Volunteers Fieldwork Guidance Manual

Contents

1. Project Aims

The principle project aims are:

- To investigate the extent of the remains of the oyster beds on the Emsworth foreshore and to describe their character, methods of construction and development;
- To establish a control framework using modern survey methods to act as reference points for detailing and mapping;
- To involve volunteers and where necessary train them to undertake detailed site descriptions and mapping;
- To assess the significance of the current archaeological resource and to understand how the ponds were used within the oyster farming process;
- To provide expert assistance to enable the results of the field work to be written up to an appropriate standard.

2. Field Survey Method

Fieldwork will be undertaken by volunteers from the Emsworth Museum and Chichester and District Archaeology Society (CDAS) assisted by staff from the Hampshire & Wight Trust for Maritime Archaeology (HWTMA).

CDAS will provide the basic recording equipment for the survey. HWTMA Ltd will provide additional recording equipment as required, which is likely to include: proforma recording sheets, GPS, tapes, planning frames, cameras and scales.

In cases of bad weather recording of oyster beds near the shoreline will be given priority, working from inshore out. In fine weather work will move from sea to inshore.

Fieldwork will involve suitably sized teams of volunteers with HWTMA Staff working together to plan, photograph and record the visible remains of the Oyster Beds at Emsworth during the available safe tidal windows. The planning will use the offset planning technique described below. If necessary the offset planning may be supplemented by survey using planning frames where the features require it and as site conditions and time allows.

A network of datum points for offset planning has already been placed on the site. These points have been laid using a highly accurate Global Positioning System (GPS) so their positions are already accurately known. The datum points have been nailed into suitable locations on the timber structures of the oyster beds. Once the plans have been completed they will be collated and joined using the known coordinates of the datum points, which will be recorded on the plans.

2.1 Recording System

A system of incremental recording levels with accompanying proforma sheets will be used on this site. This is so sites which are most vulnerable and/or

important can have a higher level of recording once more about the site is learned from the fieldwork.

The basic proforma recording sheets in use by HWTMA which have been used on similar projects include:

- Drawing Registers
- Photo Registers
- Levels Recording Sheet
- Wood Recording Sheet

3. Field Guidance

3.1 Health and Safety

Working in intertidal conditions can be difficult and dangerous so it requires careful planning to ensure the safety of all team members. If there is any doubt that the work can be done safely then don't do it until the problem is resolved.

The following outlines some of the main things to consider when planning work on the foreshore or a similar intertidal environment to ensure everybody's safety.

Access

The first consideration for any foreshore work is access. Where is the best safe access and egress to and from the foreshore? For the oyster beds the nearest access points are at the bottom of South Street and the steps from Tower Street, so make sure you can always reach these points at all times.

Is it possible to get onto and more importantly get off the foreshore at the same place? If you are moving around a lot on the foreshore you may find yourself some distance from where you started, so have a good idea of where you will be when the tide comes in so you will have a planned safe exit.

Even in familiar areas be aware that small creeks or hollows on the foreshore may cut you off from your exit point on the foreshore. Always make sure you know if there are any features that might flood behind you or between you and your exit point. If there is any risk, leave immediately!

Tides

In most places there are two high tides and two low tides in a day, although this may be different in some areas due to local conditions.

Tides vary in height over a longer cycle of "Springs" and "Neaps". When the tide reaches its greatest difference between its high and low points in this cycle it is known as a Spring tide and when the tide is at it's lowest difference between high and low water it is known as a Neap tide.

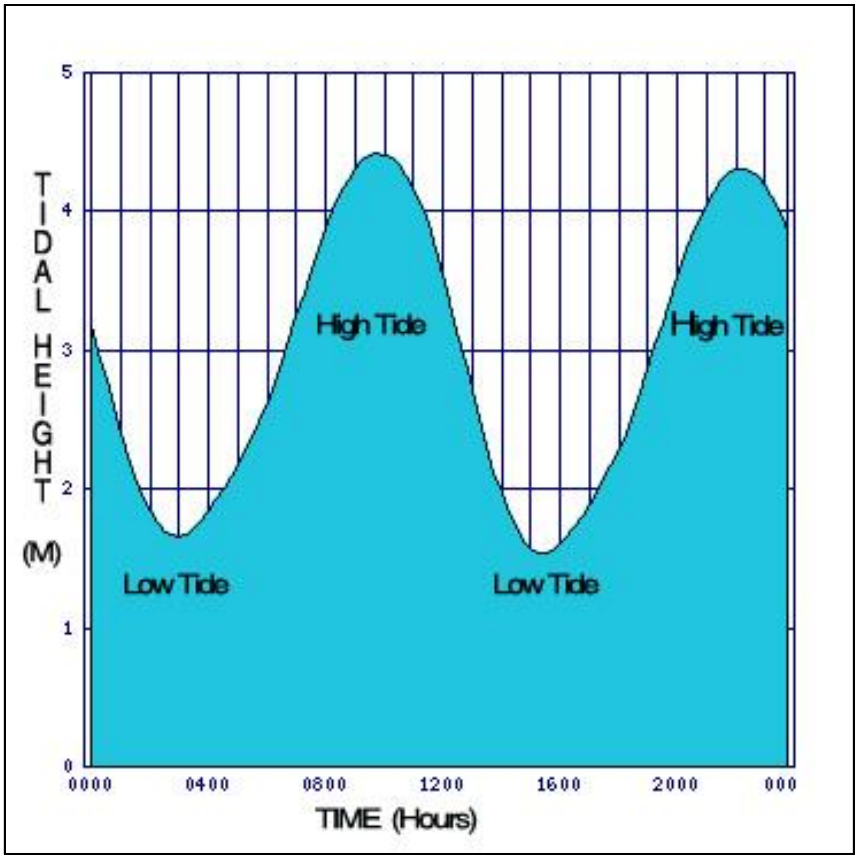

Figure: A graph showing high and low tides over a 24 Hour period

When carrying out survey or any other archaeological work on the foreshore, one should consider whether it is possible to get enough work done on a neap tide when less of the foreshore is exposed. Spring tides are generally better for archaeological work as more of the foreshore is accessible. If possible it can sometimes be useful to work down the foreshore with the ebbing tide and then if it is safe to do so work up the shoreline as the tide floods.

On this survey if the weather is bad, recording of oyster beds near the shoreline will be given priority, working from inshore out. If there is fine weather work will move from sea to inshore

Remember that the tide may rise very rapidly, especially on a Spring tide, and faster than you might expect if it has the wind behind it, so always be aware of what the tide is doing while you work.

Weather

Working on the foreshore means there is little and generally no shelter from the sun, wind and rain. Always check the forecast before working on the foreshore to make sure you know what to expect. That way you can dress appropriately and make sure you are equipped for the conditions. For example, on sunny days sun cream and plenty of drinking water are a good idea. If the weather is very poor it might be best to postpone your work for a better day.

Site Hazards

There are many hazards to watch out for on the foreshore. If you are working around vessels, they may contain broken jagged and rusty metal, or if a vessel is largely intact, it is important to keep clear of parts that may be close to collapse. Never enter a hulk or vessel that you think may be unsafe.

Figure: Metal hulks can have sharp metal edges.

Many sites may have parts buried under mud and silt that are easy to trip over, so always walk cautiously near known features. If you are working around any feature remember it may be very fragile, so try to avoid stepping or sitting on any part of it as it will probably not take your weight. Only walk on material that you are confident won't be damaged and is definitely strong enough to hold you.

If you are working near a possible buried vessel or structure (like *The Ark*) remember it may extend over a wider area than is visible, and there may be voids under the remains of a deck or other structure. Stay clear of these at all times.

The foreshore can also collect a lot of rubbish, particularly near inhabited areas, so beware of glass, metal cans, syringes and other items that could cut you or pierce your clothing.

Walking in Intertidal Areas

Walking in intertidal areas can be difficult and tiring. Never walk alone on parts of the foreshore you don't know.

If you are walking with a group always stay in sight of each other but keep a sufficient distance from each other so that if one of you gets stuck, the others can stay clear and out of danger and throw a rescue line if necessary.

You might not always be able to take the most direct route to something on the foreshore, so be prepared to follow your footsteps back the way you came. You may find it useful to use a ranging rod or similar long pole to test how firm the ground is ahead of you before attempting to walk over unfamiliar ground.

The foreshore can vary a great deal over a short distance without any great change in its appearance so you might find yourself in deep mud or a buried creek with little warning. If this happens stay calm and if you can pull yourself back onto firm ground do so. If you cannot free yourself easily call for help and warn those coming to help you about the hazard.

Sometimes a foreshore can be very slippery. Wet, seaweed covered rocks in particular are very slippery, and often exposed wet clay or bare rock can be very slick to walk on.

Appropriate Clothing

Even if you have a good idea of the weather from the forecast, always pack additional clothing in case of a sudden change in the weather conditions.

The most important item of clothing is your footwear. Wellies or waders are the best footwear for the foreshore for ensuring you stay dry. As there may be sharp debris or hard trip hazards lying buried in the mud, silt or sand; wellies or waders with steel toecaps and metal footplates are probably the safest footwear for the foreshore. Waterproof trousers are also recommended for staying dry on the foreshore and keeping mud off your clothes.

If possible, a full set of waterproofs is probably the best clothing to wear on the foreshore to make sure you stay warm and dry. Good quality waterproofs that can breathe and let moisture escape are the best as they can be worn even in warmer weather with little discomfort. In hot weather a full set of waterproofs might not be practical, but depending on the depth of water and soft sediment on a site it is often best to keep on at least waterproof trousers for your own comfort.

Hygiene

Intertidal environments are often muddy and silty and in some areas these sediments have been stagnant for some time. In intertidal areas near inhabited places the foreshore sediments may contain sewage or other run off that can be very hazardous to health.

You should always avoid getting any mud, silt or sand from the foreshore in your mouth, eyes and ears and near any broken skin. If you think you will need to touch any features in an area that may be high risk, bring surgical gloves and use them to avoid direct contact with possibly contaminated materials. In addition, bring spare clean water to wash your hands or any wounds.

If you are spending long enough on the foreshore to require food and drink, don't eat your food with dirty hands! Bring wipes or water to make sure they are clean before eating!

Leptospirosis or Weil's Disease is a disease spread through animal urine and it can occur in or near waterways and urban foreshore environments. *Leptospirosis* can be fatal, so be aware of areas with a high risk of contamination and make yourself familiar with the following initial flu-like symptoms of the disease.

- fever
- chills
- myalgias (muscle pain)
- intense headache

Staying in Contact

Always bring a means of communication with you to make sure you can contact someone else or the emergency services in case of an emergency. If you are bringing a mobile phone, make sure it is fully charged and in signal at regular intervals.

Do not explore the foreshore on your own and always make sure someone knows were you are going and when you plan to return.

First Aid

Always carry a fully stocked first aid kit.

Risk Assessment

Every archaeological project should have a risk assessment undertaken before work begins to identify, assess and mitigate all the possible hazards to your safety.

The idea of a risk assessment is to make someone planning and carrying out work aware of the possible hazards of the work you are doing, how serious the hazards might be, and how you can prevent or reduce any danger to people working on the project.

If you have not been shown a risk assessment to read and sign in advance of any archaeological work, ask to see it. If you spot any omission in the assessment make everyone aware of it so the hazard can be added to the assessment and everyone can be aware of that risk.

3.2 The Datum Network

Fieldwork recording of features, especially planning, generally requires a datum network. This is just a series of datum points placed over a site in such a way that all the features you want to record are within easy reach of enough datum points for them to be drawn easily.

The easiest way to plan something is to record it in relation to a baseline between two or more datum points, so it is important to have enough points spread over the site for you to do this.

The datum points can be placed anywhere, but the simplest way to make a datum network is to lay out the datum points in a grid or a line over a site. However, sometimes on intertidal areas this can be difficult as parts of the foreshore may not be accessible where you need to place a point for the grid.

The drawings have to be made in relation to the datum points so they can all be put together to create the overall site plan from the known positions of the points in the datum network.

The datum points for this survey have already been put in place. They have been nailed into the timber structures and follow the extent of the oyster beds. Where there are long linear features to record two or more points have been put down on them.

3.3 Offset survey

Offset survey is a simple and quick way of measuring and drawing the locations of key features on a site. It is also the basis for drawing with planning frames described below.

First set up a baseline between two suitable datum points close to the features you want to draw. To make your drawing, measure along the baseline tape to the feature you want, then take a second tape and measure the edge of the feature at right angles (it must be a right angle) from the baseline tape. An easy way make sure you have a right angle is to put the zero end of the tape at the edge of the feature and measure into the baseline tape. Then swing the tape back and forth over the baseline tape, you will see the distance will vary by a few centimetres as you do this. The distance is at its shortest when the tape is at a right angle to the baseline.

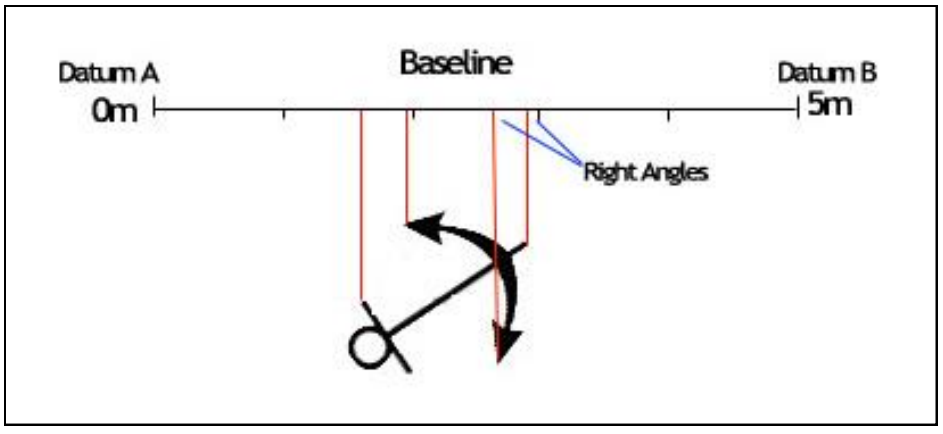

Figure: Offset survey using a baseline and measurements right angles

Continue making these offset measurements around the edge of your feature to draw it. By using a planning frame on your offset tapes, you can draw more

detailed features more quickly than by making point by point measurements using two tapes every time you want to draw a point.

3.4 Profiles

Making drawn profiles of a feature uses very similar techniques to offset measurements. To draw a profile you need two fixed datum points and a level line (called a section line) strung between them. A tape should also be strung between the points so you can measure distance along the line accurately.

To draw your profile measure down (or up) depending on the feature from the line at suitable intervals (10cm for example or even more for large regular features) and draw it at the appropriate scale.

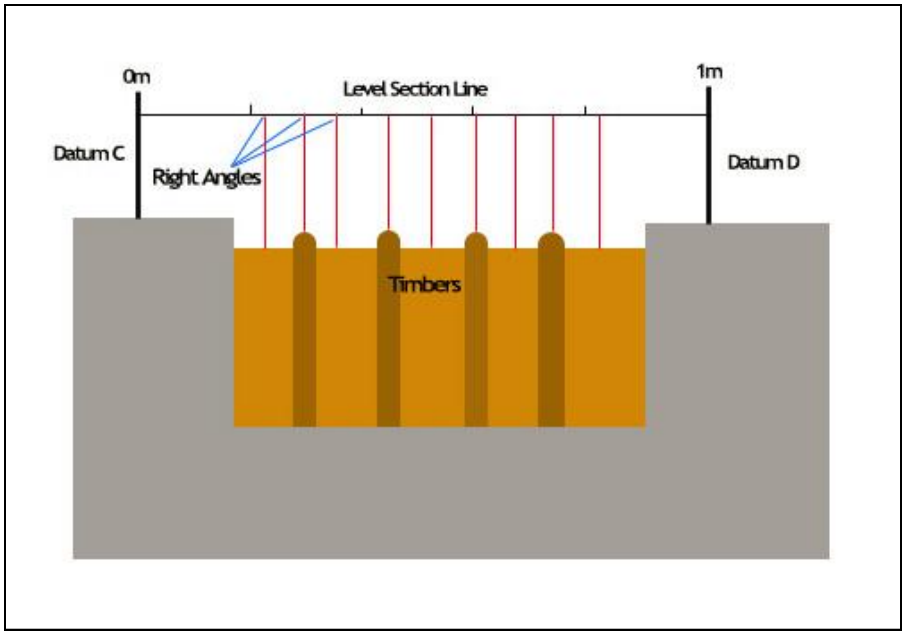

Figure: Drawing a profile of timbers using a levelled section line

This will give you a section view or profile of the feature. Profiles are an important part of the drawn record as they show the vertical aspect of features which may not be as obvious or clear on a plan.

3.5 Planning Frames

A planning frame is simply a wooden or metal square with a regular grid strung across it. They come in different sizes although the most common is a 1m square with 25 grid squares of 20cm x 20cm strung inside it.

There are different sizes available where a 1m frame may be too large to record a feature in an awkward place.

Planning frames are most commonly used for planning although they can be used for profiles of large complex upstanding features.

To use your planning frame, just run a tape measure between two of the datum points you have placed on your site and place the planning frame in a line with the tape. Look directly down on the frame (with a plumb bob if

necessary) and simply draw the feature square by square as you see it through the planning frame. The grid makes it easier to break down complicated features so that they are easier to draw and you can record a good amount of detail.

By marking out the position of the frame with nails, you can then move it along further from the tape baseline and continue recording, checking its position against the base line from time to time to make sure. Gradually you will build up a detailed plan of the site frame by frame.

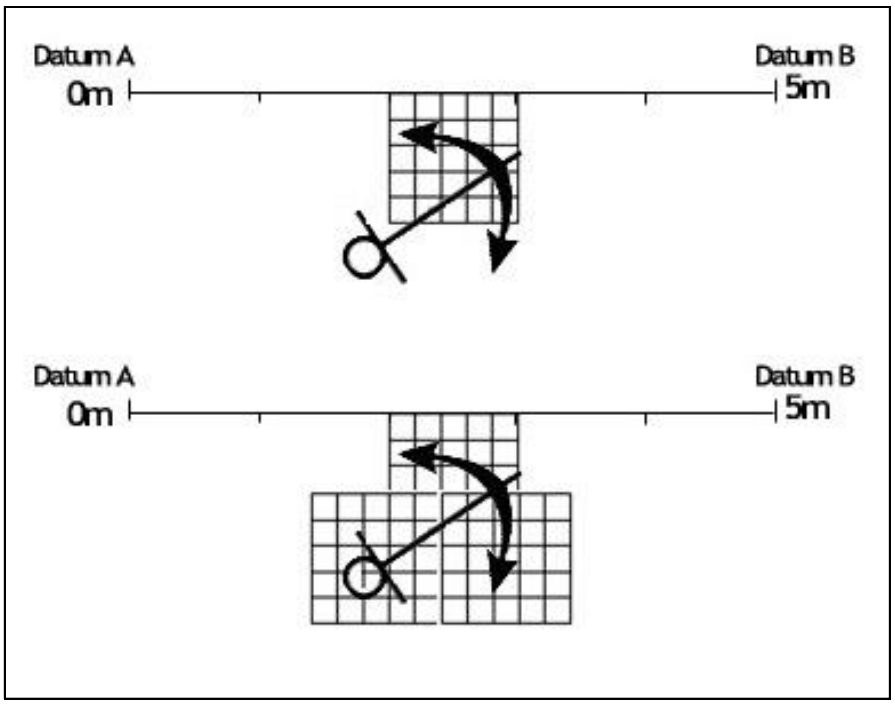

Figure: Using a planning frame:
from the baseline, overlap the frame to plan a large feature

3.6 Levels

Taking levels allows us to record the height of a feature relative to a base point on the site known as a Temporary Bench Mark (TBM). A number of TBMs have been placed around the harbour for our use.

It is important to know the height of the TBM in relation to the national “height reference” or vertical datum for the UK. The vertical datum for the UK is known as the Ordnance Datum (OD). At present the OD is taken from mean sea level at Newlyn in Cornwall. This way all heights on sites in the UK can be worked out as OD heights. This is useful as it is a standard across the UK and it is the same one used by the Ordnance Survey for calculating altitudes on their maps.

To take a level, you need a “dumpy level” on a tripod, a levelling staff and a good position for your TBM. Because you may need to go back to your TBM for levels over a long period (even years), it is essential to choose a location

where it is unlikely to be disturbed or place it on a feature which is easily recognised and unlikely to move.

To take a level**,** set up the dumpy level in a position on or off the site where it can be easily made level and has a good view over your site. It can always be moved, but it is better to avoid doing it too often as it can be time consuming. Try to set it up at a height everybody can use!

To take your level take a measurement from the levelling staff when it is on the TBM, this measurement is called your “backsite”. (Make sure the staff is straight!)

Then take the staff and place it on the feature or area for which you want a height. Take another reading from the staff in the new position, this is called your “foresite”.

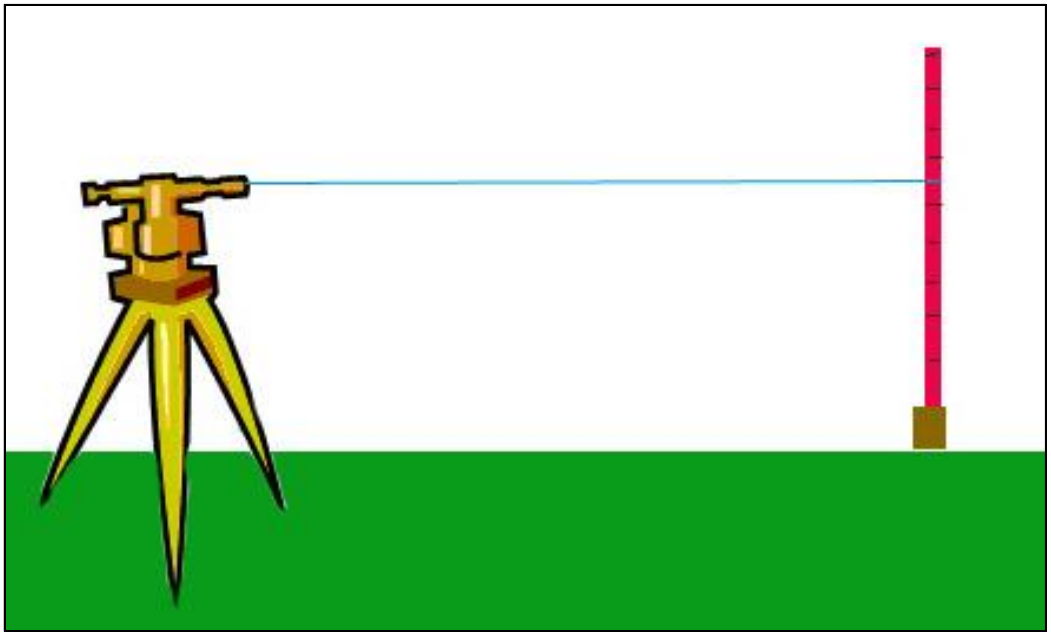

Figure: Taking a “backsite” measurement from a TBM.

Once you set up the dumpy level for the day you can record a backsite and provided you don’t move or readjust the dumpy this backsite should be good for all the foresites you take that day. ***Remember:*** If you move the dumpy, even accidentally, you will have to level it again and take a new backsite before you take any more levels.

Once you have recorded the backsite and your levels you will need to “reduce” them so you know how high everything is in relation to your TBM. Reducing levels is very straightforward. Subtract the foresite from the backsite and you have a reduced level. Because you will know the height of the TBM above sea level, the reduced level can now tell you how high features on your site are above sea level too.

Backsite – Foresite = Reduced

3.7 Drawing Conventions

When drawing something to be part of an archaeological record, it is important that all of the relevant information for that drawing is included on the drawing for future reference. The following summarises the key information needed on an archaeological drawing

Site Code

Every site on an archaeological project has a reference code. To make sure someone looking at the drawing knows which site it relates to, write in the site code. The Site code for the Emsworth Oyster beds site is **EM08**.

Datum Locations

The purpose of the datum points in the datum network has been explained above. Because your plan or section drawing “hangs” on these points it is essential that they are clearly marked on the drawing. In cases where several drawings are needed to make a plan of a site, having well marked datum points is vital for assembling the overall plan of the feature.

Clearly marked datum points also make it easier to tell where the feature or site that you have drawn is located on a bigger map of the site or wider area when it may be needed.

North Arrow

Placing a north arrow on you plan is important because it is much easier to know which way a feature lies by including the north arrow than by trying to work it out from the datum points on the drawing.

Survey Team/Your Initials

Always place the name of your survey team or your initials on the drawing so it is clear who drew it. This is so someone can check details of it with you later if something is unclear or identify a mistake and find out more easily how it occurred.

Date

Always date your drawings. A drawing in an archive cannot tell anyone very much about a site if you cannot tell whether it was drawn in 2008, 1978, 1908 or 1800!

Scale

Always note the scale you used to make the drawing. It is the key to the size of the feature! Without a scale someone looking at your drawing will have no idea how large or small your feature is! In general plans of features on many archaeological sites tend to be drawn at 1:20 and profiles at 1:10, but different scales can be used for very large areas or drawing smaller finds. The important thing is to use a scale appropriate to what you are drawing that shows the key details of it.

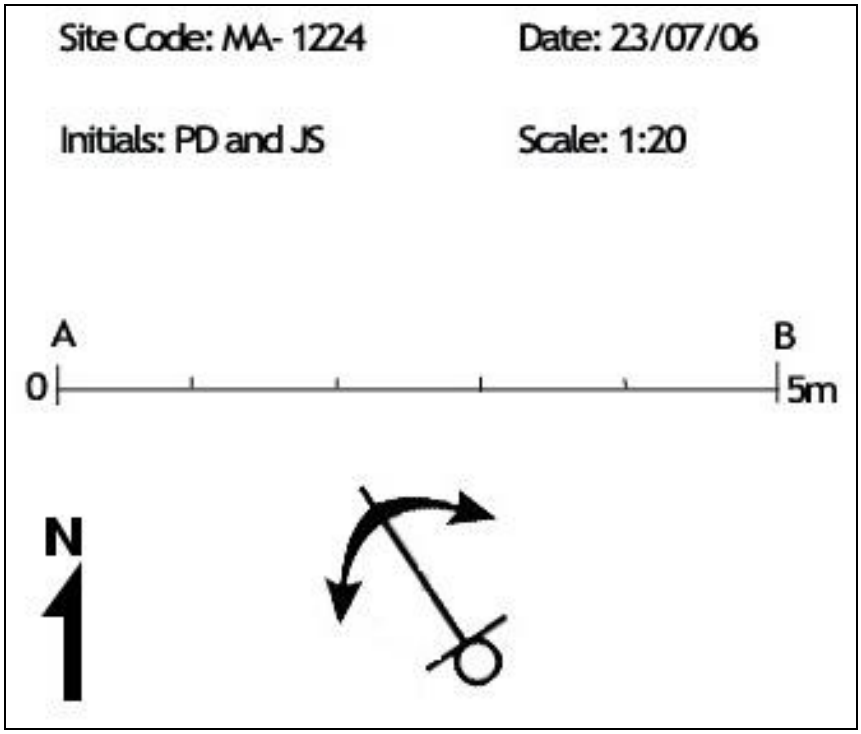

Figure: A simple plan showing site code, date, survey team, scale, datum points and North arrow.

3.8 Photography

Composition

Archaeological photography in the field is generally very straightforward. The main rule is to make sure that all of object you want to photograph is in the centre of the frame!

How you compose your shot will also depend on what you are photographing and its surroundings.

Ask yourself some basic questions about the feature or object you want to photograph such as is it very large/small?

What features should be photographed to add and compliment the other records?

A large feature may mean you have to take an overall shot of the feature in its surroundings and then take more detailed shots of elements within or on the feature that may not be so clear when the whole thing is photographed from a distance.

Try to avoid taking a picture with part of the feature you want to photograph in bright light while the rest is in shade. If the conditions make this difficult try to make sure only one or the other is visible over the whole frame of the picture to ensure an even exposure. You can do this by waiting for a passing cloud, or even making a large sunshade. Sometimes just slightly altering your position might help.

On brighter days avoid casting your shadow on a feature you want to photograph unless it is to cover a bright area. If any part of your shadow falls over the feature, it will be very distracting, and it also means you probably don't have the feature in an even light.

Scales

Always place an appropriately sized metric scale in an archaeological photograph so the viewer can tell how large the object is. Scales come in many sizes so choose the most suitable one for the object or feature you want to photograph.

For example a thin feature 75cm long would probably look better with a 50cm scale beside it than a 1m scale.

Bracketing

To ensure your pictures are properly exposed, especially when using a film camera, you can bracket them. This means you take three pictures of every feature, one overexposed, one underexposed and one that is "just right". Most cameras have a feature which tells you when the camera senses an exposure is right, but it is easily fooled by real life lighting conditions, so bracketing is useful to compensate for any errors the camera might make. You can also use bracketing on many digital cameras, especially when it might be difficult to see your picture on the review screen in bad lighting conditions, or when the image is too small to see properly.

Look through the camera viewfinder and alter the aperture of the lens by rotating the aperture ring. A small indicator will show a scale in the side of the viewfinder some times with + and – signs, or sometimes just a series of dots or bars of different colours.

As you open up the lens (the numbers get smaller on the ring) more light is allowed into the camera, as you close it up (the numbers on the ring go up) less light gets in. Moving the aperture ring will change the amount of light entering the camera, you can adjust this setting to get a good exposure.

Bracketing means finding the right exposure according to the camera, and then taking one shot with the aperture ring on the setting slightly below the "correct exposure" (to let in more light) and one shot on the setting above it (to let in less light).

Working Shots

Don't forget, you don't just have to take pictures of the features and the site. In many cases taking pictures of people at work can help people to understand how it was done and what the conditions were like. Seeing people in the image also gives the site a sense of scale!

Working shots also allow you to be a little more creative than feature recording often allows!