

**ARCHAEOLOGY
& DEVELOPMENT:
GUIDELINES FOR
GOOD PRACTICE
FOR DEVELOPERS**

Prepared for the
Heritage Council
by
The ICOMOS Irish
Committee Consortium

December 2000

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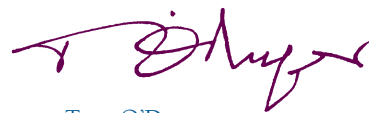
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FOREWORD

One of the initiatives identified by the Heritage Council's review of Urban Archaeological Practice in Ireland (Lambrick and Spandl 2000, 88) was that a clear guidance leaflet should be produced to explain to developers how archaeology is dealt with through the planning system and National Monuments legislation To contribute to this the Heritage Council in May 1999 commissioned the ICOMOS Consortium to develop, in partnership with all the appropriate agencies and interests, a set of guidelines to best practice for developers. These are intended to demonstrate how, through the application of appropriate procedures, developers can save both time and money when faced with the requirement to protect our heritage during the development process. The Council hopes that these guidelines will find general acceptance amongst government and industry and will thereby be a benefit to Ireland's heritage.



Tom O'Dwyer
Chairperson
THE HERITAGE COUNCIL

August 2000



Michael Starrett
Chief Executive
THE HERITAGE COUNCIL

PART I PREFACE

The Heritage Council in 1999 invited proposals for guidelines for developers in relation to archaeology. Ten years earlier the National Monuments Advisory Council (NMAC) had published Guidelines on Urban Archaeology for Planning Authorities, Developers and Archaeologists and the ICOMOS Irish National Committee began a review of these in 1993. This work was carried out by a sub-committee of archaeologists, planners, architects and engineers from State, local authority and private consultancy backgrounds in a voluntary/private capacity as follows:

- Margaret Gowen, Margaret Gowen & Co. Ltd., Archaeological Consultants
- Andy Halpin, Assistant Keeper, National Museum of Ireland
- Douglas Hyde, Fingal County Planning Officer
- Conleth Manning, Senior Archaeologist, Dúchas
- Thomas O'Connor, Planning Officer, An Bord Pleanála
- Toal Ó Muiré, Ó Muiré Smyth Architects (Convenor)
- Terry O'Neill, Fearon O'Neill Rooney, Consulting Engineers
- Ian Roberts, Arup Consulting Engineers.

This group worked closely with Dr. Charles Mount, Archaeology Officer of the Heritage Council, to finalise the present document.

These guidelines aim to produce a better understanding of the needs of archaeology in Ireland and to improve co-operation between developers (with their consultant archaeologists, architects, engineers and planners) and the statutory authorities in protecting the archaeological heritage. They are intended to be complementary to the published policies of the Minister of Arts, Heritage, Gaeltacht and the Islands on the protection of the archaeological heritage and are not a substitute for the need for published guidance to planning authorities from the central government on archaeology in the planning process. The guidelines are in technical rather than legal terms, in order to help improve professional practice and procedures.

PART 2 OVERALL APPROACH TO DEVELOPMENT

2.1 INTRODUCTION

2.1.1 **Conservation and development.** Archaeological conservation and property development need not be mutually exclusive, and these guidelines suggest ways to secure both. The objective is the preservation of archaeological remains, by eliminating avoidable damage and by minimising unavoidable damage.

The principles and procedures set out below are relevant in old towns, where urban renewal must be reconciled with preservation or excavation of the towns' archaeology, but they apply equally to archaeological deposits and structures in all urban and rural areas, and particularly to foundation design and archaeological excavation in various contexts: see section 3.8 of DAHGI's *Framework and Principles for the Protection of the Archaeological Heritage*.

The Minister for Arts, Heritage, Gaeltacht and the Islands considers the costs of archaeological work necessitated by development a legitimate part of development costs (see section 3.3 of DAHGI's *Framework and Principles*). This has two consequences:

- (a) Firstly, private developers have to pay for much current archaeological investigation, recording and protection as a condition of planning permission for their construction projects; and
- (b) Secondly, it means difficult choices for planning authorities and An Bord Pleanála, between public objectives for urban and rural redevelopment and those for conservation/excavation.

2.1.2 **Checking the developer's obligations.** Owners of sites should be aware of the growing interest in our heritage and in the legal measures to protect it. Where construction must disturb archaeological deposits, the developer should reduce disturbance to a minimum; and must have disturbed areas archaeologically resolved, as part of the development cost of the site. A preliminary feasibility assessment study costs relatively little, and its archaeological component is essential for the developer to know more of what may lie ahead if the project proceeds.

2.1.3 **The ICOMOS Schedule of Work Activities.** Uncertainty should be reduced as early as possible in any development project in a zone of archaeological potential (ZAP) or in proximity to recorded monuments, by adhering to the procedure set out in the ICOMOS Schedule of Work Activities at Part 3 of this document. The Schedule of Work Activities summarises in a clear sequence the tasks of the professionals — architects, engineers and planning consultants, as well as archaeologists, — who assist developers to meet their obligations in respect of archaeology, from start to finish of a project.

2.1.4 **Duties of the archaeologist.** For construction projects in zones of archaeological potential or in proximity to recorded monuments, developers ought to engage professional archaeologists to advise them from the outset.

The archaeologist must report the results of archaeological investigations in writing to Dúchas (the Heritage Service of the Department of Arts, Heritage, Gaeltacht and the

Islands, DAHGI) and the National Museum of Ireland in accordance with the terms of excavation licences under the National Monuments Acts: see the DAHGI's *Policy and Guidelines on Archaeological Excavation*. Subject to the *Policy and Guidelines* and professional codes of practice, the archaeologist has the same professional duties of confidentiality etc. to a client as have the other members of the advisory and design team.

2.1.5 **Legislative and administrative framework.** The statutory and administrative framework of development control in zones of archaeological potential or in proximity to recorded monuments has two main elements:

(a) Archaeological preservation and licensing under the National Monuments Acts — see the DAHGI *Policy and Guidelines*; and

(b) Development plans and planning applications under the Planning Acts.

These guidelines aim to help co-ordinate efforts under both headings. Further information on the framework is found in Parts I, II and IV of the DAHGI *Framework and Principles for the Protection of the Archaeological Heritage*.

2.1.6 **Dúchas, the Department of Arts, Heritage, Gaeltacht and the Islands, and the Heritage Council.** The Minister of Arts, Heritage, Gaeltacht and the Islands and the Heritage Council are required under Planning Regulations to be sent notification of planning applications for development “where it appears to the planning authority that the development would affect or be unduly close to any cave, site, feature or other object of archaeological, geological, scientific or historical interest, [or] would obstruct any scheme for improvement of the surroundings or of any means of access to such place, object or structure . . .” Applications referred to the Minister are dealt with by Dúchas.

This category of application includes the site of any national monument in State care, and any site marked on the Record of Monuments and Places (RMP) derived from the Sites and Monuments Record (SMR) and the Urban Archaeological Survey.

Irrespective of Planning Regulations, Dúchas is the protector of archaeological sites and archaeological monuments under the National Monuments Acts. If DAHGI is not consulted, and learns that a monument or site is endangered by development, it has powers under the National Monuments Acts to protect it, and at least to ensure that any disturbance is carried out in conjunction with adequate assessment, excavation and/or monitoring by a qualified archaeologist, licensed when appropriate under the Acts.

2.1.7 **The Record of Monuments and Places (RMP).** Dúchas produces for each county a Record (RMP), which enables developers to judge what developments affect an archaeological site or monument, and Local Authorities to refer them under the Planning Regulations to DAHGI. The RMP does not provide for any yet unidentified archaeological sites and monuments. Protection of these may become a particular concern in cases of large-scale development involving extensive ground disturbance. The archaeological implications of a proposed development should not be determined exclusively on the basis of the RMP. All RMP sites have legal protection (see *recorded monument* in glossary).

2.1.8 **Standing structures.** Archaeological structures above and below ground should be protected. Many are listed in local authority Development Plans, or in the *Dúchas National Inventory of Architectural Heritage*. As a working rule, it should be assumed



Low-visibility sites like these barrows at Derroon, Co. Sligo may not be included in the RMP and may only be identified through aerial survey or intensive fieldwork.
Photo Charles Mount

that pre-1700 A.D. buildings in Zones of Archaeological Potential (ZAP) defined in the RMP (see 2.1.9 below) are likely to be protected under the National Monuments Acts. Any alteration to such a building in a ZAP requires two months notice to Dúchas under Section 12 of the National Monuments (Amendment) Act, 1994. The procedure for assessment of sites beneath existing buildings and standing structures may be very different from that on cleared sites: see Part 4 of this document.

Although National Monuments legislation defines as historic all monuments dating from before the year 1700 A.D., the definition of *monument* and of *archaeological object* (see glossary) is very broad and not restricted to any particular date. Monuments are not protected under the National Monuments Acts simply by dating to earlier than 1700 A.D.; one or other of the various protective mechanisms under the Acts must have been applied to them, and these mechanisms can be applied to monuments dating to after 1700 A.D. as well as before that date. While some separation between archaeological and architectural areas of protection exists in administrative structures within DAHGI/Dúchas, it has no relevance to the statutory obligations of developers in respect of archaeology and protected structures.

The above ground fabric of medieval plots and buildings should be retained. [See 2.3.6 below.]

- 2.1.9 **Preparation for a Planning Application.** Planning applications must have regard to the objectives included by planning authorities in their Development Plans for preserving the archaeological heritage in accordance with the Planning Acts. Planning permission may be refused where applications do not have due regard to these



Rothe House, Kilkenny is a rare survival of a major medieval town house making a major contribution to the streetscape. The facades of buildings either side are of more recent historic interest but still reflect medieval burgh plots and may retain some medieval fabric.
Photo Charles Mount

objectives, which primarily concern the preservation of archaeological sites or zones either undisturbed or by record: see 2.2 and 2.3 below and the text box next below which is an extract from the DAHGI *Framework and Principles*, section 3.8.4. Planning authorities may set their own Development Plan objectives which need not mirror those of the DAHGI exactly.

Criteria to be met before applying the approach of preservation by record in an urban area

Development in a present day urban area involving removal of sub-surface archaeological deposits or features should only be carried out if it can be demonstrated that it can be done without unacceptable archaeological implications.

However, in the urban context a number of factors must be given particular consideration before a decision is made to opt for preservation by record rather than preservation *in situ*. These are as follows:

- (i) that it is technically feasible to archaeologically excavate and record to the required standard the deposits and features being removed to allow development to proceed,
- (ii) that masonry structures of particular archaeological or historical interest surviving below ground level . . . will not have to be damaged or removed to allow the development as proposed to proceed, and
- (iii) that the Minister for Arts, Heritage, Gaeltacht and the Islands does not consider that further substantial archaeological excavation should be avoided in that town.

With regard to (iii) above, this would be a particular consideration where a relatively large amount of archaeological excavation has already taken place in a historic town.

- 2.1.10 However, where archaeological deposits occur over substantial urban centres, full physical preservation is often impractical and not even desirable; and refusal of permission is normally inappropriate. Instead the planning authority reviews the design (especially of foundations) in the proposed development - based mostly on the advice of Dúchas which is followed in the majority of cases — and grants permission subject to conditions in order to:
- (a) **Eliminate avoidable damage to archaeological remains.** This mostly involves using piled foundations and ensuring that all other substructures are kept above the level of archaeological deposits. Whether this is considered sufficient by Dúchas and the National Museum will depend on the nature of the archaeological deposits.
 - (b) **Minimise unavoidable damage to archaeological remains.** The only damage caused to strata should be from penetration of piles. Every effort should be made to adopt the least destructive piling type and layout.
 - (c) **Preserve a full record of any archaeological material** which is inevitably disturbed or damaged.



Werburgh Street east, Dublin: Square 25mm driven piles next to the city wall in which three phases can be seen, Hiberno/Viking wall at the base, overlain by the Anglo-Norman wall with post-medieval rebuilds above. *Photo Margaret Gowen and Co. Ltd.*

- 2.1.11 If the risk of disturbing archaeological remains is negligible, no further archaeological work or constraints (beyond archaeological monitoring) may be necessary. However, where significant risk of disturbance cannot be avoided, planning conditions are likely to require excavation and recording of the features likely to be disturbed, in specific and quantifiable terms.
- 2.1.12 Advice to developers about the impact of a proposed development should be based on professional archaeological advice, including an archaeological assessment: see Part 4 of this document. For orderly planning and development of the project, the range of possible costs to comply with archaeological requirements should be estimated at an early stage.



Preserved town walls: Geneval's Tower, Dublin, insertion of modular concrete retaining walling tied back into reinforced earth to create a chamber for the tower. *Photo Margaret Gowen and Co. Ltd.*

2.2 THE PLANNING AUTHORITY AND ARCHAEOLOGICAL CONSERVATION

- 2.2.1 **Purpose in relation to the guidelines.** This section sets down the types of actions and activities the Planning Authority undertakes in order to help define the interface with the developer's professional team. As stated in the preface, it is intended as guidance for that team rather than for planning authorities.

- 2.2.2 **General obligations in relation to archaeological conservation.** Development Plans by local authorities must reconcile the interests of development and conservation. The protection of archaeological monuments and remains above and below ground is a proper objective for the Development Plans for towns and rural areas. It is good practice to conserve archaeological deposits for future investigation.
- 2.2.3 **References to source documents.** Developers and their consultants should consult the Record of Monuments and Places, since the planning authority and other bodies will have used this as a basis for formulating development plan objectives, and should augment this search by local investigations.
- 2.2.4 **Objectives for zones of archaeological potential.** Zones of archaeological potential are defined based on the above Record. For purposes of these guidelines, procedures and practice which apply in zones of archaeological potential may apply equally in proximity to other recorded monuments. The Development Plan may state objectives for such areas based on the principles listed above; and normally require submission of archaeological assessments with planning applications within these areas. The preservation intact of remains is the primary objective, but Development Plans may recognise that the appropriate archaeological strategy for preservation and development can only be determined for each site on the basis of information about it and about the archaeological impact of a proposed project.



North Main Street, Cork: An example of sustainable economic regeneration based on the 'living over the business' urban renewal scheme. *Photo Cork Corporation.*

- 2.2.5 **Reference to Dúchas and the Heritage Council.** Planning authorities will refer planning applications to Dúchas and the Heritage Council where the proposed development may impinge on known archaeology. (See Heritage Council Policy on The Role Of The Heritage Council in the Planning Process 1999.)
- 2.2.6 **Conditions of Permission: balance and conservation.** Conditions of permission, particularly those related to archaeological excavation, normally have regard both to the archaeological remains which are a finite, irreplaceable resource, and to the development which is subject to constraints of cost, time and practicability.
- 2.2.7 **Compensation.** Under the 1990 Planning Act, there is no liability for planning authorities to pay compensation where conditions of planning permission relate to archaeological preservation, or planning permission is refused on grounds that the development would injure or interfere with a historic monument entered in the Register of Historic Monuments.

2.2.8 **Land disposal in zones of archaeological interest and in proximity to recorded monuments.** Land owned by local authorities and State bodies which is released for development increasingly is disposed of with a clear archaeological assessment of the limitations, if any, on its development. Where possible, private owners should do likewise.

2.2.9 **Infrastructure projects in zones of archaeological interest.** Developers involved in road development and infrastructure projects within zones of archaeological potential or in proximity to recorded monuments have the same responsibility as in relation to building projects for notifying Dúchas.



Geophysical investigation at Rindown, Co. Roscommon. *Photo Charles Mount*

2.2.10 It is Dúchas policy that archaeological assessment in the form of visual inspection, geophysical survey and test excavation be carried out in developments affecting extensive tracts of land even where no recorded or known monuments are involved. Each case is judged on its merits depending on the proximity of known sites and the potential for new discoveries. As a rule of thumb this requirement for assessment would apply to all linear developments over one kilometre in length (see section 3.6.2 of DAHGI *Principles and Framework*) and all other developments involving ground clearance of one hectare or more.

2.3 INVESTIGATION, BUDGETING AND IMPLEMENTATION OF PROJECT DESIGN

2.3.1 **Archaeological investigations at feasibility stage.** In zones of archaeological potential and in areas in proximity to recorded monuments, a site where development is proposed should have an archaeological assessment carried out: see Part 4 below. This must be done by an archaeologist, whose report should be part of the planning application. Even on small sites, it is usually in the interest of developers to have a consultant archaeologist advise their architect and engineer as early as possible, and to carry out an archaeological impact assessment before a planning application is made. As noted at 2.1.12, the range of possible costs to comply with archaeological requirements should be estimated at an early stage.

2.3.2 **Archaeological assessments with planning applications.** Elements of an assessment are listed in Part 4. All site investigations (trenches and geotechnical borings) should be monitored by an archaeologist. A list of qualified archaeologists may be obtained from Dúchas or from some planning authorities. The archaeologist usually prepares a

preliminary assessment based on a desk study of documentary sources, and on geotechnical samples taken during the site investigations. The archaeologist may include a constraint study and/or risk assessment: see Part 4 of this document. Some information for this assessment may be obtained by the developer or architect from the local authority archaeologist or heritage officer or from Dúchas, particularly where the site may previously have been assessed. It should be checked against the proposed design of substructures, and the results submitted as part of the planning application.



Examination of historic maps can provide useful information for assessments. *Photo Cork Corporation.*

2.3.3 **Substructure design — foundations.** The design of all substructures, including foundations, drains and services, should aim to minimize damage to archaeology, and expert advice is needed from the beginning. In general, where foundations penetrate archaeological layers, piled foundations or rafts are likely to cause less disturbance than strip footings or pads. (The Department of Arts, Heritage, Gaeltacht and the Islands has a commitment to issue guidelines on piled foundations and archaeology.) It is preferable to have single piles or groups of piles supporting the building at isolated points with the largest spans possible; six metres in each direction is a preferred minimum. The pile type should be selected to minimise disturbance of archaeological strata, whether by direct or collateral damage from impact, leakage of concrete, etc. At an early stage, consideration ought to be given to all deep structures including lift shafts, retaining walls and crane bases. There is more extensive discussion of this topic in Part 4 of this document.



Urban Excavations: early stages of construction following excavations of the Northgate site, Cork, showing the extent of disturbance caused by pile caps and ground beams. *Photo Cork Corporation.*

A compromise may be required between the needs of archaeology and structural problems/site conditions including adjoining buildings. Close co-ordination between the consulting engineer, the archaeologist and the rest of the design team will be needed to establish the best balance. Reference may be made to sections 3.3 to 3.5 of the DAHGI *Framework and Principles for the Protection of the Archaeological Heritage* dealing not only with archaeological protection but also with preservation *in situ* and preservation by record.

- 2.3.4 **Substructure design — drainage.** Due consideration must also be given to the effects of drainage and groundwater on archaeology. Drains frequently pass below foundation level, and so must be assessed as for foundations. Land drains can lower the water table, and may dry out organic material, so their archaeological effects must be considered, inside and immediately outside the site. Where land drains need to be avoided, hydrostatic pressures on walls may involve the design of watertight sub-structures.
- 2.3.5 **Substructure design — basements.** In zones of archaeological potential (and in proximity to recorded monuments) cellars, basement car parks and deep underground structures or services should be avoided; as should the use of ground improvement techniques. Where they are unavoidable, full archaeological excavation and recording of the affected portion of the site is necessary; for example around bases for lift shafts. See section 3.8 of DAHGI's *Framework and Principles* which deals with historic towns.
- 2.3.6 **Archaeological protection and building scale.** Archaeological material above and below ground should be protected. It may be an objective of the local authority's development plan to preserve the above ground fabric of medieval streets, plot sizes and buildings. Statutory policies which aim to preserve the above ground fabric of medieval streets, plot sizes and buildings need to be considered when a site is being sold or acquired for redevelopment, as the site assembly process *per se* may be in conflict with those policies.



A typical medieval lane-way off North Main Street, Cork. Such features are critical to maintaining the historic character of the city, reflecting its medieval layout. Note that the line of the lane-way is also marked by the new paving design which forms part of the conservation scheme for the historic centre of the city.
Photo Cork Corporation.

- 2.3.7 **Voluntary agreements.** Voluntary agreements may be made by developers with Dúchas and/or the local authority on the scale of pre-development excavation and on requirements for preservation. While these are best made before a planning application, they are subject to the final decision of the planning authority or An Bord Pleanála on the application; and the views of third parties may bear on that decision.

- 2.3.8 **Cost of excavation.** Where archaeological excavation is required, costs may be ascertained and minimised by careful project planning. Where there are standing buildings, it may be necessary to reassess these costs before the second phase of assessment begins: see Part 4 below. The developer should obtain, in advance of excavation, a firm estimate of the cost from the archaeologist, to cover:
- (a) Archaeological and site staff, including PAYE/PRSI and insurances;
 - (b) A list of requirements for builder's work etc.: see 2.3.9(a) below;
 - (c) Archaeologist's monitoring of excavation for substructures (foundations, drains and services) during the construction phase, to allow for rescue excavation as needed;
 - (d) Post-excavation work: preparation of the site archive for storage and for conservation, conservation of finds, report compilation (required by licence conditions) and publication as required by section 3.6 of the DAHGI *Policy and Guidelines on Archaeological Excavation*;
 - (e) Provision for reinstatement: see 2.3.14 below.



Publications relating to archaeology in Ireland. The ultimate aim of the pre-development work is to inform people, through publications and other means, about their heritage.
Photo Chris Bell.



Archaeological techniques: on-site finds identification and recording.
Photo Margaret Gowen and Co. Ltd.

- 2.3.9 **Assistance to the archaeologist.** The archaeologist carrying out an excavation, or monitoring construction works, needs assistance from the developer or builder, typically at two stages:
- (a) Prior to site development: for a pre-construction archaeological excavation, the

developer usually provides hoardings, site huts and toilets with electricity, water etc.; and machines with operatives to strip the overburden above archaeological layers. This expense is additional to the financial terms agreed with the archaeologist as noted at 2.3.8 above:

(b) During site development: archaeologists need to check contract management arrangements for each project, in order to understand the system for issuing instructions to the builder, and so minimise avoidable project costs and claims of disruption against the developer: see Part 4 of this document. Where the archaeologist monitors stripping of the site for drainage, piling etc., the architect should:

- provide a copy of the contractor's work programme to the archaeologist
- clarify for the builder an arrangement whereby the archaeologist may suspend work to investigate cuttings etc.; and
- ensure that all drawings being issued to the builder are copied to the archaeologist, including each revision of foundation or drainage details.

2.3.10 **Archaeological monitoring.** Even on partly excavated sites, it is normally necessary to have an archaeologist monitor excavations for crane erection, drains and foundations. Conditions of planning permission requiring this presence help to ensure that if remains of archaeological significance are disturbed during the work, they can be recorded and any necessary emergency action taken. See section 3.7 of the DAHGI *Framework and Principles*.

2.3.11 **Emergency excavations and finds.** When development is stopped to allow archaeological rescue excavations to proceed, realistic estimates must be made of the costs and time involved so that deadlines for resumption of construction are honoured.

2.3.12 **Archaeological finds.** Finds (other than in licensed archaeological excavations) of archaeological objects must by law be reported to the Director of the National Museum in Kildare Street, Dublin 2, (01-677 7444). This duty exists irrespective of planning conditions: see section 4.4 of the DAHGI *Framework and Principles for the Protection of the Archaeological Heritage*.



Imported medieval pottery jugs from Saintonge and the Low Countries found in the excavations at Waterford.
Photo Waterford Corporation

2.3.13 **Archaeological structures.** Finds of archaeological features and structures should be reported to Dúchas (01-647 3000), again irrespective of planning conditions. Development within towns should be carried out with regard to the need to preserve fixed features and structures of archaeological significance *in situ*. However, it is not the duty of a developer to provide public access to, or display of, underground structures preserved within a site unless this is a condition of planning permission or of disposal of a site from a public authority to the developer.



Waterford Excavations: the undercroft of a medieval house with St Peter's Church behind, demonstrating clear continuity with the modern street frontages.
Photo Waterford Corporation

2.3.14 **The site after excavation.** The archaeologist should inform the developer of the likely condition of the site at the end of excavation, and about any special requirements for backfilling the archaeological excavations; so that the developer and architect may plan accordingly. The archaeologist may also need to prepare an archaeological appraisal of techniques to be used in construction operations: see Part 4 below.

2.4 CONCLUDING COMMENTS

2.4.1 **Benefits of flexibility.** Where archaeological investigation is in competition with other worthwhile goals of public policy, it is doubly important that consultation and co-operation should occur between people concerned with those goals. Comparisons between flexible systems of development control allowing discretion and negotiation (as in Ireland) and more rigid systems with compulsory requirements elsewhere, suggests that discretionary systems are a better means to achieve the cooperation of regulators, developers and professionals in urban and rural archaeology. Failure of the discretionary system could, however, create demand for a more rigid system.

2.4.2 **Minimising risk and uncertainty.** The assessment of sites intended for development has two purposes: first, to ascertain the archaeological constraints, and second, to assist the developer in designing a useful and profitable development without damage to any deposits. Generally a developer's main fear is not so much of cost or construction problems, as of uncertainty about what can be done and the time needed to do it.

2.4.3 **Minimising delay.** Although it is difficult to be exact, archaeologists' estimates of costs and time required for excavation need to be based on careful site investigation, and a contingency element in costs and time quoted. When a site is handed over for excavation, the archaeologist in charge should endeavour to achieve target times. The developer should be kept advised of progress and of possible problems. In all but the most exceptional circumstances the time limit should be honoured.

2.4.4 **Reviewing these guidelines.** There is still much more to be learned from the experiences of professionals co-operating in the development of urban and rural sites in zones of archaeological potential and in proximity to recorded monuments. Correspondence and comments are welcome, and may be addressed to the Heritage Council and to the ICOMOS Group which produced this document.

PART 3 ICOMOS SCHEDULE OF WORK ACTIVITIES

3.1 The table below aims to schedule key activities to be carried out in collaboration and in sequence throughout a building project on an archaeologically sensitive site where the archaeologist and engineer liaise with the client and regulatory authorities mainly through the architect. The schedule is compiled as though archaeology is the principal criterion for all actions. Different/additional criteria may apply to civil engineering and infrastructure projects on archaeologically sensitive sites, and to projects which also require historic buildings studies on standing structures.

The word *developer* is used to cover also the terms *site owner* and *client*. The terms used (especially those highlighted in the text) may be clarified elsewhere in these guidelines and in the glossary at Part 7 below.

The column under *planning authority*, illustrating the type of actions and activities the planning authority might undertake, is included only in order to help define the interface with the developer's design team.

Design team acting as advisors and agents for the developer or site owner				
Page 1 of 3 WORK STAGE	Planning authority and its archaeologist, if any	Architect and/or Planning Consultant	Consultant Archaeologist	Consulting Engineer, (Civil and structural)
1. DEVELOPMENT PLAN REVIEW Under the Planning Acts, each local authority must review its Development Plan every five years	ZAPs etc. are identified with Dúchas , using Record of Monuments & Places and Register of Historic Monuments . Review development control requirements for archaeology in the Dev. Plan with Dúchas .	Check draft Plan Reviews. Check Development Plan and Review requirements for development control regarding archaeology.	When appointed, assist the architect in checks on the Development Plan Review and on development control .	
2. PROJECT INCEPTION including SITE SELECTION OR DISPOSAL Design team is briefed by developer on outline requirements, with a view to refining a more detailed brief based in part on development control requirements.	For disposals of its own land and for auctions of significant private sites, the planning authority may prepare (or encourage for private sales) an archaeological assessment with sale details in liaison with Dúchas .	Check Development Plan and Review requirements for development control regarding archaeology. Advise client to appoint archaeologist to prepare an assessment . Set up client/design team liaison system.	Set down for the developer and architect a phased services and fee proposal to cover initial advice and the archaeological assessment . Report on documentary sources and recent assessment results.	Co-operate and advise as necessary. Undertake desk study of site or sites to ascertain nature of the ground.
3. FEASIBILITY STUDY AND SKETCH PLANS Appraisal for the developer of the form in which the project is to proceed, in functional, technical and financial terms, for general approval.	Planning authority if consulted may signal the need for archaeological assessment as part of the planning application.	Study the site, user needs and costs; sketch preliminary design. With engineer, check substructures and underground services. Review on basis of archaeologist's report. Present design to client for approval with report on technical and cost parameters to include information from archaeologist and engineer.	Prepare method statement and obtain licence from the Dúchas for work in connection with trial borings , etc. Report on the borings , geophysical survey and/or trial trenches in conjunction with documentary sources, to Dúchas and developer. Prepare preliminary assessment . Discuss with Dúchas and local authority archaeologist the likely constraints on development including minimum preservation and excavation measures. Cost and programme the elements contracted to the archaeologist.	Arrange geotechnical borings : liaise with architect and archaeologist. With the architect, prepare studies to show the impact of substructures and underground services in terms of depth, spacing, etc. Co-operate with the architect and archaeologist in preparing technical and cost report.

<i>Page 2 of 3</i> WORK STAGE	Planning authority and its Archaeologist, if any	Architect and/or Planning Consultant	Consultant Archaeologist	Consulting Engineer, (Civil and structural)
4. SCHEME DESIGN AND PLANNING APPLICATION Determine approach to layout, design and construction for approval by the developer and Planning Authority.	Planning Authority (or Dúchas) may signal to the applicant (and to third parties who enquire) the need for archaeological assessment as part of the planning application. Planning authority may signal outline planning requirements likely to affect the developer's proposals, but these are subject to planning permission and compliance with National Monuments Acts requirements.	Prepare draft planning application to include general arrangement drawings from engineer with outline (in plan and section) of underground services and information from the archaeologist. Seek from the planning authority a provisional approval of developer's proposals subject to caveats regarding planning permission and National Monuments Acts.	Finalise the archaeological assessment for the draft planning application. Advise the architect and developer of likely preservation and excavation needs. Discuss the draft application with Dúchas and local authority archaeologist: developer and architect may wish to be present. Confirm subject to caveats regarding planning permission, etc.	Prepare general arrangement drawings of substructures; report geotechnical borings and any trial trenches. Include any crane base; report on drains, lower water table etc. re archaeology
5. PLANNING PERMISSION If the Planning Application was drafted in accordance with the procedure set out above, the Planning Authority may Decide to Grant Permission, subject to conditions previously discussed with the developer's architect and archaeologist.	Planning authority will refer the application on receipt to Dúchas and the Heritage Council for written comments. Subject to these comments and any third party objections received, the planning authority may issue a Decision to Grant Permission with conditions.	If the Planning Conditions are considered too onerous by the developer, or a Decision to Refuse the developer can appeal to An Bord Pleanála (ABP). Assuming the Grant of Permission issues without appeal, revise drawings to comply with planning conditions . Proceed to archaeological site operations at 9. below.	Confirm costs and programme for those preservation and excavation measures set down in the Grant of Planning Permission which are contracted to the archaeologist. Advise on compliance with planning conditions. On further client instruction, obtain further Dúchas licence for archaeological site operations at 9. below.	Advise on compliance with planning conditions. Revise drawings as necessary, and report on any engineering aspects arising from archaeological work.
6. DECISION TO REFUSE PERMISSION The aim is to avoid this eventuality, but its use should not be ruled out.	If the application would breach development control requirements for archaeology in the Dev. Plan , prepare a Decision to Refuse with grounds based on these requirements and on Dúchas comments. The planning authority may signal measures needed to overcome grounds for refusal.	In the event of a Decision to Refuse on archaeological grounds consider a new application as well as (or instead of) an appeal. Co-ordinate report on feasibility of redesign measures to overcome grounds for refusal.	If first engaged after a Decision to Refuse is issued, prepare as soon as possible an archaeological assessment and try to agree with Dúchas , etc. likely preservation and excavation needs. Advise on archaeological implications of redesign to overcome grounds for refusal.	If the archaeologist is first engaged after a Decision to Refuse , the engineer should co-operate in the archaeological assessment process as set out above. Advise on engineering feasibility and cost of redesign to overcome grounds for refusal.
7. PLANNING APPEAL The appeal to An Bord Pleanála may be either by the developer or by a Third Party. The procedure is identical in either case. It is here assumed that the appeal relates only to archaeological matters.	The planning authority may justify its planning decision by reference to the reports and comments of its own archaeologist and of Dúchas .	Co-ordinate preparation of the submission on the developer's behalf to An Bord Pleanála (and to any oral hearing) within the required timescale. Co-ordinate any necessary liaison with the planning authority on behalf of the developer; and advise on feasibility and cost of modifications/redesign needed.	Assist in preparation of the submission on the developer's behalf to An Bord Pleanála (and to any oral hearing). Co-ordinate any necessary liaison with the local authority archaeologist and Dúchas on behalf of the developer; and advise on feasibility and cost of modifications needed.	Advise on engineering feasibility and cost implications of any scheme modifications or redesign to accommodate archaeological requirements for a new planning application.

<i>Page 3 of 3</i> WORK STAGE	Planning authority and its Archaeologist, if any	Architect and/or Planning Consultant	Consultant Archaeologist	Consulting Engineer, (Civil and structural)
8. ARCHAEOLOGICAL SITE OPERATIONS This section assumes that some excavation is required by planning conditions to be carried out before construction work may begin.	Liaison with the developer's architect, developer's archaeologist and/or Dúchas in the event of delay in complying with planning conditions in respect of archaeology.	Submit if required by planning conditions pre-excavation notices to the planning authority. Arrange for hoardings, site huts, diggers, etc. as required to support the archaeologist's work. Submit as required by planning conditions post-excavation reports to the planning authority and/or Dúchas .	Enter a contract with the developer for a set time and cost for site operations. Schedule in the contract all excluded items to be separately provided by the developer. Prepare method statement and obtain excavation licence from (and give notice to) Dúchas . Complete the site operations and make arrangements for finds, etc. to be available to the National Museum.	Advise on integration of archaeological investigations into overall sequence of work. Co-operate and advise as necessary, including temporary works if appropriate.
9. DETAIL DESIGN & TENDER ACTION The contract(s) for the building (including substructures and underground services) should include final information on every matter affecting design, specification and cost.		Ensure adequacy of contract provisions for supervision of relevant works by the archaeologist; as required by the planning permission, and consistent with structural requirements.	Advise the architect on requirements to allow for archaeological supervision of relevant works; e.g. drain and foundation excavations, crane base, "soft ground"; including any authority for the archaeologist to direct or suspend work as it proceeds on site.	Liaise with the architect and archaeologist on requirements for design and inspection of substructure works; including direction or suspension of work as it proceeds on site. Ensure that any revisions to substructure design are approved by the archaeologist.
10. GENERAL SITE OPERATIONS	Liaise with the developer's architect, developer's archaeologist and/or Dúchas in the event of difficulty or delay in complying with planning conditions in respect of archaeology.	As the person instructing the contractor(s), enforce contract provisions on behalf of the developer. Submit as required by planning conditions any reports to the planning authority.	Carry out supervision of relevant site operations, and any emergency excavation work necessary. Obtain any further Dúchas licence needed. Submit as required by Planning Conditions emergency excavation reports to Dúchas .	Co-operate and advise as necessary. Ensure that any revisions to substructure design are approved by the archaeologist.
11. AFTER COMPLETION OF SITE OPERATIONS	Liaise with the developer's architect, developer's archaeologist and/or Dúchas in the event of difficulty or delay in complying with planning conditions in respect of archaeology.	Submit as required by planning conditions any reports to the planning authority.	Carry out post-excavation research and prepare full report on the excavations. Conserve and package finds to National Museum requirements and bring to the Museum. Arrange publication of excavation results.	Co-operate and advise as necessary.

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PART 4 ARCHAEOLOGICAL ASSESSMENT OF DEVELOPMENT SITES

4.1 INTRODUCTION

- 4.1.1 These guidelines and Schedule of Work Activities recommend that a qualified archaeologist should prepare an archaeological assessment for each development site in a zone of archaeological potential and in proximity to recorded monuments. The assessment should be made as part of the planning submission; very often it is either made a condition of planning approval for development in archaeologically sensitive areas in any case, or it may be requested as additional information after a planning submission has been lodged and before a planning decision.
- 4.1.2 The concept of environmental impact assessment (EIA) is now established in Irish planning law; and it should be borne in mind that the EIA Regulations require the planning authority to require an environmental impact study (EIS) to accompany the planning application for any project, coming within a class of development listed in the EIA Regulations, where they consider that the development would be likely to have significant effects on the environment, in addition to those applications for which the Regulations make it mandatory in all cases.

4.2 ARCHAEOLOGICAL ASSESSMENT

- 4.2.1 The archaeological (impact) assessment procedure proposed in the text box below reproduces the recommendations in section 3.6 of the DAHGI *Framework and Principles for the Protection of the Archaeological Heritage* and can conveniently be prepared in a format to suit the archaeological component of an EIS.

Archaeological assessment

Definition

In the present context archaeological assessment means investigations aimed at any of the following:

- (i) gaining a better understanding of a known or suspected archaeological site or monument with particular reference to considering the implications of proposed development for such a site or monument,
- (ii) locating previously unidentified site or monuments (or possible ones) prior to the commencement of development works with particular reference to considering the implications of proposed development for such sites or monuments,
- (iii) considering the potential that proposed development works or longer term effects of a development may have on elements of the archaeological heritage not identified prior to the commencement of development works.

Application

Where it is considered that a proposed development may (due to its location, size or nature) have archaeological implications, then an archaeological assessment should be carried out.

Archaeological assessment as defined at 3.6.1 (i) above may be appropriate in relation to development located within or in the vicinity of known or suspected archaeological sites or monuments.

Archaeological assessment as defined at 3.6.1 (ii) and (iii) above may be appropriate in relation to development of such a scale or nature as to make it reasonable to consider its impact on as yet unidentified elements of the archaeological heritage. Examples of such development include:

- development likely to have a substantial impact (whether through direct or indirect effects) on present or former wetlands, unenclosed land, rivers, lakes, the inter-tidal zone, or the sea bed;
- development located in the vicinity of large complexes of sites or monuments of archaeological interest;
- development which is extensive in terms of area or length (this would always include development over one kilometre in length but by no means be restricted to this);
- development in respect of which an environmental impact statement is required to be prepared.

Benefits of carrying out archaeological assessment

Archaeological assessment may help greatly in securing preservation *in situ*. It is an essential preliminary step before the application of preservation by record and archaeological monitoring. By helping to ensure that developments have been designed from the outset in such a way as to avoid or minimise archaeological impacts, archaeological assessment can avoid or reduce costs and delays.

Scope of archaeological assessment

Archaeological assessment may, as appropriate, include documentary research, field-walking, examination of upstanding or visible features or structures, examination of existing or new aerial photographs or satellite or other remote sensing imagery, geophysical survey, topographical assessment, general consideration of the archaeological potential of the area or areas affected by a development based on their environmental characteristics, or archaeological testing.

In all cases an archaeological assessment should consider both direct and indirect effects of proposed development.

It is always essential that the report on archaeological assessment contain an archaeological impact statement describing the possible direct or indirect effects of the proposed development on elements of the archaeological heritage.

Test excavation

(a) Definition

Test excavation is that form of archaeological excavation where the purpose is to establish the nature and extent of archaeological deposits and features present in a location which it is proposed to develop (though not normally to fully investigate those deposits or features) and allow an assessment to be made of the archaeological impact of the proposed development. It may also be referred to as archaeological testing.

(b) *Application*

Where it is considered that proposed development may have an impact on a known or suspected archaeological site or monument involving removal of, or interference with, archaeological deposits or features then the archaeological assessment should include test excavation unless:

- (i) the carrying out of test excavation would have significant adverse effects on the archaeological integrity of the site or monument or prevent future archaeological investigation of it, or
- (ii) the development proposals are altered so that there is no longer a potential impact on an archaeological site or monument, or
- (iii) the proposed development is already considered unacceptable on archaeological or other grounds.

Test excavation must only be done on the basis that it is accepted by all involved that:

- (i) there may be significant further costs in respect of archaeological excavation, and
- (ii) the design of the development may have to be altered to secure appropriate levels of preservation *in situ*, and
- (iii) the particular type of development proposed may be found to be unacceptable due to the level of impact it would have on the archaeological heritage.

In cases where it is accepted that a known archaeological site or monument (or portion of such) must be removed to allow development to proceed, then it is essential that the approach of preservation by record be applied. In such cases, therefore, the carrying out of test excavation should be viewed as a means of assisting in planning and costing full-scale rescue excavation rather than determining if such is necessary, as might be the case with a location suspected of containing archaeological deposits or features.

Archaeological assessment and environmental impact assessment

Environmental impact assessment should, unless there are substantial grounds to show that it is not necessary, involve the carrying out of archaeological assessment including, where appropriate, test excavation.

Conditions which should apply to archaeological assessment

If archaeological assessment is appropriate, a report on the assessment (including a report on test excavation if such was undertaken) should accompany any application or request for authorisation or approval to undertake development and/or application or request for assistance or funding.

Certain circumstances (e.g. the existence of standing structures on a location which it is proposed to develop) might prevent the carrying out of test excavation prior to the authorisation or approval of development.

In such circumstances it should be a condition of authorisation or approval of development that test excavation be carried out before the commencement of development works with a potential to affect archaeological deposits or sub-surface features. Such works include all sub-surface and construction works. The conditions of authorisation or approval of development should also provide for securing, as appropriate, preservation *in situ* of archaeological deposits, features and structures; if necessary through alterations to the design of the development.

- 4.2.2 The archaeologist will need to consult the architect and engineer in order to ascertain as a team:
 - the impact of the development
 - the feasibility from an architectural and engineering point of view of various types of mitigation (e.g. by changing details of foundation layout and design); and
 - the likely scale, cost and timescale of any further investigation.
- 4.2.3 Site investigations by the archaeologist and structural/civil engineer should be coordinated and located within a surveyed site grid. It is important that no test trenches should be dug across a site containing archaeological features and deposits for any purposes (including engineering investigations or temporary works) without archaeological monitoring. Monitoring is needed even where these trenches are thought to be above the upper surface of the surviving archaeological deposits as the actual levels of deposits can vary greatly.
- 4.2.4 The archaeologist's findings may be presented to the architect and engineer in the form of a constraint study and risk assessment to assist the design team in preparing a planning application.
- 4.2.5 The assessment should be submitted to the planning authority for evaluation either as part of the planning application or very soon thereafter. A copy will also issue to Dúchas as part of the licence requirement.
- 4.2.6 The final decision on archaeological resolution of the site, based on the results of the assessment, lies with Dúchas and the planning authority. If the archaeological resolution involves full excavation, this should be carried out in accordance with the Department of Arts, Heritage, Gaeltacht and the Islands *Policy and Guidelines on Archaeological Excavation*.
- 4.2.7 Where it is proposed to demolish a building a full survey of the structure should be carried out to record the building and to identify any medieval/post-medieval structure which may be incorporated in the building. If a building incorporates medieval/post-medieval structure, dating from before 1700 A.D., preservation *in situ* of such structure will be required.

PART 5 BUILDING CONTRACTS: AN OVERVIEW FOR ARCHAEOLOGISTS

5.1 RELEVANCE OF CONTRACT ARRANGEMENTS TO THESE GUIDELINES

- 5.1.1 As noted in 2.3.9, archaeologists need to check what contract management arrangements apply to each project, in order to understand the system for issuing instructions to the builder, and so minimise avoidable project costs and delays to the developer.
- 5.1.2 The distinction between building contractors and builder-developers is critically important to management of archaeological site assessment and monitoring. It has a direct impact on the function of the contract archaeologist who assists the developer. This Part first examines the role of the archaeologist in relation to the building contractor, i.e. where the client/developer is not the builder.

5.2 TENDERS AND BUILDING CONTRACTS

- 5.2.1 A building contractor is engaged when the client-developer is not a builder, and therefore must employ one to carry out all building work including those associated with pre-development archaeological assessment and excavation. The contractor submits a tender, usually in competition with several other builders, which is his offer price to carry out the works. On inner city building projects, the works will typically have been designed and specified by a team led by the architect, assisted by the engineer and quantity surveyor, on the instructions of the developer.

5.3 VARIATIONS TO THE CONTRACT SUM

- 5.3.1 If the predetermined scope of work in the building contract increases, so also will the contract price. Builders who win a contract are usually the ones offering the lowest price, and they are entitled to exploit the contract provisions to maximise their profit. *Ad hoc* changes in the scope (and even more in the type) of work usually mean that the cost adjustments are negotiated retrospectively, and are less competitive.



Waterford excavations at Arundel Square: Segregated archaeological and contractors' workings allows both to proceed in the appropriate manner. *Photo Waterford Corporation.*

The client-developer foots the bill at prices which are higher than if they had been subject to the same degree of competition as the original contract sum.

5.4 DISRUPTION CLAIMS

- 5.4.1 Disruption claims by builders can also cost developers dearly. These claims for variations arise where the contractor believes he can show that the planned sequence of the contracted work was seriously interrupted by the developer or his architect (or engineer or archaeologist) or by statutory requirements (e.g. archaeological ones), causing staff and machinery to be idle or underproductive. These claims can be severe if the work is suspended unexpectedly, and if there is an indeterminate delay before it resumes or new instructions can be confirmed. Because of this, accurate archaeological testing in advance is important.

5.5 CONTRACT MANAGEMENT

- 5.5.1 The risk of the client-developer incurring runaway costs may be contained in a number of ways with the collaboration of the archaeologist.
- 5.5.2 **Separate contract for builder's work related to archaeological testing.** For the preliminary site investigation, the geotechnical boring rig and the JCB driver (to dig trial pits, etc.) are usually engaged on daily rates. Archaeologists should give a prior estimate (including a contingency provision) of the time for which the digger and any other labour will be required, as well as the cost of their own time and that of any assistants. While the exact cost often cannot be fixed in advance, it is small in relation to project costs and ought not to cause difficulty to the developer. A daily rate offers flexibility to the engineer and archaeologist involved in this work, who need to allow enough time to assess the site, calling for additional borings and pits as necessary to obtain an overall profile, so reducing the risk of bigger surprises at a later stage.
- 5.5.3 **Separate contract for builder's work related to rescue excavation.** For work involving archaeological excavation, it is worth preparing a set of tender documents to outline the scope of what the builder must do, in terms of:
- (a) Initial works, such as hoardings, site huts, toilets, electricity, water and drainage services, and demolition or stripping of modern overburden;
 - (b) Continued attendance on site to move any temporary coverings, remove spoil by digger or truck, provide scaffolding for photography, backfill, etc.

The better this work can be defined at the outset, by type if not by quantity, the less the ultimate cost to the client-developer; and the less the risk of damaging relations between the developer, design team and contractor at an early stage. Typically the archaeologist briefs the architect on what is required of the builder, and the architect then collates the tender document, reports to the client, and confirms the initial appointment of the builder. If the archaeologist is the only client representative on the site, the contract should give the archaeologist authority to instruct the builder from day to day. The archaeologist should keep the architect informed, and consult before an instruction is issued for work not envisaged in the contract, or which may otherwise lead to the builder claiming additional payment.

The archaeologist should ensure as far as possible that Dúchas and the planning authority agree in advance the scope of this work and its adequacy, again in order to avoid unforeseen instructions to the contractor.

- 5.5.4 **Input by the archaeologist to the specification of the main contract for construction.** Where the archaeologist is to monitor during the main construction phase, the building contract documents should facilitate that involvement. Contract provisions or documents may include the following:
- (a) Accommodation (including furniture and telephone where necessary) and access, as are typically allowed in building contracts for a resident architect, engineer or clerk of works. The archaeologist should bear in mind that the contractor actually takes possession of the site for the duration of the contract and does not allow unlimited access even to the developer.
 - (b) A copy of the planning conditions and other official correspondence defining the obligations of the client-developer which the contractor is to honour in relation to archaeology, including the archaeological assessment, access provisions for Dúchas or local authority officials.
 - (c) The procedures for confirmation by the architect to the contractor of site instructions given by the archaeologist, and for costing any variations arising.
 - (d) Provisional quantities, rates and/or sums to allow the contractor to price competitively at tender stage for known possible eventualities under b and c above. This would cover suspension of part or all of the works for inspection and photography of trenches, shoring, hand excavation by contractor's staff under archaeological supervision, emergency excavation of (say) three days' duration in the event of inadvertent finds, etc.
 - (e) Construction requirements for levels, clearances, piling, drainage, reinstatement, etc. all as described in the archaeological impact assessment and any mitigation strategies included in it.
 - (f) Any insurance matters relating to the archaeologist; the legal position regarding ownership of finds, etc.
- 5.5.5 **Recognition of the formal source of instructions on behalf of the client.** The standard RIAI form of building contract stipulates that the architect is the person authorised to issue instructions to the contractor on behalf of the client-developer in the course of the project. Because the engineer, quantity surveyor, client representatives, clerk of works and sub-contractors may be present on the site, it is not always apparent to the archaeologist that only instructions confirmed (or acquiesced in) by the architect to the (main) contractor are valid under this form of contract. Where demolition, earthmoving or piling are by a sub-contractor, it is all the more important to be aware of the contractual position, as the architect and other developer representatives will not be aware of the terms of the sub-contract, since the developer is not a party to it.

On some very large projects, there may be a separate substructures contract, in which the consulting engineer exercises the role described above for the architect. Official bodies use a different form of the RIAI contract, known as the "GDLA" form, which differs in various respects including the authority of client representatives to issue instructions.

The archaeologist should therefore routinely check instructions with the architect. The architect may delegate certain functions of instruction to his own staff or to other consultants, but strictly speaking, the contractor may be entitled to check that the architect will not repudiate them. In order to forestall the risk of repudiation and to maintain good co-ordination of instructions, it is safest for the archaeologist to phone or fax the architect as appropriate.

5.6 BUILDER-DEVELOPERS

- 5.6.1 The above analysis and advice relates to the situation where the developer and the building contractor are separate entities, linked by a building contract.
- Where the developer is also the builder, the archaeologist's relationship with the developer differs from that described above in the following respects.
- 5.6.2 The main contract described at 5.5 above does not exist, except perhaps as an accounting exercise, and the sub-contracts become a series of separate contracts. However, the archaeologist's duty to protect the client-developer from undue cost or delay now applies *vis a vis* the individual "sub"contractors as they would *vis a vis* the main contractor. The risks from incomplete or verbal instructions can be just as great as where there is a single main contractor, except that now any claims for payment are from the "sub"contractors.
- 5.6.3 The builder-client will usually arrange hoardings, huts, diggers, etc. for pre-construction assessment works without formal tender documents; but the archaeologist may still be wise to prepare the same brief as they would for the architect or client in any other situation.
- 5.6.4 The same may be said as regards the tender documentation at 5.5.3 above, and the need to identify and agree procedures as regards instructions; albeit that the contracts manager may now be the primary focus for routine formal communication from the archaeologist, instead of the architect as would be the case if there were a main contract.
- 5.6.5 The architect typically has a marginal role (if any) in instructing work on site for a builder-developer. However, he may still be engaged to co-ordinate the issue of drawings (including the structural engineer's) to the site, and to keep abreast of compliance with planning conditions, sufficient to allow certification of compliance on completion.
- 5.6.6 The archaeologist should therefore check with the architect and engineer what each has been engaged to do, and agree for each project the most effective system of liaison within the professional team, in the interest of the client.

PART 6 PILING - A BRIEF OVERVIEW

6.1 INTRODUCTION

- 6.1.1 Most archaeological material lies in soft ground comprising filling of earth, clay, stones, demolished material and overlays of other construction. Such material is unsuitable for foundations for anything other than the lightest form of construction. It follows that the majority of foundations for structures on archaeological sites must be taken through the archaeology onto firm ground below.
- 6.1.2 In cases where no major archaeological excavation is to take place and where the decision is made to leave the archaeology *in situ* it will be necessary to provide foundations which have the minimum impact on the archaeological material. This will normally mean the use of piles.
- 6.1.3 The objective of this section is to draw attention to the issues to be considered when designing piled foundations where the need to preserve archaeology exists.
- 6.1.4 It should be recognised at the earliest stage of the project that the need to minimise the impact of piling may have significant effects on the design and cost of the structure. It is quite likely that non-standard forms of structure will be needed; for example the use of transfer structures, rafts or suspended structures may be necessary. It is therefore desirable that consultation on the potential for conflict between the most economic structural form and minimum impact on archaeology takes place at the earliest opportunity. It is preferable that such consideration takes place in the context of the general evaluation of the site for its potential for development, to avoid the pressures created by commitments made without the full knowledge of site constraints.

6.2 PILING AND ARCHAEOLOGICAL PRESERVATION

- 6.2.1 The general thrust of the above approach is to minimize building weight and maximize the spacing between supports.
- 6.2.2 The viability of the remaining 'post piling' archaeology is contingent on the extent of its holistic interpretability. Current thinking by archaeologists indicates pile centers of 6-7 metres and the use of individual single piles being preferred to pile groups. Pile caps should be reduced in depth or eliminated if possible. A construction free zone of 500mm must exist between the lowest point of the building (including rafts, groundbeams, pile caps, services, etc.) and the top of the archaeology. If this cannot be achieved, archaeological excavation by hand will be necessary.



Cluster of small diameter odex type piles at Essex Quay / Exchange Street, Dublin.
Photo Margaret Gowen and Co. Ltd.

6.3 ARCHAEOLOGY AND BUILDING DESIGN

- 6.3.1 Where economical solutions in terms of building layout and planning generally are adapted to meet archaeological parameters and requirements for substructure, they are typically as follows.
- 6.3.2 Pile centres should not be on average less than 6 metres.
- 6.3.3 Pile types should be bored piles lined through the archaeological layer.
- 6.3.4 Pile installation procedures should enable clean coring through obstructions or archaeological structures without generally disturbing those structures.
- 6.3.5 Drainage arrangements and substructure generally should not intersect the archaeological layer.
- 6.3.6 Pile perforation of the archaeological layer should not exceed 5% of site area and should be kept to an absolute minimum. (Levels of 3.5% to 4.5% are being achieved in the City of York and it is possible to achieve much lower levels of perforation).
- 6.3.7 While the introduction of a transfer slab provides almost complete flexibility for floor plan layouts there is a financial and perforation premium incurred in this philosophy. Careful architectural planning of building layouts can thus achieve considerable economies and meet the inherent challenges of the site.
- 6.3.8 The superstructure also impacts on the archaeology and there should be a clear and concise rationale developed for the structural arrangement of individual blocks. It should be capable of being simply expressed both verbally and graphically. It should take account of the following requirements and procedures.
 - (a) Several alternative schemes should be examined and costed to effect maximum economy and to determine a trend of minimal interference with archaeology:
 - (b) Floor layouts should be similar from a structural point of view at all upper levels.
 - (c) The building fabric should have minimum weight within the context of traditional materials and energy storage requirements.
 - (d) Ground floor layouts should reflect load-bearing elements above.

In respect of residential or apartment buildings the following considerations also apply:

- (e) Horizontal carriage of loads employing beam/column arrangements should be kept to an absolute minimum.
- (f) Party walls should be vertically continuous especially where loadbearing. Offsetting them between storeys or carrying them at each floor may tend to cause conflict with some of the objectives at (b) to (e) above.

6.4 REGULATORY ENVIRONMENT

- 6.4.1 Piling layouts and substructure general arrangement drawings should be agreed at the planning stage of a project and should remain substantially unchanged during the construction phase. A contingency number of additional piles to deal with unforeseeable circumstances should be included in the total pile count. Proper documentation of the final pile layout load capacities and the like should be lodged with the local authority in drawing and CD format for the public record.

6.5 RE-USE OF PILES

- 6.5.1 In order to avoid further perforation of the archaeology layer by piles in the future, the re-use of piles must be considered. The Association of Consulting Engineers of Ireland has carried out a survey among its members to determine documentary requirements for piling operations and contracts which would suffice to support their re-use in the future. Results indicate a positive response. The design of all piles in an archaeological environment for their full capacity would be a very desirable innovation in the interests *inter alia* of sustainability.

PART 7 GLOSSARY

An Bord Pleanála: see under *planning authority*.

DAHGI: Department of Arts, Heritage, Gaeltacht and the Islands.

archaeological assessment: see Part 4 of this document and section 3.6 of the Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI) *Framework and Principles for the Protection of the Archaeological Heritage*.

archaeological object: “means any chattel whether in a manufactured or partly manufactured or an unmanufactured state which by reason of the archaeological interest attaching thereto or of its association with any Irish historical event or person has a value substantially greater than its intrinsic (including artistic) value, and the said expression includes ancient human, animal or plant remains.” (section 2, National Monuments Act 1930 as amended by Section 14 of the 1994 Act)

archaeological resolution: see *resolution*.

archaeological monitoring: “Archaeological monitoring involves an archaeologist being present in the course of carrying out development works (which may include conservation works), so as to identify and protect archaeological deposits, features or objects which may be uncovered or otherwise affected by the works.” (DAHGI *Framework and Principles* section 3.7.1).

archaeological testing: see *test excavation*.

archaeology: the study of past societies through the material remains left by those societies and the evidence of their environment. See also section 1.1.1 ff of the DAHGI *Framework and Principles*.

caveats: under the Planning Acts, the functions of the planning authority in deciding on planning applications are subject to the rights of third parties to object to and to appeal those decisions to An Bord Pleanála. For this reason, and irrespective of whether the caveat is explicit, pre-application discussions with a planning authority (even in relation to archaeological preservation) cannot bind the planning authority to grant permission nor to attach particular planning conditions.

development control: under the Planning Acts, the functions of the planning authority in deciding on planning applications and enforcing compliance with the planning laws.

development plan: under the Planning Acts, the statutory statement of objectives and criteria of the planning authority adopted by its elected members and reviewed every five years, in accordance with which development control functions are exercised by officials of the planning authority.

Dúchas: the Heritage Service of the Department of Arts, Heritage, Gaeltacht and the Islands.

emergency excavation: see *excavation* and *rescue excavation* below.

excavation: as an archaeological term, excavation usually means manual and mechanical excavation by an archaeologist-led team with specific objectives as regards information, preservation, recording, etc. It is distinct from trial borings, trial pits and slit trenching, which are regarded as exploratory activities prior to or instead of excavation. It is distinct also from excavation in the normal sense of digging foundations or drainage trenches, in that it involves recording *in situ* what is found, and compiling a post-excavation report. DAHGI's *Policy and Guidelines on Archaeological Excavation* sets down policy on licensing of excavations, and guidelines for licensees on strategies and method statements, reports and publications.

excavation licence: see *licensing* below.

formation: the level to which, in any building works, the ground is excavated to prepare it for foundations or drainage works, etc. including any filling, hardcoring, blinding, or bedding underneath these.

foundation: the word is used in a broad sense in this document, to include drainage works, bases for cranes, filling of “soft spots”, etc.

geophysical survey: non-disturbance survey methods involving one or more of the following; electrical resistivity, various types of magnetometry and ground penetrating radar. This technology is constantly being improved and its effectiveness depends on ground and soil conditions and on the suitability of the particular technology used to those conditions in the area involved. To date geophysical survey has produced best results in rural settings, but future research will likely improve its application to deep and urban deposits.

geotechnical borings: see *trial borings*.

historic monument: includes a prehistoric monument and any monument associated with the commercial, cultural, economic, industrial, military, religious or social history of the place where it is situated or of the country and also includes all monuments in existence before 1700 A.D. or such later date as the Minister (for Arts, Heritage, Gaeltacht and the Islands) may appoint by regulations. (Section 4.3.1 of *DAHGI Framework and Principles for the Protection of the Archaeological Heritage*)

historic town: monuments included in the RMP under the classification ‘historic town’ consist of the archaeological deposits and sub-surface features and any upstanding or above ground archaeological morphology, features or structures within an area marked as an historic town on the RMP maps. (Section 4.3.2 of *DAHGI Framework and Principles for the Protection of the Archaeological Heritage*)

ICOMOS: the International Council on Monuments and Sites: the Irish National Committee may be contacted c/o Royal Institute of Architects of Ireland, 8 Merrion Square, Dublin 2. ICOMOS is the international non-governmental organization of professionals, practitioners, institutions, and other bodies committed to and supporting the conservation/preservation of the cultural heritage of all people. ICOMOS’ primary objective is the conservation/preservation of monuments, groups of buildings and sites. Through its membership and the exchange of information and expertise, ICOMOS forms an international network that defines, improves, promotes conservation/preservation principles, standards, research, responsible practice and innovation. Part of the ICOMOS work on updating the NMAC’s 1989 guidelines was overtaken by the Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI) with its 1999 publications *Framework and Principles for the Protection of the Archaeological Heritage* and *Policy and Guidelines on Archaeological Excavation*.

in situ: in its original place.

licensing: see *DAHGI Policy and Guidelines on Archaeological Excavation*. Only qualified archaeologists will be granted an excavation licence under section 26 of the National Monuments Act 1930.

method statements: see section 3.3 of *DAHGI Policy and Guidelines on Archaeological Excavation*. See also the Heritage Council *Review of Archaeological Assessment and Monitoring Procedures in Ireland*.

monitoring: see *archaeological monitoring*

monument: “includes the following, whether above or below the surface of the ground or the water and whether affixed or not affixed to the ground —

- (a) any artificial or partly artificial building, structure, or erection or group of such buildings, structures or erections,
- (b) any cave, stone, or other natural product, whether or not forming part of the ground, that has been artificially carved, sculptured or worked upon or which (where it does not form part of the place where it is) appears to have been purposely put or arranged in position
- (c) any, or any part of any, prehistoric or ancient
 - (i) tomb, grave or burial deposit, or
 - (ii) ritual, industrial or habitation site, and
- (d) any place comprising the remains or traces of any such building, structure or erection, any such cave, stone, or other natural product, or any such tomb, grave, burial deposit or ritual, industrial or habitation site, situated on land or in the territorial waters of the State but does not include any building, or part of any building, that is habitually used for ecclesiastical purposes.” (Section 2, National Monuments Act 1930 as amended by section 11 of the National Monuments (Amendment) Act 1987)

national monument: “means a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic, or archaeological interest attaching thereto and also includes (but not so as to limit, extend or otherwise influence the construction of the foregoing general definition) every monument in Saorstát Éireann to which the Ancient Monuments Protection Act, 1882, applied immediately before the passing of this Act, and the said expression shall be construed as including, in addition to the monument itself, the site of the monument and the means of access thereto and also such portion of land adjoining such site as may be required to fence, cover in, or otherwise preserve from injury the monument or to preserve the amenities thereof.” (Section 2, National Monuments Act 1930)

National Monuments Advisory Council: body established under the National Monuments Act 1930, and whose statutory functions are now by virtue of section 6(2) of the Heritage Act 1995 exercised by the Heritage Council (based in Kilkenny). Similar functions are exercised by Dúchas, deriving from separate references in the planning regulations to the Minister for Arts, Heritage, Gaeltacht and the Islands (DAHGI) under the Local Government (Planning and Development) Regulations 1994 and Regulations (No. 2) of 1997. The NMAC in 1989 published *Guidelines on Urban Archaeology for Planning Authorities, Developers and Archaeologists*. The core of this document owes much to the NMAC original, although it is altered and extended in format and content.

piling: see Part 6

planning appeal: see *planning authority*

planning authority: the local authority responsible for dealing with planning applications, taken to include all its departments and staff including archaeologists, engineers, property management activities, etc. When a planning appeal is lodged by an applicant or by a third party against the decision of the planning authority on a planning application, the functions of determining the planning application are exercised by An Bord Pleanála.

planning: the word throughout these guidelines is used to signify planning and development control under the Local Government (Planning and Development) Act 1963 and amending Acts, as well as the Regulations made under them — collectively known as the Planning Acts and now superseded by the Planning Act 2000. Planning application and planning permission are defined in these acts.

planning conditions: conditions attached to a planning permission under the Planning Acts.

planning regulations: Local Government (Planning and Development) Regulations 1994, now to be superseded under the Planning Act 2000.

preservation and protection of the archaeological heritage: see Parts I, II and IV of DAHGI *Framework and Principles for the Protection of the Archaeological Heritage*.

preservation by record: see section 3.5 of DAHGI *Framework and Principles for the Protection of the Archaeological Heritage*. “Preservation by record requires that . . . as a minimum a complete and meaningful record is preserved of all archaeological deposits, features and information likely to be damaged as a result of . . . development. Such archaeological excavation to mitigate the impact of development is known as rescue excavation.”

protected structure: the term used in the Planning Act of 2000 (superseding ‘listed building’) to define a structure included by a planning authority in its Record of Protected Structures. Such a structure shall not be altered or demolished in whole or part without obtaining planning permission or confirmation from the planning authority that the part of the structure to be altered is not protected.

recorded monument: a monument included in the list and marked on the map which comprises the RMP set out by county under section 12 of the National Monuments (Amendment) Act, 1994. The definition includes Zone of Archaeological Potential (ZAPs) in towns and all other monuments of archaeological interest which have so far been identified by Dúchas. Any works at or in relation to a recorded monument requires two months notice to Dúchas under section 12 of the National Monuments (Amendment) Act, 1994; and an alteration to a pre-1700 A.D. building in a Zone of Archaeological Potential defined in the RMP is likely to face a similar requirement.

Record of Monuments and Places (RMP): see 2.1.7 above. The RMP may be consulted in local authority offices, in Dúchas head office and in county libraries.

rescue excavation: rescue excavation can be understood, in the broadest sense, to encompass all archaeological excavation undertaken solely in response to proposals for building development or to inadvertent finds; i.e. in a reactive way. See preservation by record above and section 3.3.2 of DAHGI *Policy and Guidelines on Archaeological Excavation*. The contrasting situation, as in the City of York for example, is where a strategy for archaeological research and preservation is set down, including a database and aims for academic use of the archaeological resources. The term emergency excavation is therefore used in these guidelines to signify a (usually brief) excavation carried out by a licensed archaeologist on a construction site where construction work has already begun and archaeological remains are unexpectedly found, perhaps as a result of the archaeological monitoring.

resolution: a sometimes ambiguous term which may be best avoided in preparing planning applications. A resolved site usually means one which has been cleared of any archaeological remains; or at least has had a full archaeological impact assessment carried out, and for which there exists a proposal for conservation and/or development which takes full account of that assessment.

review: in relation to the Development Plan, relates to the process of remaking the Plan every five years or so, when amendments to its objectives (e.g. as regards preservation of specific archaeological features or areas) may be amended.

RIAI: The Royal Institute of the Architects of Ireland.

site assessment (report): see Phase 2 of archaeological assessment in Part 4 of this document.

substructures: see *foundation*.

slit trenching: this involves extending the mechanically excavated test pits described at Phase 2 of archaeological assessment above, to form trenches traversing a site and penetrating to the bottom of made ground or archaeological strata. On rich archaeological sites, it should not be undertaken unless absolutely necessary, as it can be highly destructive. However, when done to map the top surface location of archaeological strata (whose content and thickness are established by trial borings and/or test pits) careful slit trenching can be informative without being destructive.

test excavation: see text box in Part 4 of this document, where section 3.6.5 of the DAHGI *Framework and Principles* is quoted in full.

trial boring: see archaeological assessment in Part 4 of this document. Geotechnical borings cause less disturbance to archaeological deposits than do trial pits or slit trenches, but trial pits are usually a necessary supplement.

trial pits: see Phase 2 of archaeological assessment in Part 4 of this document.

zone of archaeological potential (ZAP): A zone defined in the Record of Monuments and Places (RMP; see 2.1.8 above) and extended for purposes of these guidelines to include areas in proximity to recorded monuments. A ZAP is statutorily a recorded monument, and accordingly any works which would impact on archaeological structures, features or deposits including demolition or alterations (major) to a building in a Zone of Archaeological Potential may require two months notice to Dúchas under section 12 of the National Monuments (Amendment) Act, 1994: see 2.1.8 above.

PART 8 REFERENCES

There has been welcome recent additions to the literature available to archaeologists, architects, engineers and planners advising private developers on their archaeological obligations. The following list is by necessity selective, and reflects the likelihood of continuing change especially the adoption of the Planning Act 2000.

Department of Arts, Heritage, Gaeltacht and the Islands

Framework and Principles for the Protection of the Archaeological Heritage, 1999

Policy and Guidelines on Archaeological Excavation, 1999

Irish Association of Professional Archaeologists

Guidelines for Archaeologists, 2000

The Heritage Council

Policy Paper of The Role of the Heritage Council in the Planning Process, 1999

Policy Paper on Urban Archaeology and The National Heritage, 1999

Lambrick, G. and Doyle, I.W.

Review of Archaeological Assessment and Monitoring Procedures in Ireland, 2000

Lambrick, G. and Spandl, K.

Urban Archaeological Practice in Ireland, 2000

Legislation

National Monuments Acts, 1930 to 1994 (including Amendment Acts of 1954 and 1987)

Local Government (Planning and Development) Acts, 1963 to 1999

Local Government (Planning and Development) Regulations, 1994

Local Government (Planning and Development) Act, 2000

(The Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI) has a commitment to issuing guidelines on piled foundations and archaeological deposits.)

ICOMOS

The full range of ICOMOS charters, declarations and guidelines is available at www.international.icomos.org