
Environmental Impact Assessment Report Development at Waterford Airport

Volume 2 – Chapter 13 – Archaeology, Architectural & Cultural Heritage

Prepared for: Waterford City & County Council in Partnership with Waterford Regional Airport PLC



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13. ARCHAEOLOGY, ARCHITECTURAL & CULTURAL HERITAGE

13.1 Introduction

John Cronin & Associates, commissioned by Fehily Timoney and Company, have prepared this assessment of the archaeological, architectural, and cultural heritage resource within the proposed development area and its environs.

The chapter was prepared by John Cronin and Tony Cummins of John Cronin Associates. Mr Cronin holds qualifications in archaeology (B.A. (UCC), 1991), regional and urban planning (MRUP (UCD) 1993) and urban and building conservation (MUBC (UCD), 1999) while Mr Cummins holds both a primary degree in archaeology (B.A. (UCC) 1992) and a post graduate degree in Methods and Practices in Irish Archaeology (M.A. (UCC) 1994). Both individuals have each amassed over twenty years' postgraduate experience in the preparation of archaeological and cultural heritage assessments.

This chapter has been prepared to examine the potential impact on archaeological heritage, architectural heritage and cultural heritage arising from the proposed development and the potential cumulative impacts. The potential in-combination impacts of the entire project i.e. proposed development and permitted development, with other permitted or proposed developments is also assessed.

The purpose of this section of the EIAR is to evaluate the importance and sensitivity of the receiving cultural heritage environment and to identify and evaluate the likely and significant impacts of the proposed and existing development and associated infrastructure on this environment. In addition, where potential significant impacts are identified, mitigation measures are proposed.

13.2 Study Area

This chapter comprises an assessment of the archaeological, architectural and cultural heritage resource within a study area comprising the footprint of the proposed development and the lands within a surrounding 1km wide area.

13.3 Methodology

The methodology used for this assessment is based on the EPA (2017) *Draft Guidelines for Information to be Contained in EIAR* as well as guidelines for the assessment of impacts on the cultural heritage resource published by the International Council on Monuments and Sites (ICOMOS 2011). For the purposes of this assessment cultural heritage includes folklore/tradition, structures of architectural heritage significance and archaeological monuments/features.

13.3.1 Location of Proposed Development

The proposed development site lies c.7.2km southeast of Waterford City, and c.4.5kms north west of Tramore town. It extends across the townlands of Ballygarran, Killowen, Keiloge and Liselan through a number of fields predominantly to the west of the R708 road but extending to the northeast also.



13.3.2 Layout of the Chapter, Appendices and Figures/Illustrations

Table 13-1: Assessment Figures

Figure	Content
13.5.1	Overview of the proposed development showing locations of recorded archaeological sites within the study area
13.5.2	Overview of site showing the various elements of the proposed development

Table 13-2: List of Appendices

Appendix	Content
13.1	Archaeological Inventory Entries
13.2	Excavations Database Entries
13.3	Field Inspection Notes
13.4	Photographic Record
13.5	Figures

13.3.3 Relevant Guidance

Legislation and international charters

The management and protection of cultural heritage in Ireland is achieved through a framework of international conventions and national laws and policies (Department of Arts, Heritage, Gaeltacht and the Islands 1999, 35). This framework was established in accordance with the provisions of the 'European Convention on the Protection of the Archaeological Heritage' (the Valletta Convention) and 'European Convention on the Protection of Architectural Heritage' (Grenada Convention). Cultural heritage can be divided loosely into the archaeological resource covering sites and monuments from the prehistoric period until the post-medieval period and the architectural heritage resource, encompassing standing structures and sites of cultural importance dating from the post-medieval and modern period. In addition, local placenames, folklore and traditions are considered part of our cultural heritage. In summary, the national policy statements, guidelines and advice notes relevant to this assessment include:

- National Monuments Act 1930 (and amendments in 1954, 1987, 1994 and 2004);
- Heritage Act (1995);
- National Cultural Institutions Act (1997);
- Framework and Principles for the Protection of the Archaeological Heritage (Department of Arts, Heritage, Gaeltacht and the Islands 1999)¹;
- Architectural Heritage (National Inventory) and National Monuments Act (1999);
- Planning and Development Act (2000); and
- Department of Environment, Heritage, and Local Government's Architectural Heritage Protection: Guidelines for Planning Authorities (2004).

¹ <https://www.archaeology.ie/sites/default/files/media/publications/framework-and-principles-for-protection-of-archaeological-heritage.pdf>



The National Monuments Acts 1930 to 2004, the Heritage Act 1995 and relevant provisions of the National Cultural Institutions Act 1997 are the primary means of ensuring the satisfactory protection of archaeological remains, which are deemed to include all man-made structures, of whatever form or date, except buildings habitually used for ecclesiastical purposes. A National Monument is described as ‘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’ (Section 2, National Monument Act, 1930). The Record of Monuments and Places (RMP) was established under Section 12 (1) of the National Monuments (Amendment) Act, 1994 and replaced the earlier Sites and Monuments Record (SMR). It comprises of lists and maps of archaeological monuments and relevant places in respect of each county in the State. All sites recorded on the RMP receive statutory protection under the National Monuments Act 1994 and the National Monuments Service must be given two months advance notice of any work undertaken at these sites. There are seventeen recorded archaeological sites located within the study area and four of these have been classified by the National Monuments Service as being ‘redundant records’. The locations of the known archaeological monuments are detailed in Section 13.4 of this chapter and their published inventory entries are presented in Appendix 13.1.

Protection of the architectural/built heritage resource is provided through a range of legal and policy instruments. The Heritage Act, (1995) protects all heritage buildings owned by a local authority from damage and destruction. The Architectural Heritage Act, 1999, requires the Minister to establish a survey to identify; record and evaluate the architectural heritage of the country. The function of the National Inventory of Architectural Heritage (NIAH) is to record built heritage structures within the Republic of Ireland and to advise local authorities in relation to structures of interest within their areas. There are no NIAH structures within the study area.

The Local Government (Planning and Development) Act, 2000, requires all Planning Authorities to keep a ‘Record of Protected Structures’ (RPS) of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. As of the 1st January 2000, all structures listed for protection in current Development Plans, have become ‘protected structures’. Since the introduction of this legislation, planning permission is required for any works to a protected structure that would affect its character. There are no protected structures within the study area.

The current Waterford County Development Plan (2011) outlines a range of planning policies and objectives designed to protect the architectural heritage (e.g. Policy AH 1, Policy AH 3 and Objective AH 9) and archaeological resources (e.g. Policy AH 14 and Objective AH 3) within the county².

13.3.4 Evaluation Process

This assessment commenced with a desktop survey which identified all recorded archaeological, architectural and other cultural heritage sites within the study area. This was followed by a program of field inspections of the areas to be impacted by the proposed development. The desktop and field surveys also endeavoured to identify any unrecorded features or areas of archaeological, architectural and cultural heritage significance.

² <http://www.waterfordcouncil.ie/media/plans-strategies/development-plan/county/Volume%201%20Written%20Statement/Chapter%208.pdf>



Desktop Survey

The principal sources reviewed for the assessment of the known archaeological resource were the Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP) for County Waterford. These records provide comprehensive lists of the known archaeological resource and their legislative basis is outlined below. The Record of Protected Structures (RPS) and the National Inventory of Architectural Heritage (NIAH) were the main sources consulted for assessing the known architectural heritage resource.

The following sources were also consulted:

Database of Irish Excavation Reports

The Database of Irish Excavation Reports contains summary accounts of archaeological excavations carried out in Ireland (North and South) from 1970 to 2020. The database gives access to almost 6000 reports and can be browsed or searched using multiple fields, including year, county, site type, grid reference, license number, Sites and Monuments Record number and author. All of the townlands within the study area were reviewed. The Database lists two licenced archaeological excavations within the study area (1km around the development site), this is detailed in Appendix 13.2 below.

Development Plan

The Waterford County Development Plan 2011-2017 was consulted as part of this assessment. The period of this plan has been extended by the Council and outlines their policies and objectives for the conservation of the archaeological and architectural heritage resource and includes the Record of Protected Structures (RPS) for the county.

National Inventory of Architectural Heritage

The function of the National Inventory of Architectural Heritage (NIAH) is to record built heritage structures within the Republic of Ireland and to advise local authorities in relation to structures of interest within their areas. The NIAH commissions surveys of sites of architectural significance to assist in evaluating structures to be included in the RPS. Listing on the NIAH does not necessarily carry any statutory protection but does highlight the culturally significant aspects of the structure which ought to be conserved.

Cartographic Sources

The detail on cartographic sources can indicate past settlement and land use patterns in recent centuries and can also highlight the impact of modern developments and agricultural practices. This information can aid in the identification of the location and extent of unrecorded, or partially levelled, features of archaeological or architectural heritage interest. The cartographic sources examined for the study area includes the 1st edition of the 6-inch OS maps (surveyed and published in the 1830s-40s) and the 25-inch OS maps (surveyed and published 1887-1913).

Literary Sources

Literary sources are a valuable means of completing the written archaeological, historical and architectural record of study area and gaining insight into the history of the environs of the proposed scheme.



Placenames Database of Ireland

The Placenames Branch (Department of Arts, Heritage and the Gaeltacht) provides a comprehensive management system for data, archival records and place names research conducted by the State. Its primary function is to undertake research in order to establish the correct Irish language forms of the placenames of Ireland and to publish them on a public website (www.logainm.ie).

13.3.4.1 *Field Inspection*

Lands associated with the proposed development area were inspected in June 2018 in clear weather conditions that provided good landscape visibility. The following section presents a summary of the results and further details are presented in Appendix 13.4 while extracts from the photographic record are provided in Appendix 13.3.

The proposed development will entail the construction of extensions to both the existing north and south runways as well as the installation of new lights corridors at each end of the runways. The majority of these works will be confined within the airport boundary, except to the northeast where two agricultural fields will be incorporated into the proposed development. In addition, the locations of three potential carpark areas within the airport boundary were inspected.

In general, the airport boundary encompasses four fields, one to the north of the existing runway and three to the south with open meadow to the east and west. The terrain slopes slightly to the south and the vegetation coverage gets thicker in all directions in the areas further away from the runway, turning to scrub land on all sides except to the east where the airport buildings are located. The scrub land is dominated by stands of bushes and trees and partial remains of field boundaries. A modern concrete post and wire mesh fence encloses the airside boundary in all directions.

The proposed north runway extension will originate at the terminus of the existing runway and extend in an approximate northeast direction until meeting the present north-eastern boundary where it will proceed in the same direction through two agricultural fields. In summary, the proposed northern runway extension will affect three fields in total, descriptions of which are provided in Appendix 1. The proposed south runway extension will originate at the terminus of the existing runway and extend in an approximate southwest direction and will be contained within the existing airside lands. The south west land parcel of the airport consists of three fields two of which will be directly affected by the proposed runway.

The three new carpark sites are confined to two locations within the existing airport boundary. The first is immediately east of the existing carpark outside the main terminal. This consists of two lawns enclosing a stand of woodland. The second carpark location is located further east of the main terminal and will entail extending an existing disused carpark into a larger green field area.

In summary, nothing of archaeological significance was observed at any of the above locations within the proposed development area.

13.3.4.2 *Assessment of Impacts*

The methodology used for this assessment has been informed by the Environmental Protection Agency (EPA) *Draft Guidelines for Information to be Contained in EIA* (2017), in accordance EIA requirements of codified EU Directive 2011/92/EU as amended by EU Directive 2014/52/EU, per current Planning Legislation, concerning EIA assessment: Planning and Development Act, 2000 (as amended) and in Part 10 of the Planning and Development Regulations, 2001 (as amended).



The following summation of the criteria used to assess impacts is provided in order to clearly and concisely outline the methodology specifically applied to the cultural heritage resource.

Duration of Effect

The duration of effects is assessed based on the following criteria:

- Momentary (seconds to minutes)
- Brief < 1 day
- Temporary <1 year
- Short-term 1-7 years
- Medium Term 7-15 years
- Long Term 15-60 years
- Permanent > 60 years
- Reversible: Effects that can be undone, for example through remediation or restoration

Quality of Effect

The quality of an effect on the cultural heritage resource can be positive, neutral or negative.

- *Positive Effect* – a change which improves the quality of the cultural heritage environment (e.g. increasing amenity value of a site in terms of managed access, signage, presentation etc. or high-quality conservation/restoration and re-use of an otherwise vulnerable derelict structure).
- *Neutral Effect* – no change or effects that are imperceptible, within the normal bounds of variation for the cultural heritage environment.
- *Negative Effect* – a change which reduces the quality of the cultural heritage resource (e.g. visual intrusion on the setting of an asset, physical intrusion on features/setting of a site etc.)

Type of Effect

The type of effect on the cultural heritage resource can be direct, indirect or no predicted impact.

- *Direct Impact* – where a cultural heritage site is physically located within the footprint of the proposed development, which will result in its complete or partial removal.
- *Indirect Impact* – where a cultural heritage site or its setting is located in close proximity to the footprint of the proposed development.
- *No predicted impact* – where the proposed development will not adversely or positively affect a cultural heritage site.

Magnitude of Effect

This is based on the degree of change, incorporating any mitigation measures. The magnitude can be negative or positive and is ranked without regard to the value of the asset according to the following scale: High; Medium; Low and Negligible.



Value assessment criteria

The evaluation of the Value of a cultural heritage asset used for the purposes of assessment is not intended as definitive, but rather an indicator which contributes to a wider judgment based the individual circumstances of each asset. Generally, the more criteria that are evident for a given asset, the higher in scale its respective Value is deemed to be. Criteria considered in addition to any legal designations include the condition/preservation; documentary/historical significance; group value; rarity; visibility in the landscape; fragility/vulnerability and amenity value. The Value of all known or potential assets that may be affected by the proposed project are ranked according to the following scale: Very High; High; Medium; Low and Negligible. The factors for assessing the value of cultural heritage assets has been informed by the International Council on Monuments and Sites *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS 2011, 14-17) (Table 14-1). The values assigned to identified assets within the study areas were determined following the completion of desktop studies combined with site inspections and are presented in Section 14.4 of this chapter.

Table 13-3 Factors for assessing the Value of Cultural Heritage Assets

Indicative Value	Example of Asset Types
Very High	<ul style="list-style-type: none"> World Heritage Sites (including Tentative List properties) Assets of acknowledged international importance Assets that can contribute significantly to international research objectives
High	<ul style="list-style-type: none"> Designated <i>National Monuments</i>(archaeological) Assets of significant quality and importance, including designated RMP sites Assets that can contribute significantly to acknowledged national research objectives Protected Structures/National NIAH Grade Buildings Conservation Areas containing significant buildings of importance, including group value Archaeological Landscapes with significant inter-group value
Medium	<ul style="list-style-type: none"> Assets of good quality and importance, including designated RMP sites Assets that can contribute significantly to acknowledged regional research objectives Regional Grade NIAH Buildings Other undesignated buildings that can be shown to have exceptional qualities in their fabric or historical associations Undesignated structures of potential national importance (archaeological, potential 'new sites') Conservation Areas containing buildings that contribute significantly to its historic character Historic townscape or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures)
Low	<ul style="list-style-type: none"> Designated and undesignated assets of local importance, including buildings Assets compromised by poor preservation and/or poor survival of contextual associations Assets of limited value, but with potential to contribute to local research objectives Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures)
Negligible	<ul style="list-style-type: none"> Assets with very little or no surviving archaeological interest Buildings of no architectural or historical note; buildings of an intrusive character



Significance of Effects

This is based on an assessment largely of the Magnitude of the Impact (graded from High to Negligible, based on a consideration of character, duration, probability and consequences) combined with the Value (graded from High to Negligible, based on a consideration of significance/sensitivity) of the cultural heritage asset. The Significance can be described as Profound, Very Significant, Significant, Moderate, Slight, Not Significant or Imperceptible (Table 14-2) and is assigned based on a combined evaluation of effect magnitude and asset significance (Table 14-3).

Table 13-4: Significance of Effects (per EPA Draft EIAR Guidelines 2017)

Significance	Description
Imperceptible	An effect capable of measurement but without significant consequences
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
Slight	An effect which causes noticeable changes in the character of the environment but without affecting its sensitivities
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
Profound	An effect which obliterates sensitive characteristics

Table 13-5: Significance of Effects Matrix (after EPA Draft EIAR Guidelines 2017)

Magnitude of Impact	High	Not Significant/ Slight	Moderate/ Significant	Significant/ Very Significant	Very Significant/ Profound
	Medium	Not Significant	Slight	Moderate/ Significant	Significant/ Very significant
	Low	Not Significant/ Imperceptible	Slight/ Not Significant	Slight	Moderate
	Negligible	Imperceptible	Not Significant/ Imperceptible	Not Significant/ Slight	Slight
		Negligible	Low	Medium	High
Value/Sensitivity of the Asset					



13.4 Existing Environment

13.4.1 Archaeological and Historical Background

13.4.1.1 Introduction

The following section is based on a desktop survey on the archaeological resource within the study area undertaken in order to inform the assessment of the potential impacts of the proposed development. It provides a summary of the main phases of the Irish archaeological record and the date ranges used are based on those published by the National Monuments Service³. Four of the recorded sites within the study area have been re-designated by the Archaeological Survey of Ireland as ‘redundant records’ as there is not sufficient evidence to warrant their acceptance as archaeological monuments. Nonetheless, the potential for the presence of archaeological remains at their recorded locations, which are identified below (Table 13.6 and Figure 13.5.1), cannot be completely discounted and potential impacts on their locations are also assessed.

Table 13-6: Recorded archaeological sites within study area
 (source: www.archaeology.ie)

Monument No.	Classification	Townland	ITM E	ITM N	Approximately Distance to nearest development area
WA017-064----	Graveyard	Killowen (Middlethird By.)	661676	604537	730m to WNW
WA017-065----	Ringfort - rath	Killowen (Middlethird By.)	661649	604493	730m to WNW
WA018-064----	Burnt mound	Ballygarran (Gaultiere By.)	663646	604818	530m to NE
WA027-001----	Redundant record	Killowen (Middlethird By.)	662667	604065	245m to E
WA027-002----	Redundant record	Lisselan	662456	603636	200m to E
WA027-003----	Church	Ballygarran (Gaultiere By.)	663251	604016	370m to SE
WA027-003001-	Burial ground	Ballygarran (Gaultiere By.)	663251	604016	370m to SE
WA027-003002-	Enclosure	Ballygarran (Gaultiere By.)	663251	604016	370m to SE
WA027-003003-	Cross-inscribed stone	Ballygarran (Gaultiere By.)	663251	604016	370m to SE
WA027-003004-	Redundant record	Ballygarran (Gaultiere By.)	663251	604016	370m to SE
WA027-003005-	Structure	Ballygarran (Gaultiere By.)	663251	604016	370m to SE
WA027-003006-	Cross-slab	Ballygarran (Gaultiere By.)	663251	604016	370m to SE
WA027-003007-	Metalworking site	Ballygarran (Gaultiere By.)	663251	604016	370m to SE

³ <https://www.archaeology.ie/sites/default/files/media/publications/excavation-reports-guidelines-for-authors.pdf>



Monument No.	Classification	Townland	ITM E	ITM N	Approximately Distance to nearest development area
WA027-003008-	Well	Ballygarran (Gaultiere By.)	663251	604016	370m to SE
WA027-003009-	Bullaun stone	Ballygarran (Gaultiere By.)	663251	604016	370m to SE
WA027-003010-	Ecclesiastical enclosure	Ballygarran (Gaultiere By.)	663231	604030	370m to SE
WA027-004----	Redundant record	Kilmacleague West	663237	603290	940m to ENE
WA018-084----	Barrow - ditch barrow	Monamintra	662370	606718	914m to NW
WA018-084001-	Pit-burial	Monamintra	662370	606718	914m to NW
WA018-084002-	Pit-burial	Monamintra	662370	606718	914m to NW
WA018-084003-	Pit-burial	Monamintra	662370	606718	914m to NW

13.4.1.2 Prehistoric Periods

Traditionally, the earliest recorded evidence for human settlement in Ireland dates to the Mesolithic period (7000–4000 BC) when groups of hunter-gatherers arrived on the island, however recent evidence in the form of a butchered bear bone recovered from Alice and Gwendoline Cave near Ennis in County Clare now suggests that humans were present in Ireland c.12500 years ago during the Palaeolithic period. While the Mesolithic settlers did not construct any settlements or monuments that leave any above ground traces, their presence in an area can often be identified by scatters of worked flints in ploughed fields. The Neolithic period (4000-2400 BC) began with the arrival and establishment of agriculture as the principal form of economic subsistence, which resulted in more permanent settlement patterns and widespread clearance of forests to create agricultural land. As a consequence of the more settled nature of agrarian life, new site-types, such as more substantial rectangular timber houses and various types of megalithic tombs, begin to appear in the archaeological record during this period. Metalworking arrived in Ireland with the advent of the Bronze Age period (c. 2400–500 BC). This period was also associated with the construction of new monument types such as standing stones, stone rows, stone circles and fulachta fiadh. The development of new burial practices saw the construction of funerary monuments such as cairns, barrows, boulder burials and cists. The arrival of iron-working technology in Ireland saw the advent of the Iron Age (600 BC – 400 AD). This period has been traditionally associated with a Celtic ‘invasion’ but recent archaeological evidence points instead to a gradual acculturation of the Irish Bronze Age communities following centuries of contacts with Celtic-type cultures in Europe. Relatively little was known about Iron Age settlement and ritual practices until recent decades when the corpus of evidence has been greatly increased by the discovery of Iron Age sites during schemes such as bog-cutting and road construction projects.



While there are no recorded Mesolithic or Neolithic sites located within the study area, it is located within a region subject to an extensive archaeological research study in the 1980s (Bally Lough Archaeological Project) which produced evidence for activity, including stone tool production sites, dating to both periods (Green and Zvelebil 1993). This research project included field inspections of ploughed lands within a study area bounded by Waterford City at north, Tramore at west and Dunmore East at east. These surveys produced widespread evidence for lithic artefacts and manufacturing debris, primarily of flint but with rhyolite and basalt also present, throughout the region with a notable concentration of material within a zone extending for 2km from the existing coastline. While there are no recorded find locations within the study area for the proposed development it is located within this coastal zone and the potential for the presence of unrecorded, sub-surface early prehistoric sites and/or artefacts within the proposed development site is noted. The research project produced significantly less evidence for later prehistoric stone tools but, as noted by the authors, this may be due to the reduced use of lithic tools during the Bronze and Iron Ages rather than a reflection of a diminished settlement pattern during these periods (*ibid.*). The study area surrounding the proposed development site contains four recorded sites that have been dated to the Bronze Age date: Barrow (WA018-084----) and associated Pit-burials (WA018-084001-, WA018-084002- & WA018-084003-). These sites are all located in the townland of Monamintra, approximately 914m northwest of the proposed development area. One other site likely to date to the Bronze Age a levelled burnt mound (WA018-064----) in Ballygarran townland which is located approximately 530m to the northeast of the nearest section of the proposed development area.

13.4.1.3 Early Medieval/Late Medieval Period

The early medieval period began with the introduction of Christianity in Ireland and continued up to the arrival of the Anglo-Normans during the 12th century (c. 400–1169 AD). This period saw the emergence of the first phases of urbanisation around larger monasteries and Hiberno-Norse ports. However, the dominant settlement pattern of the period continued to be rural-based in sites such as ringforts, which comprise roughly circular enclosures delimited by roughly circular earthen banks formed of material thrown up from a concentric external ditch. Ringforts are one of the most numerous monuments in the Irish landscape and the early medieval terms for these sites –*rath/lios/dun* these still form some of the most common place-name elements in the country. Archaeological excavations indicate that the majority of ringforts were early medieval farmsteads with internal timber buildings and were surrounded by associated field systems. The study area contains one recorded ringfort site (WA017-065----) which comprises a partially levelled site located in Killowen townland at a distance of approximately 730m to the west-northwest of the proposed southern runway extension.

The establishment of the Irish church was to have profound implications for political, social and economic life and is attested to in the archaeological record by the presence of church sites and associated burial sites. The early medieval church sites were morphologically similar to ringforts but are often differentiated by the presence of features such as church buildings, graves, stone crosses and shrines. An ecclesiastical enclosure (WA027-003010-) is located in a field on the opposite (east) side of the road from the airport business park. A National Museum of Ireland⁴ analysis of the pottery assemblage recovered from an unpublished 1940s excavation of this site indicates that it was constructed in the early medieval period and a review of the excavation records concluded that it was a multi-phase site that continued in use into the late medieval period (Curtin 2015). The enclosure also contains a possible church site uncovered during the excavation (WA027-003---), a burial ground (WA027-003001-), a possible cross-slab (WA027-003006-), a cross-inscribed pillar stone (WA027-003003-), metal-working activity (WA027-003007-), a well (WA027-003008-) and a bullaun stone (WA027-003009-). The ecclesiastical site was subjected to a geophysical survey in 2007 which demonstrated that the visible surface remains of the burial ground corresponds with the southeast quadrant of a much larger sub-circular tri-vallate site [three enclosing elements] within the green field area on the east side of the road that measures 95m in internal diameter, with an annex on the south side (Bonsall and Gimson 2007).

⁴ <https://www.museum.ie/The-Collections/Documentation-Discoveries/June-2013/Late-Roman-Amphora-Sherds-in-Co-Waterford>



The Zone of Notification (ZAN) around this ecclesiastical site, as defined by the NMS, does not extend into the existing airport complex and the outer edge of the ZAN is located approximately 370m to the southeast of the nearest section of the proposed development area, which comprises a proposed car park within the airport business park.

The arrival and conquest of large parts of Ireland by the Anglo-Normans in AD 1169 marks the advent of the late medieval period which continued until approximately AD 1550. This period saw the continuing expansion of Irish urbanisation as many of the port cities developed into international trading centres and numerous villages and towns developed as local or regional market centres. By the 15th century the native Irish chieftains and lords began to establish tower houses and smaller castles as centres of territorial control. The recorded location of graveyard site (WA017-064----) in Killowen townland is approximately 730m to the west-northwest of the proposed southern runway extension. This site was labelled as 'Site of Killowen Graveyard' on the 1st edition 6-inch OS map of 1841 and may be associated with the former church of Killowen which was described as 'in good repair' in 1615 (Moore 1999). There are no surface traces of the graveyard other than a slight traces of a rectangular area (dims. c. 40m E-W; c. 35m N-S) defined by slight scarps but it has been recorded locally that human bones have been uncovered in the area (*ibid.*).

13.4.1.4 *Post Medieval Period*

The centuries following 1550 AD are referred to as the post-medieval period, which is generally considered to continue until the development of the Industrial Revolution during the 18th century. This period saw the development of both high and low status rural housing stocks and dispersed agricultural settlements consisting of single-storey thatched cottages with associated farm buildings, which began to be replaced by two-storey farmhouses during the late 19th century. In the latter half of the 20th century, there was a radical change in the nature and character of Irish domestic architecture manifested by the replacement of older stone-built structures with modern bungalows of concrete blockwork construction. There are no recorded archaeological sites or protected structures dating to this period within the study area.

13.4.1.5 *Built/architectural heritage environment*

The Record of Protected Structures as published in the Waterford County Development Plan was consulted for the townlands within the study area, as was the National Inventory of Architectural Heritage (NIAH). These sources do not list any of the structures located within the study area and there were no features of potential architectural heritage significance noted during the inspection of the proposed development site.

13.4.1.6 *Review of Excavations Bulletin 1970 to 2020*

The Excavation Database contains summary accounts of archaeological excavations carried out in Ireland (North and South) from 1970 to 2020. The database gives access to almost 6000 reports and can be browsed or searched using multiple fields, including year, county, site type, grid reference, license number, Sites and Monuments Record number and author. All of the townlands within the study area were reviewed. The Database lists two licenced archaeological investigation within the study area. One comprised archaeological monitoring of development works within the Airport Business Park and nothing of archaeological significance was uncovered (Noonan 2003). The second in the townland of Monamintra comprised the archaeological excavation of a Barrow and three Pit-burials. These features (WA018-084----, WA018-084001-, WA018-084002- & WA018-084003-)are recorded in the SMR also. See Appendix 13.2 below for further details.



13.4.1.7 Cartography and Toponyms (meaning of townland names)

The detail on historic cartographic sources demonstrates the nature of past settlements and land use patterns in recent centuries and also highlights the impact of modern developments and agricultural practices. This information can aid in the identification of the location and extent of unrecorded, or partially levelled, features of archaeological or architectural heritage interest. The cartographic sources examined for the study areas include the 1st edition of the 6-inch OS maps (surveyed and published in the 1830s-40s) and the 25-inch OS maps (surveyed and published 1887-1913).

The proposed development site is depicted as enclosed farmland on the 1st edition 6-inch O.S. map and the 25-inch O.S. map. The area inspected for the proposed northern runway extension and navigation lights corridor is shown as 19 complete fields and nine portions of larger fields. A noticeable difference in field sizes is illustrated by the townland boundary with those to the east in Ballygarran townland been much smaller than western Killowen fields. A small farmstead consisting of three structures is shown to the southeast of the northern area. These buildings are not depicted on the later 25-inch OS map having been destroyed in the intervening years. The consolidation of smaller fields into larger units is the only other difference of note on the 25-inch OS map. The area inspected for the proposed southern runway and navigation corridor is shown on both historic maps to consist of five complete fields and three sections of larger fields. No structures are shown on either map. The carpark locations and shown as sections of larger fields with no structures or archaeological monuments present at either location.

There were no known features of archaeological or architectural significance noted on the footprint of the proposed development during the inspection of these sources, which both indicate that the subject lands have been occupied by farmland since, at least, the 19th century until the construction of the airport.

The study area extends into four townlands, which are the smallest unit of land division in the Irish landscape and many may preserve early Gaelic territorial boundaries that pre-date the Anglo-Norman conquest. The boundaries and nomenclature of the Irish townlands were recorded and standardised by the Ordnance Survey in the 19th century. The Irish roots of townland names often refer to natural topographical features but some name elements may also give an indication of the presence of past human activity within the townland, e.g. *dun*, *lios* or *rath* indicate the presence of a ringfort while *temple*, *saggart*, *termon* or *kill* record an association with a church site.

Table 13-7: Translation of Townland Names within study area

(Source: www.logainm.ie)

Townland	Irish Root	Translation
Killowen	<i>Cill Eoghain</i>	<u>cill</u> church 'Owen's Church'
Ballygarran	<i>Baile an Gharráin</i>	<u>baile</u> townland, town, homestead <u>garrán</u> grove 'Homestead of the Grove'
Castletown	<i>Baile an Chaisleáin</i>	<u>baile</u> townland, town, homestead <u>caisleán</u> castle townland name is direct translation
Lisselan	<i>Lios Fhaoláin</i>	<u>lios</u> ring-fort, enclosure 'Faohan's Lios'



13.5 Potential Impacts

13.5.1.1 Potential Construction Phase Impacts

The desktop and field survey of the study area was undertaken in order to identify all known and protected cultural heritage sites in the vicinity of the proposed development as well as to identify any possible previously unrecorded sites and ensure that any such sites which will be impacted are protected to the appropriate degree. The desktop and field survey has identified no known or protected cultural heritage sites within the footprint of the proposed development or within its environs. There will, therefore, be **no predicted direct or indirect impacts** on known or protected cultural heritage sites within the study area.

While there are no recorded archaeological sites on the direct footprint of the proposed development or any above ground indications of archaeological remains, the potential exists for the presence of unrecorded, sub-surface archaeological sites within the proposed development area.

13.5.1.2 Potential Operational Phase Impacts

Following construction and the implementation of mitigation measures, no direct operational phase impacts are predicted in terms of the cultural heritage resource such as archaeological sites or protected structures.

13.5.1.3 Potential Cumulative Impacts

Given that the proposed development will have no direct or indirect impact on known or recorded cultural heritage sites, there will be no cumulative impact on cultural heritage constraints arising from the proposed development.

13.6 Mitigation Measures

Construction Phase

The inspection of the published datasets that detail the protected archaeological and architectural heritage resources in the vicinity of the proposed development area combined with a detailed field inspection indicate that there are no protected archaeological or architectural heritage features within the footprint of the proposed development or its close environs.

As previously noted, the potential exists for the presence of previously unrecorded sub-surface archaeological features and artefacts within undisturbed areas of the proposed development site. A programme of pre-development archaeological test trenching will be undertaken in accessible green-field areas. If archaeological deposits or features are encountered, it will be possible to mitigate through preservation *in situ* or by preservation-by-record (*i.e.* a programme of licenced archaeological excavation). The appropriate strategy will be formulated in consultation with the National Monuments Service and the planning authority.

Operational Phase

Adoption of the construction phase mitigation measures shall ensure that no further potential impacts will occur on the cultural heritage resource and no impacts are predicted during the operation phase. As such, no mitigation during the operational phase is required.



Monitoring of Mitigation Measures

A method statement outlining the nature and extent of archaeological test trenching will be submitted to NMS for approval as part of the statutory excavation licensing process. A report on the results of the site investigations will then be submitted to NMS and the planning authority for review in advance of the construction phase.

13.7 Residual Impacts

Construction Phase

Adoption of the construction phase mitigation measures shall ensure there will be no residual effects on the cultural heritage resource during the operational phase of the proposed development.

Operational Phase

Adoption of the construction phase mitigation measures shall ensure there will be no residual effects on the cultural heritage resource during the operational phase of the proposed development.

13.8 ‘Do Nothing’ Impact

The ‘do-nothing’ scenario will result in the existing land uses being unchanged with no resultant impacts on the cultural heritage character of the area.

13.9 References

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