

National Museum of Ireland (NMI)

Standards for the care and
treatment of archaeological
objects from excavations

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museum
National Museum of Ireland
Ard-Mhúsaem na hÉireann



Contents

➔ INTRODUCTION	3
➔ 1. OWNERSHIP OF ARCHAEOLOGICAL OBJECTS	4
➔ 2. RETRIEVAL OF OBJECTS	5
➔ 3. CARE OF OBJECTS	7
➔ 4. EXCAVATION NUMBERS	9
➔ 5. NUMBERING OF OBJECTS FROM EXCAVATIONS	10
➔ 6. DOCUMENTATION OF ARCHAEOLOGICAL OBJECTS	12
➔ 7. PACKING OBJECTS FOR FINAL DEPOSITION IN THE NMI	13
➔ 8. DEPOSITING OBJECTS IN THE NMI	22

APPENDICES

➔ Appendix 1 IPCRA Conservation Guidelines for Archaeologists (revised in consultation with the NMI, 2009) ¹	24
➔ Appendix 2 Physically numbering archaeological objects	36
➔ Appendix 3 Box Label template	41
➔ Appendix 4 Guidelines for completion of Excel spreadsheet	43
➔ Appendix 5 Guidelines for recording archaeological samples including ecofactual material	49

1 In 2013, IPCRA (Irish Professional Conservators' and Restorers' Association) merged with ICHAWI (Institute for the Conservation and Restoration of Historic and Artistic Works in Ireland) to form ICRI (Institute of Conservator Restorers in Ireland). The IPCRA guidelines have been reproduced here with kind permission of the Board of ICRI, April 2020.

INTRODUCTION

The following are the standards set out by the National Museum of Ireland (NMI) in respect of excavated material. They are intended to assist excavators in preparing their objects so as to make their accessioning into the National Collections curated by the NMI as straightforward as possible. The term ‘excavator’ used here refers to the person who has been given legal authority by the relevant Minister to carry out an archaeological excavation. These standards are applicable to all excavated archaeological objects regardless of whether they have been excavated as part of a development-led or research excavation.

Excavators must bear in mind that adherence to the standards outlined in this document is a condition of the authorisation they receive to carry out an excavation (whether under licence, Ministerial Consent or Ministerial Direction) and that full compliance has cost implications. Such costs must be taken into account **in all stages of excavation planning, particularly in the initial tendering/funding application.**

All enquiries to the NMI relating to archaeological excavations should be addressed to:

**The Duty Officer
Irish Antiquities Division
National Museum of Ireland
Kildare Street
Dublin D02 FH48**

Tel.: 01-6777444 **Email:** antiquitiesdo@museum.ie

Please note that **all** correspondence with the NMI in relation to an excavation must be accompanied by the relevant excavation or registration number, which also acts as a unique reference number for the site.

1. OWNERSHIP OF ARCHAEOLOGICAL OBJECTS

- 1.1. The legal position, arising from Supreme Court decisions and the National Monuments (Amendment) Act 1994, is that all archaeological objects found in the State which have no known owner at the time of finding (i.e. where neither the original owner nor their present legal heirs is known) are State property. The NMI is the State's repository of archaeological objects.

- 1.2. Landowners do not have any prior claims on, or rights to, archaeological objects excavated on their lands. Funders/sponsors of archaeological excavations do not have any prior claims on, or rights to, archaeological objects retrieved in the course of excavations they have funded. **No arrangements for the deposition of excavated archaeological objects are to be made with landowners, funders/sponsors or any other party without the prior written consent of the NMI.**

2. RETRIEVAL OF OBJECTS

- 2.1. It is the policy of the State that there be comprehensive retrieval and retention of archaeological objects from excavations. The National Monuments Acts 1930 to 2014 provide a definition of the term ‘archaeological object’:

<http://www.irishstatutebook.ie/eli/1930/act/2/section/2/enacted/en/html#sec2>

It must be clearly noted by excavators that archaeological objects may come within the terms of this definition regardless of their age or degree of antiquity. The NMI must be consulted if any doubt arises as to what constitutes an archaeological object.

Excavators must ensure that the excavation techniques employed will not place archaeological objects in danger. The NMI requires that each method statement accompanying an application for permission to carry out an excavation details the excavation methodology. This must include appropriate finds retrieval and environmental sampling strategies, and details of the on-site and post-excavation resources (personnel, material and facilities) available to the excavator. This is to ensure that any archaeological objects uncovered can be properly dealt with to minimise the risk of their deterioration and to maximise the information they can provide. Such strategies **must be site-specific** and must take into account the nature of the area to be investigated and the potential for archaeological objects to be encountered. These requirements equally apply to the archaeological monitoring of machinery or any mechanical construction techniques (e.g. piling) which impact on archaeological deposits.

Poorly-planned and/or inadequately resourced excavations can endanger irreplaceable aspects of our material culture.

- 2.2. Provision must be made, in accordance with licensing conditions, for adequate conservation resources to be put in place in advance of excavation. Special provisions must be made for sites (such as urban or wetland sites) likely to produce large quantities of archaeological objects, including human remains, or objects requiring specialist conservation or care. This may include the necessity for a conservator or other relevant specialist to be on site to give advice on the excavation of delicate objects. All contractual arrangements between excavators and their clients must take full account of conservation requirements. If in any doubt about conservation requirements, please consult with the Duty Officer, Irish Antiquities Division.
- 2.3. Site specific finds retrieval strategies must be included in each method statement accompanying an application to carry out an archaeological excavation, whether under licence, Ministerial Consent or Ministerial Direction. All changes to the approved methodology have the potential to affect the recovery of archaeological objects and therefore all changes to the approved methodology must be notified to the NMI by emailing licensing@museum.ie. If in any doubt about developing finds retrieval and environmental sampling strategies, please consult with the Duty Officer, Irish Antiquities Division.
- 2.4. **Ecofactual** material, including ancient animal and plant remains, is also defined as an archaeological object. Excavators must arrange for a specialist's assessment of the material and a recommendation as to whether or not the material should be retained (in whole or in part) by the NMI. Decisions relating to the retention of this material rest with NMI, who will consult with the excavator and relevant specialist(s) as appropriate. Full reports and recommendations for retention must be submitted to the NMI at the same time as the objects documentation. Where material is not to be retained by the NMI, arrangements for disposal must be agreed in advance with the NMI. Under no circumstances will unprocessed environmental samples or waterlogged material (e.g. soil samples, animal bone assemblages, unconserved wooden objects, etc.) be accepted. If any doubt arises with regard to the correct procedure to be employed in respect of ecofactual material, please contact the Duty Officer, Irish Antiquities Division. For recording ecofactual material please see the guidelines in [Appendix 5](#).

3. CARE OF OBJECTS

- 3.1. Excavators are responsible for ensuring that archaeological objects are excavated, cleaned, documented, packed and stored in a way that will not lead to any deterioration in condition while in their care. If archaeological objects are sent to a specialist for analysis, it is the responsibility of the excavator to ensure the safe return of the objects and that they are fully reported upon. Guidelines on how this may best be achieved have been produced by the IPCRA in consultation with the NMI and are reproduced here as [Appendix 1](#), below. **Excavators must ensure that they adhere to these conservation guidelines for archaeologists.** If in any doubt, excavators should contact the Duty Officer, Irish Antiquities Division who also refers queries to the relevant conservator in the NMI's Conservation Department.
- 3.2. Proper care of excavated objects both on and off site is critical to ensuring their long-term preservation. Objects must be kept in suitable packaging and stored in a secure designated storage space. They must be cared for by a designated finds supervisor and assessed by a conservator within a time period appropriate to the nature of the object and its condition. Advice must be sought (from a conservator and/or the NMI) on the excavation of delicate objects such as, but not limited to, waterlogged material, complete pottery vessels, coin hoards, etc.
- 3.3. All excavations must have an appointed archaeological conservator who has confirmed their availability in writing for the duration of the excavation period. The conservator should carry out the lifting on site of particularly delicate or awkward objects that require specialised techniques, such as, for example, coin hoards, urn burials or fish traps. The conservator is responsible for the conservation of the objects from the excavation ensuring, in conjunction with the excavator, that objects are correctly packaged prior to their deposition with the NMI. Details of conservators suitably qualified for this work can be obtained from the Institute of Conservator-Restorers in Ireland (ICRI) – see <https://www.icriconservation.ie>

- 3.4. The NMI must be informed immediately of any objects that present particular challenges during the course of an excavation or in the period following their excavation. In some cases, excavation may need to be carried out in controlled circumstances or in laboratory conditions. The NMI must be informed in cases where objects require special storage conditions following excavation and may decide to take in such material for safekeeping.
- 3.5. The excavator is responsible for arranging the proper conservation of excavated objects by a qualified conservator. A Licence to Alter must be in place in respect of the conservation of archaeological objects. Application forms for a Licence to Alter or a Licence to Export an archaeological object (as appropriate) can be obtained from the Duty Officer, Irish Antiquities Division and guidelines for completion of same are available here: <https://www.museum.ie/en-IE/Collections-Research/Irish-Antiquities-Division-Collections/Licensing-and-Services-for-Professional-Archaeolog>. All archaeological objects must be assessed and in a stable condition when deposited with the NMI. Decisions as to the conservation requirements deemed necessary must only be made by a qualified conservator in consultation with the excavator and the NMI.
- 3.6. All metal objects from a site must be X-rayed prior to conservation because important details, including construction and decoration, are frequently only visible from X-radiographs. Decisions as to which objects require full conservation treatment must be made jointly by the conservator and a finds specialist, in consultation with the NMI and only after the objects have been X-rayed. Metal objects which have not been subject to an assessment by a conservator will not be accepted by the NMI. If there is any doubt about specific objects, the matter should be referred to the Duty Officer, Irish Antiquities Division.
- 3.7. Excavators must ensure that a full record of the conserved objects is submitted with the final report prior to the deposition of objects. This must include the full conservation treatment reports together with copies of the X-radiographs as appropriate. Objects must always be conserved before they are drawn and/or photographed for publication in order to ensure that details of their construction and decoration that may be revealed by the conservation process are captured. Any reconstruction of fragmentary archaeological objects is subject to licensing to alter and export (as appropriate).

4. EXCAVATION NUMBERS

- 4.1. All excavations are identified by a licence number, or in the case of excavations carried out under Ministerial Directions or Consents, a registration number. This is indicated by the prefix 'E', with or without the relevant year (e.g. 20E1234, E003456, etc.). Excavations taking place over more than one season continue to use the number issued in the first season. This number is issued by the Licensing Section of the National Monuments Service in consultation with the NMI.

- 4.2. The excavation number is to be used as a permanent reference number to the site and **must be noted on all correspondence** with the NMI. It must also be noted on all site records: plans, sections, drawings, site notebooks, recording sheets, interim and final reports, publications and any other form of archival material relating to the archaeological record of the site. It is essential that it is also used on all applications for Licences to Alter and Export archaeological objects (including ecofacts). The excavator must ensure that the excavation number is clearly visible on the front or title page of all reports and that it is not confused with any other reference number.

5. NUMBERING OF OBJECTS FROM EXCAVATIONS

- 5.1. It is the responsibility of the excavator to ensure that all excavated objects are numbered with the correct excavation (E) number allocated to the excavation. **On no account shall any other numbering system be used.**
- 5.2. In the case of excavations resulting from Ministerial Consents or Directions the **excavation registration (E) number** (i.e. E3456 without a year prefix) must be used when numbering objects, rather than a Consent (C) or Directions (A) number. Dive Survey Licence (D) numbers and Detection Device Consent (R) numbers **must not be used** to number objects. For advice on numbering objects from these surveys, contact the Duty Officer, Irish Antiquities Division.
- 5.3. Two standard numbering syntaxes for objects from excavations are acceptable:
- a. The excavation number followed by the object number in a sequential series from 1 to infinity, and separated by a colon, e.g. **20E1234:1** to **20E1234:999**.
 - b. Where an excavator wishes to incorporate the context or feature number, the following format must be used: the excavation number, followed by the context/feature number, followed by the object number (each separated by a colon), and commencing with object number 1 in each context e.g. **20E1234:1:1** to **20E1234:1:33**, where 33 objects have been recovered from context/feature 1. It must be borne in mind that if the system that incorporates the context number is adopted, more space will be used when physically numbering the object.

It must be noted that a combination of both numbering syntaxes is not acceptable. It is important to note also that numbering must be legible with the naked eye. If the

object cannot be physically numbered due to insufficient space, for example, then it will need to be **individually bagged with an accompanying acid-free label**. Extra time and resources will be required to allow for this and must be taken into account when preparing the budget for the post-excavation work. The use of adhesive labels on objects, e.g. pottery sherds, is not permissible under any circumstance. Objects which can be physically numbered do not require an accompanying label.

Procedures for labelling objects that cannot be physically numbered:

Objects which cannot physically be numbered must be accompanied by an individual acid-free label such as Tyvek®, for example, with the excavation number and object name recorded on it using archive-quality pens or Indian ink. Labels must be tied on to objects with conservation grade cotton tape as appropriate in instances where the object is too large to be bagged with a label – please see list of suppliers in [Appendices 1 and 2](#) below.

Each object shall be assigned a unique find number when registered. For registering human remains please see [Appendix 4, Sheet 2, Suffix Field](#). For recording ecofactual material, please see [Appendix 5](#). If further clarification is required in relation to the numbering of objects, contact the Duty Officer, Irish Antiquities Division.

- 5.4 All objects (apart from human and animal remains and most ecofactual material) must be physically numbered unless the NMI expressly agrees to the contrary, or, in cases where the small size of an object or its condition makes this impractical or damaging to do so. Depending on which numbering syntax is used, the formula ‘**20E1234:1:1**’ should be used rather than ‘**20E1234:0001:0001**’ or the formula **20E1234:1**, rather than **20E1234:0001** (see 5.3 above). Please note that in the case of Ministerial Consents and Directions, only the registration (E) number should be used, e.g. E3456:1:1, and reference to the year of excavation must never be included. Further guidelines on the practicalities of physically numbering and labelling objects can be found in [Appendix 2](#).

6.

DOCUMENTATION OF ARCHAEOLOGICAL OBJECTS

- 6.1. Excavators are required to provide full documentation of the excavated objects (in digital format) **before** they are deposited with the NMI. Documentation must be submitted using the Excavation Finds Register Excel spreadsheet issued by the NMI (available on request from the Duty Officer, Irish Antiquities Division). See [Appendix 4](#) for guidelines on completing the Excel spreadsheet.

- 6.2. Copies of conservation reports and the final excavation report, including specialist reports (if not already submitted to the NMI) must also be supplied with the documentation. Scans of X-radiographs, including hard copies, must also be submitted.

7.

PACKING OBJECTS FOR FINAL DEPOSITION IN THE NMI

7.1. Boxes/containers:

7.1.1. The excavator is responsible for ensuring that objects are packed in a manner that is safe and sustainable in the long term. The nature and size of the bags, boxes or containers used must be appropriate to the materials they contain. Good quality re-sealable or self-sealing plastic bags must be used. Acid-free cardboard boxes (see specifications below) may be suitable for most materials but **may not provide sufficient long-term support** for the weight of large, heavy objects (e.g. stone or metal) or for large quantities of dense material (e.g. ceramics, glass or animal bone). In such cases, reinforced boxes or heavy-duty stackable plastic containers with non-collapsible lids must be used. It may also be necessary to use smaller boxes/containers, rather than filling large boxes/containers to the point where they are difficult or even dangerous to lift. Over-filled boxes will not be accepted. Excavators are expected to use their professional judgement to assess what type of container is required but should consult the Duty Officer, Irish Antiquities Division if in any doubt. The suitability of containers will be checked during the inspection by NMI staff prior to the submission of excavated objects to the NMI.

7.1.2. **All** cardboard boxes must be acid-free or low-acid millboard (minimum thickness 1200 micron, with reinforcement where necessary) with flat copper wire stitching and with 80mm deep lift-off lids. The following sizes are most suitable for large boxes (i.e. for containing multiple objects):

Length: 550-600mm

Width: 280-400mm

Height: 180-200mm or 350-400mm

On no account shall the maximum dimensions (usually at the lid) of standard boxes exceed **600mm x 400mm x 400mm**. These limits also apply to plastic containers to ensure that boxes will fit correctly in the NMI stores. Please note that where shallower boxes (i.e. 180-200mm in height) are used, these are likely to be stacked in the long term. The preferred height for boxes is less than 280mm, but boxes up to a maximum height of 400mm are acceptable.

- 7.1.3. Smaller boxes (for containing individual objects) must be based on regular fractions of the large box dimensions (e.g. 200mm x 150mm x 100mm) for efficient packing within larger boxes.
- 7.1.4. If outsize or non-standard boxes are required for packing particular objects the dimensions of these must be discussed with the Duty Officer, Irish Antiquities Division **before they are ordered**.
- 7.1.5. Recycled boxes designed for other purposes, damaged boxes or other inappropriate containers will not be accepted.
- 7.1.6. Please note that in instances where excavated material is to be delivered to the NMI on pallets, only standard **plastic** pallets measuring 1200mm x 800mm will be accepted. This measure is taken in order to prevent pest infestation in the NMI stores.

7.2. Packing of boxes:

- 7.2.1. To make the most efficient use of shelf space, objects must, as far as possible, be packed in containers of consistent size. Objects must be packed economically to avoid waste of space but must not be too tightly packed. Archaeological objects excavated under different licence/registration numbers may be packed in the same box provided they are objects which require the same environmental conditions and that they are clearly separated within the box by separate bags or boxes. The licence/registration numbers pertaining to the objects must also be clearly indicated in all accompanying documentation and on the box label.
- 7.2.2. Objects must be packed in a logical manner (primarily by material, then by object type, register number or site context) so as to be easily accessed by reference to the site register or other databases/lists. As far as possible, objects made of the same material should be boxed together. Human

remains and metal objects are curated and stored separately and this must be taken into account when packing objects for submission to the NMI. Objects which are vulnerable by virtue of their condition (e.g. glass or other fragile objects), or their rarity or exceptional quality (e.g. gold or silver objects, coins and complete pottery vessels) must be boxed separately as they will need special storage handling.

- 7.2.3. Before packing boxes, the base must be padded with inert foam sheets and/or crumpled acid-free tissue. If the contents of boxes are to be layered, heavier objects must be placed at the bottom with lighter objects on top of these and the lightest objects at the top. Additional padding should be placed between the layers – inert foam sheets and/or crumpled acid-free tissue should be used. Finally, boxes must be padded (especially any empty space at the top of the boxes) for transit to the NMI to ensure minimal movement of the objects within the boxes.
- 7.2.4. Delicate objects must be packed with crumpled acid-free tissue, ensuring they also have a rigid support such as a box or a stiff piece of inert foam under the acid-free tissue. Very delicate objects must be packed in inert foam cut-outs within boxes of similar size to the objects.
- 7.2.5. The advice of the Duty Officer, Irish Antiquities Division or designated conservator must be sought where any issue arises or clarification is sought in relation to packing. Advice can also be sought during the pre-submission inspection by NMI Staff.

7.3. Material-specific packing guidelines:

- 7.3.1. **Metal objects** (unless composite with organics) need to be dried out as rapidly as possible after excavation and then kept very dry. **For further details as to the care of metal objects or composite objects in the immediate post-excavation environment, please see Appendix 1 Conservation Guidelines for Archaeologists**. Each item of archaeological metalwork must be individually kept in a perforated plastic bag or crystal (polystyrene) box within a perforated bag. If groups of bagged objects are placed within larger bags or boxes, it is essential to ensure that individual objects are properly padded and supported, to prevent damage caused by movement or friction. All bags **must be well perforated** to allow the air in the bags to reach the

low ambient humidity in the low Relative Humidity (RH) stores provided by the NMI. Archaeological iron needs to be kept below 12% RH in order to remain stable and all other metals below 30% RH. This is achieved by placing the individually packed metal objects within a micro climate created using plastic boxes with a good quality seal, a desiccant such as silica gel and an RH indication strip. Under no circumstances should the silica gel be placed in the same plastic bag as an archaeological object.

If there is a delay in depositing the objects in the NMI, they must be stored in perforated bags in airtight containers containing silica gel and humidity indicator cards and checked regularly to ensure the required humidity levels are being maintained. Condition checks must be carried out on a regular basis prior to the submission of objects to ensure that no deterioration has occurred.

- 7.3.2. Iron objects** (and, if possible, other metal objects) must be boxed separately, as they will be placed in a low Relative Humidity (RH) store when they reach the NMI. Plastic bags containing metal objects **must be perforated** to allow the air in the bags to reach the low ambient humidity provided by this store. Please note that only acid-free labels shall be used for labelling iron objects.
- 7.3.3. Most organic objects** (e.g. leather, textile and wooden objects) must be conserved and packed by the designated conservator. They must be supported within their bags, usually on acid-free card or acid-free blotting paper cut to fit snugly within the bag. Relatively large objects may require the acid-free card to be set in a frame of archival quality closed cell polyethylene foam such as Plastazote®, for example (see [Appendix 1 for a list of suppliers](#)). In the case of larger structural timbers or similar, please contact the Duty Officer, Irish Antiquities Division at the earliest opportunity so that an appropriate strategy can be agreed.
- 7.3.4. Pottery:** Pottery sherds must be packed in such a way as to avoid any movement to prevent damage to the object. Pottery sherds of prehistoric date and sherds which are friable or fragile must be wrapped in acid-free tissue and bagged with an accompanying acid-free label. It may be possible to place multiple sherds together in the one bag but the advice of the Duty Officer, Irish Antiquities Division must be sought in advance in this regard. In cases where the sherd cannot be physically numbered owing to its size, fragile nature or condition, the bag must be numbered with the object number and must also contain an acid-free label bearing the object number.

Harder or more durable sherds, for example well-fired medieval and post-medieval sherds, especially if present in very large quantities, can be packed as groups in plastic bags within boxes. Such bags must not exceed 300mm x 200mm in maximum dimensions (before filling), as larger bags filled with potsherds inevitably tear or burst with use. Including a layer of archival quality closed cell polyethylene foam (such as Plastazote®, for example - see Appendix 1 for a list of suppliers) can provide cushioning between bags to prevent abrasion and tearing. Care must also be taken that the box containing such bags is capable of supporting their weight in the long term. In many cases reinforced boxes or heavy-duty plastic containers with non-collapsible lids should be used. Large boxes/containers must not be filled with potsherds, as they will become too heavy to be handled safely.

Pottery groups shall be divided in either of two ways: [a] by context, then within context by fabric/pottery type, then within fabric/pottery type by vessel part (e.g. rim fragments) and with any individual vessels represented by multiple sherds bagged separately, or [b] by fabric/pottery type, then within fabric/pottery type by vessel part (e.g. rim fragments) and with any individual vessels represented by multiple sherds bagged separately.

Complete, or substantially intact ceramic vessels must be boxed separately with adequate packing and support. Where vessels have been reconstructed, the advice of the conservator must be sought and followed in relation to packing.

- 7.3.5. Stone objects:** Where lithics are bagged as groups, these must be sorted firstly by context, and then within that, by form. Bags **must not exceed 200mm x 150mm** in maximum dimensions (before filling), as larger bags filled with stone and lithics inevitably tear or burst with use. Care must also be taken that the box containing such bags is capable of supporting their weight in the long term. In many cases reinforced boxes or heavy-duty plastic containers with non-collapsible lids should be used. Large boxes/containers must not be over-filled with lithics (or stone artefacts), as they will become too heavy to be handled safely. Large stone objects must be physically numbered and also labelled using an acid-free label, such as Tyvek®, attached to the object with cotton tape.

7.3.6. Human remains must be packed in acid-free cardboard boxes or stackable plastic containers with non-collapsible lids and without handle-holes to minimise the risk of pest infestation. Human remains must be packed under the supervision of an osteoarchaeologist.

Remains of an individual must never be split between two or more boxes, but it may be possible to pack two or more individuals in a single box (usually where the remains are incomplete). The aim should be to achieve an efficient use of space, without over-packing boxes. Where a box contains more than one individual, the remains must be clearly separated and labelled.

Skeletal elements must be bagged separately in logical groups (e.g. leg, arm, foot, hand bones, ribs, vertebrae, etc.) and by side (left and right), where relevant. The latter includes, for example, left and right leg bones, arm bones, hand bones, foot bones, ribs, and pelvic bones. The osteoarchaeologist may suggest additional divisions, where required. Small individual bones (less than 30mm) and fragile elements (e.g. ear ossicles) must be placed separately in re-sealable or self-sealing bags.

Crania must be bagged and, if intact or reconstructed, must be wrapped in acid-free tissue, or thin archival quality closed cell polyethylene foam such as Plastazote® for example. Mandibles can be bagged separately if appropriate. Loose teeth must be placed in re-sealable or self-sealing bags.

Packing cremated human remains:

Cremated human remains must be packed in plastic bags within acid-free cardboard boxes or stackable plastic containers with non-collapsible lids and without handle-holes to minimise the risk of pest infestation. When packing cremated human remains, care must be taken to ensure that all soil and stone debris is removed from the cremation deposit after post-excavation processing in order to minimise any damage and/or erosion to bones.

Bags must not be overfilled as this could lead to further erosion and fragmentation of remains. In addition, bags must not be stacked on top of one another unless they are low in weight. They must be carefully cushioned both from the side of the box and from other bags contained within the box.

Packing of cremated remains must be undertaken by, or under the direction of, the excavator's nominated osteoarchaeologist. Where a cremation deposit contains more than one individual, the remains must be clearly separated and labelled accordingly in so far as possible. Finally, any identifiable elements must be bagged up separately to the main deposit, at a minimum by skull, torso, and upper and lower limbs.

Further guidance and information is available in the NMI policy on human remains: <https://www.museum.ie/en-IE/Collections-Research/Irish-Antiquities-Division-Collections/Licensing-and-Services-for-Professional-Archaeolog> and in the IAI guidelines on human remains <https://www.iai.ie/guidelines-technical-reports/>

- 7.3.7. **Ecofactual material**, if being accepted by the NMI (see Section 2.4 above), must be packed with the same care as artefactual material. In the case of fragile ecofactual material, such as plant macro and micro-fossils, the advice of the relevant specialist must be sought on appropriate packaging methods.

7.4. Box lists and box labels:

- 7.4.1. Each box or container must be accompanied by a list of the objects it contains. Box contents lists must be printed on acid-free paper (supplied by the NMI) and conform to the NMI template which is available upon request from the Duty Officer, Irish Antiquities Division. If there are multiple sheets contained within the box, a **plastic paper clip** must be used to keep sheets together. Box contents lists must contain the site name and, as a minimum, the following information (see also Fig. 1):

Find Registration Number(s)

Simple Name

Full Name

Material

Box Number

Box Contents

Site Name {Site Name, Townland, as per Townland Index (if different from Site Name) and County}

Site Number

Director

Company Name or Institution

Box Contents List

Site name:			Box number:
Site number:			Box contents:
Director:			Company/Institution name:
Find Registration Number(s)	Simple Name	Full Name	Material

Fig.1 Box list template showing fields to be completed

- 7.4.2. Only the contents lists shall be placed in the boxes. On no account shall any other documentation (e.g. conservation reports, X-radiographs, etc.) be placed within boxes.
- 7.4.3. **Boxes must be clearly labelled in BLOCK CAPITALS in permanent ink**, using a standard label format produced by the NMI. A copy of this label is available in [Appendix 3](#) (see [Figs. 2](#) and [3](#)) and a template to enable printing of labels can be obtained from the Duty Officer, Irish Antiquities Division. Only archival quality foil-backed, self-adhesive labels shall be used (available upon request from the Duty Officer, Irish Antiquities Division). These must be applied to one of the short ends of the box and placed in such a way that no part of the label is obscured by the box lid when it is in place.
- 7.4.4. Excavators are requested to **check and double-check** that the excavation licence or registration number is correctly quoted on all box and object labels (as well as on the objects themselves). When entering the site name on labels, please use only the name **as recorded on the excavation licence**, or in the case of excavations carried out under Ministerial Directions or Consents, **the registration number**, as using other site names or variants can lead to confusion.

7.5. Labelling and use of plastic bags:

- 7.5.1. If objects are packed in plastic bags, these must be clearly labelled on the outside in permanent marker and must feature the excavation licence or registration number, context number(s), object number(s), object name(s) and the site name.
- 7.5.2. In instances where an object cannot be physically numbered, an acid-free label, e.g. Tyvek® label, with the same information (as outlined in 7.5.1 above) must also be included in the bag. In certain circumstances, it may be necessary to place this label in a self-sealing bag in order to protect it from deterioration. Labels made from drafting film (e.g. Permatrace) must not be used for this purpose as they are not archival quality. Only good quality self-sealing or re-sealable bags shall be used for packing objects.

8.

DEPOSITING OBJECTS IN THE NMI

The procedure for depositing objects in the NMI is as follows:

- 8.1. The excavator submits the final excavation report to the NMI. The final excavation report must also include, if appropriate, recommendations from specialists with regard to the retention, or otherwise, of material. Decisions on retention or otherwise are made on a case-by-case basis by the NMI in consultation with the excavator and their appointed specialist.
- 8.2. The excavator requests copies of the NMI Excavation Finds Register (MS Excel) and Samples Register (MS Excel) from the Duty Officer, Irish Antiquities Division. The excavator submits the completed Excavation Finds Register and Samples Register spreadsheets (and any other required documentation) to the Duty Officer, Irish Antiquities Division. The excavator must also submit confirmation that:
 - The excavation has been completed and fully reported on
 - All objects have been properly conserved
 - All objects have been numbered, labelled and packed in line with this document
- 8.3. If the NMI is satisfied that the documentation submitted meets the standard required by the NMI, an inspection of the objects by NMI staff will be arranged. During this inspection **spot checks will be carried out** on the condition of the objects, the quality of packing, physical numbering and labelling of objects etc.
- 8.4. The excavator requests copies of the Box Contents List template and Box Label template ([see Appendix 3](#)) from the Duty Officer, Irish Antiquities Division.

- 8.5. Once the NMI is satisfied that the standards set out in this document have been fully adhered to, a date for deposition of the objects in the NMI will be arranged. The excavator should note that a minimum of two weeks' notice is required at this stage. The excavator is responsible for organising transportation of objects to the relevant NMI stores.
- 8.6. If these standards have not been adhered to, the assemblage **will not be accepted** by the NMI. Excavators will be required to correct all deficiencies as advised by the NMI and make new arrangements for inspection/deposition.
- 8.7. Counter-signed receipts of transfer will be provided upon deposition of the assemblage(s) in the NMI.

APPENDIX 1:
**CONSERVATION GUIDELINES
FOR ARCHAEOLOGISTS**

IRISH PROFESSIONAL CONSERVATORS' AND RESTORERS' ASSOCIATION
(revised in consultation with the NMI, 2009)
(IPCRA)

The Conservation Guidelines have been compiled by the IPCRA working group
for archaeological conservation:
Christina Haywood (co-ordinator), Marga Foley, Adrian Kennedy, Karena Morton,
Paul Mullarkey, Joe Norton and Grellan D. Rourke.
© IPCRA, 1998
Revised 2009

Art work by Nieves Fernández
*The working group wishes to thank archaeologists Ragnall Ó Floinn (National Museum of Ireland) and
Edward Bourke (National Monuments Service) for their comments on the original text.*
*This publication has been made possible with the assistance of the National Museum of Ireland,
the Department of Culture, Heritage and the Gaeltacht and the Ulster Museum.*

INTRODUCTION

Excavated archaeological materials are at their most vulnerable during and immediately after excavation. This is due to the radical changes of environment which they undergo and the risk of physical damage they may suffer during their inevitable handling and moving. This booklet is designed to help archaeologists ensure that freshly excavated artefacts receive the best possible care during the critical period before they are handed over to the conservator.

The booklet is divided into five sections which follow the normal sequence of events:

1. Preparing for excavation
2. On-site care
3. Packaging
4. Temporary storage
5. Handing the material to the conservator

Each section provides guidelines on procedures and materials, and advises on the most useful ways in which archaeological material would profit from collaboration between archaeologist and conservator.



1. PREPARING FOR EXCAVATION

The care of finds during and immediately after excavation is the responsibility of the site director who must plan for conservation well in advance of the excavation.

The site director should take the following steps before excavation:

- 1.1** Liaise with a conservator (see “Choosing a conservator”) in order to:
 - Budget for the likely cost of on-site and post excavation conservation.
 - Purchase sufficient supplies of the recommended materials for the care and packaging of finds (see section 3).
 - Enlist the conservator’s assistance with regard to possible conservation problems that may arise in the field (see section 2.1).
 - Make arrangements for the ultimate conservation of the finds which should be carried out without delay after each season’s excavation.

- 1.2** Study the contents of this booklet, particularly the recommended methods of caring for (see section 2) and packaging of (see section 3) archaeological materials. Bring the booklet to the notice of the finds supervisor and any person who will be entrusted with the finds during or after excavation. The conservator will give further advice and answer queries.

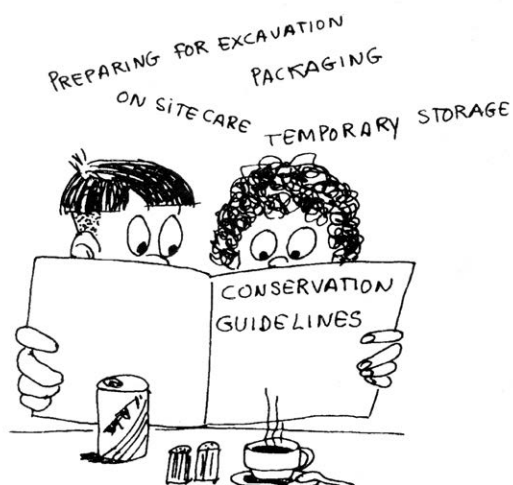
Choosing a Conservator

Most archaeological conservators are listed in one or both of the following registers:

The Conservation Directory published by:

- www.icriconservation.ie; only members of the Association are listed.
- The Conservation Register (www.conservationregister.com) compiled by the Museums and Galleries Commission in the U.K. (Tel +44(0)20 7785 3805). Conservators from the Republic of Ireland and Northern Ireland may be listed.

Inclusion in these registers does not constitute a recommendation or a guarantee of quality. Upon request, the conservator will provide references and information about qualifications and training. The archaeologist may also ask to see examples of previous work undertaken by the conservator.

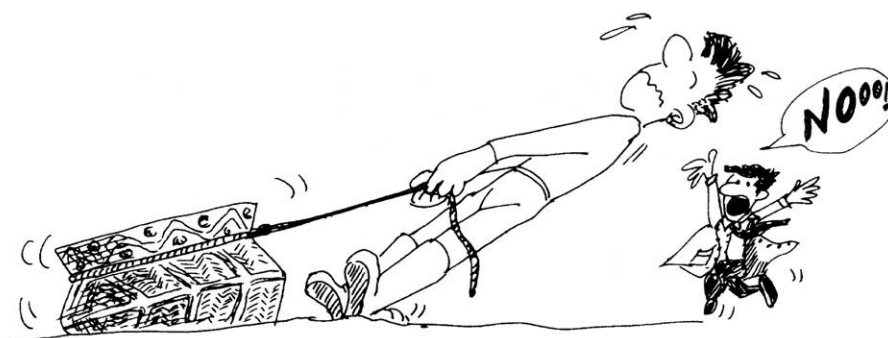


Advice on the conservation, storage and display of excavated artefacts may also be obtained from the Conservation Department of the National Museum of Ireland.

ON-SITE CARE

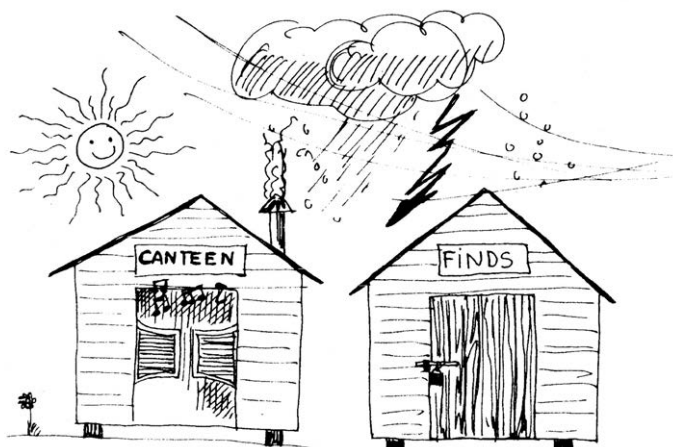
Terrain, soil, weather and other environmental conditions can differ considerably from one excavation to another, and may impact on the safe recovery and immediate care of finds. The risk to the finds will be greatly reduced, however, if the following precautions are taken:

- 1.3 If difficulties arise regarding the safe recovery of materials such as the lifting of fragile objects or sensitive materials, a conservator should be contacted and, if possible, called to assist.
- 1.4 All finds should be taken to a sheltered and secure objects hut immediately after excavation. The finds hut should be used solely for the processing and storage of finds. Food consumption should not be permitted in the finds hut.



- 1.5 Handling and particularly cleaning of artefacts should be kept to a minimum to avoid damage or loss of evidence from the artefacts. Only superficial dirt should be removed from artefacts on the site using a soft brush. If any further cleaning is absolutely necessary, this should be carried out by the site's designated conservator.
Do not use hard brushes of any kind including tooth brushes as they will cause irreparable damage to the artefacts.
Do not attempt to remove corrosion products or closely adhering deposits.
Do not rub the surface of artefacts (which occurs frequently in the case of coins) in an attempt to reveal detail or decoration. This action may remove or loosen inlays, painted surfaces, fibres, etc.

1.6 Finds should be placed in an appropriate environment without delay:



- All metal objects should be dried thoroughly and immediately placed in a controlled environment: iron in a relative humidity below 12%; other metal below 30% (see section 3.2 C). To dry metals quickly, the artefacts must be placed in a container with a tight fitting lid together with their equivalent weight in self-indicating silica gel. The silica gel should be replaced when it changes colour with the uptake of moisture until the desired Relative Humidity (RH) is achieved and remains stable for at least an hour. A humidity indicator card placed in the container in the last stages of drying will display the current RH. Freshly excavated iron will require many successive changes of silica gel to remove its moisture content, and achieve the desired 12% RH.
- All waterlogged organic materials (wood, textiles, leather, hide, etc.) should be kept wet (see section 3.1).
- Materials other than metals, if found in damp conditions, should be kept damp. These materials include, glass, poorly fired pottery, wall-plaster, bone, textiles, ivory and amber.
- Composite objects (e.g. a knife with an iron blade and a wooden handle) require the advice of a conservator.

1.7 If an object appears to be disintegrating or deteriorating, the conservator should be called to help. Chemicals (e.g. fungicides) or adhesives should not be used on the site by non-conservators. They may prove difficult to remove and might hinder any possible future chemical analyses, including Carbon 14 dating of organic materials. Usually the provision of suitable packaging and correct environmental conditions is sufficient to get an artefact safely to the conservation laboratory.

2. PACKAGING ARCHAEOLOGICAL MATERIALS

The packaging of excavated materials is of the greatest importance. Correct packaging will provide a holding environment until such time as the artefacts receive treatment in the laboratory. The site director or finds supervisor must therefore ensure that all artefacts are processed and packaged as soon as possible after excavation and not left lying on benches or shelves.

Packaging Materials

The following is a list of recommended materials. A list of suppliers in the Republic of Ireland and U.K. can be found at the end of this booklet:

- Self-sealing polythene bags with write-on panels for the packaging of dry, damp and wet artefacts. They are available in different sizes.
- Plastic (polythene) boxes with tight fitting lids for the packaging of wet and dry materials and for the collective packaging of small artefacts. They are available in different sizes and are indispensable for maintaining objects in the required micro-environment.
- Recommended cardboard boxes in different sizes for the packaging of bagged dry artefacts.
- Acid free tissue paper for padding and support of objects in boxes.
- Inert foam i.e. polyethylene foam (Plastazote®) or polyether foam for padding and support of objects in boxes.
- Polystyrene sheeting for lining and filling empty spaces in boxes.
- Heavy-duty black plastic sheeting for wrapping large waterlogged wooden artefacts.
- Bubble wrap for extra protection of the artefacts during transport.
- Permanent, water-proof pens for labelling bags and boxes.
- Good quality tie-on labels. Tyvek® (polythene fibre) labels are recommended for waterlogged artefacts.

2.1 Waterlogged Artefacts

Waterlogged artefacts must be packaged so as to maintain their wet environment.

Waterlogged artefacts vary enormously in shape, size and condition, and their requirements may vary accordingly. In cases where the following guidelines cannot be applied, the advice of a conservator should be sought.

- Small artefacts should be packed in polythene self-seal bags containing sufficient water to keep them waterlogged. A second bag, into which the bag with the object is placed, should be used as a precaution against leakage. It is advisable to label both bags using a waterproof pen or marker. The bags can then be packed collectively in plastic containers with tight fitting lids. Sufficient padding should be used to prevent the movement of objects in their bags and boxes.
- Artefacts which cannot bear their own weight such as large leather objects and textiles, require a rigid support. They may be packed at the bottom of containers between layers of soaked foam, or other light-weight water-retaining padding materials.

- Fragile or damaged artefacts should be packaged with their matrix of surrounding moist or waterlogged earth or peat.
- Large robust artefacts of wood should be wrapped in heavy duty plastic with some excess water, and protected for transport with a double layer of bubble wrap. Bubble wrap should never be used directly on the artefact with bubbles facing inwards as it will leave marks on the wood. For the same reason waterproof tape or cord rather than string should be used to secure the wrapping around artefacts.

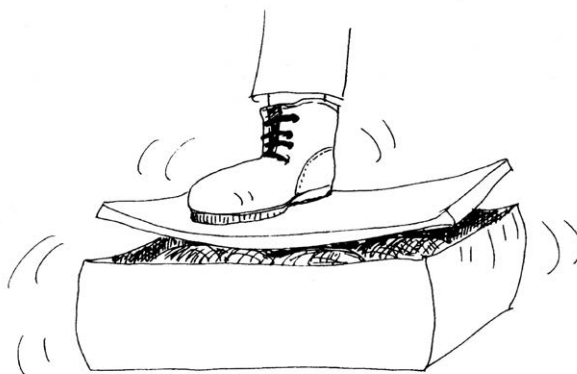
2.2 Dry or Damp Artefacts

A. Packaging individual artefacts:

- Small and medium size robust finds should be packed in self-seal ‘write-on’ polythene bags of a size proportionate to the object and then collectively packaged in larger boxes (see section 3.2 B).
- Fragile artefacts, may be individually packaged in polythene boxes with lids, or, if dry, in acid free cardboard boxes (see “Standards for the care and treatment of archaeological objects from excavations”). To prevent artefacts from moving about in their boxes, the boxes should be lined and padded with inert foam or bubble wrap, wrapped on acid free tissue paper, if the artefacts are dry. Artefacts must never be rolled or wrapped in the packaging material. Instead a “nest” should be constructed from bubble wrap and acid free tissue paper and the object placed in it. A lid should also be made to fit the “nest”.
- Large artefacts may be packaged in plastic boxes, bowls or buckets and protected using the same materials described for smaller finds. Containers should always be covered preferably with a snap-shut lid.
- Damp-sensitive materials such as poorly fired pottery, glass and wall plaster should be packaged between layers of damp inert foam and then protected from drying out by placing in self-seal bags or boxes. They should be brought to the attention of the conservator immediately as mould growth may quickly develop.

Never use cigarette or tobacco boxes, match boxes or envelopes as containers for artefacts.

Never use toilet tissue, paper towels or cotton wool as packaging materials.



B. Collective Packaging of Artefacts:

Small, individually packaged artefacts should be stored together in air-tight plastic containers with tight-fitting lids. Boxes with the closest fitting lids are preferred. Clear lids are the most suitable as they allow the checking of humidity indicator cards without opening the box.

Large artefacts can be packed collectively in plastic crates. In the case of waterlogged artefacts, the crates should be lined with a waterproof material e.g. heavy polythene sheeting.

Please note that:

- Only artefacts of the same material and which require the same environmental conditions should be placed in the same containers.
- The interior of boxes should be lined with inert foam and the artefacts cushioned from each other with inert foam, polystyrene blocks or, if the materials are dry, acid-free tissue paper.

Silica Gel

Silica gel is a mineral which has the capacity to absorb and release large amounts of moisture quickly in response to changes in ambient humidity. For this reason, it is used for drying out freshly excavated metal artefacts and for maintaining them at a suitably dry environment in their storage containers and display cases. The type recommended is the self-indicating gel.

- Silica gel must always be used with a humidity indicator card which will display the Relative Humidity (RH) inside the container.
- Silica gel can easily be regenerated (dried out) for repeated use. This can be done by heating the gel to 120°-140° C for eight hours in a conventional oven until it reverts to its original colour when dry (orange). Silica gel changes colour when saturated. Refer to manufacturer's guidelines to ascertain which colour indicates saturation. Small quantities can be regenerated faster in a microwave oven. Regenerated silica gel should be allowed to cool down in a metal container with a tight fitting lid. It should not be exposed to open air as it will rapidly absorb ambient moisture.
- Silica gel is a health hazard. When handling it, a dust mask and gloves should be worn.

C. Environmental Control:

The micro-environment inside the containers should be controlled to suit the artefacts they hold:

- Objects which must be kept damp should be packed with a saturated piece of foam which must be placed in its own perforated self-seal bag.

- All metals should be stored with self-indicating silica gel placed in a finely perforated self-seal bag. Iron objects should be packed with silica gel of equivalent weight. An RH indicator card should be included in every container. Checks should be made every day. If the RH is found to have risen above 12% in containers with iron artefacts or 30% in containers with other metal artefacts, the silica gel should be changed or regenerated immediately (see “Silica Gel” above).

3. TEMPORARY STORAGE

Ideally the conservator should receive the artefacts immediately the excavation ends. However, this is often not possible, for example when preliminary drawings and photographs are required. The artefacts may therefore have to spend some time in temporary storage. The environmental conditions of the store are very important. Unconserved artefacts are very vulnerable and, if suitable conditions are not maintained, they will deteriorate very quickly.

The temporary store should:

- Be secure and kept separate from activities such as the preparation and consumption of food and drink, smoking etc.
- Ideally have an RH of between 50% and 65% and a temperature between 10° and 20° C.



Environmental control is not possible to achieve without air-conditioning, or controlled heating. In order to monitor the RH in the store, a data logger or hygrometer may be installed with the advice of a conservator. If conditions are found to be unsuitable, an alternative store should be sought.

All metals, sensitive damp materials, and waterlogged materials should be kept in their recommended micro-environments (see section 3):

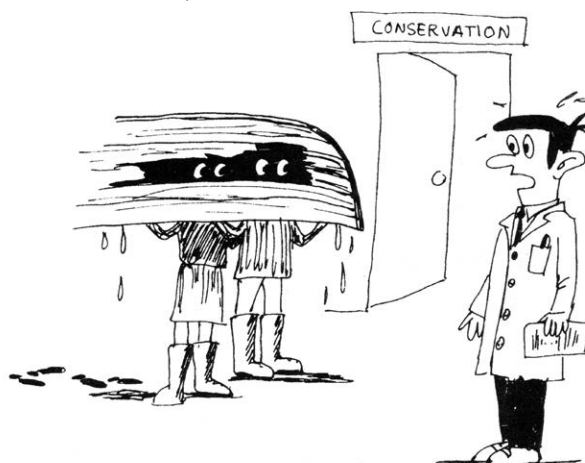
- Silica gel and RH indicator cards must be checked regularly. Silica gel must be regenerated if conditions change as advised in section 3. Silica gel is useless if it is allowed to become saturated and will generate harmful moisture when conditions become drier.
- Foam packed with damp artefacts must be checked regularly and re-moistened if necessary.
- Damp and waterlogged materials should be kept in a cool dark place, preferably a refrigerator, to avoid micro-biological growth. They should be checked regularly and the water inside the containers or wrappings replenished. If there is a risk of mould growth, the advice of the conservator should be sought.

4. HANDING THE MATERIAL TO THE CONSERVATOR

The material, correctly packaged and labelled, should be handed over to the conservator as soon as possible after the completion of the excavation. Conservator and archaeologist should have an initial meeting to discuss what preliminary examinations or analyses may be required before conservation commences (e.g. the X-radiography of metals, XRF of metals, identification of wood and fibres, sampling for Carbon 14 dating etc.)

When the results of these examinations are available, the archaeologist, conservator and the finds specialist(s) involved, should meet to:

- Select the artefacts to be conserved.
- Discuss the conservation methods to be used, which work will be sub-contracted (e.g. freeze-drying) and where it will be carried out.
- Discuss priorities (e.g. artefacts requiring urgent attention, publication deadlines, budgetary constraints, etc.)



BIBLIOGRAPHY

Robinson, Wendy. *First Aid for Underwater Finds*. Archetype Publications-Nautical Archaeology Society. London, 1998.

Watkinson, D. and Neal, V. *First Aid for Finds*. Published by RESCUE-The British Archaeological Trust and Archaeology Section of the United Kingdom Institute for Conservation with the Museum of London. London, Third Edition Reprinted 2001.

List of Suppliers

CONSERVATION SUPPLIES:**On The Edge Ltd. (OTE)**

Ballinahinch, Ashford, Co. Wicklow

Tel: +353 87 2575059

<http://www.ote.ie/>**Preservation Equipment Ltd.**

Norfolk, England

Tel: +44 1379647400

www.preservationequipment.com**Conservation Resources (U.K.) Ltd.**

Oxford, England

Tel: +44 865 747755

www.conservation-resources.co.uk**Deffner & Johann**

German-based online company

<https://deffner-johann.de/en/>**ACID-FREE PAPER:***From conservation suppliers listed above.***BOXES:****Archival Box Company Ltd.**

Industrial Development Agency Business Park,

Southern Cross Rd, Irishtown, Bray,

Co. Wicklow, A98 X5P5

Tel: +353 1 2867917

Really Useful Boxes

Stocked by a wide range of suppliers

<http://www.reallyusefulproducts.co.uk/ireland/>**LABORATORY SUPPLIES:****Lennox Laboratory Supplies Ltd.**

John F. Kennedy Drive, Naas Road, Dublin D12

FP79

Tel: +353 1 460 7600

<http://www.lennox.ie/>**BOARD:***Corriboard***Access Plastics Ltd.**

Access House, Unit 16 Ashbourne Industrial

Estate, Ashbourne, Co. Meath A84 W972

Tel: +353 1 801 0022

<https://www.accessplastics.com/>*Corrugated cardboard***Klug Conservation**

Zollstrasse 2, 87509 Immenstradt, Germany

Tel: +49 8323 965330

<https://www.klug-conservation.com/>**COTTON & POLYESTER TAPE:***From conservation suppliers listed above.**Various haberdashery suppliers.***Plastazote® Foam:****On the Edge Ltd.**

Ballinahinch, Ashford, Co. Wicklow

Tel: +353 87 2575059

<http://www.ote.ie/>**AQF Ltd.**

Mullaghboy Industrial Estate, Athboy Road,

Navan, Co. Meath C15 N70H

Tel: +353 46 9028611

<http://www.aqf.ie/materials.html>**BUBBLE WRAP:***Various office stationery suppliers.***FLIGHT CASES:****Dublin Flight Case Co.**

Station House, Shankill Business Centre, Shankill,

Co. Dublin

Tel: +353 1 239 3290

<http://www.dublinflightcase.com/>

APPENDIX 2:

PHYSICALLY NUMBERING ARCHAEOLOGICAL OBJECTS

Numbering an archaeological object or fragment bears a risk, due to their unstable condition after the excavation. On the other hand, numbering is necessary as a link between the object and the documentation.

Before you start:

Any chosen numbering technique must be:

- **Secure**, so the chances of accidental removal of the label or number from the object would be extremely low.
- **Reversible**, so it is possible for a label or number to be removed intentionally from an object, even after 50-100 years, with as little trace as possible.
- **Safe** for the object. Neither the materials applied to the object nor the method by which they are applied should damage the object in any way. The use of adhesive labels on objects (e.g. sherds of pottery) is not permissible under any circumstance.
- **Discreet but visible**. The methods must not spoil the appearance of the object or obscure important detail. However, the number must be visible enough to reduce the need to handle the object. When numbering objects, care must be taken to place the number in as inconspicuous a position as possible. Numbers must be discreet but legible with the naked eye. Where an object clearly has 'front' and 'back' sides, or decorated and plain surfaces, the number must be placed on the back, or plain surface.
- **Convenient and safe** for all. Materials must be easily available in small quantities and must not pose risks to health if used in accordance with the manufacturers' guidelines.

Objects which cannot physically be numbered must be accompanied by an individual acid-free label such as Tyvek®, for example, with the excavation number and object name recorded on it using archive-quality pens or Indian ink. Advice on these matters may be obtained by contacting the Duty Officer, Irish Antiquities Division or the Conservation Dept. of the National Museum of Ireland.

SELECTING AN APPROPRIATE METHOD

Many factors need to be considered when selecting the most appropriate technique to physically number an object.

The selection of a numbering technique is determined by the characteristics of the object or fragment to be numbered, like surface stability, strength or resistance to tensional forces, porosity, roughness and flexibility.

- **How stable is the surface of the object?** If it is flaking or corroding it could be impossible to physically number the object.
- **How porous is the object?** If the porosity of the object is high, consult with a conservator. It is possible to number an object changing the concentration of Paraloid® B72, for example (see *Basic Techniques*).
- **How rough is the surface?** Very rough surfaces are difficult if not impossible to write on. Never use a glued-on label. Consult a conservator for advice.

All this information contributes to your decision as to what is the best method of labelling and numbering the object.

One of the most secure options is the Paraloid® Sandwich Technique but if in doubt consult a conservator and/or the NMI.

BASIC TECHNIQUES

Paraloid® Sandwich Technique

This technique is suitable for a range of objects with a stable, smooth and reasonably non-porous surface.

The Paraloid® Sandwich Technique is more suitable for physically numbering inorganic material rather than organic material.

- Mix up a solution of Paraloid® B72 granules in acetone at 20% weight to volume (for example, 20g Paraloid® B72 in 100ml acetone, or 20g Paraloid® B72 and 100ml of acetone).
- If appropriate, prepare the area to be marked by removing surface dirt and grease with acetone or IMS.
- Always do a solvent test on an unobtrusive area before applying a solvent to your object.
- Allow the solvent to evaporate.
- Check the surface for disturbances.
- Paint a small area with a base coat of 20% Paraloid® B72 in acetone.
- Wait for at least 15 minutes until the base coat is dry.

- Write the object number on the base coat using a recommended drawing ink or drawing pen (Indian ink and nib pens or Rotring® ink and Rotring® pens), using white ink for dark objects on which black lettering would not show up.
- Wait up to 30 minutes until the ink is dry.
- Apply a top coat of 20% Paraloid® B72 in acetone on top of the object number.

Notes:

Paraloid® B72 must be used for the base coat and the top coat of the Paraloid® sandwich technique. Problems have been encountered because Rotring® inks can dissolve when the top coat of Paraloid® B72 is applied. This problem can be avoided by substituting the Paraloid® B72 top coat with Paraloid® B67 or by using a pen, which is not soluble in the B72, such as the Edding® 780 paint marker.

Indian Ink, applied with the nib pen, is the recommended method.

Water-immersed label

This method is used for objects in water, typically waterlogged glass or organic materials, and most categories of objects from maritime sites.

- Write the number on an acid-free label, e.g. Tyvek® label, using a black waterproof ink marker such as those made by Staedler® or Artline®. Avoid pencil as it becomes illegible over time. Allow ink to dry for 24 hours (the ink must also be checked for survival in water). Place label in container with artefact and seal.

Please refer to the UKIC publications *First Aid for Finds* and *First Aid for Marine Finds*, 3.1.3 *Labels for Wet Packaging* for further information.

All materials that are used to physically number archaeological objects must meet the following criteria:

- Be as chemically stable as possible.
- Have excellent ageing characteristics to ensure the longevity and legibility of the number.
- Prevent absorption of marking inks by porous materials, such as unglazed ceramics or wood.
- Be removable, if for any reason the object must be renumbered or the number relocated.

Positioning of numbers

- Avoid physically unstable surfaces. Placing numbers across a line of weakness or fracture must also be avoided.
- Never apply any self-adhesive label or tape, such as Sellotape® or masking tape, to the surface of an object.
- Avoid surfaces where the number is likely to be at risk from abrasion, such as surfaces on which it normally rests, or where touched during handling.

- Number all detachable parts of an object.
- If an object is in a number of pieces, e.g. an axe in four pieces, number each piece with the object number where possible and ensure that the **number of parts** field in the Excel Spreadsheet is completed with the appropriate number.

Materials to avoid

Materials such as correction fluid, for example Tipp-Ex®, or clear nail varnish must never be used for numbering. These materials are unsuitable and must never be used on archaeological objects for the following reasons:

- **Correction fluid** dries to form an inflexible surface layer subject to cracking and detachment. It is not designed for long-term stability, and may discolour and deteriorate with age. In direct contact with the surface of an object, it can be extremely difficult to remove and leaves an unsightly white residue.
- **Clear nail varnishes** have a variety of formulations and they are not designed for long-term stability and their ageing properties are unknown. However, in common with many other polymers, they are likely to cross-link with age, resulting in embrittlement and discolouration, and possible loss of primary information.
- **Nail varnish remover** is not a substitute for laboratory-grade acetone. It contains other ingredients, such as perfume to mask the smell and oils to condition the nails, and may cause staining to object surfaces.
- The following must also be avoided:
 - Dymo® labels
 - Felt markers, ballpoint pens
 - Straight pins or safety pins for textiles
 - Paper clips (metal or plastic) for textiles
 - Staples for textiles

HEALTH AND SAFETY

Before using any technique, assess the health and safety risks associated with it. As with any work involving the use of potentially hazardous substances it is important to ensure that you are compliant with relevant Health and Safety legislation and guidelines. It is the responsibility of the excavators to inform themselves of any risks associated with the use of any materials to be employed and to ensure that appropriate safety precautions are in place.

USEFUL ADDRESSES

SUPPLIERS

Paraloid® B-72 and B-67

On The Edge Ltd. (OTE)

Ballinahinch, Ashford, Co. Wicklow

Tel: +353 87 2575059

<http://www.ote.ie/>

Preservation Equipment Ltd (UK)

Norfolk, England

Tel: +44 1379647400

www.preservationequipment.com

Conservation Resources (UK) Ltd

Oxford, England

Tel: +44 (0) 1865 747755

www.conservation-resources.co.uk

ART & STATIONERY

M Kennedy & Sons Ltd

12 Harcourt Street, Dublin D02 E520

Tel: +353 1 475 1749

www.kennedyart.com

APPENDIX 3: BOX LABEL TEMPLATE

All excavation find boxes must be clearly labelled in BLOCK CAPITALS in permanent ink, using a standard label format produced by the NMI. A copy of this label is available below and a template to enable printing of labels can be obtained from the Duty Officer, Irish Antiquities Division. The template is designed for use on standard parcel labels measuring 102mm X 76mm (see example of label printed below). Only archival quality foil-backed, self-adhesive labels shall be used (available upon request from the Duty Officer, Irish Antiquities Division). These should be applied to one of the short ends of the box and placed in such a way that no part of the label is obscured by the box lid when it is in place.

<h1>E</h1>	
<hr/>	
Site:	
County:	
Company:	
Contents:	
BOX NO.	OF

Fig. 2. Box label

The labels must be completed in **permanent ink** as follows:

<p style="text-align: center;">20E1234</p> <hr/> <p>Site: 1-2 MAIN STREET, BALLYMORE</p> <p>County: CORK</p> <p>Company: LEE ARCHAEOLOGICAL SERVICES LTD</p> <p>Contents: MEDIEVAL POTTERY (C. 1-100)</p> <p>BOX NO. 2 OF 25</p>

Fig. 3. Example of completed box label

APPENDIX 4: GUIDELINES FOR COMPLETION OF EXCEL SPREADSHEET

The Excel spreadsheet template (ExcavTables) is available through the Duty Officer, Irish Antiquities Division. Please note that this is the only format compatible with the NMI Database and therefore no other versions can be accepted. Please note there are a number of different sheets within the spreadsheet and all relevant sheets must be completed correctly before objects will be considered for submission to the NMI.

	A	B	C	D	E
1	SiteNo	Year	E	ENo	SiteName
2					
3	[Full excavation licence/registration number, e.g. 'E003456 or '2020E1234']	[Year prefix of licence number, if used, in four-digit format e.g. '2020']	E	[Final element of licence/registration number, in four-digit format e.g. '3456', '1234', '37', '123']	[Full name of site, including county, townland and/or street name and number (for urban sites)]
4	Text	Number	Text	Number	Text
5	50 characters	4 characters	1 character	4 characters	255 characters
6					
7	Example:				
8					
9	E003456		E	3456	Black Castle, Ballymore, Co. Limerick
10	2020E1234	2020	E	1234	Ballymurphy, Co. Waterford

Sheet 1: Site Details

Please follow the guidelines on this page of the spreadsheet:

SiteNo Field: Enter the full excavation number e.g. E003456 (for Ministerial Consents or Directions) or 2020E1234 (excavation licence number). Please note that for the purposes of completing the Excel spreadsheet, the year prefix of the licence number must be in four-digit format.

Year Field: Year prefix of licence number in four-digit format e.g. 2020. Please note that for (E) numbers relating to Ministerial Consents or Directions, the year column must be left blank.

E: Insert 'E'.

E No: Final element of licence number, dropping all redundant zeros e.g. '3456', '1234', '37', '123', etc.

Site Name: Full name of site, including townland and/or street name, number (for urban sites) and county.

Appendix 4

April2022NMIExcavTablesTemplate.xlsx

Search in Sheet

Home Layout Tables Charts SmartArt Formulas Data Review

Edit Font Alignment Number Format

Fill Arial 10 Wrap Text General Normal Bad Good Neutral Calculation Check Cell

Wrap Text Conditional Formatting Explanatory... Input Linked Cell Note Output Warning Text

Cells Themes

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	ExcavNo	SiteNo	ContextNo	ItemNo	Suffix	SimpleName	FullName	Material	Other Material	Description	Dimensions	CurrentLocation	DateOfCurrent	NoOfParts	ContextDesc	Specialist Data added (√)
1	[Full object registration number, e.g. 'E3456:67:5' or '2020E1234:3:1']	[Full excavation licence/registration number, e.g. 'E3456' or '2020E1234'. Be sure to fill in site details on separate worksheet]	[Insert context number only if used in object registration number]	[Final individual element of object registration number]	[If you need to suffix an excavation number please contact the Duty officer, Irish Antiquities Division in advance of doing so. Please insert the suffix SK for registering articulated human remains]	[One-word name of object type, e.g. 'Pin', 'Scraper', 'Axehead'. See separate worksheet]	[Full name of object including the material]	[Material(s) from which the object is made, e.g. 'Iron', 'Ceramic', 'Wood, Leather'. See separate worksheet]	[If the object is a composite object and the parts are fabricated from two different materials record the second material here - see comb example below]	[Freehand description of object - see examples below]	[Main dimensions of object in cm. Use abbreviations L (length), W (width), D (diameter) T (thickness) etc.]	[Storage details of object as delivered to Museum e.g. 'Box 4']	[Date on which data entered (dd/mm/yyyy)]	[Please insert the number of parts (e.g. 1, 2 or 3 etc.)]	[Brief description of type of context e.g. 'fosse of ringfort', 'primary habitation deposit' etc. Please also record the context numbers here especially if the objects are not numbered using the context + Find number system]	[Insert √ to confirm that the records for objects that required specialist analysis have been updated with object identification s, descriptions and dimensions]
2																
3	Text	Text	Number	Number	Text	Text	Text	Text	Text	Memo	Text	Text	Date/Time	Number	Text	Text
4	50 characters	50 characters	50 characters	50 characters	50 characters	50 characters	255 characters	50 characters	50 characters	Unlimited	50 characters	50 characters	dd/mm/yyyy	50 characters	255 characters	1 character
	E3456:67:5	E3456	67	5		Brooch	Copper alloy zoomorphic penannular brooch	Copper alloy		Copper alloy zoomorphic penannular brooch, corroded and broken in two pieces. Hoop is cast and round in cross-section. Pin complete; shank bent where it crosses the hoop. Pinhead is a barrel-moulded rectangle wrapped around hoop. Terminals slightly expanded.	D hoop 4.40, L pin 7.50, T hoop 0.35	Box 4	23/08/2020	2	Fosse of ringfort. C67	√
5																
6	2020E1234:2:1	2020E1234	2	1		Human remains	Cremated human bone fragments	Human remains		Insert specialist description	N/A	Box 3	20/02/2020		Fill of cist C2	√
7	2020E1234:2:4SK	2020E1234	2	4	SK	Human remains	Human skeletal remains	Human remains		Articulated human skeletal remains. Insert specialist description	N/A	Box 12	20/02/2020	35	Burial 5 truncated by later linear feature	√
8	2020E1234:3:1	2020E1234	3	1		Human remains	Human skeletal remains	Human remains		Disarticulated human skeletal remains. Insert specialist description	N/A	Box 11	20/02/2020		Fill of pit C3	√
9	2020E1234:5SK	2020E1234		5	SK	Human remains	Human skeletal remains	Human remains		Articulated human skeletal remains. Insert specialist description	N/A	Box 30	20/02/2020	53	Burial 3	√
10	2020E1234:6:77	2020E1234	6	77		Comb	Decorated composite bone comb	Bone	Iron	An incomplete decorated bone comb. The side plates bear dot and circle motifs which have been finely executed. Only two teeth are are	L 4.56, W 2.32, T 0.90	Box 22	20/02/2021	7	Fill of pit C6	√

Sheet 2: Object Details.

Sheet 2: Object Details

- ExcavNo Field:** Enter the object registration number e.g. E3456:67:5 or 2020E1234:3:1. Please note that for the purpose of completing the Excel spreadsheet, the year prefix of the licence number must be in four-digit format.
- SiteNo Field:** Please enter the excavation licence/registration number in the following format: E3456 or 2020E1234. Ensure to fill in site details on the spreadsheet entitled *SiteDetails*.
- ContextNo Field:** Insert context number only if used as part of the object registration number.
- ItemNo Field:** Insert the final individual element of the object registration number. Please note that **each** object must have its own record in the ExcavTables spreadsheet and that multiple objects must not be recorded in the same row. In addition, there must be no gaps in the numbering sequence - please consult with the Duty Officer, Irish Antiquities Division to clarify any issues in relation to this.
- Suffix Field:** This field is alpha-numeric and is to be used when registering articulated human skeletal remains (SK). For procedures on how to populate the fields please refer to the table above.
Please note, however, that cremated human bone, isolated bone fragments not associated with a burial and bulk bone fragments from the same context must NOT be assigned a suffix (SK). These must be registered as objects in the usual manner.
- SimpleName Field:** Insert name of object type, for example 'pin' 'scraper', 'comb'. Please see sheet entitled *Simple Names* for a full list of simple names to be used (see details below). The words 'fragment', 'piece' or 'lump' must not be used here as they refer to something that is broken off or separated from an object. In cases where an object type cannot be determined, the word 'object' must be used. If objects have been identified by a specialist, this identification must be recorded in the simple name field, using the appropriate term from Sheet 3 (an extract from which is reproduced below).
- FullName Field:** Enter the full name of the object including the material e.g. 'copper alloy stick pin', 'polished stone axehead', 'blue glass bead', 'glazed red

earthenware rim sherd', 'clay pipe bowl fragment', 'North Devon gravel tempered ridge tile', etc. If objects have been identified by a specialist, this identification must be recorded in this field.

- Material field:** Enter the material which the object is made from, e.g. iron, ceramic, wood, leather. See separate adjacent Sheet 4 entitled *Materials* for a full list of materials which can be used (an extract from which is reproduced below).
- Other material:** Enter any additional materials that the object is made from. In the case of a decorated composite bone comb with metal teeth, for example, the 'material' is bone and the 'other material' is iron.
- Description Field:** Freehand description of the object. If the object has been identified by a specialist, this identification must be recorded in this field. The weight of the object, if available, can be included in this field.
- Dimensions Field:** Enter the main dimensions of the object in **centimetres only** (e.g. W 0.78; T 2.56; L 103.20). Dimensions provided in millimetres will not be accepted. Use abbreviations L (length), W (width), H (height), D (diameter) etc.
- CurrentLocation Field:** Enter details of object as delivered to the NMI (e.g. Box 4)
- DateOfCurrent Field:** Enter date on which the data is entered (dd/mm/yyyy)
- NoOfParts Field:** Please insert the number of parts (e.g. 1, 2 or 3). This may also be used for bulk numbering (e.g. debitage) but only by prior agreement with the NMI. This column must be left blank if the total number of parts cannot be determined (e.g. cremated bone). The total weight of the parts can, instead, be inserted into the Description field.
- ContextDesc Field:** Enter brief description of the type of context, e.g. 'fosse of ringfort', 'primary habitation deposit', etc. Please also record the context number in this field particularly if the object registration number itself does not contain the context number (e.g. 20E1234:1).
- Specialist Field:** Use to indicate if the object has been subject to an assessment by the relevant specialist. Please insert tick symbol (v) if applicable.

	A	B
1	ADZE	
2	ALBUM	
3	ALTAR	
4	AMULET	
5	ANCHOR	
6	ANIMAL REMAINS	
7	ANVIL	
8	APRON	
9	ARCHITECTURAL FRAGMENT	
10	ARDSHARE	
11	ARMLET	
12	ARMOUR	
13	ARROW	
14	ARROWHEAD	
15	ASTROLABE	
16	AWL	
17	AXE HAMMER	
18	AXEHEAD	
19	AXEL	
20	BACKED FORM	
21	BADGE	
22	BAG	
23	BALL	
24	BAND	
25	BANK NOTE	
26	BANN FLAKE	
27	BANNER	
28	BAR	
29	BAR FORM	
30	BASIN	
31	BASKET	
32	BAT	
33	BATTLE AXE	
34	BAYONET	
35	BEAD	
36	BEAKER	
37	BEAM	
38	BEETLE	
39	BELL	
40	BELT PLATE	
41	BEVELLED PEBBLE	
42	BIFACIAL FORM	
43	BILLHOOK	
44	BINDING STRIP	
45	BIT	
46	BLADE	
47	BLOCK	
48	BOAT	
49	BOG BUTTER	
50	BOLT	
51	BOOK	
52	BORER	
53	BOSS	
54	BOTTLE	
55	BOW	
56	BOWL	
57	BOWLS	
58	BOX	
59	BRACELET	
60	BRACER	
61	BRACKET	
62	BREASTPLATE	
63	BRICK	
64	BRIDLE	
65	BRIDLE PENDANT	
66	BROOCH	
67	BUCKET	
68	BUCKLE	
69	BULLA	

Sheet 3: Simple Names

Please only use simple names from this list. Contact the Duty Officer, Irish Antiquities Division if you require an additional 'Simple Name' to be added to this list.

Appendix 4

	A	B	C	D	E	F	G	H	I	J	K	L
1	AMBER											
2	ANIMAL REMAINS	Use for faunal remains										
3	ANTLER											
4	BARK											
5	BONE	Use only for recording artefactual finds. Use ANIMAL REMAINS or HUMAN REMAINS for recording animal or human bone.										
6	BRASS											
7	BRONZE											
8	BUTTER											
9	CERAMIC	Use for pottery, clay moulds, crucibles, clay pipes etc. (i.e. objects that have been fired).										
10	CHARCOAL											
11	CHERT											
12	CLAY											
13	CLOTH											
14	COPPER											
15	COPPER ALLOY											
16	CRYSTAL											
17	ENAMEL											
18	FAIENCE											
19	FLINT											
20	GILT COPPER ALLOY											
21	GLASS											
22	GOLD											
23	HAIR											
24	HORN											
25	HORSEHAIR											
26	HUMAN REMAINS											
27	IRON											
28	IVORY											
29	JADE											
30	JET / LIGNITE											
31	LACQUER											
32	LACQUERED											
33	LEAD											
34	LEAD ALLOY											
35	LEATHER											
36	METAL											
37	MILLEFIORI											
38	NIELLO											
39	PAPER											
40	PAPYRUS											
41	PEWTER											
42	PITCH											
43	PLANT REMAINS											
44	PLASTER											
45	PLASTER OF PARIS											
46	QUARTZ											
47	SHELL											
48	SILVER											
49	SLAG											
50	SLATE											
51	SOIL											
52	STONE											
53	STRAW											
54	TEXTILE											
55	TIN											
56	TINNED COPPER ALLOY											
57	TOOTH											
58	WAX											
59	WHALEBONE											
60	WICKER											
61	WOOD											
62	WOOL											

Sheet 4: List of materials

Use only the materials listed on this sheet. Please contact the Duty Officer, Irish Antiquities Division if you have any other material type not included in this list.

APPENDIX 5:

GUIDELINES FOR RECORDING ARCHAEOLOGICAL SAMPLES INCLUDING ECOFACTUAL MATERIAL

The Excel spreadsheet template for recording samples is available through the Duty Officer, Irish Antiquities Division. Please note that this is the only version that can be accepted.

Please note also that there are a number of different sheets within the spreadsheet and all relevant sheets must be completed correctly before material will be considered for submission to the NMI.

	A	B	C	D	E
1	SiteNo	Year	E	ENo	SiteName
2					
3	[Full excavation licence/registration number, e.g. 'E003456 or '2020E1234']	[Year prefix of licence number, if used, in four-digit format e.g. '2020']	E	[Final element of licence/registration number, in four-digit format e.g. '3456, '1234', '37', '123']	[Full name of site, including county, townland and/or street name and number (for urban sites)]
4	Text	Number	Text	Number	Text
5	50 characters	4 characters	1 character	4 characters	255 characters
6					
7	Example:				
8					
9	E003456		E	3456	Black Castle, Ballymore, Co. Limerick
10	2020E1234	2020	E	1234	Ballymurphy, Co. Waterford

Sheet 1: Site Details

Please follow the guidelines on this page of the spreadsheet:

SiteNo Field: Enter the full excavation number e.g. E003456 (for Ministerial Consents or Directions) or 2020E1234 (excavation licence number). Please note that for the purposes of completing the Excel spreadsheet, the year prefix of the licence number must be in four-digit format.

Year Field: Year prefix of licence number in four-digit format e.g. 2020. Please note that for (E) numbers relating to Ministerial Consents or Directions, the year column must be left blank.

E: Insert 'E'.

E No: Final element of licence number, dropping all redundant zeros e.g. '3456', '1234', '37', '123', etc.

Site Name: Full name of site, including townland and/or street name, number (for urban sites) and county.

	A	B	C	D	E	F	G	H	I
1	ExcavNo	ContextNo	SampleNo	SampleType	ContextDesc	CurrentLocation	DateOfCurrent	NoOfParts	Specialist Data added (v)
2									
3	<i>[Full excavation licence/registration number, e.g. 'E003456' or '2020E1234'. Be sure to fill in site details on separate worksheet.]</i>	<i>[Please record the context number here if applicable]</i>	<i>[Any individual sample registration number]</i>	<i>[Basic description of sample type, e.g. 'Animal bone', 'Flots', 'Metallurgical', etc.]</i>	<i>[Brief description of type of context e.g. 'fosse of ringfort', 'primary habitation deposit' etc.]</i>	<i>[Storage details of object as delivered to Museum e.g. 'Box 4']</i>	<i>[Date on which data entered (dd/mm/yyyy)]</i>	<i>[Use only if sample is stored in more than one bag/box, e.g. '2', '3' etc]</i>	<i>[Insert v to confirm that the records for material that required specialist analysis have been updated with identifications and descriptions]</i>
4	Text	Number	Number	Text	Text	Text	Date/Time	Number	Symbol
5	50 characters	50 characters	50 characters	50 characters	255 characters	50 characters	dd/mm/yyyy	50 characters	1 character
6									
7	<i>Examples:</i>								
8	E003456	7	5	Animal bone	Fosse of ringfort	Box 4	23/08/2020	2	v
9	2020E1234	12		Charcoal	Habitation layer	Box 22	13/04/2020		v

Sheet 2: Sample Details

ExcavNo Field: Enter the full excavation licence or registration number e.g. E3456 or 2020E1234. Please note that for the purpose of completing the Excel spreadsheet, the year prefix of the licence number must be in four-digit format.

ContextNo Field: Insert context number only if used as part of the sample recording number.

SampleNo Field: Insert the sample registration number if applicable. Please note that **each** sample must have its own record in the spreadsheet and that multiple samples must not be recorded in the same row. In addition, there must be no gaps in the numbering sequence - please consult with the Duty Officer, Irish Antiquities Division to clarify any issues in relation to this.

SampleType Field: Please enter basic description of sample type e.g. 'animal bone', 'flots', 'metallurgical', etc. If material has been identified by a specialist, this identification must be recorded in the SampleType field. Sample weights can be inserted here if applicable.

ContextDesc Field: A brief description of the type of context must be recorded in this field (e.g. 'fosse of ringfort', 'primary habitation deposit', etc.). Please also record the context number in this field if applicable.

CurrentLocation Field: Enter details of object as delivered to the NMI (e.g. Box 4)

DateOfCurrent Field: Enter date on which the data is entered (dd/mm/yyyy)

NoOfParts Field: Use only if sample is stored in more than one box/bag e.g. '2', '3', etc.

SpecialistData Added Field: Use to indicate if the material has been subject to an assessment by the relevant specialist. Please insert tick symbol (v) if applicable.

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