see that these variations would offer considerable differences to a possible interpretation of this feature and its potential importance to the local community.

7.6.2: Formation process on artefacts

In order to use artefacts to help this interpretation you must consider whether the artefact is still in the location it occupied when it was abandoned (**primary deposition**) or has moved to another position (**secondary deposition**). Secondary deposits that could distort interpretation of the site are often referred to in one of two ways:

1) '**residual'** to denote an item from the site but moved locally out of its stratigraphic sequence and thereby out of its original time-layer

2) **'derived'** to denote an item not from the immediate locality that has arrived from another location. For example items washed in by flood (a N-transform), or found in the colluvium at the bottom of a sloping ploughed field (a C-transform).

It is also important to consider whether the artefact or a feature was still being used for its original purpose (**primary use**) or if it was fulfilling an alternative use (**secondary use**). An abraded cooking pot set into a back yard with no adjacent signs of burning may have been

acting as a feeder for domestic fowl and very few rubbish pits are dug for that purpose most are just convenient dumping holes when they are no longer required (think about current use of old quarries for land fill). When thinking about artefacts one should consider the main C-formation processes that all artefacts will have undergone i.e. acquisition of the raw material, manufacture, use and then disposal or discard. Of course this pattern may be complicated by trade, secondary use and damage or adaption (remanufacture) but the tracing of the locations of the various stages can be crucial to understanding the wider context.

Different material will have varying resistance to N-transforms, hard stones such as flint and pottery and other ceramics normally survive well, as do metals such as gold, silver and lead but copper and some low-grade bronze alloys can become so oxidized that they disintegrate to leave only a green stain in the soil. Iron is also badly affected by oxidation which can change objects out of all recognition. Organics are unlikely to survive in Britain unless in permanently waterlogged conditions or in a charred state. These transforms can considerably distort the original composition of the site and an attempt at mitigating this distortion must be made in order to try to get a more balanced view of the remaining archaeology. It would for instance be obviously absurd to think that Mesolithic people only used flint on the basis that that was all that an excavation site produced. It is therefore as important to think about what may be missing due to formation processes as to the changes that have occurred to what remains.

7.6.3: The last word from Peter Drewett (1999)

'Every archaeological site is, therefore, the end-product of a wide range of transformation processes. These take place during the life of the site, then at the point of abandonment, and continue as ongoing processes both natural and cultural. Very rarely are archaeologists dealing with the intact remains of past activity. All remains are transformed in some way, and without recognizing these transformation processes archaeologists could totally misinterpret the nature of a deposit, or even a whole site.'

7.7.1: Further reading for contexts, Harris matrix

Collis, J. 2004. *Digging up the past*, Ch. 5. Sutton (recommended for the Harris matrix).

Drewett, P.L. 2011. *Field Archaeology: An Introduction,* pp. 122-124. Routledge.

7.7.2: Further reading for site formation processes

Drewett, P.L. 2011. *Field Archaeology: An Introduction,* Ch 2. Routledge.

Renfrew, C. & Bahn, P. various editions. *Archaeology: Theories, Methods and Practice.* Ch.2.

Schiffer, M. B. 1996. *Formation Processes of the Archaeological Record.*

8: The written record; pro-forma single context recording

8.1: The Context and Features Register

It is likely that you will need to complete the recording for a deposit (**fill**) before you will have a **cut** to record. Both will need the specific proforma sheet which has been painstakingly designed to make completion, when using this guide, as straightforward as any unfamiliar form and process can be.

You must make sure in taking a form that you **take the next number on the context register** and fill in any information you have at that stage. **This register includes both fills and cuts**. You should make sure that a reasonable description is entered in the register before resuming excavation so that the context can be traced easily from the hundreds of others on the site. Subsequently you **MUST** add the **site grid coordinates** and the contexts above and below, but you may not have these when obtaining a context purely to define the finds you are currently excavating.

We have found it helpful on all CAP sites to add an extra layer of recording above that of the single contexts which we have called the **Feature Register.** A **Feature** is declared when it becomes apparent that an individual piece of archaeology meets any of the following conditions:

a) is complicated enough to contain several contexts.

b) is highly significant to the interpretation of the site.

c) is likely to be encountered in more than one location/trench on the general site.

A **Feature Form** (see example on next page) is then issued and the feature is recorded in the **Feature Register** which is often accompanied by a sketch map showing all feature locations. One of the most important things to be recorded on the Feature Form is the complete list of the contexts it contains as this is invaluable at the report writing stage.

Check whether a **Feature Number** has been designated for your context in the **Feature Register** as this will help subsequent location. If so add the Feature Number (e.g. F56) in the appropriate space on the register and on your context form.

The **Context Register** and **Feature Register** are very similar. We have decided to make the registers landscape (see examples over page) to give more room for the description. **Always write clearly preferably in block capitals and use a black ball point pen, not a pencil.** These sheets have to be scanned and copied and will be studied long after the site has been closed and volunteers dispersed so they must be clean, neat, clear and consistent with this site manual.

NB. If a context becomes irrelevant make it VOID - NEVER reassign a voided context number
NB. If a context is duplicated make it S/A (same as) do not void

CAP CULVER ARCHAEOLOGICAL PROJECT

FEATURE RECORD FORM
BRIDGE FARM 2018

CO-ORDINATES	SITE CODE	TRENCHES	TYPE	FEATURE No
113-118E 216-220+N.	BF18	7	PITS	40

CONTEXTS

(7-98) (7-52)
(7-99) (7-136)
[7-116] [7-143]
[7-142]
(7-56)
(7-137) [7-51]
[7-157]
[7-140] (7-155)
[7-156]

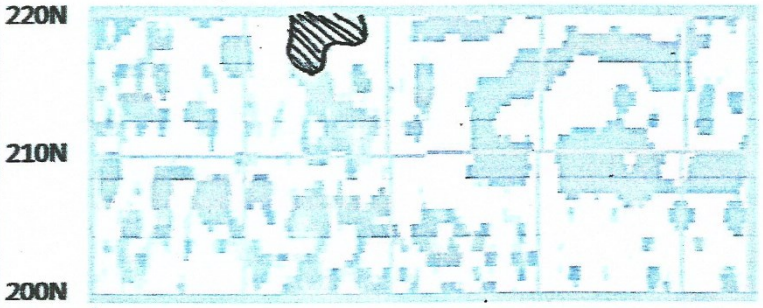
DESCRIPTION Group of 2 INTERCUTTING PITS PLUS 2 OTHERD. AND A LATER POST HOLE.

See Section $23 $26 $25 $19

Issued to & Date: DJM 15-08-19

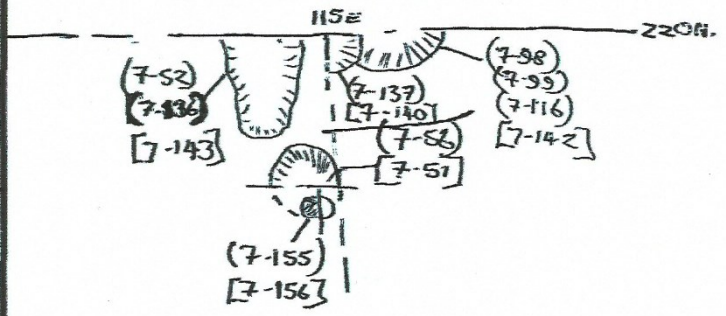
Checked by & Date:

LOCATION PLAN – 10m grid P30 • 31



Special Finds Nos.only △

SHAPE PLAN (pto if require larger plan)



LEVELS No. & Height AOD

Top

Btm

POST-EX INTERPRETATION

PROVISIONAL PERIOD/PHASE

FEATURE SAME AS **NAME** **DATE**

CAP CULVER ARCHAEOLOGICAL PROJECT

CONTEXT REGISTER - BRIDGE FARM 2015 Site code: BF15 Page 2 .

CONTEXT NUMBER	CUT or FILL	Context above / Context below	DESCRIPTION / LOCATION (what & where)	FEATURE NUMBER	TRENCH	Section No / Plan No	CO-ORD'S Easting Northing	Form issued to & date
6014	FILL	6012 / 6015	SOUTHERN ROADSIDE DITCH ON BY TROAD AT WEST BAULK	F18	6	S4 / P9	100.82E / 207-209N	DAVE LADDS / 5/07/15
6015	CUT	6014 / NAT	SOUTHERN ROADSIDE DITCH ON E-W SIDE ROAD AT WEST BAULK	F18	6	S4 / P9	100.82E / 207-209N	DAVE LADDS / 5/07/15
6016	FILL	6001 / 6069	WESTERN ROADSIDE DITCH OF LONDON ROAD AT NORTH BAULK	F16	6	S8 / P53	101-104E / 239-240N	TOM MASON / 6/07/15
6017	FILL	6001 / 6083	INNER ENCLOSURE DITCH AT WEST BAULK	F13	6	S23 / P38	100-101E / 226-230N	JACK COOKSON / 6/07/15

CAP CULVER ARCHAEOLOGICAL PROJECT

FEATURE REGISTER BRIDGE FARM 2015 Site code: BF15 Page 1 .

NB. Check previous year's Feature Register for last number and possible S/A features

No.	BRIEF DESCRIPTION	MAIN CONTEXTS	TRENCHES	GRID CO-ORDS	Issued to/ date
013	INNER ENCLOSURE DITCH OF SETTLEMENT	CUTS: [6068][6082][6105][6116]	T4, T6	100E/226-229N / 135-138E/200N	MAX Z-DALLEY / 01/07/2015
014	LONDON ROAD (MARGARY 14)	FILLS: (6003)(6005)(6022)(6061)(6113)(6121)	T6	104-115E/240N / 115-124E/200N	MAX Z-DALLEY / 02/07/2015
015	OUTER ENCLOSURE DITCH TO SETTLEMENT	CUTS: [6101] [6104] [6127]	T2,T4,T6	100E/233-236N / 131E/219-224N	MAX Z-DALLEY / 03/07/2015
016	WEST ROADSIDE DITCH OF LONDON ROAD	CUTS: [6070] [6094] [6108]	T6	101-103E/241N / 113-115E/200N	MAX Z-DALLEY / 03/07/2015
017	EAST ROADSIDE DITCH OF LONDON ROAD	CUTS: [6007] [6138] [6149] [6150]	T6	116-118E/240N / 124-126E/200N	MAX Z-DALLEY / 03/07/2015

8.2: Recording a FILL

Before reading this section, take a good look at both the blank fill form and imaginary completed form on the following pages. Other sites will have different forms but they should all require basically the same information. Then as you make your way down the forms refer back to the guide below on what data we require and how we expect them to be completed; **and we do mean COMPLETED!** If not, you will find it handed back to you to be completed and then double checked before you are permitted to do anything else.
From this record we will need to be able to establish: -

- its stratigraphic positon, situation and phasing in relation to other features on the site: **so matrix and coordinates are vital**
- the process by which it was formed
- a suitable interpretation within the limits of the excavation

The excavator is the only person who can reliably know and be able to record the information required. Once you've dug a context it's gone for good – SO RECORD IT WELL!
Filling in Context Record Forms competently is one of the best indicators of an excavator's overall competence and commitment to archaeology as more than just an amusing hobby.

8.2.1: Location and Unique Identity boxes

The **SITE CODE** is the unique code for a site and year i.e. **BF21** is Bridge Farm in 2021 (on CAP forms this is often printed but make sure it is this year's code if not change it clearly)
SLOT numbers are issued in complicated trenches where several slots are made across the same feature. This is not always required.
Add the **COORDINATES** as soon as practicable (**see Section 4.6 for measurement procedure unless using the total station**). **These are vital for location so please check they are right!**
Add the **FEATURE NUMBER** if your area has one (e.g. F43); check in the Feature Register.
The **CONTEXT NUMBER** should have been the first thing that you or the supervisor entered when obtaining the form and filling in the **REGISTER**. The first element of a CAP context number is the **TRENCH** you are in. (i.e. context 7-134 indicates context 134 in trench 7).
Ignore the Context S/A box as this is for later interpretation by a supervisor where 2 or more contexts are resolved as being the same. You may add a possible S/A suggestion under point 9 (**Other Comments**). Context S/A can happen when context numbers are given to seemingly separate fills and/or cuts that are found to be parts of the same context during further excavation of the area dividing them. It is **FAR BETTER** to have 2 contexts that are made S/A than have one context number used for multiple fills as the latter makes phasing the feature impossible. **So look out for those subtle changes in colour, texture and inclusions.**

CAP CULVER ARCHAEOLOGICAL PROJECT

Context form for FILL
BRIDGE FARM 20

SITE CODE	SLOT	CO-ORDINATES	FEATURE		CONTEXT No.
BF				**FILL**	

1: Compaction	CONTEXT S/A
2: Munsell Colour	
3: Composition	
4: Inclusions	

5: Dimensions mm	Length		Width/Diameter			Thickness	
6: Change to the context below	Sharp -25mm	Clear 25-60mm	Diffuse 60mm +	Smooth	Wavy	Irregular	Broken

7: Method	**8: Conditions**
9: Further comments	

10: Sketch profile & plan below (ADD dimensions, north signs, section lines and possibly grid posts
LOCATION PLAN SHAPE PLAN PROFILE SKETCH

Use continuation sheet for larger sketches and/or comments if required Continued ☐

IN CUT No

MATRIX

SAMPLES
Enviro No.

LEVELS **Section string line**
No Level
Top of fill
Bottom of fill

Excavators & Dates

FINDS: Pot | Glass | Metal | CBM | Wood | ph.flint | FCF | Slag | fired clay
Other

SPECIAL FINDS:
Further SF Nos.

EXCAVATOR'S DESCRIPTION

Name Date

SUPERVISOR'S INTERPRETATION

Name Date

MEASURED DRAWINGS containing this context	**PLAN No/s**	**SECTION No/s**

PHOTOS Tick box & add photo No/s	**B&W**	**COLOUR**	**DIGITAL**

CAP CULVER ARCHAEOLOGICAL PROJECT

Context form for FILL
BRIDGE FARM 2021

SITE CODE	SLOT	CO-ORDINATES	FEATURE		CONTEXT No.
BF21		126.87E 205.68N	F45	FILL	7-135

1: Compaction SOFT — CONTEXT S/A

2: Munsell Colour 7.5YR/4/4 BROWN

3: Composition SANDY SILT

4: Inclusions 5% SLAG, 1% SMALL RIVER FLINTS, OCC CHARCOAL

5: Dimensions mm	Length 457	Width/Diameter 382	Thickness 402

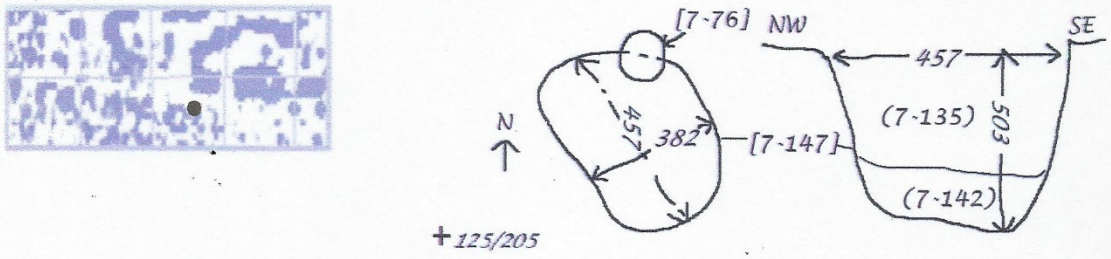
6: Change to the context below	Sharp ✓ -25mm	Clear 25-60mm	Diffuse 60mm +	Smooth	Wavy ✓	Irregular	Broken

7: Method TROWEL — 8: Conditions DRY BUT SOIL MOIST

9: Further comments SLAG & CHARCOAL CLOSE TO TOP OF CONTEXT

10: Sketch profile & plan below (ADD dimensions, north signs, section lines and possibly grid posts

LOCATION PLAN — SHAPE PLAN — PROFILE SKETCH



Use continuation sheet for larger sketches and/or comments if required — Continued ☐

IN CUT No: [7-147]

MATRIX: 7-135; 7-142; [7-147]

SAMPLES Enviro No. 7-35

LEVELS Section string line

	No	Level	SF 67	
Top of fill	153	6.532		
	154	6.505	131	6.480
Bottom of fill	155	6.105		

Excavators & Dates: DI. SMITH — 26/07/21

FINDS: Pot ✓ | Glass | Metal ✓ | CBM | Wood | ph.flint | FCF | Slag ✓ | fired clay

Other ANIMAL TOOTH NR SURFACE

SPECIAL FINDS: 67 IRON OBJECT

Further SF Nos.

EXCAVATOR'S DESCRIPTION
UPPER FILL OF PIT/PH?

Name Diana Smith — Date 28/07/21

SUPERVISOR'S INTERPRETATION
UPPER FILL OF PIT/PH? NB: NO POST PACKING IN AREA

Name D. H. MILLUM — Date 5/08/21

MEASURED DRAWINGS containing this context	PLAN No/s P15	SECTION No/s $45

PHOTOS Tick box & add photo No/s	B&W ✓ 243/4	COLOUR ✓ 243/4	DIGITAL ✓ 321/2/3

An example of completed Fill recording form (2021 revision)

8.2.2: Basic Description (9 questions in large box to top of form)

1: Compaction (sediment strength)

This will be observed as you excavate (**not after**!). This answer provides important clues to the depositional process and so any changes within the fill must also be noted, as whether the sample was moist or dry (add both if you can). **Virtually all your digging at Bridge Farm will be in Fine-grained sediments** but the table below (MoLAS 1994) also contains descriptions for Peat and Coarse-grained for future reference.

COMPACTION TABLE (after MoLAS 1994) Fine-grained sediments (as at Bridge Farm)	
Hard	Brittle or very tough
Stiff	Cannot be moulded with the fingers
Firm	Moulded only by strong finger pressure
Soft	Easily moulded with fingers
Very Soft	Exudes between fingers when squeezed
Friable	Non-plastic, crumbles in fingers

Peat	
Firm	Fibres compress together
Spongy	Very compressible and open structure
Plastic	Can be moulded in hands and smeared between fingers
Coarse-grained sediments	
Indurated	Broken only with sharp pick blow even when soaked
Strongly cemented	Cannot be broken with hands
Weakly cemented	Pick removed sediment in lumps that can be broken with hands
Compacted	Requires mattock for excavation
Loose	Can be excavated with hoe or trowel

2: Munsell Soil Colour

Because we have many people of varying colour perceptions on the site potentially filling in this question we have decided that the colours of fills should be recorded using the Munsell Soil-Colour Chart. You may have to wait for the use of this object as at around £200 each we usually only have one or two on site and one in reserve. The full instructions for using the chart are detailed in the front pages of the Munsell book but basically you are looking for the '*standard color chip'* that best matches a **damp** sample of your fill. The system works on 3 classifications: **The Hue** relates the chart to the basic colours (mainly red and yellow or R & Y at Bridge Farm): **The Value** indicates its lightness/darkness: **The Chroma** indicates its strength**.**

At Bridge Farm always start on the 7.5YR hue chart. If not right, then move to the page in front or behind depending on whether you need more red or more yellow.
When on the right chart look next for the **Value (vertical axis),** let us say you decide on 3/.
Then look for the **Chroma (horizontal axis),** and here let us say the number 2 along the 3 line looks nearest.
The colour you have decided on is recorded as **7.5YR/3/2 dark brown.**
The dark brown description is given within the box of similar colours on the left hand page.
The holes in the cards mean that you can hold a sample of damp (not wet) fill behind the chip for better identification. If you make the chart dirty please clean the page with a moist sponge and dry with a towel ready for use by the next person.
NB. There are also some useful notes at the beginning of the book for grain/inclusion size and percentage (see next page).
We are currently experimenting with a digital colour identification system using a programme developed by one of our volunteers to define the context colour by using the camera on a tablet which will hopefully take out the discrepancies that occur due to the inconsistency of the human eye.

3: Composition (after MoLAS 1994)

Size of particle is the only difference between clay, silt and sand. All sediment types comprising **over 10%** of the fill should be noted including such items as tile, bone, pottery and organics.

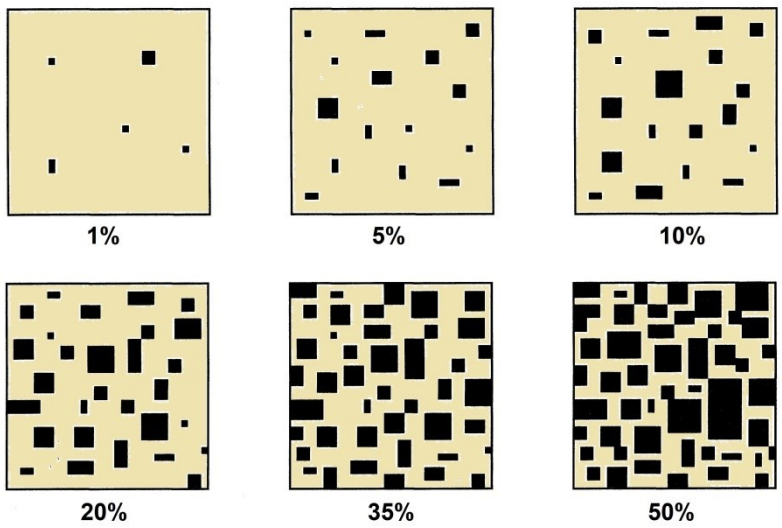
Ambiguous terms such as loam or soil should not be used unless applied to a true soil horizon. Loam is a term for a mixed soil.

Description	Min size	Max size
Clay		
Silt		
Fine Sand	0.02mm	0.06mm
Medium Sand	0.06mm	0.20mm
Coarse Sand	0.20mm	2mm
Fine Pebbles	2mm	6mm
Medium Pebbles	6mm	20mm
Coarse Pebbles	20mm	60mm
Cobbles	60mm	200mm

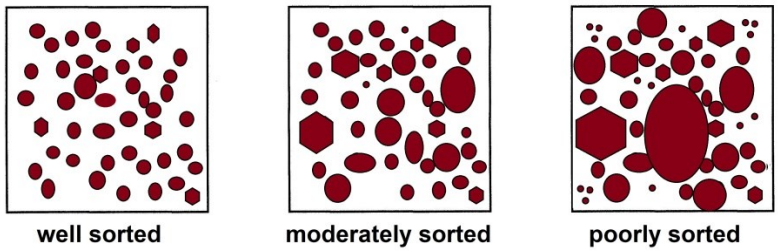
Proportions of different grain size sediments should also be judged and the bias noted e.g. silty sand = mainly sand with some silt whilst sandy silt = mainly silt with some sand (see flow chart below for a method to determine the different sediments).

A page of charts for estimating the proportions of inclusions in a fill, the degree of sorting of particles and the shape of individual components.

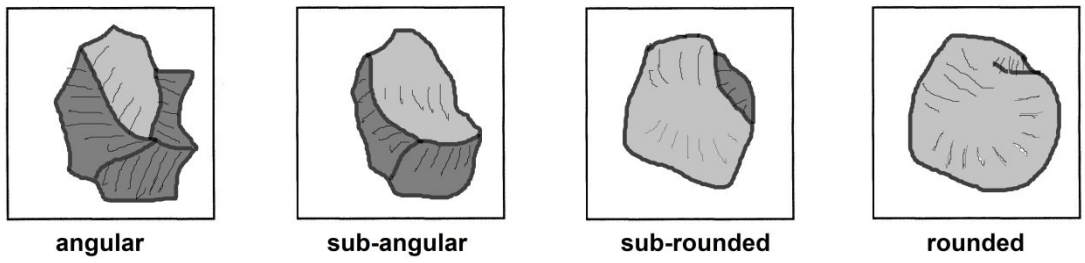
Percentage: use the diagram below to estimate the amount of any inclusion within the fill. Don't try to be too exact just go for one of the percentages shown below. If more than 50% stick to tens i.e. 70%, 80%, 90% etc. Use more than (**>**) and less than (**<**) symbols if required.



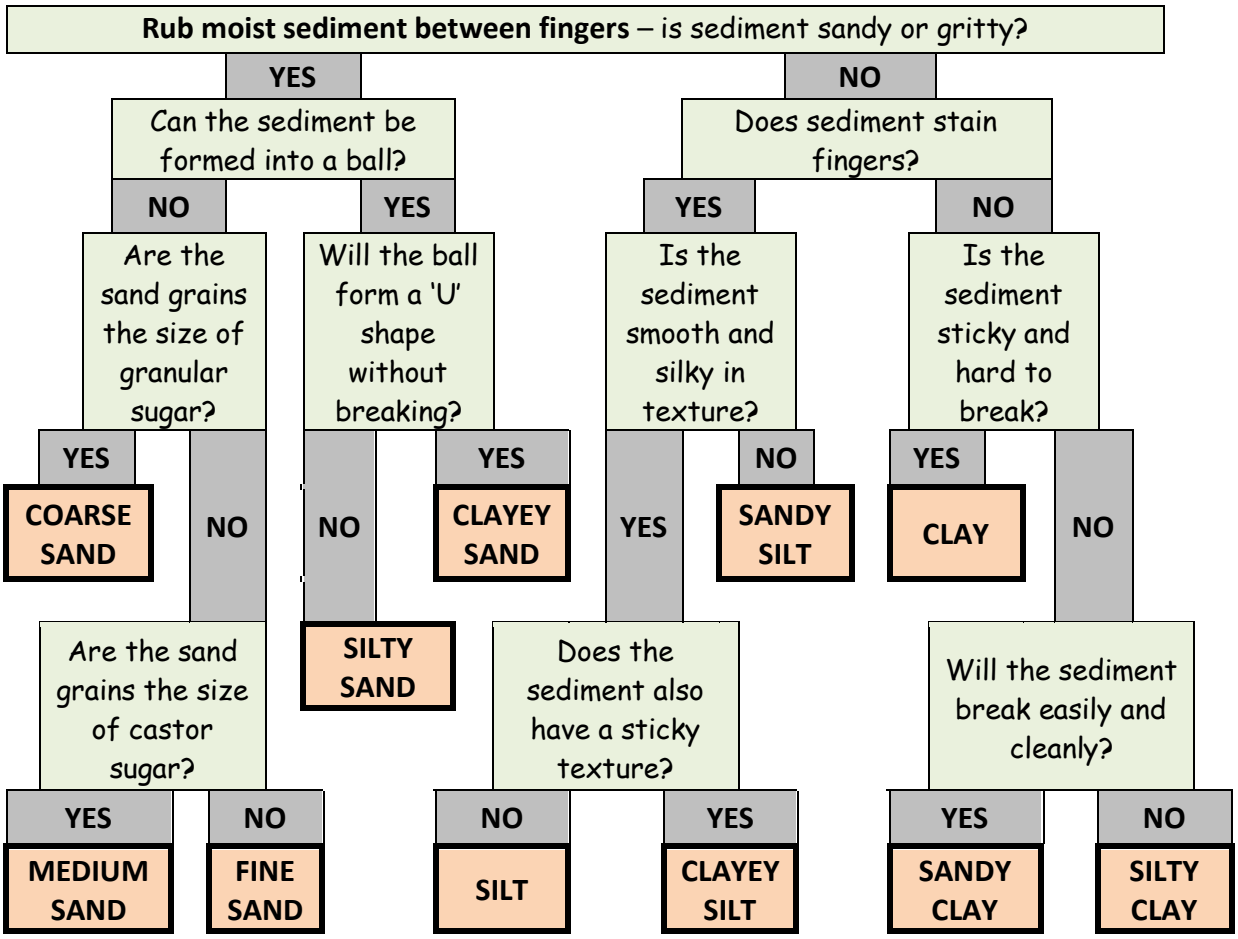
Sorting: measures the frequency that same size particles appear and gives some idea of the processes responsible for deposition (see chart below).



Shape: measures the size, shape and roundness of individual stones and if known the lithology (e.g. flint) as this also aids deposition processes (see chart below)



Describing the composition of archaeological sediments (after MoLAS 1994)



4: Inclusions

Any element of the fill which is under 10% of the whole is defined as an inclusion; this can include geological material as well as artefactual e.g. pottery, cbm etc. See below for range of descriptions.

Proportion is described as

Occasional	**Moderate**	**Frequent**

Size is specified as

Flecks: Up to 6mm	**Small: 6-20mm**	**Medium: 20-60mm**	**Large: 60-120mm**

For example, your **Inclusions** answer could be:

4: Inclusions: FREQUENT SMALL FRAGMENTS OF POT – MODERATE MEDIUM TILE FRAGS AT BASE – OCCASIONAL CHARCOAL FLECKS

5: Dimensions

Use this line for overall or most relevant dimensions **of this context** but remember a dimensioned sketch is far clearer in showing the variation of dimensions in a feature or context.

6: Change to the context below (formerly called Lower Interface)

This section describes the interface between this context and that immediately **beneath** it.

Is the change from this context to the next sharp, clear or diffuse? Tick or circle best.

Is the boundary: free from irregularities (smooth): has broad shallow regular pockets (wavy): has pockets deeper than they are wide (irregular): is interrupted (broken)?

6: Change to the Context below	Sharp ✓ <25mm	Clear 25-60mm	Diffuse 60-130mm	Smooth	Wavy ✓	Irregular	Broken

e.g. Sharp & Wavy

7: Method

How you excavated and with what equipment, e.g. *HAND/ TROWEL - REGULAR BAILING*

8: Conditions

Weather and ground conditions, e.g. *FINE & SUNNY / CONTEXT WATERLOGGED!*

9: Further comments

Use to expand on any of the above or add anything you feel is not covered but is relevant and specific about this fill, e.g. *ALL POT VERY ABRAIDED/ MORE CLAYEY AT BASE*

10: Sketch profile & plan below. ADD dimensions, north signs, section lines and possibly grid posts

LOCATION PLAN

On CAP digs you will often find that a base plan of the trench has been inserted into this space (see completed example form above) so that you can quickly circle or make an obvious mark of the approximate location of the context. If not, you should sketch the grid square/squares in which the context lies and show grid post numbers & north sign and mark location.

SHAPE PLAN

Sketch here the shape of the context in plan and its relationship to other contexts (fills and cuts) and possibly adjacent grid posts. Add dimension, north sign and context numbers. Add an indication of the line of your section sketch.

PROFILE SKETCH

Sketch a section drawing showing the context in relationship to other contexts (fills and cuts) and add the compass point at each end of your section. Add dimensions and context numbers.

Use a graphpaper continuation form if more space required to make drawings clear.

8.2.3: IN CUT No.

If a CUT for your context has been issued put it in this box. If not make a note to check and add later. The cut number should be the one with which your fill is most intimately involved rather than the outer fill for the whole feature, unless they are the same.

8.2.4: MATRIX

The matrix column has been extended on our new forms to allow a longer sequence of contexts to be listed. Put your context number within the ladder in a place that allows other contexts to

be added above and below (if unsure of the appropriate position put it in the middle). Then add any numbers of the contexts above and below (if known) in the boxes above and below in ascending/descending order respectively. These may be cuts or fills. **This section is vital for the stratigraphy of your context. The most important numbers are those immediately adjacent and must be added as soon as known.**

8.2.5: SAMPLES

This is a check if any environmental (soil) samples were taken and assist finding the correct record in the **Samples Register**. It alerts a reader that they may need to find and read the relevant sample record.

Enviro No. ◇: this is the number given to this context's samples in the **Samples Register.** On the form and on labels, containers and bags the number is shown in a diamond but is typed between angle brackets e.g. **<52>.**

8.2.6: LEVELS

List here details of the site levels taken for this context including that of the **string level of the measured section drawing**, **top of fill** and **bottom of fill**.

The Level Register number goes in the left box and the reduced level (if using a Dumpy) or TS reading in the right box. String line, top of fill and bottom of fill are requested with the other boxes for Special Finds etc.

No.	level	e.g.	141	5.826

8.2.7: Excavator's and dates

The practicalities of running a community and student training site mean that contexts may be excavated by more than one person over more than one day. Each excavator must add their **name clearly** (not intitials or signature) so that they can be consulted if required.

8.2.8: FINDS

Tick or ring the various types of finds from the context and add under **'Other'** any not listed. This section may later be updated and/or checked by the Finds Department.

8.2.9: SPECIAL FINDS

List any special finds found by SF number and brief description i.e. *SF8 Brooch*

8.2.10: Excavator's description

Start with description on the Context Register and then add a short note of what you think this context represents and how it fits into the wider site. Add 'Continued' and go on to a **lined continuation form** if you need more space. Make sure you add your name in a form we can read (we need to know who wrote what not how stylish your signature is!) and date.

8.2.11: Supervisor's Interpretation

Leave blank: this is for an initial interpretation by the Site Supervisor or Director to point the way to more in-depth consideration during the post-ex reporting stage.

8.2.12: MEASURED DRAWINGS

This section is to record the numbers of the Measured Section Drawing and Grid Square Plan/s that include the context. These may have to be added by the person drawing the section/plan but the excavator is responsible for checking that these will be added.

8.2.13: PHOTOS

This section checks that **OFFICIAL SITE PHOTOS** have been taken with a simple tick box plus the official photo numbers. This may need to be filled in by the designated Site Photographer but the excavator should check that they have been done (then tick the box) or if not then ask the photographer to take them.

8.2.14 Specimen of completed FILL context form

At the beginning of this section is an example of what a completed 'FILL' form should be like. The important thing is not just to fill the form as chore to be got out the way but to try to get your interpretation of what you observed down on paper as part of the paper archive.

Your comments could be as important as the standard answers.

Don't feel inhibited; write what you experienced so that we can interpret what you observed. For example, try to interpret what processes formed the feature you are excavating: e.g.

- How did the fill get there?
- Why are the pottery sherds large or small, or the breaks sharp or abraded?

Questioning and understanding the formation process promotes better interpretation.

Use continuation pages for larger sketches or more comments. If you do, make sure you tick the continued box. Don't worry about asking for a replacement sheet to make a clean copy for handing in.

Paper is cheap: clear comprehensive data is invaluable.

8.3: Recording a CUT

Before reading this section, take a good look at both the blank form and the completed form on the following pages. Other sites will have different forms but they should all require basically the same information. Then as you make your way down the forms refer back to the guide below on what data we require and how we expect them to be completed; **and we do mean COMPLETED!** If not, you will find it handed back to you to be completed and then double checked before you are permitted to do anything else.

From this record we will need to be able to establish: -

- its stratigraphic positon and situation in relation to other features on the site
- establish the processes involved in its formation
- provide a suitable interpretation within the limits of the excavation

The excavator is the only person who can reliably know and be able to record the information required. Once you've dug a context it's gone for good – SO RECORD IT WELL!

Filling in Context Record Forms competently is one of the best indicators of an excavator's overall competence and commitment to archaeology as more than just an amusing hobby.

8.3.1: Location and Unique Identity boxes

Find out the **SITE CODE** this refers to the site and the year e.g. BF21 = Bridge Farm 2021

Add the **SLOT** number if they are being allocated. Usually only if multiple slots are dug across the same feature.

Add the **COORDINATES** as soon as practicable (**see Section 4.6 for taking site coordinates**).

Add the **FEATURE NUMBER** if your area has one e.g. **F13** etc. (**see Feature Register**).

The **CONTEXT NUMBER** should have been the first thing that you entered when obtaining the form and filling in the **CONTEXT REGISTER**. At CAP this will be trench followed by context e.g. 7-101 is trench 7, context 101.

Ignore the Context S/A box as this is for later interpretation by a supervisor where 2 or more contexts are resolved as being the same. You may add a possible S/A suggestion under point 8 (Other Comments). S/A can happen when contexts are given to seemingly separate cuts that subsequently are found to be one of the same. It is **FAR BETTER** to have 2 contexts that are made S/A than have one context number used for what are subsequently resolved to be different cuts.

CAP CULVER ARCHAEOLOGICAL PROJECT

Context form for CUTS
BRIDGE FARM 20

SITE CODE	SLOT	CO-ORDINATES	FEATURE	CUT	CONTEXT No.
BF					

1: Shape in plan:			Context S/A
2: Corners (if any)	*Square*	*Rounded*	*Other*
3: Dimensions	*Length*	*Width/diameter*	*Depth*
4: Sides	5: Change	6: Base	
7: Truncated by			
8: Other Comments			

9: **Sketch profile & plan below (ADD dimensions, north signs, section lines and possibly grid posts**
LOCATION PLAN SHAPE PLAN PROFILE SKETCH

Use continuation sheet for larger sketches and/or comments if required Continued ☐

MATRIX

FILLS in this CUT

LEVELS **Section string line**
No Level
Top of cut
Bottom of cut

Excavators & Dates

EXCAVATOR'S DESCRIPTION

Name Date

SUPERVISOR'S INTERPRETATION

Name Date

MEASURED DRAWINGS that contain this cut	PLAN No/s	SECTION No/s

PHOTOS Tick box & add photo No/s	B&W	COLOUR	DIGITAL

CAP CULVER ARCHAEOLOGICAL PROJECT

Context form for CUTS
BRIDGE FARM 2021

SITE CODE	SLOT	CO-ORDINATES	FEATURE	CUT	CONTEXT No.
BF21		126.87E 205.68N	F45		7-147

1: Shape in plan: OVOID WITH ONE FLATTISH SIDE — Context S/A

2: Corners (if any)	Square	Rounded ✓	Other
3: Size (mm)	Length 457	Width/diameter 382	Depth 503

4: Sides STEEP SLOPE | 5: Change CURVING | 6: Base FLAT - SLIGHT SLOPE

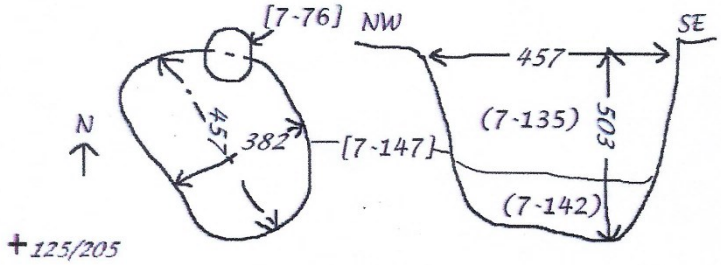
7: Truncated by SMALL POST/STAKEHOLE 7-76 AT NE

8: Other Comments DIPS DOWN TOWARDS SOUTH EAST

9: Sketch profile & plan below (ADD dimensions, north signs, section lines and possibly grid posts

LOCATION PLAN

SHAPE PLAN / PROFILE SKETCH



Use continuation sheet for larger sketches and/or comments if required — Continued ☐

MATRIX

7-135
7-142
[7-147]

FILLS in this CUT

7-135	
7-142	

LEVELS Section string line

No 153 Level 6.532

Top of cut: 154 | 6.505

Bottom of cut: 156 | 6.001

Excavators & Dates
DI. SMITH
26/07/21

EXCAVATOR'S DESCRIPTION
OVOID PIT WITH STAKEHOLE CUTTING NE CORNER
No packing

Name Diana Smith Date 28/07/21

SUPERVISOR'S INTERPRETATION
SIZE RIGHT FOR POSTHOLE EVEN THOUGH NO POST PACKING IN SITU

Name D. H. MILLUM Date 5/08/21

MEASURED DRAWINGS that contain this cut	PLAN No/s P15	SECTION No/s $45

PHOTOS Tick box & add photo No/s	B&W ✓ 243/4	COLOUR ✓ 243/4	DIGITAL ✓ 321/2/3

An example of a completed Cut recording form

8.3.2: Basic Data (8 questions in large box to top of form)

1: Shape in plan

Describe the shape looking down on the top of the cut. Use the following terms:

Square: Sub-rectangular: Circular: sub/semi-circular: Ovoid: Linear: Irregular

If linear describe the edges e.g. *straight and parallel or curved and irregular* etc.

NB. The sketch plan will enhance your description.

2: Corners

Describe corners by ticking/circling one of the boxes

If there are no corners, e.g. plan is circular, cross through the *'Corners (if any)'* box.

Square	Rounded	Other

3: Dimensions mm

Add dimensions in mm (e.g. 442) or if large in metres and mm (e.g. 3.352). **Never use cms**. Show which is the length and which the width on your sketch. **Add dimensions to your sketch**. Depth should be from the top to the bottom of the cut and in the case of a sloping stakehole take the length with the slope rather than vertically.

4: Sides

Describe if *smooth or irregular* and whether *vertical, sloping, concave, convex,* or *stepped*.

5: Change

Describe how the sides meet the base e.g. *sharp, gradual, curving* or *irregular.*

Sharp Gradual Curving

6: Base

Describe the base of the cut; e.g. is it *flat, concave, sloping, irregular.*

If a posthole/pit or similar, does it *taper to a point, blunt point or rounded point* or is it *square sided and flat bottomed* etc.

7: Truncated by

Does the cut have its full original shape or has it been cut, i.e. truncated, by some other context? If so describe how and if known what the other the context is. This may be easier to show on the plan and profile sketches.

8: Other Comments

Add any other comments you feel are relevant to the interpretation of this CUT.

9: Sketch plan & profile below. ADD dimensions, north signs, section lines and possibly grid posts

LOCATION PLAN

On CAP digs you will often find that a base plan of the trench has been inserted into this space (see BF21 cut form above) so that you can quickly circle or make an obvious mark of the approximate location of the context. If not, you should sketch the grid square/squares in which the context lies and show grid post reference numbers & north sign.

SHAPE PLAN

Sketch here the shape of the context in plan and its relationship to other contexts (fills and cuts) and possibly adjacent grid posts. Add dimension, north sign and context numbers. Add an indication of the line of your section sketch.

SECTION SKETCH

Sketch a section drawing showing the context in relationship to other contexts (fills and cuts) and denote the compass point at each end of your section. Add dimensions and context numbers. **Use a graphpaper continuation form if more space required to make drawings clear.** The sketches are to aid understanding of the context by others who may not have actually seen it. You may need to do more than one profile sketch if profiles vary on different axis. Show the axis (section line) of your profile as a dashed line on your plan.

8.3.3: MATRIX

The matrix column/ladder has been extended on our new forms to allow a longer sequence of contexts to be listed. Put your context number within the ladder in a place that allows other contexts to be added above and below (if unsure of the appropriate position put it in the middle although a cut will usually be placed near the bottom). Then add any numbers of the contexts above and below (if known) in the boxes above and below in ascending/descending order respectively. These may be cuts or fills. **This section is vital for the stratigraphy of your context. The most important numbers are those immediately adjacent and must be added as soon as known.**

8.3.3 FILLS in this CUT

This is a space to add all the fills (if room) that are located in this **specific** cut, especially any that have not been included in the matrix.

8.3.4: LEVELS

List here details of the site levels taken for this context including that of the string level of the measured section drawing, top of cut and bottom of cut. The Level Register number goes in the left box and the reduced level (if using a Dumpy level) or TS reading in the right box. Other boxes may be used for levels taken of strategic points around the cut, i.e. where it is truncated by another cut etc.

No.	Level	e.g.	*141*	*5.826*

8.3.5: Excavator's and dates

The practicalities of running a community and student training site mean that contexts may be excavated by more than one person over more than one day. Each excavator must add their name clearly (**not signature or initials**) so that they can be consulted in case of a query.

8.3.6: Excavator's description

Start with description on the Context Register and then add a short note of what you think this context represents and how it fits into the wider site. Add 'continuation' and go on to a continuation form if you need more space. Make sure you **print your name** in a form we can read (we need to know who wrote what not how stylish your signature is!) and date.

8.3.7: Supervisor's Interpretation

Leave this blank as it is for an initial interpretation by the Site Supervisor or Director to point the way to more in-depth consideration during the post-ex reporting stage.

8.3.8: MEASURED DRAWINGS

This section is to record the numbers of the Measured Section Drawing and Grid Square Plan/s that include the context. These may have to be added by the person drawing the section/plan but the excavator is responsible for checking that these will be done and added.

8.3.9: PHOTOS

This section checks that **OFFICIAL SITE PHOTOS** have been taken with a simple tick box plus the official photo numbers. This may need to filled in by the designated Site Photographer but the excavator should check that they have been done and tick the box or ask the photographer to take them.

8.2.10 Specimen of completed CUT context form

At the beginning of this section is an example of what a completed 'CUT' form should be like. The important thing is not just to fill the form as chore to be got out the way quickly but to try to get your interpretation of what you observed down on paper as part of the paper archive.

Your comments could be as important as the standard answers.

Don't feel inhibited; write what you experienced so that we can interpret what you observed. For example, try to interpret what processes formed the feature you are excavating: e.g.

- How did the cut get there?
- Why is one side near vertical whilst the other gently sloping.

Questioning and understanding the formation process promotes better interpretation.

Use graphed and/or lined continuation sheets for larger sketches or more comments. If you go to a continuation page, make sure you tick the continued box. Don't worry about asking for a second sheet to make a clean copy for handing in.

Paper is cheap: clear comprehensive data is invaluable.

9: The drawn record; excavated sections and site planning

9.1: Measured scale drawings and the Section and Plan Registers

We have already seen in the section above how sketches can be made of both the profile and plan of contexts and features. These are drawn taking only certain overall dimensions but are sketches not drawn to an exact scale. Every feature that is **half sectioned** will have a **1:10 scale** (100mm is shown as 10mm) **Section Drawing** made of it and a **1:20 scale** (200mm is shown as 10mm) **Plan** will be made of the whole excavation. This plan will link with the sections by having the line of each section drawn on it and numbered. Each section drawing will be numbered and recorded with brief description in the **Section Register** (see 2019 sheet extract below). Each plan (at Bridge Farm this will usually be each 5m by 5m square on the ground) will be numbered, registered and have its grid coordinates clearly marked in the appropriate corners, although they are usually referred to by the coordinates in the SW corner (the Planning Register is very similar to the Section Register). Whilst section drawing is usually undertaken by the excavator (with assistance if required) the site plan is often undertaken by one person or a designated team in order to get consistency over the whole site.

CAP CULVER ARCHAEOLOGICAL PROJECT

SECTION Register for BRIDGE FARM 2019 Site Code: BF19 Page No. 3
ALL SECTIONS TO BE DRAWN AT 1:10 SCALE (but if not add scale in 'Description')

Section number	Description	Sheet	Grid Location	Main Contexts and/or Feature	Date/s	Drawn by
22	Base of E-W road slot.	22	138.917 E 199.929 N 138.828E 202.723N	(7-61) (7-146)	20/6/19	Georgiana & Hannah.
23	Pit in P30 NE facing section	23	113.260 E 216.924N 115.424 E, 216.843N	(7-56) [7-51]	20/6/19 -	Richard Best & Jade Funnell.
24	P.H. West facing section	16	111.694 - 112.069 210.604 - 210.202	[7-9] (7-10)	24/6/19	Morgan.

Top few lines of Sheet 3 from the BF19 Section Register

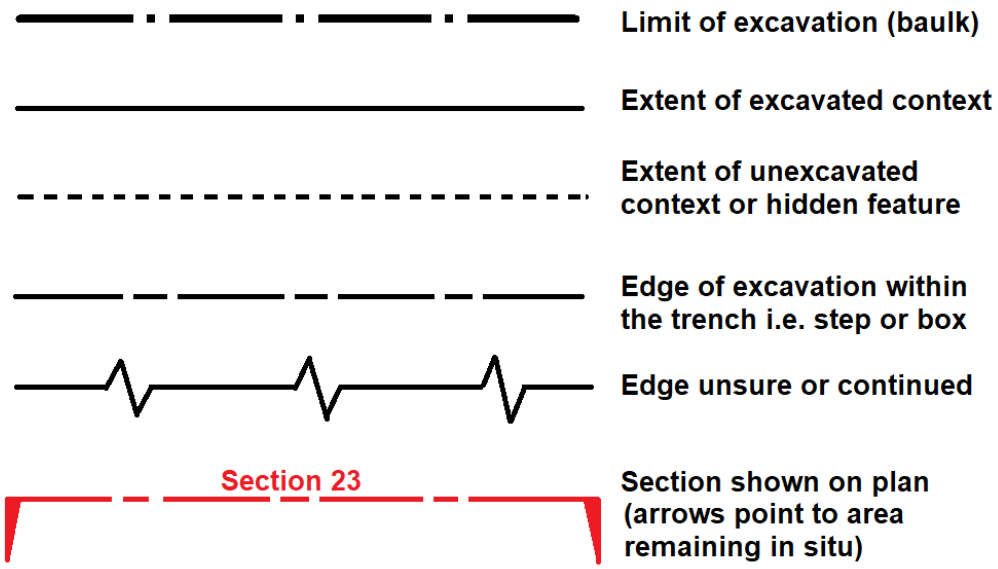
(NB: the section number may not be the same as the sheet number, $24 was on sheet 16)

The following is VERY IMPORTANT

Measured drawings are NOT SKETCHES and must be prepared in a neat and very readable manner observing the correct conventions for drawing. This includes type of line and correct use of hachures. They are drawn in **4-6H pencil on graphed plastic drawing film**. All drawings must have an indication of orientation, **north point** on plan and **compass points** (e.g. NE-----SW) on the ends of section lines and relevant **site grid coordinates** plus any **site and string levels** taken and all significant **context numbers**, both cuts and fills. They should have a **descriptive title**, the **plan/section number**, **date** drawn, **name** of the draughter (printed not signature) and a **key** to colours used. They should also have a **simple bar scale** in case they are digitally reduced/enlarged although if on graphed film the squares will act as a scale.

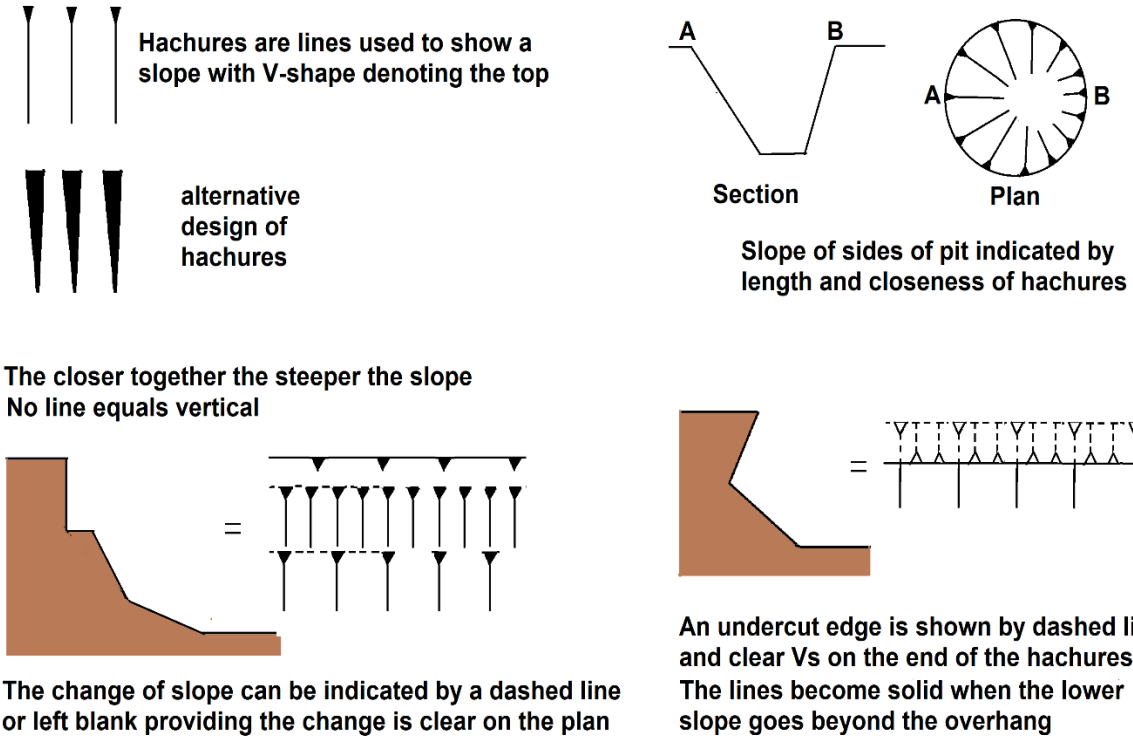
9.2: Line and hachure drawing conventions (after MoLAS 1994)

Basic lines



Hachures

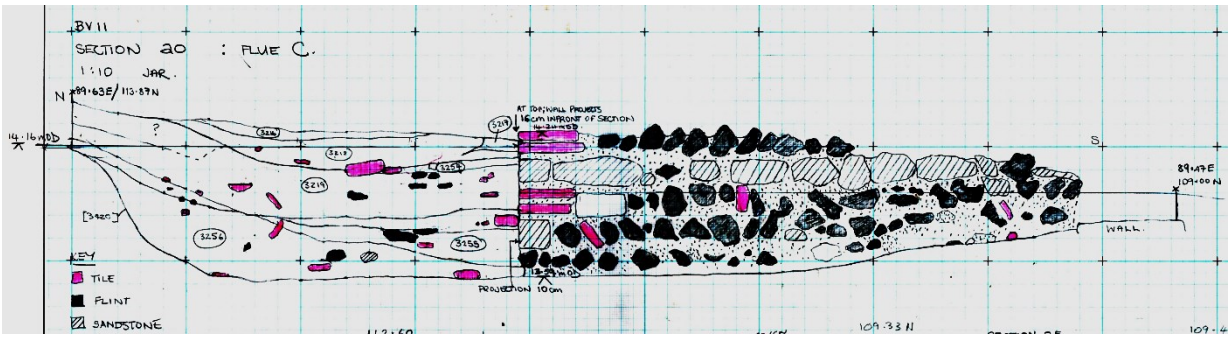
A convention for showing the slope of a feature in a plan



9.3.1: Drawing a section

The first thing you need to do is set up a string line between 2 nails or surveyor's arrows usually just above the top of the section to be drawn. This is made level by using a string-level. It is unlikely that the ground is level and you may need a longer support for your string at one end than the other. On long sections this can be extreme to the point where a road-iron or fence support is used at one end or you can have a stepped line (as demonstrated by Jane Russell in drawing a wall elevation at Barcombe bathhouse below). On deeper sections you may need to position your string-line about midway down the section in order to keep the vertical distance shorter and easier to measure accurately.

Jane Russell with the string-line stepped at the end of the wall



Jane's finished section: note the key of the colours and hatching used for various materials, the site coordinates at the ends of the section and the site level on the string.

The stringline is your horizontal standard and is used in a similar way to the baseline in surveying in that all points of the section are now measured to it. A tape measure is secured to the same supports as the string with zero at the left-hand end. It is now possible to use a second tape or rule to measure vertically down the face of the section from the string line, using the horizontal tape to get a 2D fixed point for any point along the section. It is sometimes easier to have 2 people, one measuring and one drawing.

It is best to start with the top (ground/trench level) and bottom of the section then continue with any obvious context changes and pick out the larger artefacts or stones, finally filling in the smaller details. I find it best to define/colour the different materials as I draw them. Overcuts and purely excavation lines should be shown in a dash and dot line to differentiate these from the solid lines depicting the archaeological (see 9.2).

Use a plumb-line or spirit level for longer verticals and/or to tie in a few salient points so that you can then proceed with reasonable accuracy by just judging the vertical on most of your measurements.
As **Sections are drawn at 1:10** each 10mm (1cm) measured is represented by 1mm on the drawing so never measure below the nearest whole cm.

The adjacent table gives some of the more common colours and hatchings used on CAP drawings. If in doubt, make sure you make your symbols clear in a key but avoid the standard symbols for other materials. If in doubt, make a clear note adjacent to the object.
Remember to add significant context numbers plus the **Level register number** (not the level) of any level taken (string-line, feature top and bottom, special find etc) and the coordinates at **both ends** of the string-line. It is helpful to put the level register numbers and levels in a small table adjacent to your drawing, i.e. No.34=7.254 No.35=6.862 etc.
A context matrix can also be added on more complicated sections

IMPORTANT: Remember to take and record the two string-end coordinates and the string-line level before you remove it or leave it overnight. It is these figures that locate the section in the plan and stratigraphy of the site. WITHOUT THEM YOUR DRAWING HOWEVER GOOD IS NEXT TO USELESS!

Some features, like the well in 2017, need two people: one to measure and one to draw

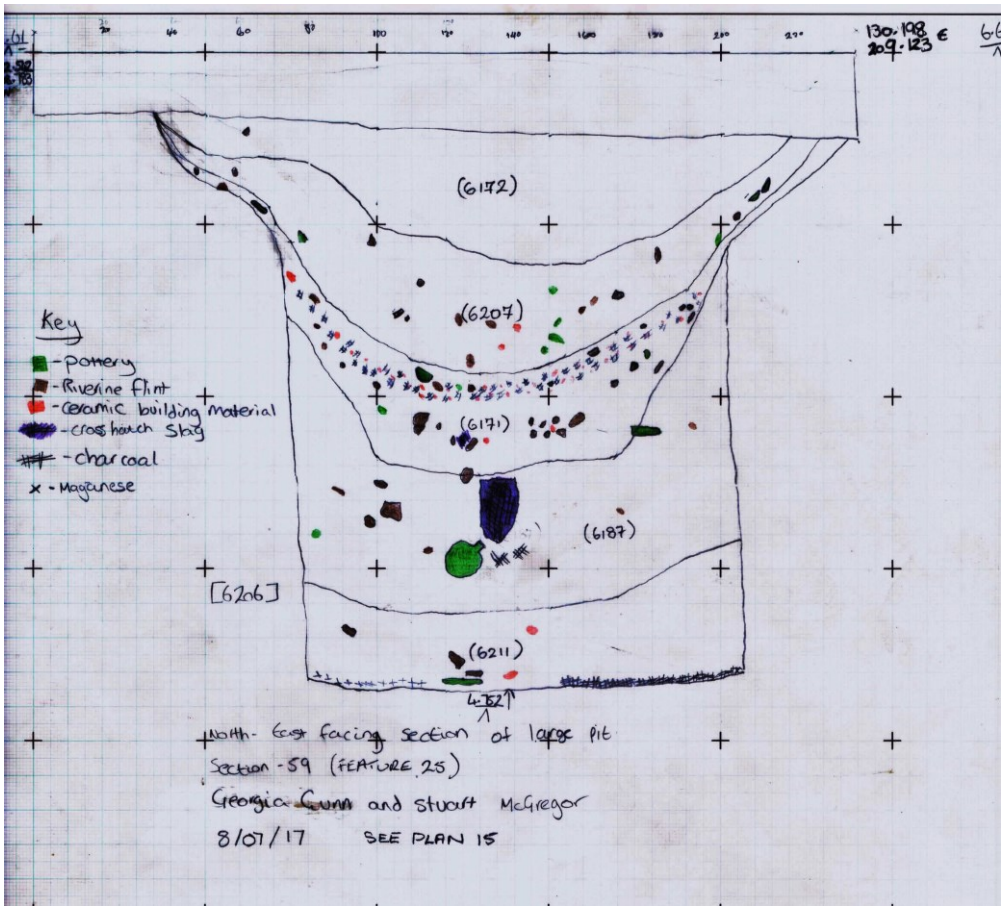
	Bright red for ceramic building material
	Orange for burnt/fired clay (not CBM)
	Mid green for pottery
	Black for downland flint
	Brown for riverine flint
	Grey for fire cracked flint
	Yellow for sandstone Crosshatch in red lines if iron-rich
	White for chalk
x x x	X's for manganese
	Crosshatching = pieces/areas of charcoal
	Pale purple crosshatched for slag
fe	Deep purple for metal – mark with chemical symbol or name e.g. fe, cu, pb or iron, copper, lead.
	Blue for glass
	Black horizontal lines for wood; straight for long grain and curved for end grain. Can be coloured light brown
34	Line on arrow for level with the level register number over
N	N above an arrow for north sign

9.3.2: An example of Site Photograph & Section Drawing from Trench 6 at Bridge Farm

Site Photograph of the square pit F25 (BF17) taken from surface level distorts the profile of the feature.

Matrix:

(6172)
(6207)
(6171)
(6187)
(6211)
6206



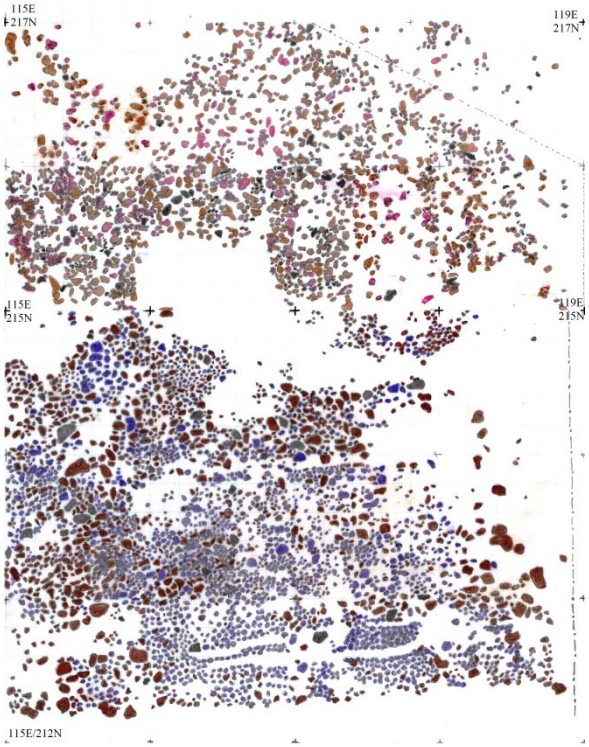
Section Drawing $59 measured and drawn to 1:10 scale from a levelled string line shows the pit in true proportion and shows the context number of each fill and the cut as well as inclusions in the section such as the small complete pot (green globe) in (6187).

N.B. The original had site coordinates for both ends of the string and its level accurately locating the section in the plan and stratigraphy of the excavation/archaeology

9.4.1 Drawing a plan

There are 2 main ways of plan drawing both of which have their exponents and there are specific types of site and/or features for which they are best suited.

At CAP we have always been keen on the traditional **1m square planning frame** as shown in the adjacent photograph and plan which show what two novice planners can achieve using this technique to record the metalling of a Roman road at Bridge Farm.



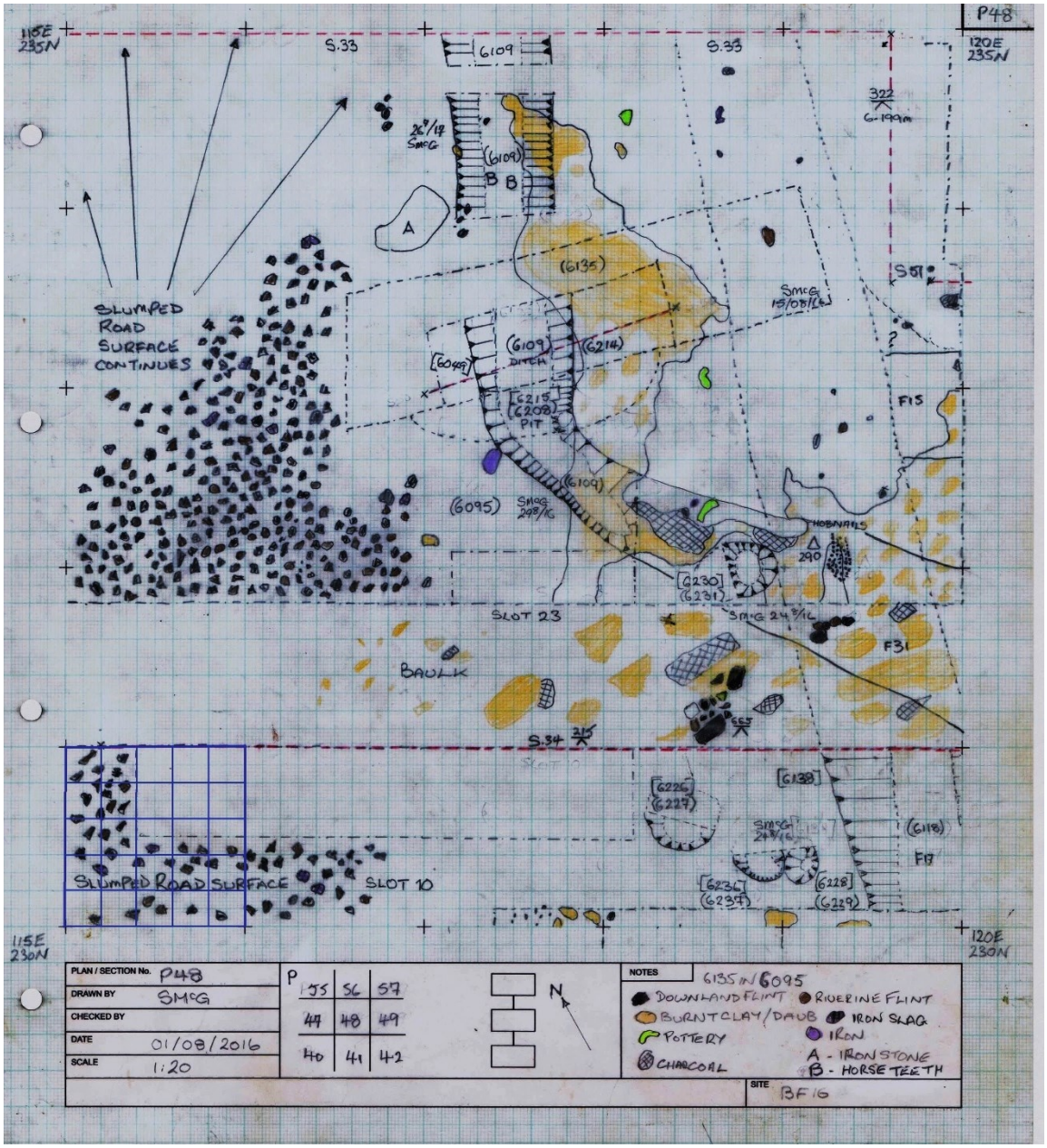
The 1m frame is divided into 200mm squares by strings or wires. At **1:20 scale** on standard graphed drawing film the 200mm squares on the frame are represented by 10mm squares on the drawing. Five of these 10mm squares in each direction, which may have crosshairs in the corners, represent the 25 x 200mm squares in the drawing frame. Each of these 10mm squares is divided into 100 x 1mm squares. As an extra guide the 10mm square is often divided into quarters by a slightly heavier line than the 1mm divisions. The larger plan below also shows the remains of the London Road in Trench 6 plus an adjacent ditch. The road flints were an ideal subject for using the planning frame. The frame is used to cover each metre of the site grid by laying tapes across the grid at metre intervals and moving the planning frame along the tapes or laying out multiple frames carefully together, as in the adjacent photograph. In looking down vertically through the frame it is quite easy to replicate what you see on the ground at 1:20 scale by sketching in each 200mm square of the frame in turn without doing any measuring.

Remember the 1m area of the frame starts on the inner edges of the frame not the outer corner of the frame itself. Nails, tent pegs or surveyor's arrows pushed into the ground inside the corners of the frame will assist in repositioning it for the next metre, whilst multiple frames will need their frames overlapped.

Features like the flints of a road can be quickly replicated and the presumed edges of the road may be drawn in if apparent or shown with a dashed line if unclear. Whilst this is an ideal

technique for sites with lots of detail to record it is time consuming for areas of a site that have little to record. In this situation it is easier and quicker to **use tapes either by offsetting or the swing method** (see Sections 4.3-4.6) possibly only using the frame where sufficient surface detail would make it more practical.

Which method you use is a matter of choice, expertise and time. The important thing is to use the technique you feel most comfortable with and which gives the most accurate result in the shortest time.



Title Panel: *Plan number (48) is entered in the centre box surrounded by the numbers of the adjacent plans; magnetic north, colouring key, date, scale, drawn by and site code also shown*
NB: the heavier blue grid in bottom left corner has been added to indicate the planning frame

All plans are drawn square to the site grid with the lowest coordinates in the bottom left corner this means that 'Site' North will always be at the top of the plan.

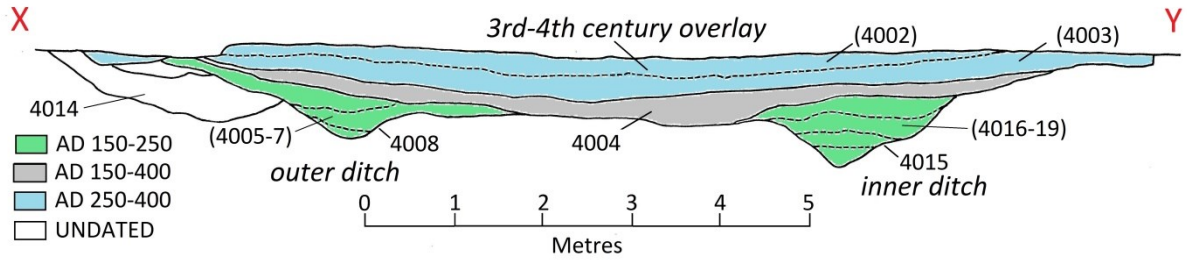
Significant context numbers and site levels are included and the line and number of any sections that have been drawn (this is a red dashed line on CAP plans). At Bridge Farm the use of 250mm square drawing film and a 10m grid means that each grid will require 4 plans with one grid post always recorded in one corner of the plan but this may not be the case on other sites where A2 size drawing film is used giving the equivalent of 10m wide but only 7m high when more careful logging of the grid post locations is then called for as they will not always be in the corners of the drawing sheet. The plans will however still be known by the coordinates of the SW corner even though this may not be located over a grid post (e.g. 110E/207N etc).

The above plan also demonstrates the colouring in materials, use of hachures to show the profile of the excavated areas (see Section 9.2). Hachures indicate the sections of the ditches that have been excavated at the time of drawing. It is perfectly acceptable to make relevant comments on the plans (and sections) at this stage as they are for information not publication.

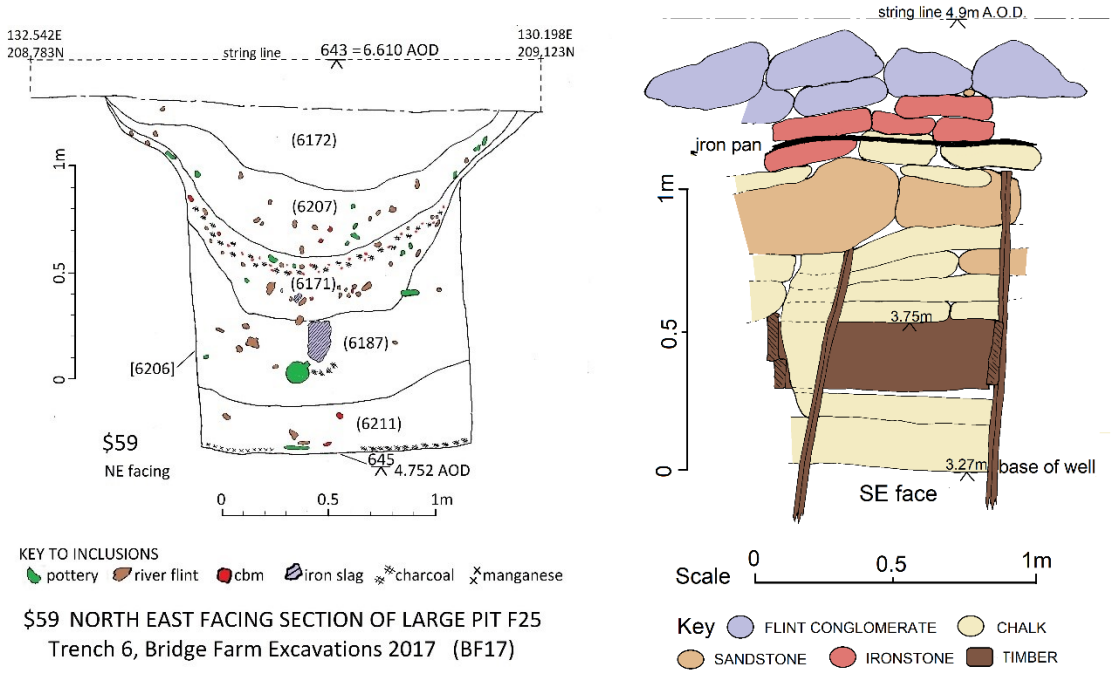
9.4.2 Use of Computer-Aided Drafting (CAD) and producing drawings for publication

Commercial units are increasingly drawing directly in CAD by using high quality GPS measuring devices with built in digital storage that can be downloaded directly into a CAD programme. We feel the images produced by this method lack some of the detail and interpretation that results from a hand measured drawing but it is obviously much quicker. All traditional working drawings will have to be redrawn, possibly using a CAD system, if they are to be used in publications and presentations (see examples below). Looking at previous site plans and sections will give you an idea of what is needed on site whilst perusing illustrations in journals such as the *Sussex Archaeological Collections* and published excavation reports will give you a good idea of what is required for publication. In preparing drawings for publication it is important to make sure you identify contexts and features mentioned in the text and not be afraid to leave out irrelevant details that might distract from what you are illustrating.

Examples of sections for publication

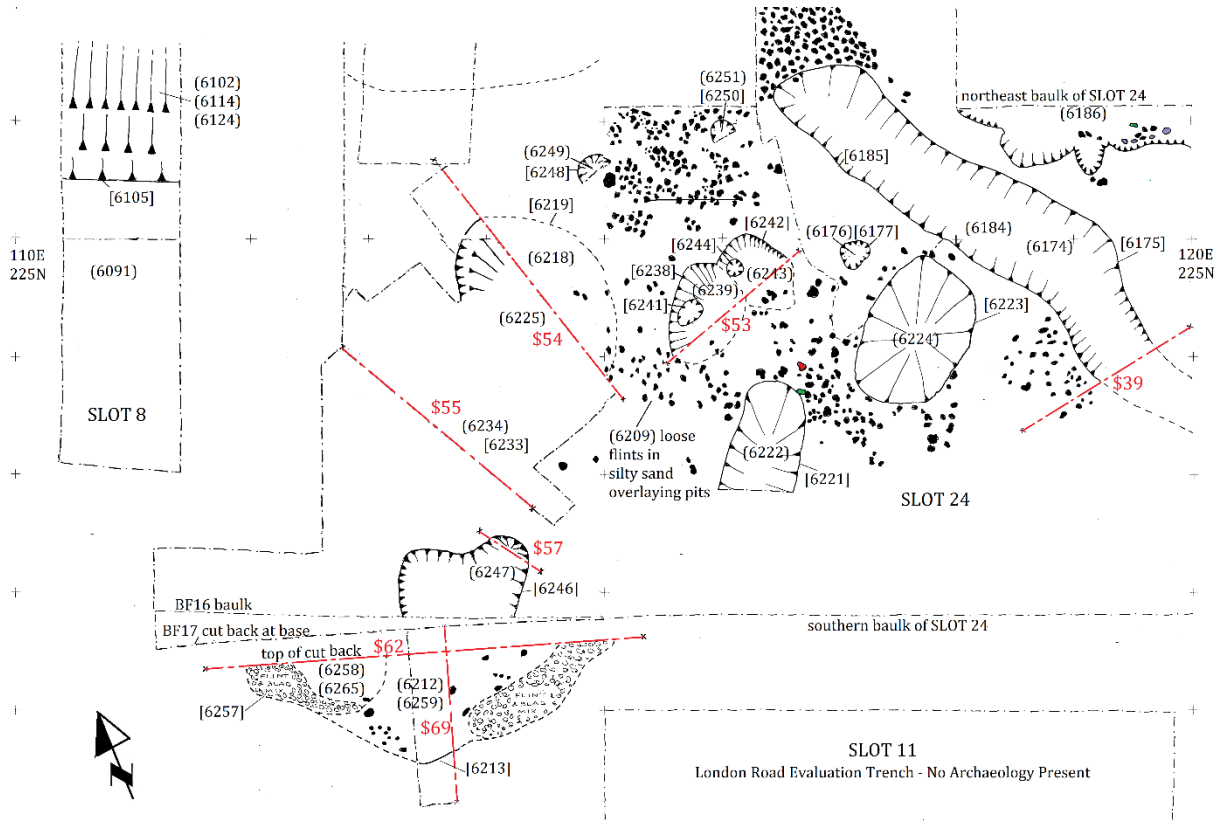


A colour-phased Section of the two enclosure ditches of the Bridge Farm settlement excavated in trench 4 in 2013 and produced from a CAD image for a paper in the Sussex Archaeological Collections 155 p.92 (Millum & Wallace 2017). A simplified and reduced section, with a clear key, notation and scale, to illustrate the various phases of the archaeology thereby highlighting the later deposits overlaying the backfilled ditches.

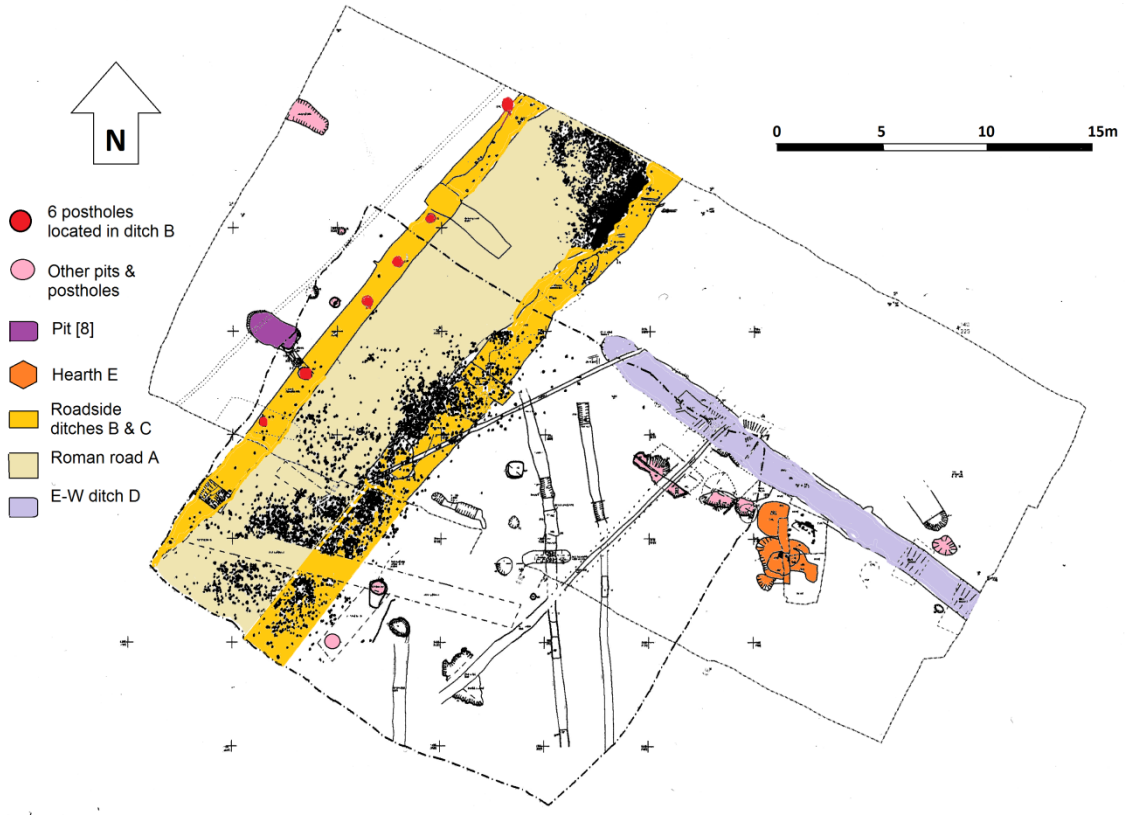


$59 from BF14 (see 9.3.2 above) as a clear coloured line drawing suitable for a post-excavation report and a full colour elevation of the interior of the well from BF17 ideal for powerpoints & publications

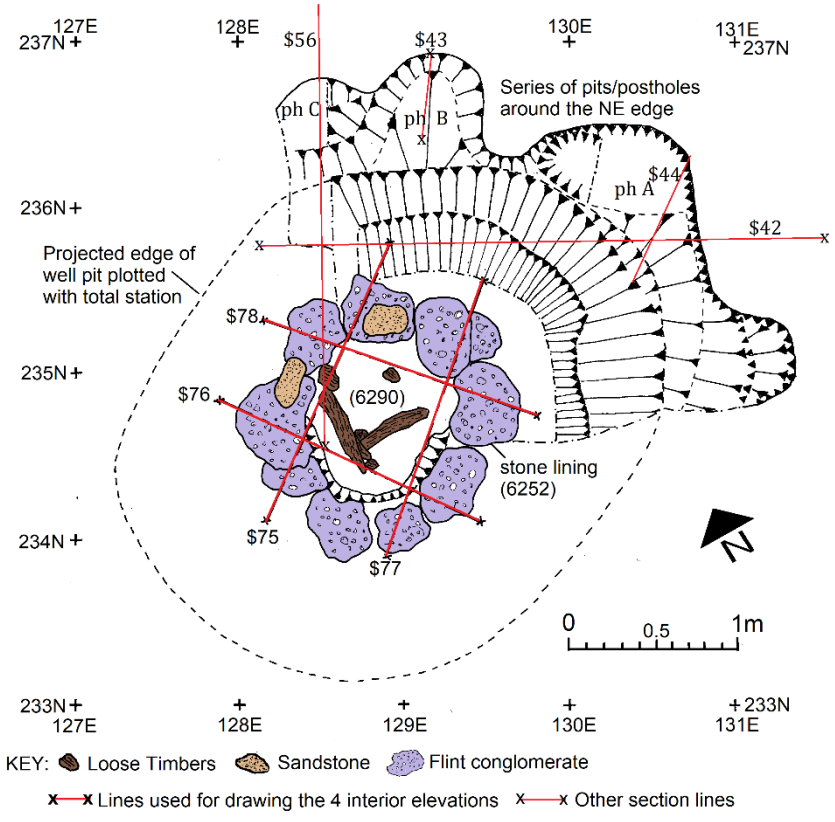
Examples of plans for publication



Trench Area Plan *produced for the Bridge Farm 2015-17 post-excavation report from four of the onsite, hand-drawn plans (note the hachures, varying types of line and context & section numbers).*



Trench phase plan *combining PF07 & PF10, CAD site plans into a full trench site plan, digitally coloured to show the various Roman period features discovered in the overlapping 2007 and 2010 trenches in Pond Field at Culver Farm produced for the Pond Field 2005-10 post-excavation report (Millum, 2016).*



Single Feature Plan *of the well F26 in Trench 6, Bridge Farm drawn by combining elements from four site plans in order to show the complete feature in isolation for publication purposes.*

310: Photography; general site and specific features & artefacts

10.1: Equipment and purpose

At CAP we are very traditional in our objectives with site and artefact photography. On many sites you now find only Digital SLR photography but at Bridge Farm we not only take a digital image but also use traditional film SLRs to take monochrome negative and colour slide images. We also may well have a second digital camera taking general people and action shots and occasionally even a small video camera capturing the site and work as it progresses. At times we will also be visited by associates flying a drone attached with a remotely operated camera which can take vertical shots and video from above the site.

Why so many cameras and so many different media?

The Drone gives a view of the site that is unique and is almost as valuable as the carefully produced site plans. In flying around the surrounding area it can also put the site in a wider context, e.g. with regard to the River Ouse and the South Downs. One drone operator, Robin Day, supplied a film to music of the 2014 excavation to introduce our presentations and talks.

The Video gives us a record of events as they happen, of the people involved, discoveries made and the methodology being practiced. It can be uploaded to the website to add a bit of life to the otherwise more static news items and excavation diary, it might even form part of a TV programme as happened with *Digging For Britain* in 2019.

The 'Random' Digital allows photographs to be taken quickly without the preparation that goes into the official site photos. It is the camera that often gives us the shots for the website and for popular articles for *Sussex Past and Present* or *The Sussex Express.* It supplies the people shots that make an archaeological site come alive. Always remember that archaeology is ultimately about people, both those of the past who created it and those of the present who rediscover it; both are equally important.

The 'Official' Digital SLR is used for the official site and artefact photographs and forms one part of a triple archive. These photographs will be the ones used in the grey literature and published reports. The process for taking official photographs is explained in Section 10.2.

The 35mm SLR for colour slides is used to take the same shots as the Official Digital SLR but uses colour slide film for archival purposes. Colour slides have proved their longevity and although rarely used for slide presentations are required by best practice for long term archival storage. Film: Fuji or similar 400 ASA colour slide, usually with prepaid developing.

NB. Make sure that it states E6 processing on the box; avoid C41 film.

The 35mm SLR for monochrome film has a similar function to the colour slide camera as monochrome negative film has a well proven longevity as well as producing very sharp and clear prints for use in formal papers and journals, but primarily it is used for its archival role. Film: Ilford or similar 100ASA monochrome, now requiring specialist developing and printing.

NB. As with the colour slides do not buy C41 processing film as this is not true monochrome.

10.2: Taking Official Site Photographs

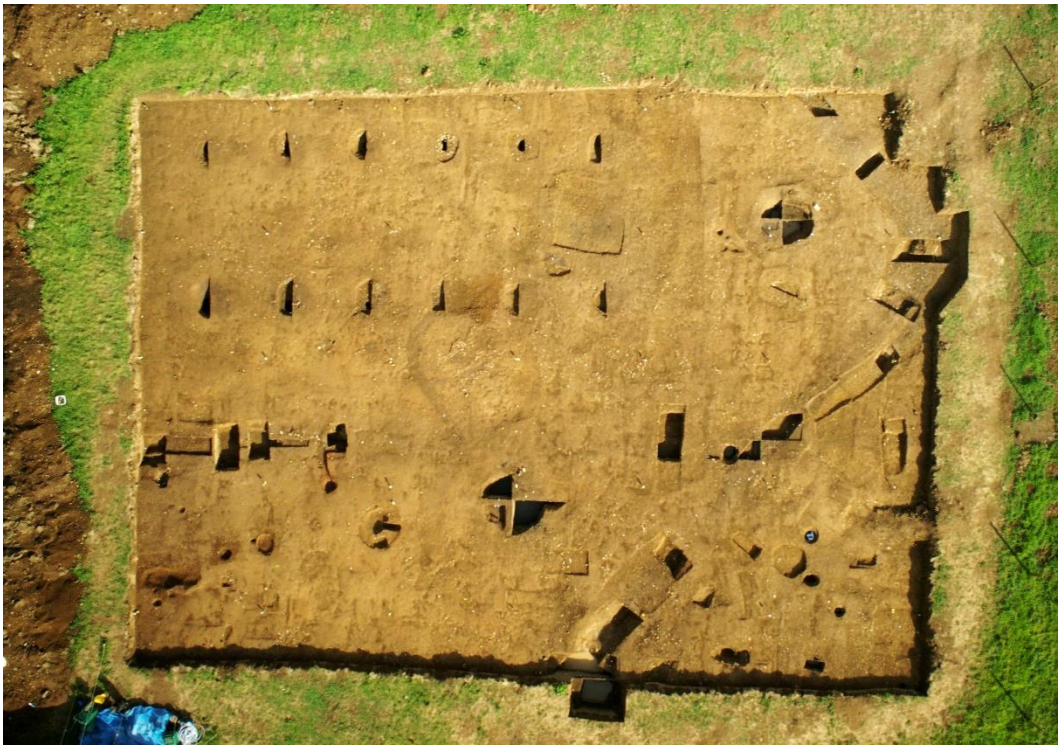
Official site photographs are taken of every section and every significant feature and artefact. They are usually taken by one individual who has the task of keeping the photographic record and recording precisely what has been taken in the **Site Photographic Register.**

When an excavator has completed their section drawing (or possibly before they set up if at the end of the day) they should request an official set of photographs be taken. This will require all equipment to be removed and the area around the feature to be brushed clean of footprints and other extraneous distractions. The site photographer will then add one or two photographic scales to the area (v*ertical scales should not go beyond the surface unless unavoidable)* and a notice board giving the site reference and context numbers (see example below). It is best to avoid contrasts between bright sunlight and strong shadows even if this means getting a tarpaulin held up to block out the sun. The register entry will include: the reference of the shot on each camera, the contexts, the reason for taking the shot, the date, the photographer, the direction from which the shot was taken and any other comments felt relevant e.g. dull or very bright etc.

Official digital shot of the two roadside ditches sectioned at the north baulk of trench 6, Bridge Farm 2017 with 2m horizontal and 1m vertical scales, north sign, data board location with area cleared of equipment and loose spoil and minus extreme contrast.

It can also help to lightly spray the section/area with a fine water spray in order to bring out the contrast of different contexts that may appear almost identical when dry. Whilst scales are essential to give a dimension to any feature do not be tempted to over-scale and possibly even take some secondary shots clear of all equipment to emphasise the archaeology.

On the next pages are some examples of other types of photographs that can be useful and/or essential for publication and archive.



Aerial site photograph taken from a drone of the 2014 Bridge Farm excavations
NB. A 'T' of 2m ranging poles would have given scale and potentially orientation

Shots of significant features like this forging hearth from BRF14 are crucial but so are dynamic people shots, e.g. Rob with a carved timber, for both publicity and general interest.

In situ artefact shots taken during excavation capture a moment in time that subsequent excavation will probably destroy, as in this case of a waterlogged post base during a brief period between pumping out surface water and its rapid refilling

Site photography summary

- Photograph all sections and features.
- Photograph anything inherently difficult to record by other means.
- Photograph to obtain a colour image.
- Photograph for publicity, presentation and publication shots.
- Photograph anything that will assist post-excavation interpretation.
- Photograph general shots of the site and of people working on site.
- Photograph people - people make archaeology.
- Take casual shots especially at the end of a day; overnight rain can destroy a section!

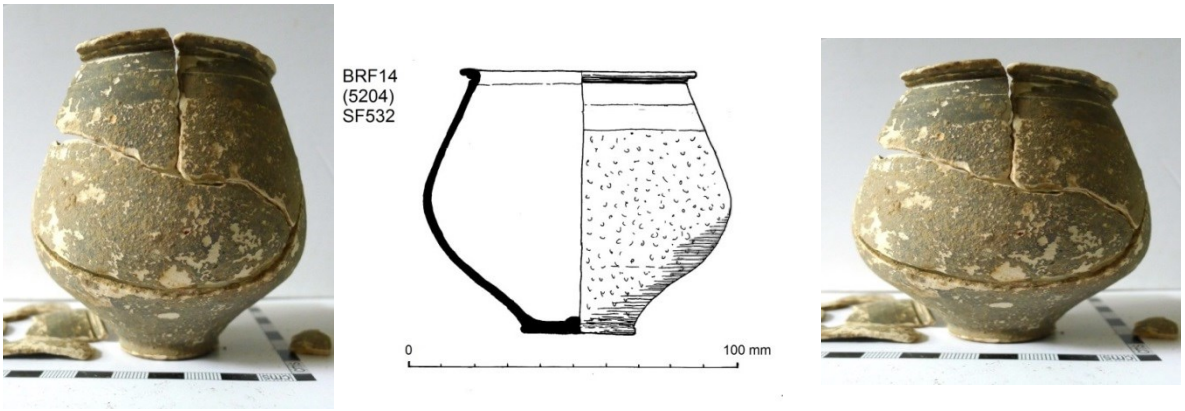
10.3: Taking Official Artefact Photographs

All Special Finds and other significant finds often need photographing at several stages.

1. in situ before risking removal of a possibly delicate object
2. after removal but before cleaning
3. after cleaning but before being boxed and packaged
4. under studio conditions when being recorded for the Special Finds Register and/or publicity photos

Artefact photos also need to be given **scale** by some means. This will usually take the form of adding a small photographic scale but could be as simple as adding a current penny or similar well-known coin. Some objects need **light and shadow** to show their detail whilst others look best in a blander light. **Beware of distortion** particularly on close-up shots (see beaker example below). As with this beaker, photographs can often be taken of temporarily reconstructed items without permanently affecting their integrity.

There is no substitute for practice/experience in taking artefact photographs. Try to reflect on whether your image shows the object at its best and true to its form. Experiment with artificial light and daylight, try macro and then zoom in from further away with telephoto, decide which is the truest likeness.



Photograph and scale drawing of a Nene Valley Bulbous Beaker from BRF14. Note how coming in close with the camera (left) has distorted the shape of the beaker making it look too tall. The photograph adds colour and texture whilst the drawing gives accurate perspective. Both are of value and a digital photo can be manipulated to a somewhat truer image (right)

Larger items need larger scales and possibly images taken from many sides at different stages such as the unique Roman-period carved timbers SF 5.42 and SF 5.78 from Trench 5 Bridge Farm 2014.

SF.5.42

SF.5.78

Traditionally photos are lit from the top left. Coins may need light shone across the surface to pick out detail not otherwise seen. LED lighting gives a good light and does not distort colour as much as some other forms. On the examples to the left the camera has not been positioned vertically over the object as can be seen by the angle of the scale on the left-hand side. But light has been used to good effect to show up details on the faces of the Diva Favstina coin that otherwise may not have been as noticeable.

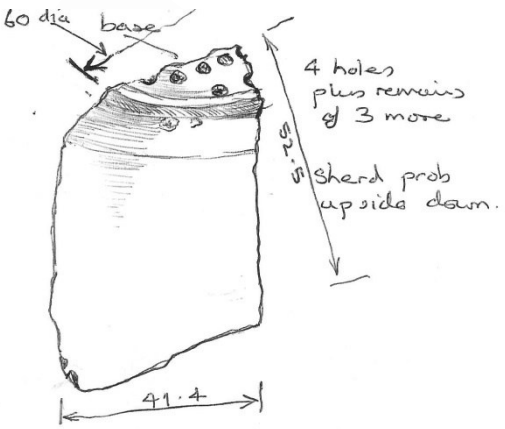
Very small items can be enlarged to show detail difficult to see at normal size. This silver ring bezel is only 9.4mm wide and the remaining inscription 'TER ELIX' could not be read at actual size. Enlargement and low lighting brought out the letters so that the full inscription of VTERE FELIX could be interpreted as *'use with happiness or luck',* a common charm used in the 2nd to 4th century.

Items likely to perish should be photographed at once before any attempt at cleaning or conservation, like this heel of a waterlogged sandal with in situ hobnails (left). This item subsequently disintergrated in the

conservation lab so these early shots are now all we have to show the form of the shoe when discovered.

Some items just demand to be photographed like this delightful zoomorphic enamelled brooch found by metal detecting around the BRF14 site. Photographing against a black background makes the item come alive despite not having been cleaned due to the delicate nature of the enamelling. The colour scale also ensures good colour reproduction when used for publicity purposes and a small piece of blue-tack keeps the item level without causing any harm.

However sometimes a simple sketch can show much more detail than even a well taken photograph as shown in the base of a pottery sieve below.



10.4: 3D Imaging

A recent development has been the availability of **free software** to convert a series of digital photographs of an object into a **3D image** which can then be manipulated by the software to allow it to be turned around to give practically any view required. We are experimenting with this technique on both artefacts and excavated features. 3D images are one step away from 3D copies which could be ideal for school handling collections or wider display opportunities as 3D copiers become more generally available and the process gradually gets more affordable.

11. Finds general and special; which is which, what to do and what NOT

11.1: On site:

11.1.1: All general finds are recorded by the context in which they are located. Make sure that all finds trays are securely labelled and where practical transfer your finds into an indelibly marked sealed finds bag. If metal items are included, then make sure the bag is pierced and finds processing personnel are notified. Fragile items especially bone and glass should be separated into sealed bags marked with the material as well as the context. **It is the excavator's responsibility to deliver their finds in an unambiguous manner to the finds department securely labelled with correct context and site code.** All artefacts will be dealt with in accordance with the CAP General Finds Collection Strategy document (See section 11.5) and after recording the artefacts will be archived or disposed of in accordance with CAP overall policy.

NB. Do not attempt to 'clean' any finds on site using your trowel or similar implement. Leave it to the finds processors who have the right equipment for each artefact.

Finds only come from deposits, if you have finds from a 'CUT' you have the WRONG number!

11.1.2: Special Finds (SF) are given a unique identifying number **(UID)** and three dimensionally located **(3D'd).** Alert a supervisor to any find you think might be regarded as 'special'**. Special Finds** will include all items of **precious metal**, all **waterlogged organic i**tems i.e. **wood** and **leather**, all **coins,** identifiable **metal objects** (single nails may be excluded subject to director's instructions), and **any artefact where precise location is crucial to the understanding of the site**. If it is necessary to remove the artefact prior to recording, then the precise location (in 3 dimensions) must be marked with a nail/golf tee and/or a waterproof label marked indelibly with the unique SF number (UID) and the area avoided until recording has taken place. Special Finds need to be logged in the **SF Register** and have an individual SF form filled in with drawings and photographs, dimensions, weight, material, description. This will usually be partially filled in on site and then completed by a supervisor in the finds unit.

See SF form 5.42 below which being a unique waterlogged timber also had a special timber form completed as well.

CAP CULVER ARCHAEOLOGICAL PROJECT

BRIDGE FARM 2014
SPECIAL FINDS SHEET

SF No. **5.42**

SITE /CODE:	TRENCH	FEATURE	CONTEXT.	GRID CO-ORDS	REDUCED LEVEL
BRF14	5	004	5215	118.65 E / 221.07 N	3.125 OD to top of timber

DIMENSIONS (mm) 500 long x 180-200 depth x 120 width o/a

WEIGHT (gms) N/A

MATERIAL: waterlogged carved timber

PLAN & SECTION Nos. N/A

PHOTOGRAPH Nos CAP 0224-0227

HOW FOUND: excavation of lower fill in pipe of PH9

DESCRIPTION

Ogival carved timber used as postpad in bottom of pipe of PH9. As should not be exposed to air or light and waterlogged the weight not taken. Remains kept in water in dark until able to procure conservation and dendro dating. Removed as very rare find on Romano site and therefore requires further investigation and conservation; see also 5.78, 5.79, 5.80. See also Post Ex Wood Record

LOCATION AND IMPORTANCE TO SITE INTERPRETATION

Carved timber used as postpad must be older than post building and possibly is spolia from another structure on the site. Dendro dating and research on original purpose highly desirable.

INTERPETATION/SPECIALIST ANALYSIS

Damian Goodburn has suggested this could be the eaves end of a Roman-period roof rafter. If so, it is one of only 2-3 possible roof timbers from Britain; one of the others being the smaller carved timber SF5.78 also from posthole PH9, Trench 5, BF14. The oblique slot should be position horizontally as the housing for some form of soffit board.

Cont'd on next page

NAME OF FINDER:	NAME OF RECORDER	CHECKER
Franz Plachy	David Millum	David Millum
DATE FOUND: 04/08/14	DATE: 25/08/14	DATE: 10/10/14

CAP.

~~York Archaeological Trust~~ Post Excavation Wood Record Sheet	Site Code/ Accession No: BRF 14.	Timber or SF No: SF 542
Site Name: BRIDGE FARM, 2014.	Context No: 5215	Area: F004 ~~TRENCH 5~~

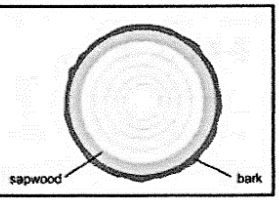
Type: CARVED SAWN TIMBER	Cross Section:
Condition: STILL FIRM BUT SHOWING SIGNS OF LONG TERM DECAY	

OA Dimensions m/mm:

Length	500
Width	180-200
Thickness	120
Diameter	N/A

Cross Section Sketch:

	Yes	No
Bark	☐	☑
Sapwood	☐	☑
Knotty	☐	☐
Straight Grained	☑	☐



Further Research Potential:

	Yes	No
Dendrochronology	☐	☐
Tree ring Study	☐	☐
^{14}C	☐	☐
Display	☐	☐

Species Identification:

Conversion:

Woodworking technology:

Tool Marks

Joints POSSIBLE LAP AND DECAYED MORTICE AT OTHER END FROM ORGININE CARVING.

Fixings and Fittings OBLIQUE SHAFT CUT INTO ONE SIDE COULD BE CHANNEL FOR ROPE FIXING OR TO HOUSE A RUNNING BOARD OR SOFFIT

Intentional Marks

Surface Treatment

Other TIMBER OBVIOUSLY REUSED FROM OLDER BUILDING SO MAY HAVE HAD DECAY BEFORE USE AS POST PAD.

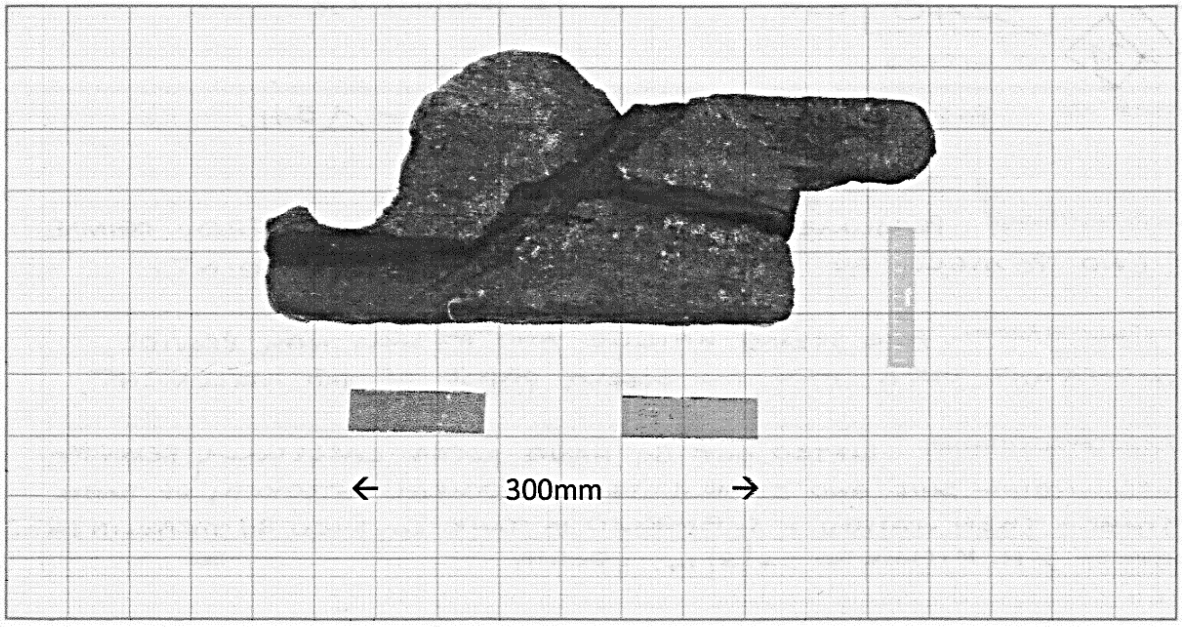
Reused: Y ■ N ☐ Not Known ☐

Recommendation: Discard? ☐ Discard after further research/sampling? ☐ Retain and Conserve ■

Checked:

Date:

Measured Sketch: SEE FULL SIZE DRAWING No.



542 sheet ~~page~~ 2.

C.A.P.

~~York Archaeological Trust~~ Wood Record Sheet	Site Code/ Accession No: BRF 14	Timber or SF No: 542
Site Name: BRIDGE FARM 2014.	Context No: (5215) F004	Area: T5

On Site Recording: Context Information

Co Ordinates		Reduced Levels:			
E	N	1 ~~200~~ 3.125		8	
118.65	221.07	2		9	
		3		10	
		4		11	
		5		12	
		6		13	
		7		14	
				15	

Orientation:

Drawings and Images	Overall dimensions in mm
Plan Nos:	Length: 500
Section/Elevation Nos: S24.2	Width: 180-200
Photo Reference Nos:	Thickness: 120
	Diameter: —

On Site Recording: Interpretation.

Stratigraphic Position:

5152 FILL

this context is 5215 FILL

ENVIRO SAMPLE 5240 CUT

34 10 LITRES.

Physical Associations: THE TIMBER WAS LYING FLAT ON ITS SIDE UNDER REMAINS OF POST △541 ACTING AS POST PAD FOR BUILDING F004 PEICE OF 'SPOLIA' FROM OLDER STRUKTURE

Dating/Phasing: PRE-DATES BUILDING F004 IN ITS PREVIOUS USE.

Function as Found: POST PAD TO SUBSTANTIAL POST △541.

Ancient or Recent Damage: PRESUME TRUNCATED AT END AWAY FROM OGIVINE END POSSIBLY AT REAR OF A LARGE LAP JOINT.

Special Reasons for Recovery: PEICE SEEMS UNIQUE AND AS SUCH MAY PROVIDE IMPORTANT DATA INTO AN EARLY PHASE OF THE SETTLEMENT.

Method and Conditions of Recovery: LIFTED OUT BY HAND AFTER CAREFULLY REMOVING SURROUNDING SOIL AND ESTABLISHING STRUCTURAL INTEGRITY OF TIMBER TIMBER THEN WAIHED & SUBMERGED IN TANK COVERED BY TARPAULIN SHEET.

Completed By: P.H. MILLUM Date: 24/8/14. | Checked By | Date:

Fig 18 and 19 Wood recording sheets for use on site and for post-excavation (© York Archaeological Trust).

11.2 In the finds unit

11.2.1: CAP artefact conservation

Participants will be informed of those items, such as metal, glass and other susceptible objects, which should be reported to the designated finds supervisor who will undertake any necessary immediate on-site conservation and specialist packaging in accordance with the procedures recommended in *First Aid for Finds* (Watkinson & Neal, 1998) and by the Portable Antiquities Scheme (PAS) in *Conservation Advice Notes* (Jones, Paterson, & Spriggs, 2005) available as a free download from:- http://finds.org.uk/documents/file/conservation.pdf.

Conservation of the general finds will be secured by storage of the assemblage in appropriate, robust containers with suitable (acid free) packing material used to restrict internal movement and create the requisite conditions for the specific artefact type.

11.2.2: Post-Fieldwork Methodology

Those finds that are not susceptible to damage by water will be washed in clean water, using a soft brush, and when dry marked with the site and context codes. Other items will be carefully dry brushed. In most cases cleaning is only needed to assist identification and to remove excess soil prior to weighing and recording and therefore care will be taken not to over-clean items. All items will be dried naturally, but not in direct sun light before re-bagging and/or boxing.

The contents of each bag will be recorded on to the finds record sheet by number of items and weight under the designated type per context forming the paper record of all the artefacts collected. The paper record will be subsequently transcribed into a Microsoft Excel database to form a digital record which aids interpretation of the data and subsequent production of the post-excavation report. Before undertaking any finds processing, please read and become familiar with the ***'Culver Archaeological Project Finds Processing Guidelines'*** prepared by our Finds Coordinators, Nancy Wiginton and Ann Best (see 11.5 below).

11.2.3: Conservation and specialist reporting

CAP have excellent relationships with the conservation units of several universities that have helped us in the past conserve finds that the project could otherwise not have afforded. We also have been very fortunate in securing the services of well-regarded specialists to undertake artefact reports, in some cases for free. This has helped to fund the full range of post-ex services that this growing project demands. We also regularly apply for grants from various organisation concerned specifically with archaeology and conservation for funds to cover the more exceptional finds or larger assemblages. We thank all those involved in making our required post-ex work possible on our limited budget.

11.3: Ownership and Treasure

11.3.1: Ownership of artefacts and 'Treasure'

It has been agreed with the land owners that all artefacts without great monetary value shall become the property of CAP on collection. Valuable items remain in the ownership of the landowners until they have signed a release. Items deemed as **'Treasure'** will be reported to

the local Finds Liaison Officer (flo@sussexpast.co.uk), and/or the British Museum, and if confirmed as Treasure will be reported to the local Coroner as per the legal requirements. All items of precious metal (gold and silver) are potentially 'Treasure' (see 11.3.2).

11.3.2: Summary Definition of Treasure (http://finds.org.uk/treasure/advice/summary)

The following finds are Treasure under the Act, if found after 24 September 1997 (or, in the case of category 2, if found after 1 January 2003):

Any metallic object, other than a coin, provided that at least 10 per cent by weight of the metal is precious (that is, gold or silver) and that it is at least 300 years old when found. If the object is of prehistoric date it will be Treasure provided any part of it is precious metal.

Any group of two or more metallic objects of any composition of prehistoric date that come from the same find (see below)

Two or more coins from the same find provided they are at least 300 years old when found and contain 10 per cent gold or silver (if the coins contain less than 10 per cent of gold or silver there must be at least ten of them). Only the following groups of coins will normally be regarded as coming from the same find:

- Hoards that have been deliberately hidden;
- Smaller groups of coins, such as the contents of purses, that may have been dropped or lost;
- Votive or ritual deposits.

Any object, whatever it is made of, that is found in the same place as, or had previously been together with, another object that is Treasure.

Any object that would previously have been **treasure trove**, but does not fall within the specific categories given above. Only objects that are less than 300 years old, that are made substantially of gold or silver, that have been deliberately hidden with the intention of recovery and whose owners or heirs are unknown will come into this category.

Note: An object or coin is part of the *'same find'* as another object or coin if it is found in the same place as, or had previously been together with, the other object including finds that may have become scattered since they were originally deposited in the ground.

11.3.3: What should I do if I find something that may be Treasure?

An individual/unit **must** report all finds of Treasure to a coroner for the district in which they are found either **within 14 days** after the day on which **you made** the discovery or **within 14 days** after the day on which **you realised** the find might be treasure. Your local **Finds Liaison Officer** can assist you in determining whether a find constitutes potential Treasure and can report the find to the coroner on your behalf.

11.4: Further reading for finds

Watkinson, D & Neal, V., 1998. *First Aid for Finds* (3rd ed) Rescue/UKIC Archaeology Section

Jones, Paterson, & Spriggs, 2005. *Conservation Advice Notes* available as a free download from:- http://finds.org.uk/documents/file/conservation.pdf.

http://finds.org.uk/treasure for information on the Treasure Act
http://finds.org.uk for information aimed at metal detectorists but giving good basic guides on many aspects of finds processing.
Hodges, H., 1989. *Artifacts: An introduction to early materials and technology. Gerald Duckworth & Co Ltd.* General book on materials and manufacturing techniques used in the past. First produced in 1964 so look for cheap second-hand copies.

11.5 Culver Archaeological Project Finds Processing Guidelines

11.5.1 Bagging unwashed finds

On site, finds from the finds trays should be put in old/used bags and clearly labelled with the site code and context number e.g. BF22 (7-235). Do not use the clean, 'press seal' bags that have white strips. They are for clean finds.
NB. BF22 stands for the site, Bridge Farm, and the year, 2022. The context number starts with the number of the trench i.e. 7-000 (aka7000) upwards for trench 7 and then has 3 digits to allow for going over 100 contexts (e.g. 7-123). In 2022 contexts originally dug in 2018-21 will retain the same number if revisited in 2022 but the site code used will be BF22.

1. Make sure any old context numbers on the bag have been crossed out thoroughly.
2. Seal the bag with a twist tie.
3. Place the bagged finds in the "To be Cleaned" box.

11.5.2 Cleaning

- Wash gently. Scrubbing can damage the surface and decoration. It's a balance between getting the piece clean enough to analyse and mark without eroding it.
- Water that is too dirty leaves a dirt film on finds so they are difficult to mark and analyse.
- Never wash the following:
    - All metal objects such as nails etc. (but metal slag can be washed or brushed)
    - Charcoal
    - Plaster or fired clay e.g. daub
- If you find any non-ferrous metal objects or interesting iron objects show them to the special finds supervisor or a director.
- If in doubt about anything, ask rather than guess

1. You will need a white washing tub, a toothbrush for washing, a paint brush and a nail brush (for brushing finds that cannot be washed), a drying tray lined with newspaper, masking tape and a marker pen
2. Be sure the previous context number has been removed from the finds tray.
3. Label the finds tray with the context number that is on the bag of finds. You can do this by writing the number on a strip of masking tape and attaching it to the tray.
4. Fill washing tub at least half full with clean water
5. Refill with clean water for each bag of finds (unless doing a bag with only a few finds)
6. For large bags of finds you will need to refill your tub with clean water 1 or 2 times

7. Wash one piece at a time - do not empty bags of finds into the water or immerse individual finds unnecessarily; wash above the water not in it.
8. When washing **bone or teeth**, avoid immersing in water at all as it takes a long time to dry wet bone and if fragile it may disintegrate.
9. Wash the front, back and edges of pottery sherds, so someone later examining the sherd can see the inclusions in the fabric. Concentrate on the job in hand at all times.
10. Place washed pieces, convex side up so water drains off, into the paper-lined tray. Replace paper if wet and dirty from previous contexts.
11. Lay pieces side by side so air circulates. Overlapping pieces don't dry properly.
12. If drying 2 or 3 small bags of finds in one tray, be sure pieces from each context are clearly separated and their section of the tray is labelled with the relevant context number. You can do this by placing a strip of folded newspaper between each context and sticking the numbered pieces of masking tape on the side of the tray next to the relevant pieces.

    NB. Only do this if finds trays are in short supply as a gust of wind or a careless kick of an excavator's boot can and does mix carefully divided finds with no way back.
13. Place the filled tray, uncovered, on the drying table – not in sunlight or pieces may crack.
14. When finds are dry:
    - Sort them into type (pot, flint, CBM, Fe, stone etc.) **But do not mix contexts**.
    - Each type is put into a clean, 'press-seal' bag with white write-on strips.
    - Check the "Finds ready for marking" box to see if there is already a bag for that **type** and **context** number. Add to that if possible. If none there already, use a fresh bag.
    - On a white strip (not on the clear plastic as writing does not stick there), write the site code followed by the context number in brackets, and artefact type - e.g. *"BF22 (7-126) Pot".*
    - Write in small to medium letters/numbers so that bags can be re-used and re-labelled for other finds later.
    - Where possible, write on only one of the white strips, saving the others for subsequent use.
    - If using a bag that has been labelled before, clearly cross out the old details
    - Only fill bags to the top of the top white strip so they do not burst open in transport. Seal well.
    - Iron objects such as nails are labelled as "Fe" (i.e. ferrous) and need to have a few holes punched in the bag (you can do this with a pen) to prevent condensation from forming inside the bag.
15. When bags are sealed
    - Place the bags into the "Finds ready for marking" box in numerical order.

11.5.3 Marking cleaned finds

- Please keep pen nibs clean. Dip them in water and wipe them with paper towel before:
  - using a different colour of ink
  - putting them away, or
  - letting them stand unused for any length of time.

- Finds needing to be marked are:
  - Pot
  - CBM – only large or otherwise interesting pieces, e.g. grooved, curved, etc.
  - Flint (but not Fire Cracked Flint aka FCF)

1. You will need a bottle of clear nail varnish, a fountain pen with a clean nib, white and black ink, a small container of water for keeping the nibs clean, a piece of paper towel for wiping nibs clean
2. Only use black ink on very light pieces (e.g. orange or cream coloured). It cannot be read clearly when dry on grey or dark pieces.
3. Mark each piece with the site code and bracketed context number - e.g. BF22 (7-23)
4. Do not mark pieces too small to take the full code, just add them to the bag.
5. Mark as unobtrusively as possible – near an edge on the inside of pot shards (usually the slightly concave side) or on the least interesting surface if there is no obvious inside. Exception: pieces that are the bottom only of a container can be marked on the bottom (i.e. the outside). Do not mark actually on the edge/side of the piece or close to any decoration or characteristic feature, e.g. a makers stamp or raised relief.
6. Before marking with ink, paint a small strip of clear nail varnish on the spot where you will be marking, to prime the surface ready for ink. If surface of artefact is smooth and secure then mark direct without applying varnish.
7. When the varnish is dry, mark the piece as above.
8. Write as clearly, neatly and small as possible. This is one area where we may have to apply quality control and even politely suggest that less neat markers should not continue marking. Marks may need to be read years ahead and be seen by specialist and even the public so this is a task where we need to be a bit fussy so do not take it personally.
9. Let pieces dry before bagging them up (see guidelines for sorting and bagging marked finds).
10. Clean pen nibs thoroughly before putting them away.

Sorting and bagging marked finds

(this may not be required if already done during the cleaning and marking process)

1. Follow steps in Section 11.5.2 No.14 ‘When finds are dry’.

then

2. The numbers of items in each bag need counting. Count them before bagging them, note the total on a piece of masking tape and stick it to the front of the bag. If adding to a partially full bag, correct the total no. of pieces in the bag clearly. Add new tape strip if required.
3. Place bagged finds in the container labelled for that find type, in numerical order so others can find the bag easily to add to it.

   or

4. If finds are being recorded at this stage, pass the bag to the person doing the recording

5. If recorded place in ‘recorded finds’ box for that type in numerical order. Do not add finds to these bags without liaising with the finds recorder so that you are confident that any additional finds are recorded prior to being added.

11.6: CAP general policy for the retaining, cleaning, marking and disposal of artefacts

TYPE	RECORD	LOCATE	CONSV	MARK	ANALY-SIS BY	ARCHIVE OR DISCARD
CBM – tile & brick	General & possibly separate Tile record	By context	Wash if distinctive not if amorphous	Only if to be kept	CAP & Expert	Keep representative selection plus any pieces of interest after expert assessment and recording when remainder can be discarded in marked location. Check for amphora sherds
Pottery	General & possibly separate Pot record	By context	Wash if not fragile or whole pot (80%+)	Yes	Expert	Keep all for specialist analysis, selected drawing and selection for archive Whole pot may contain data in the fill so should not be washed on site
Prehistoric worked flint	Special Find	By context	Wash	Yes	Expert	Keep all for specialist analysis, selected drawing and archive
Fire-cracked flint	General	By context	Wash if unsure	No	CAP	Sort, weigh and discard, keeping representative selection
Charcoal	General	By context	Bag as found	No	Expert	Bag for potential species analysis and C^{14} dating*
Foreign stone	General	By context	Dry brush	If to be kept	CAP	Unworked – sort, quantify and discard **Check for any quern fragments first**
					Expert	Worked – sort weigh and keep
Slag	General	By context	Wash or brush	No	Expert	Keep a sample of type, quantify and discard the rest in marked location
Glass	Special Find	3D location	Wash and Box	No	Expert	Keep all for specialist analysis and archive. Roman glass can look modern.
Animal Bone	Special Find	3D location	Wash if not degraded	Yes	Expert	As bone is rare in clay soils keep all for expert analysis and archive
Human Bone	Skeleton record	3D locate & plan	Wash if not degraded	No	Expert	Alert requisite authorities. Keep all for expert analysis and potential reburial
Shell	General	By context	Rinse lightly	No	Expert	Keep all for specialist analysis and archive
Iron in disturbed contexts	General	By context or 2D	Dry brush, prick bags, add silicone gel	No	CAP and/or Expert	Keep all. Likely to need expert conservation, possible X-ray and analysis prior to archiving. On Roman site nails can be common but look out for groups & patterns, i.e. shoe shapes.
Iron in other contexts	Special find if distinct	3D location				
Gold, silver, coins & copper alloy	Special find	3D location	Keep dry	No	Expert	Send for expert conservation and analysis prior to archiving. Items of 10% gold or silver and coin groups fall within the Treasure Act, see 11.3.2
Wall plaster	Special find	3D location	Damp surface only	No	Expert	Pack in acid free tissue and support and box firmly for sending for expert analysis and archive
Wood & leather (from waterlogged contexts)	Special find	3D location	Keep as found; most probably damp/wet	No	Expert	Keep in conditions as found with soil packed around it. Keep dark and cool for expert conservation and analysis prior to archive and possible C^{14} dating*. Take photo in case of collapse
Grain & seeds	Special find	3D location	Keep as found	No	Expert	Bag and send for analysis and potentially C^{14} dating*

*NB. On a Roman site C^{14} dating is often too imprecise to be of great use if reliable dates can be obtained from pottery, coins and other artefacts.

12. Environmental sampling and flotation

12.1: What can environmental sampling provide?

The English Heritage/Historic England guide to environmental archaeology states that it *'is the study of past human economy and environment using earth and life sciences. It tells us about ecological, cultural, economic, and climate change'* (Campbell *et al* 2011, p.3).

Questions to address at the planning stage:

- How will environmental archaeology contribute to the projects aims and objectives?
- What worthwhile information will the samples tell us about our site?
- What materials are likely to be recovered from the site's types of sediment/soil?
- What type of features should be targeted

There are no sites where some environmental sampling is not relevant. Ideally sampling will give a good even coverage both spatially and chronologically. However, it is crucial to take specific samples for specific questions; generic, catch-all, samples show a lack of planning and will often result in an unsatisfactory outcome and wasted resources.

The three general categories of data that environmental samples can provide are:

- **Environmental:** landscape and land-use history, ecological conditions in the area and period of activity.
- **Economic**: farming, gathering and the identification of food processing tasks such as the stages of crop processing.
- **Behavioural**: the distribution of biological/organic remains can lead to insights into craft and commercial activity on the site as well as agricultural. In some instances, it can even allow interpretation of the function of specific areas and the time of year these events took place.

12.2: What can you expect to find and how?

The following table gives a summary of the type of animal and plant remains you might find and how you may be asked to extract them. At Bridge Farm we run an extensive flotation programme which may override other methods as bulk samples are taken direct from the context. Some Bridge Farm examples are shown in blue italics.

A summary of animal and plants remains to be found in samples (after MoLAS 1994)				
Animal	**Sediment**	**Data available**	**Method**	**Volume**
Human remains:	All except if very acidic	Diet, disease, demography, lifestyle, burial	Hand sorting trowelled sediment and sieving	
Roman cremation found in Trench 4, Bridge Farm in 2013			*Removed whole for specialist analysis by AOC Archaeology Group*	
Large mammal bones:	All except if very acidic *Although not good at BF*	Diet, husbandry, butchery, disease, social status & wealth, behaviour, crafts	Hand sorting from trowelled sediment and/or sieving	Whole context trowelled except when bulk sampled

Bones found in Trench 5 in 2014 waterlogged conditions			*Mainly sorted by hand excavation; appeared black due to waterlogged environment*	
Small mammal bones	All except if very acidic	Natural fauna, ecology, synanthropic species	Sieving and flotation to 1mm	10-40 litre+
Bird bone	All except if very acidic	As per large and small mammals	Hand sorting trowelled sediment sieving & flotation	10-40 litre+
Fish bone, scale and otoliths	All except if very acidic	Diet, subsistence trade, fishing technology, industrial development, seasonal activity	Hand sorting trowelled sediment, sieving and flotation	10-40 litre+
Large molluscs (shellfish)	Alkaline and neutral	Diet, subsistence trade, seasonal collection, shellfish farming	Hand sorting trowelled sediment, sieving & flotation	10-40 litre+
Small molluscs	Alkaline	Past vegetation, soil type, depositional history	Laboratory sieving to 500 microns	5-10 litre finely sampled within context.
Charred insect remains	All	Climate, vegetation, living conditions, trade, human diet	Laboratory sieving and paraffin flotation to 300 microns	10-20 litre
Uncharred insect remains	Wet to waterlogged	Climate, vegetation, living conditions, trade, human diet	Laboratory sieving and paraffin flotation to 300 microns	2-10 litre
Parasite eggs	Wet to waterlogged	Intestinal parasitic diseases sanitation, cesspit ident.	Laboratory extraction and high power (x400) microscopy	0.25 litre
Plant	**Sediment**	**Data available**	**Method**	**Volume**
Charred plant remains (grain, chaff, charcoal	All	Vegetation, diet, plant materials used in building, crafts, technology, fuel, processing of crops, and behaviour	Bulk sieving or flotation to 300 microns	10-40 litre+
Uncharred plant remains	Wet to waterlogged	Vegetation, diet, plant materials used in building, crafts, technology, fuel	Laboratory sieving to 300 microns	2-10 litre
Wood, charcoal	Wet to waterlogged, charred	Dendrochronology, climate, building materials and technology	Low power (x10) microscopy	Hand or lab collection
Diatoms (photosynthesising algae)	Water lain deposits	Salinity and levels of water pollution	Lab. extraction and high power (x400) microscopy	0.10 litre

Pollen	Buried soils, waterlogged deposits	Vegetation, land use	Lab. extraction and high power (x400) microscopy	0.05 litre or monolith sample
Phytoliths (silica plant tissue)	All	Vegetation, land use	Lab. extraction and high power (x400) microscopy	0.05 litre or monolith sample
Soil	All	Detailed description of how the deposit formed and under what conditions	Must be examined in situ by specialist:	Monolith/ Kubiena sample and specialist description

The table above gives some idea of what will survive in different environments but more information can be found in the English Heritage guide on Environmental Archaeology (Campbell *et. al.* 2011) which shows the categories of remains likely to survive in various soils. Bridge Farm has both well-drained and waterlogged environments in a neutral soil with a pH of between 5.5 and 7.0. This means that charcoal, phytoliths (silica plant tissue), teeth, pollen/spores, charred plant remains and parasite eggs may be present in the upper well-drained and intermittently wet contexts plus a more organic range including diatoms (photosynthesising algae), both charred and uncharred plant remains, wood and timber, ostracods (small Crustacea), foraminifera (single-celled organisms),insects, molluscs and bone (see Campbell *et al* 2011, 5-6).

12.3: Some Key Points on Environmental Procedures from Dr Mike Allen

12.3.1 Sampling

1. Is the feature or context dated (or datable)?

If not what value are the plant remains or charcoal that you will be processing, extracting and identifying?

2. Think: how did my charred plant remains or charcoal get into my feature/this context?

What is their 'life-story' from grain to 'grave'? How/where did it get charred, how did it get into my layer?

3. Ensure the context is recorded (planned, drawn and photographed if and as necessary)

4. Ensure you can record the sample on the context record sheet, and sample sheet/index, and section drawing or plan (ask you site directors or supervisors)

5. Your sample will need to be 10 litres min but ideally 40 Litres (Historic England recommended size), or your site standard, OR large enough to get a statistically viable quantity of charred grain or charred plant remains or charcoal

Note: rich contexts need *smaller* samples, poor contexts need *larger* samples

6. Ensure its only ONE context, **NEVER mix two context or layers ever**

7. Preferably take samples during excavation. If necessary, take them from sections

8. Take sample with clean tools (charred remains are as small a 0.25mm (look at your ruler)!

9. Always label samples (inside and out), and fully record the sample, what it's taken for and why

12.3.2 Processing

Samples are recorded (weight or volume) pre- soaked, and processed resulting in a **flot**, i.e. the material that floats off (typically 0.25-0.33mm) and the **residue, i.e.** the stones left (often split into >0.25-0.33mm, >1mm, >2mm, >4mm and big stones).

Ensure *every* sample, flot, residue, residue fraction is *LABELLED* at all times.

The material is dried (**unless from a waterlogged context**) and sorted and stored for assessment and analysis. All charcoal needs identification (species and short-lived i.e. Roundwood) before submission for dating.

12.3.3 Sorting

In the field, archaeologist (as opposed to trained environmental specialist):

Do: Process samples by bulk flotation, or wash-over bucket flotation
Fractionate residues (>0.5mm, >1mm, >2mm, >4mm) dry, package and store
Sort charcoal & charred remains (nut fragments) from coarse residues ie >4mm by eye
Sort charcoal & charred remains (cereal grains) >2mm residues (using illuminated magnification)

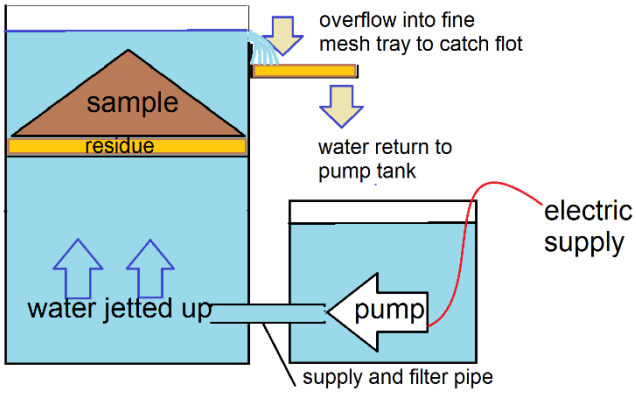
Do Not: Sort any residues less than 2mm without suitable indoors facilities, specialist training, reference material, stereo-binocular microscope, foil tweezer (not plastic) etc.

12.4: What we do at CAP

At CAP we predominately use **flotation** on samples taken from specified contexts and floated to recover environmental data. The resulting **residues** will be examined to assess their suitability for onsite sorting. Coarse residues (>4mm) can be sorted onsite for artefacts and ecofacts and can then be discarded. Finer residues should be retained and if chosen for analysis should be sorted in a controlled environment by fully trained individuals using illuminated magnification. For a guide to environmental sampling see the procedures outlined for field evaluation projects by English Heritage in *Environmental Archaeology* (Campbell *et al* 2011).

12.5: Flotation

The process of flotation is relatively simple. We operate 2 types of flotation tanks, developed and made by John Kane of CAP, and we take and store samples in 10 & 20 litre clean plastic containers with lids. Each metal unit has a 205 litre tank (new design is much smaller), at the bottom of which is a ring of pipes perforated and connected via a hose to a



Flotation tank process diagram

smaller tank with a single phase submersible pump. The pump draws water from the small tank and pushes it through the ring forcing water up through the larger tank which overflows back to the small tank. At the top of the larger tank is a frame in which a 500 µm (micron) nylon mesh is secured so that the sample can be placed in it. A further frame is connected externally below the overflow lip and a 250µm nylon mesh is clipped in place there. This finer mesh collects the organic floating material that is released when the sample is broken down in the tank, known as the **flot**.

All samples must be issued with a **sample number** which must be indelibly written on to a tag along with the site code and context number and be fixed to the outside of the bucket with at least another identical waterproof tag placed inside. The **Sample Register MUST** be filled in with the quantity of the sample (see blank sample form at end of the section).

Once the samples have been floated we are left with the residue of the heavier material that does not float so it lies in the mesh in the tank. The residue sample is removed from the tank and laid out on trays to dry whilst the flots, still in the folded mesh, are hung up to dry (left wet if from a waterlogged context).

Only the coarse residues are sorted on site once they have dried. The fine residues and flots are bagged and sent off to a specialist laboratory for assessment, analysis and reporting.

It is always a good idea to discuss with your chosen specialist how they would like the flots presented e.g. kept wet or dried out. Some contexts are considered so environmentally important that an additional small sample is taken and stored in its original state for total specialist testing. However, testing and analysis of special samples, fine residues and flots is expensive and therefore sampling for specialist assessment should only be done if you have specific questions to answer and your specialist needs to know the questions in order to carry out the most relevant testing regime and provide you with the required results.

As well as flotation we do occasionally use **dry sieving** although this does limit the types of material recovered. We would normally only use dry sieving to recover larger artefacts such as mammal bones or flints. We use **wet sieving** for very small samples where flotation would be impractical due to the amount of water required to fill the tank.

12.6: Geoarchaeology

A further tool in the archaeologist remit for environmental data is **geoarchaeology**. This includes looking at soils and sediments, such as colluvium (hill-wash), to interpret their archaeological significance and stratigraphic relationships. For this aspect CAP use a professional environmental archaeologist, Dr Mike Allen of Allen Environmental Archaeology,

with whom we have a long-standing working relationship. Dr Allen will take column samples from the face of significant sections for processing back at his laboratory. He is one of the country's leading environmental archaeologists and runs the Environmental Session on our training course. He also offers land snail analysis, geoarchaeology, environmental services, sampling and radiocarbon advice. See his website for more details:
http://www.themolluscs.com

12.7: Geochemical Surveys

This is a technique that can be used quite effectively to show traces of metal not seen in excavation. Small 10g samples are taken by clean trowel into clean sealable bags in a grid pattern across the site at a specified interval e.g. 1m. This can be done simply and cheaply without the need of a specialist however the analysis of the samples is a specialist procedure and comes at a significant cost. It therefore may be expedient to take such samples and put into the archive store pending a decision on whether the analysis of the samples is likely to yield a significant result. If so funding specific to this would need to be sought after obtaining an estimate of the cost. By analysis at micro-level the technique can show where specific metalwork processes were undertaken when it is not evidenced at macro-level. Whilst this could be very useful on a Roman site with potential for lead, iron and copper alloy working it also has very interesting implications for Bronze Age settlements where locating metalworking sites has so far proved elusive by standard excavation methods.

12.8: Further reading for environmental sampling

Allen, M.J. (ed.) 2017. Molluscs in Archaeology. Oxford; Oxbow Books

Campbell, G. Moffett, L. and Straker, V. 2011. *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation.* (2nd edn.) English Heritage, free pdf download from
http://www.english-heritage.org.uk/publications/environmental-archaeology-2nd/

Evans, J.G. 1981. *An Introduction to Environmental Archaeology.* Harper Collins

English Heritage 2007. *Geoarchaeological: using earth sciences to understand the archaeological record.* English Heritage, free pdf download from
https://www.english-heritage.org.uk/publications/geoarchaeology-earth-sciences-to-understand-archaeological-record/

Renfrew, C. & Bahn, P., 2004. Ch.6, What Was the Environment? In *Archaeology: Theories, Methods and Practice.* Thames and Hudson.

12.9: CAP Environmental Samples Form

CAP CULVER ARCHAEOLOGICAL PROJECT

ENVIRONMENTAL SAMPLE
BRIDGE FARM 2015

SITE CODE	TRENCH	CO-ORDINATES	FEATURE	CONTEXT	SAMPLE No.
BRF15					

Context type:	Prov.Period	Sample S/A

% sampled: (ring most accurate %) <5 5-10 10-25 25-50 50-75 75-100 100	Sample size (1 bkt = 10 ltr) No. of bkts	Total litres
Method of excavation	Site conditions	

Inclusions	Bone	Charcoal	w/l organics*	Shell

Other (specify *)

SPECIAL FINDS:

Further SF Nos.

Contamination: (e.g. modern material, plant roots etc) None Minor Medium Heavy Total

Comment:

MATRIX	WITHIN CUT No.	LEVELS No.taken / Top of sample / Bottom of sample	Excavator & date / Flotated by & date

Reason for sampling:

Specific questions raised	Checked by & date

Where processed: On site CAP HQ AEA Other (specify)

LOCATION PLAN	SHAPE PLAN / SECTION SKETCH
	Use back of sheet for larger sketches and/or further notes if required PTO

MEASURED DRAWINGS	PLAN No/s	SECTION No/s

PHOTOS Tick box & No/s range	B&W	COLOUR	DIGITAL

13: What happens next; archiving and reporting

13.1: After the trench is closed

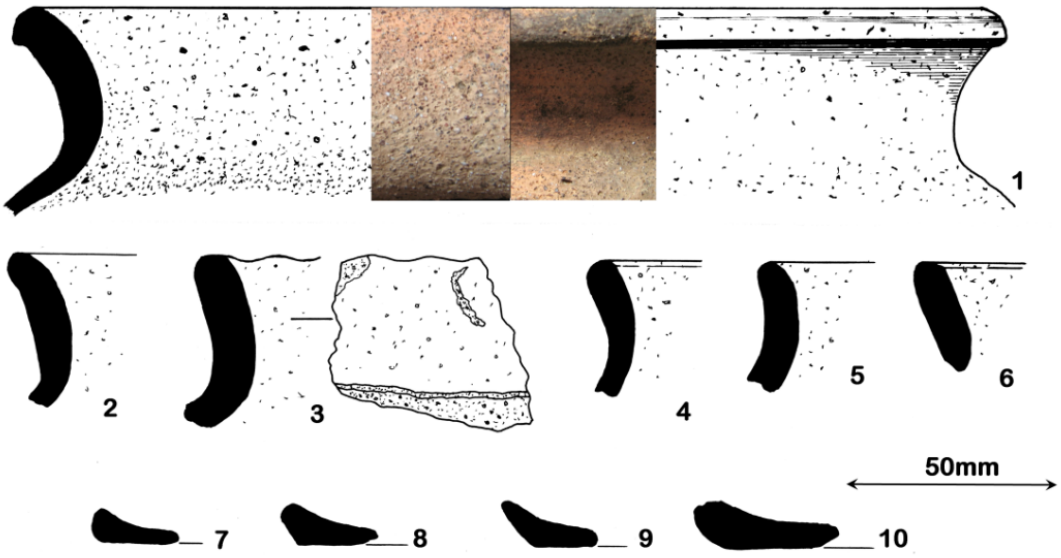
When the site is finally back-filled and all the equipment is back in store the post-x work begins. Floated environmental samples probably still need sorting with tweezers and a magnifying glass. The last few pot sherds need washing and marking and all the finds need sorting and quantifying so that estimates of costs can be obtained from the various specialists. There is no point sending a load of animal bone to the pottery specialist! During the autumn/early winter of 2015 our finds team washed, sorted and marked over 10,000 sherds of pottery alone.

Site drawn plans and sections need inspecting, tweaking and then copying in ink, and/or digitally. Context, finds, levels and all other registers need scanning to provide a reserve archive and then entering onto computer spreadsheets. Context forms need looking through and rechecking so that any errors or lack of data can be hopefully put right before the relevant person has forgotten what they actually did but failed to record.

Presentations need to be prepared for the winter talks and articles written for the local press and specialist magazines, journals and newsletters.

Arrangements need to made for any very special items to be sent to the appropriate conservation unit and any 'Treasure' items must be referred to the local coroner after initial contact with the local PAS finds liaison officer at flo@sussexpast.co.uk. The Local Authority Archaeology Department, and the British Museum can be of great assistance in verifying the artefact's precious metal content and potential age.

When the finds come back with the specialist reports those that need further illustration need to be drawn and/or photographed and the job of getting together the 'grey literature' report can begin (see www.culverproject.co.uk for 2013 and 2014 post-excavation reports).



Photographs and drawings can be combined to make very informative illustrations

Interpreting the phasing of various features by dates from pottery and coins and other artefacts can commence. This assists the phasing of other contexts by their stratigraphic relationships with these dated contexts. We look at the interpretation of the activities on the site and how these fit with the wider occupation of Bridge Farm. Then most importantly of all, how this changes the current overall picture of the Bridge Farm settlement and how this changes its relationship in the wider context of SE Britain.

13.2: Sussex Archaeological Standards 2014 format for a Report

But the paramount requirement is the production of the project report which if to comply to the Sussex Archaeological Standards 2014 must include:

- Planning history, in brief, including nature of proposed development, relevant Local Planning Authority, applicant, and planning application reference number (where applicable)
- Function of the report
- Location of site by OS map reference (5 figures easting, 5 figures northing)
- A location plan of the site, with boundaries clearly marked, on an OS base map of not less than 1:2500 scale (smaller scale for large sites only), showing Grid North, and tied in to the OS Grid with grid lines numbered
- Plans showing the outlines of trenches/excavated areas in relation to the site boundary
- Plans of trenches/excavated areas showing archaeological contexts recorded therein, at a scale suitable for distinguishing clearly the outlines of recorded contexts
- Those parts of archaeological contexts which have been excavated
- For deeper/stratified sites, drawn sections of each trench elevation, with OD levels
- Levels above/below OD at top and bottom of trenches/excavated areas, at each end/corner of the trench/excavated area
- Site geology
- Archaeological and historical background
- Reproduced extracts of relevant historical maps, with site boundary superimposed and clearly shown (where photocopies cannot be taken, good quality traced extracts should be made)
- Dates of fieldwork - beginning and end
- Fieldwork methodology, archaeological and palaeo-environmental sampling strategies
- Site Code
- Staff Structure - Project Manager, Site Supervisor(s)
- Name of developer, person or body commissioning the archaeological contractor
- An abstract of the background and findings of the report of about 100-200 words
- Principal author and (at the head of each specialist report) names of contributors to the report
- Stratigraphic report, by excavated area and context

- Finds reports
- Identification of finds requiring active conservation
- Present location of finds, intended repository of the finds, museum accession number
- Palaeo-environmental report - results of palaeo-environmental processing and assessment
- A list of contexts excavated, arranged numerically, with brief description, nature of artefactual / ecofactual contents, and provisional/final dating
- A list of palaeo-environmental samples taken
- Discussion and Conclusions
- References
- Historic Environment Record summary form

The copies of the report submitted to the Local Planning Authority **must be in PDFA format and on a CD-R.** In the case of complex sites or significant archaeological/architectural features, illustrations in the report and images submitted to the HER will include:

- scenes of excavation works in progress (including close-up pictures of archaeological feature(s) under excavation)
- more important archaeological features/site sections (in site terms) both excavated (**with scale**) and, where appropriate, under excavation
- important archaeological finds, both under excavation (where appropriate) and cleaned (**with scale**).

13.3: And into another year

And then there's always the small matter of next year to plan; next year's Project Design or Written Statement of Investigation (WSI) to write, a new Risk Assessment and Safety Plan to be prepared, then volunteers, students, universities and colleges to be contacted.

But at least it shouldn't need another site manual written from scratch; although tweaks to this one and all the standard forms seem to be a recuring inevitability.

13.4: For further reading about the site go to www.culverproject.co.uk and see:

Millum, D. 2018. *Bridge Farm: the excavation of a Romano-British riverside settlement: Part 1 2011-2017* (an interim summary). Barcombe, CAP.

Wallace, R. 2014. *Roads, Rivers and Romans: A Roman Town on the Upper Ouse?* (the 2013 post-excavation report). Twickenham, AOC Archaeology.

Millum, D. 2021. *Investigations of the Roman riverside settlement in Five Acres at Bridge Farm, Wellingham, East Sussex 2014 (CAP.BF14).* (the 2014 post-excavation report). Barcombe, CAP.

14. Some notes on the recording of vernacular buildings

Compiled from courses and training handouts by David Martin and Lisa Fisher

14.1: Basic equipment and procedure for recording a building

Equipment

Step/folding ladder: builder's retractable tape measure (7-10m): camera: clip board: graph, lined and/or plain paper: pencil: pen: ruler: eraser: compass: torch: binoculars: a thin bladed knife/spatula (to push into joints to sound out tenons/pegs etc): stout footwear: hard hat(?).

Proforma recording sheets are a good idea for clarity, speed and as an *aid memoir.*

Whilst architectural plans of the building can be useful for general overall measurements, they were not produced to specifically record the heritage features of the building and should not be relied on for any detailed observations; make the building your primary source of data.

Survey

Walk around the building making initial notes identifying the historic parts, the level of recording required, surveying problems i.e. limited access or major distortion through subsidence etc, note any first thoughts on interpretation.

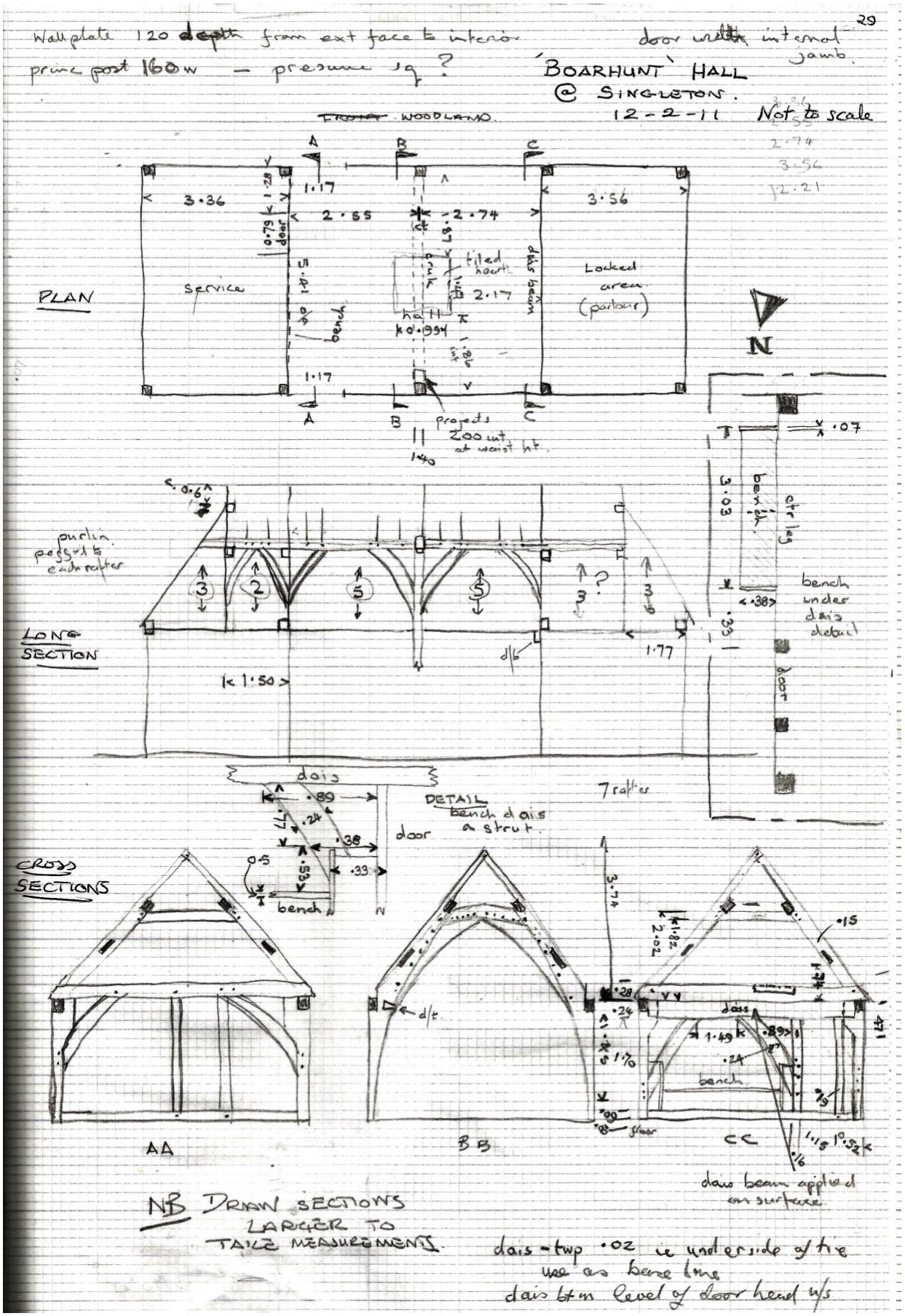
Most archaeological surveys on smaller historic buildings are undertaken to interpret the historically important aspects of the building and require written account of form, function, age and sequence accompanied by photographs and dimensioned sketches* rather than full scale drawings (*these ignore movement and are drawn as if the building was square, see 'assumed square' example below).

In your notes first describe the basic building and materials; walls (including internal), roof materials, floor types, window and door types and locations.

Go into the roof space and start recording there if possible. This is often the most original part of the building but be careful as it can also be a total replacement. Establish what the roof covering is: i.e. ceramic peg tile: slate: thatch: shingles: pantiles: stone tile: lead.

Then **draw a simple plan**, 1m above floor level; the first floor is often best as the ground floor may have been under-built at a later period. Walls and horizontal timbers are shown as single lines and principle vertical posts as filled in rectangles. Floor/ceiling joists are indicated by a single arrow-headed line with the number of joists indicated (no need to draw them all). Add main horizontal measurements, width, depth, bay widths (see example below).

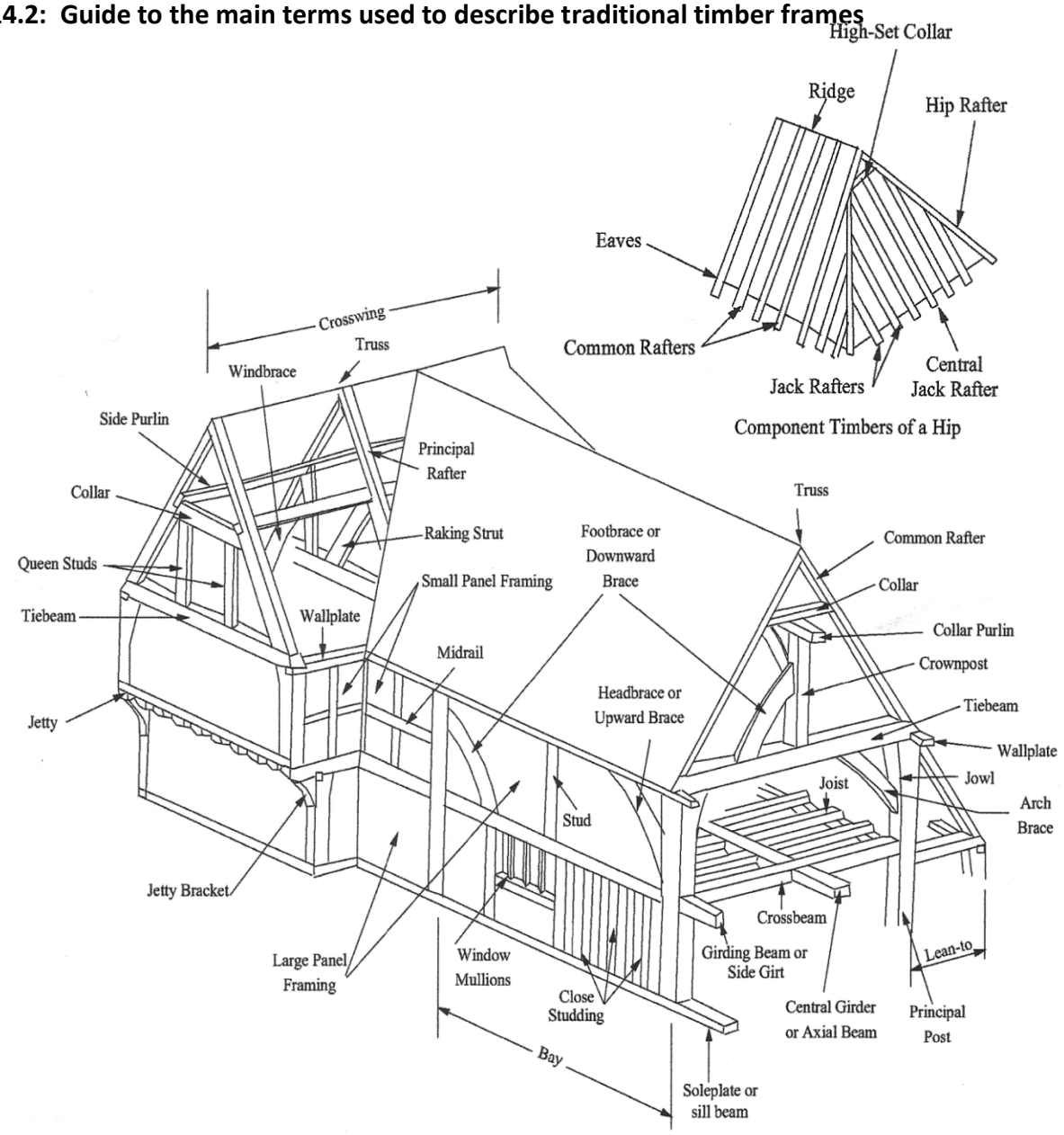
Decide the best location to **draw a long section**. This section will entail working either up or down through the entire building including the roof. Walls and vertical timbers are shown as single lines with the main horizontal plates, beams and girders shown as filled in rectangles. You have already recorded the horizontal measurements so the sections should only require the main vertical dimensions. Rafters and wall studding are shown by a single line with the number of timbers indicated as per the joist on the plan. Decide how many **cross-sections** you require, usually one of each truss unless some are found to be broadly similar.



Example of a measured sketch survey exercise at The Wealden Open Air Museum

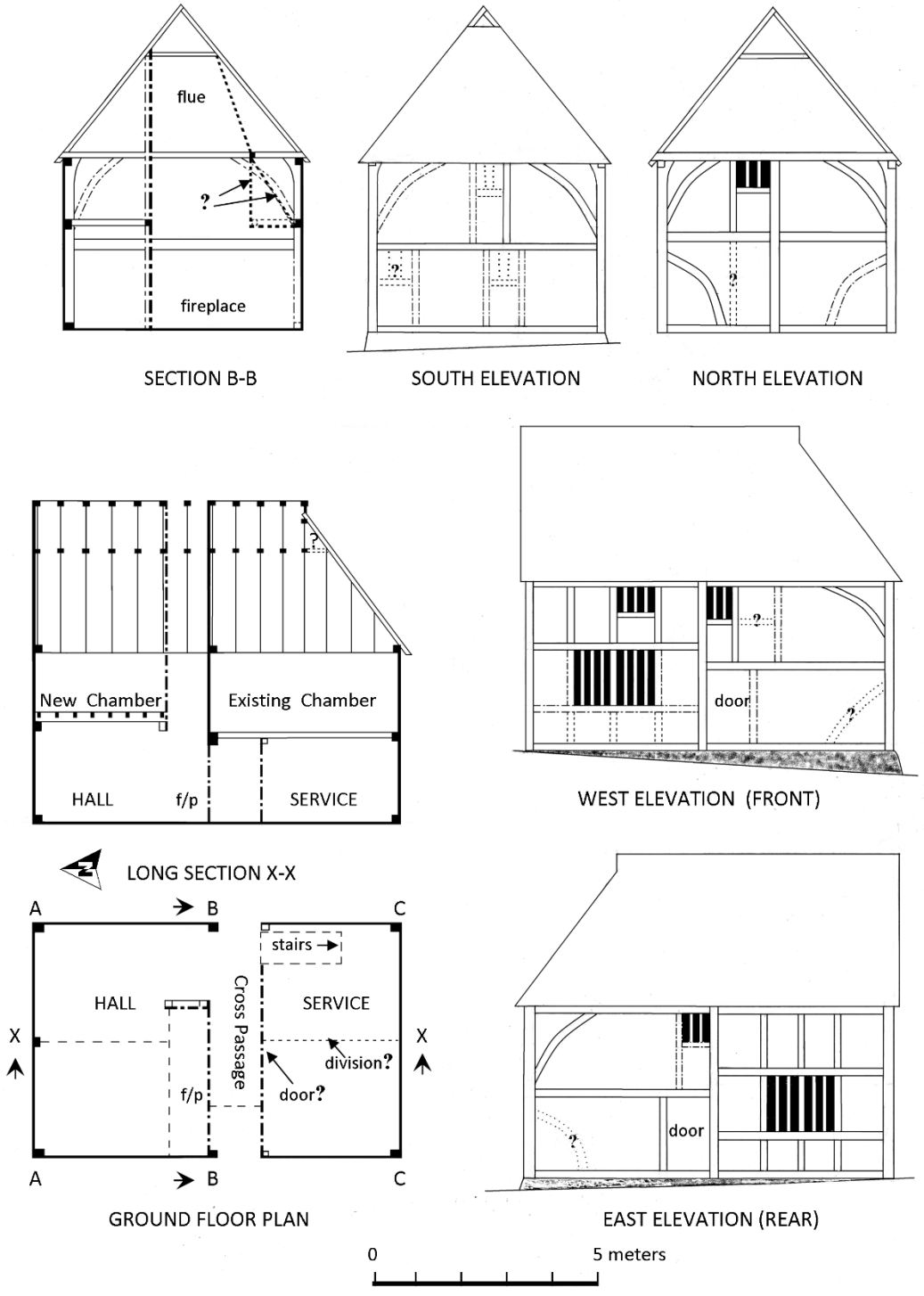
The main dimensions have already been taken for the plan and long section so only individual details should need measuring for these sections. For speed sketch plans and sections are usually drawn freehand using the graph paper as a guide (see 'Boarhunt' example above).
Finally go outside and sketch the elevations adding any measurements that you have not already taken internally. Photographs with scales can often be used for this purpose.
You should try to interpret the building before leaving the site in case you need to check back on any features that you may have missed or misread whilst making your sketches and notes. Remember to measure the location of any vacant mortices and peg holes as these will tell you the position of missing timbers which could be imperative in understanding the original construction. This is probably the best time to take further photographs of specific details and record any mouldings on beams or other timbers.

14.2: Guide to the main terms used to describe traditional timber frames

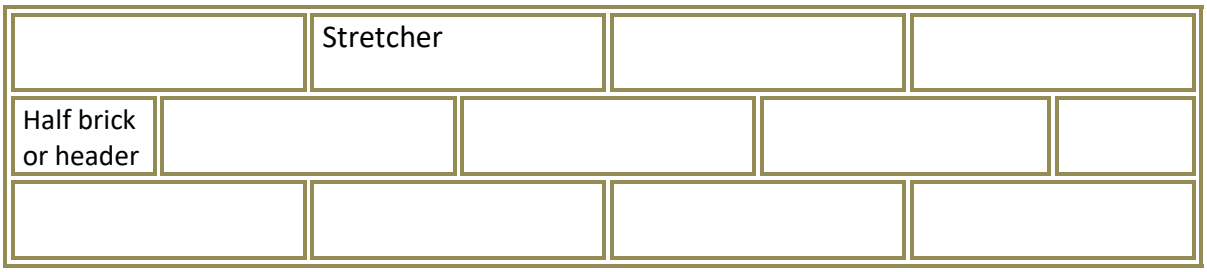


14.3: An example of an 'assumed square' reconstruction drawing of the interpreted original form of a building from notes and measured sketches made on site

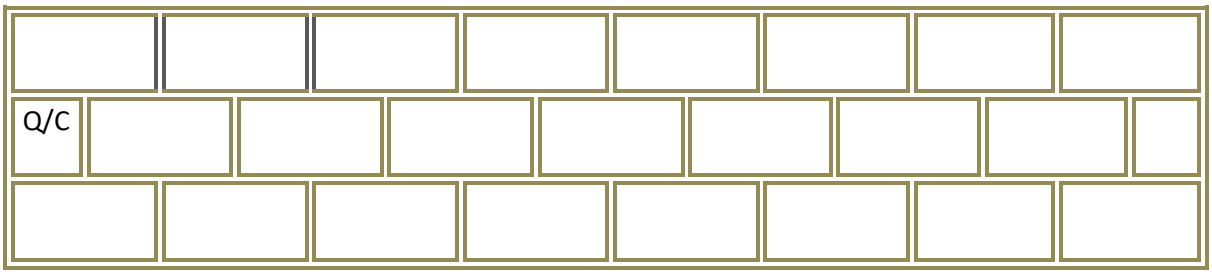
Solid lines show extant timbers or where definite evidence exists of their previous existence. Dashed lines indicate missing timbers that are very probable given the form of the building or other indications such as empty motices or peg holes. A '?' indicates less surety. The house is shown with its original unglazed windows as evidence was found for the location and size of the missing mullions. Notice that this small medieval hall does not have a crown post or any purlins in Section B-B as evidence suggested a collared roof of *sans-purlin* constuction.



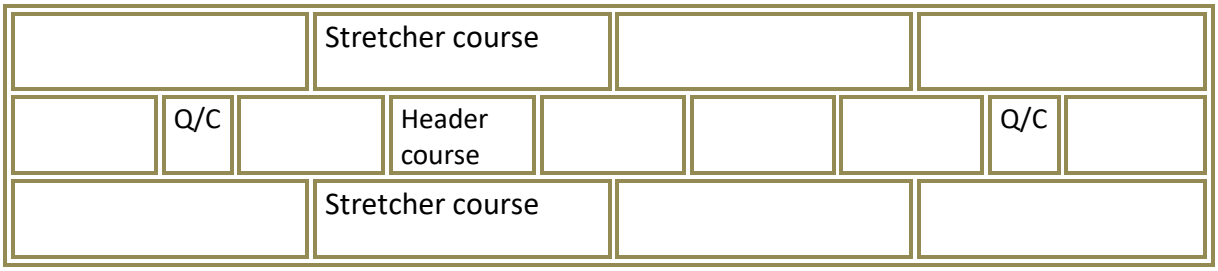
14.4: Examples of common brick bonds



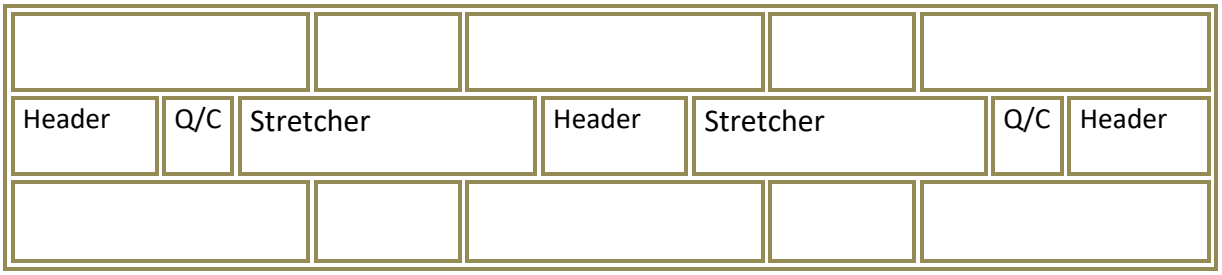
Stretcher bond: courses of bricks laid long-ways (stretchers) with half bricks (headers) to stagger the courses and the vertical joints; may signify a wall of only single brick thickness or from the late 19th century a wall of two skins with central cavity i.e. a cavity wall.



Header Bond: courses of bricks laid end on (headers) with half depth bricks known as queen closers at row ends to stagger the vertical joints. Usually indicates a solid 9" wall.



English Bond: Alternate courses of headers and stretchers with queen closers (Q/C) to avoid vertical mortar joints forming a continuous joint and weakening the bond. Usually indicates a solid 9-13.5" wall and provides a bond both along and through the wall at alternative courses.



Flemish Bond: courses made of alternate stretchers and headers (brick laid end on) with queen closers inserted to stagger the vertical joints. Usually indicates a solid 9-13.5" wall. It provides a strong bond both along and through the wall at every course.