Environmental Impact Assessment Report (EIAR)
Volume 2 Appendices

Strategic Housing Development at Clonattin, Gorey

January 2021

Prepared by McGill Planning

In association with CS Consulting Group
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APPENDIX 5.1 BAT FAUNA ASSESSMENT

ALTEMAR
Marine & Environmental Consultancy

Bat fauna assessment for lands in Gorey, Co. Wexford.

30th November 2020

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: Axis Construction

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Client	Axis Construction		
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Report	Bat Fauna Assessment		
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Version	Author	Reviewed	Date
Draft 01	Bryan Deegan	Sara Corcoran	03rd November 2020
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SUMMARY

Structure:	Proposed residential development on agricultural/previously cleared land. Existing derelict house and building on site.
Location:	Clonattin, Gorey, Co. Wexford.
Bat species present:	None Roosting in 2019. However, in 2020 three Soprano Pipistrelle (*Pipistrellus pygmaeus*) were observed exiting from the front facia of the building. Foraging activity by Soprano Pipistrelle *(Pipistrellus pygmaeus*) and Daubentons bats (*Myotis daubentonii*) foraging along hedgerows/hedgerows and over the pond respectively was also noted.
Proposed work:	The proposed strategic housing development at Clonattin, Gorey will provide 363 no. residential units, a creche, public open space, a new access road connecting to Courtown Road. All associated site development works and services provisions including parking, bin storage, substations, landscaping and all services required to facilitate the proposed development.
Impact on bats:	The development will result in the loss of the derelict house on site and roosting resource for the three Soprano Pipistrelle (*Pipistrellus pygmaeus*). A derogation licence for the removal of roosting bats is required. Foraging areas of hedgerows will be lost. Mitigation in relation to lighting should be put in place in relation roosting, lighting of pond area and riparian corridor. Additional planting of hedgerows should be carried out to offset loss during construction.
Survey by:	Bryan Deegan MCIEEM
Survey date:	29th September 2019 and 1st October 2020

INTRODUCTION

Site location

Axis Construction are proposing the development at a site at Clonattin, Gorey, Co. Wexford (Figure 1).

Proposed Development

The proposed strategic housing development at this site in Clonattin, Gorey will include the demolition of the existing buildings and will provide 363 no. residential units, a creche, public open space, a new access road connecting to Courtown Road. All associated site development works and services provisions including parking, bin storage, substations, landscaping and all services required to facilitate the proposed development. A full description is provided in the statutory notices and in Chapter 3 of the EIAR.

Bat survey

This report presents the results of site visits by Bryan Deegan (MCIEEM) on the 29th September 2019 and the 1st of October 2020, during which all hedgerows were inspected for signs of bat use or presence. Several buildings (modern derelict house) are present on site. A bat emergent/detector and inspection survey was also carried out on the 29th September 2019 and on 1st October 2020.

Survey methodology

The presence of bats is assessed with reference to their signs; principally staining, droppings, feeding signs such as invertebrate prey remains and the presence of bat fly *Nycteribiidae* pupae, although direct observations are also occasionally made. The nature and type of habitats present onsite are also indicative of the species likely to be present. The buildings were inspected for bat presence/access and emergent surveys carried out.
At dusk, bat detector surveys were carried out onsite using a *Batbox Duet* heterodyne/frequency division detector to determine bat activity. Bats were identified by their ultrasonic calls coupled with behavioural and flight observations.

Survey constraints

The detector survey was undertaken towards the end of the active bat season in late September and early October 2020. Weather conditions were good with mild temperatures of 13°C and 12oC respectively after sunset. Winds were light and there was no rainfall. Insects and bats were observed in flight.

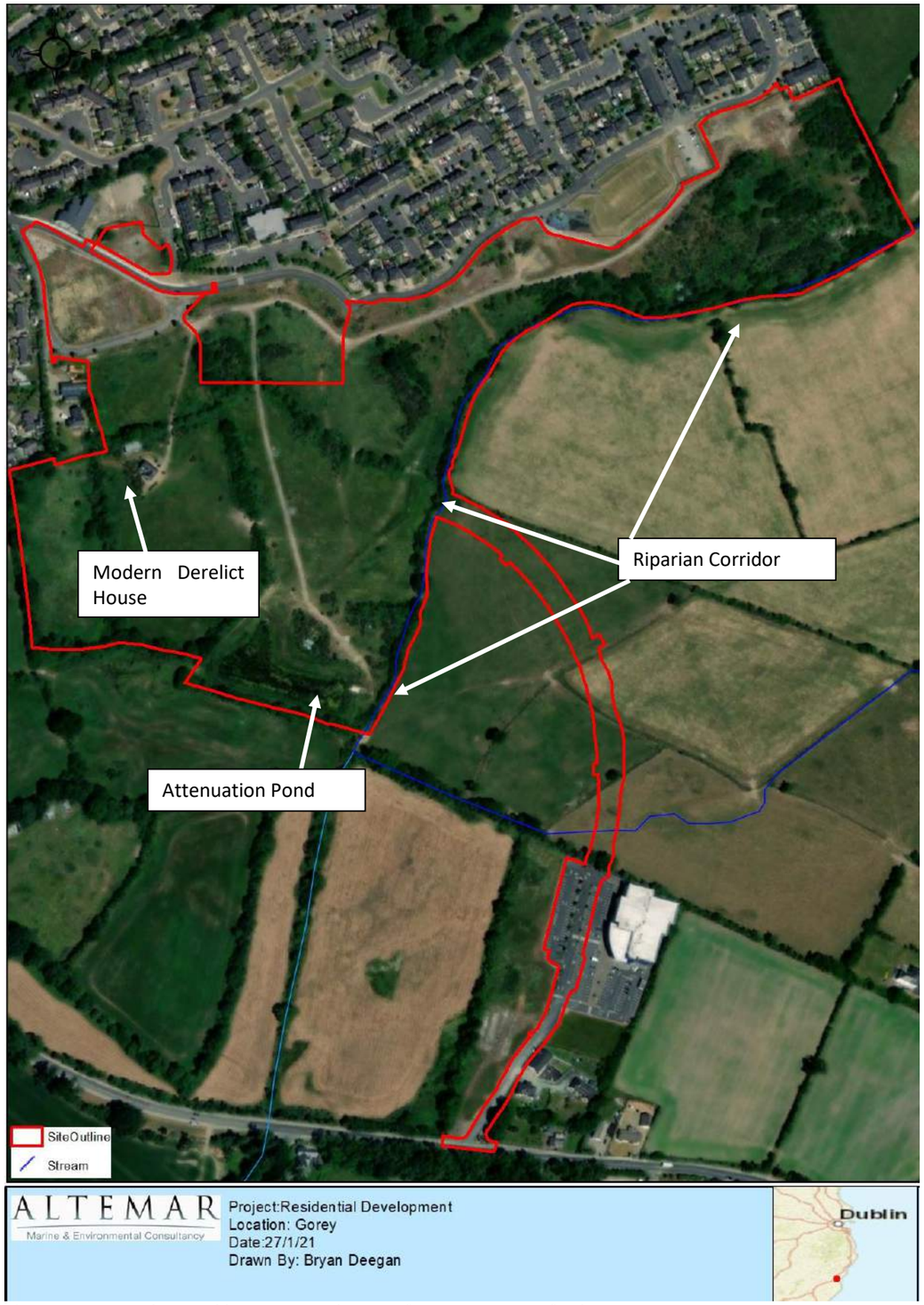


Figure 1. Site outline and location south east of Gorey, Co. Wexford.

Bat assessment findings

Review of local bat records

The review of existing bat records (sourced from *Bat Conservation Ireland's* National Bat Records Database) within a 2km of the study area reveals that four of the nine known Irish species have been observed locally (Table 1).

Table 1: Status of bat species within a 2km grid which incorporates the study location

Species name	Record count	Date of last record	Note
Brown Long-eared Bat (Plecotus auritus).	1	03/09/2002	1km to SE. A roost has been recorded.
Daubenton's Bat (Myotis daubentonii)	1	15/07/2005	800m to S of the pond. A roost has been recorded.
Pipistrellus pipistrellus sensu lato (Common pipistrelle/ soprano pipistrelle unseparated).	5	15/07/2005, 12/07/2005 & 25/07/2005	800m to S of the pond. 1km to the SE x 3. A roost has been recorded.
Soprano Pipistrelle (Pipistrellus pygmaeus)	5	15/07/2005, 12/07/2005 & 25/07/2005	800m to S of the pond. 1km to the SE x 3. A roost has been recorded.

Potential Roost survey

A modern derelict house is present on site. The 2019 survey did not observe evidence of bats in the vicinity of the onsite building. However, in 2020 three Soprano Pipistrelle (Pipistrellus pygmaeus) were observed exiting from the front facia of the building (Plate 1).

In relation to bat roosting potential, the remainder of the site was poor, with the exception of the large ivy clad trees on site for individual bats. The site comprised of several fields surrounded by mature hedgerows. The hedgerows were of poor roosting potential due to the small size of the trees across the majority of the hedgerows. However, several large trees (Figure 3) (Table 2) were deemed to be of moderate and high roosting potential due to the mature nature of the trees, clad in dense ivy (*Hedera helix*). These trees have the potential to harbour individual bats under ivy, bark and in in cracks. It should be noted that the trees on site with Moderate (M) or High (H) potential were for individual bats rather than substantial bats roosts. No definitive roosts or trees with large cracks or hollows were observed.

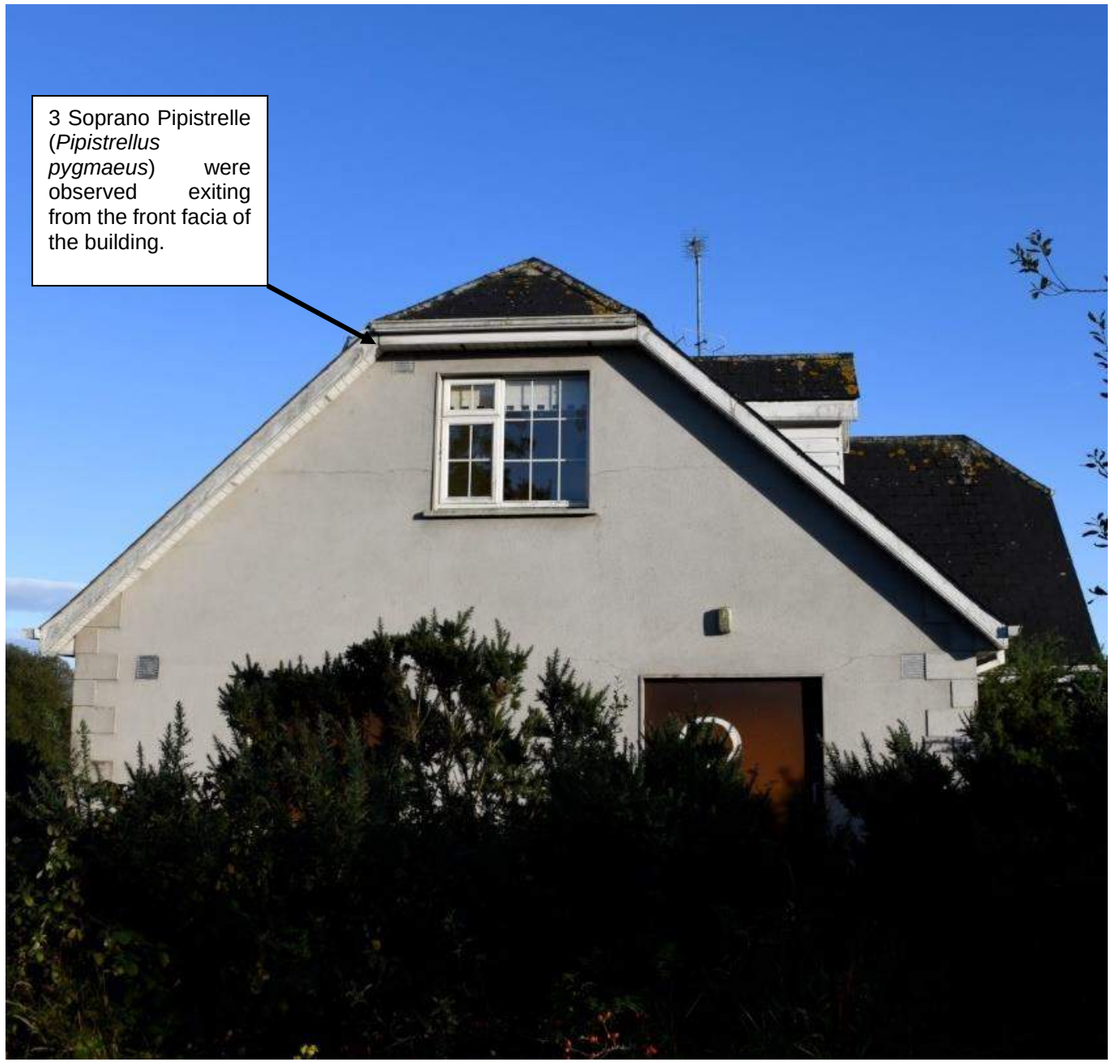


Plate 1. Modern Derelict house.

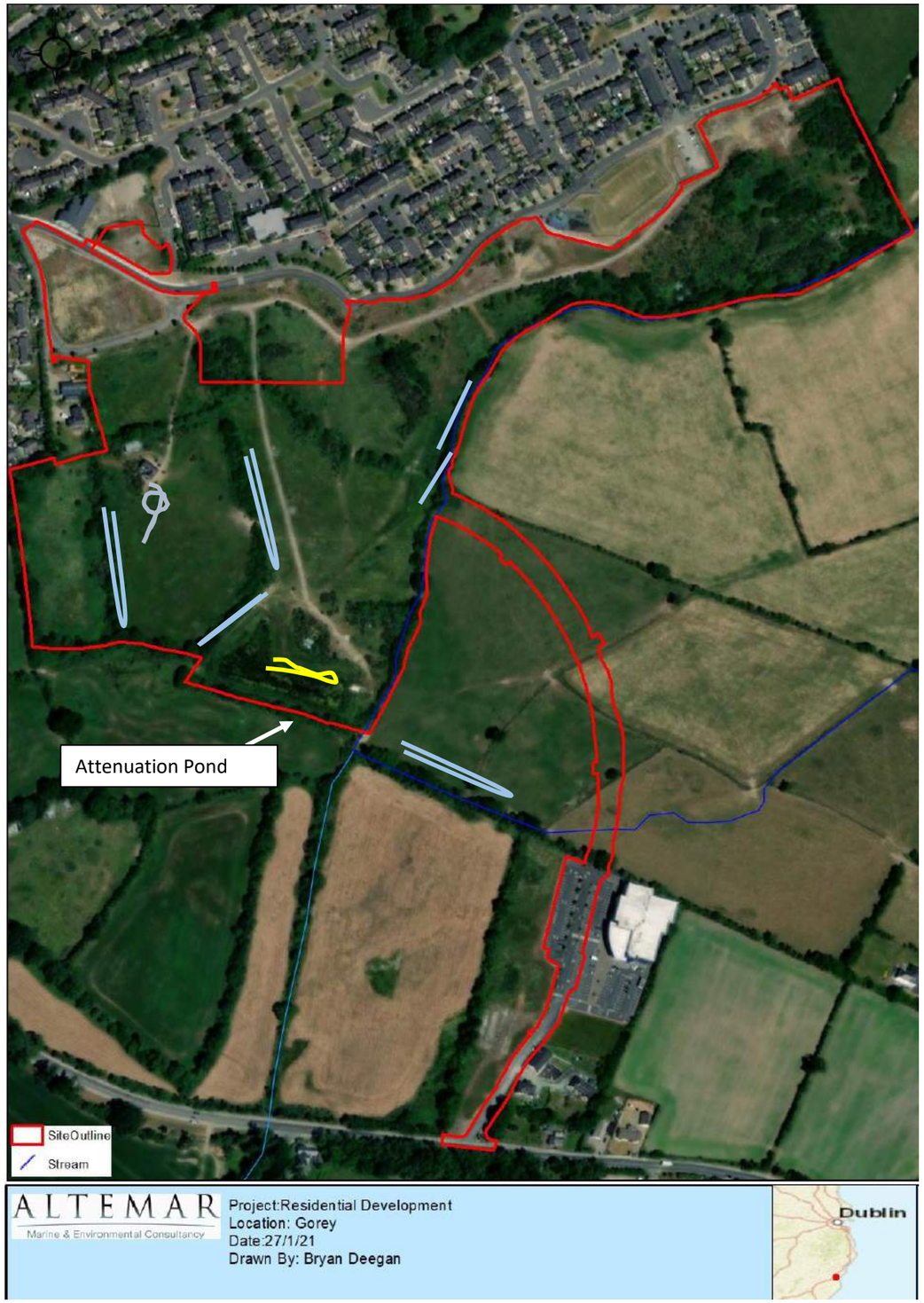


Figure 2. Soprano pipistrelle (blue) and Daubenton's bat (yellow)foraging activity

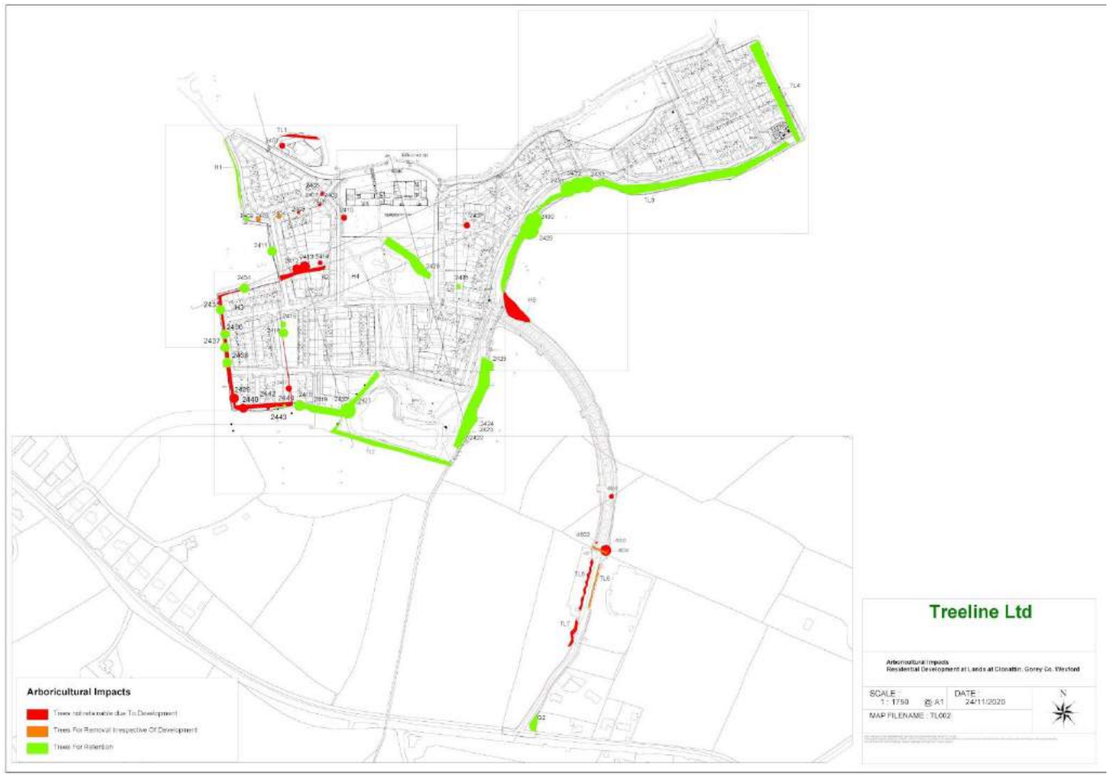


Figure 3. Trees (As per arborist report)

Table 2. Trees on site and their Bat Roosting Potential (BRP)

Tree No.	Species	BRP		Tree No.	Species	BRP
2401	Oak Quercus spp.	M		2424	Spruce Picea spp.	L
2403	Maple Acer spp.	L		2425	Oak Quercus spp.	M
2404	Maple Acer spp.	L		2426	Oak Quercus spp.	L
2405	Maple Acer spp.	L		2427	Oak Quercus spp.	M
2406	Maple Acer spp.	L		2428	Ash Fraxinus spp.	L
2407	Lime Tilia spp.	L		2429	Oak Quercus spp.	M
2408	Lime Tilia spp	L		2430	Oak Quercus spp.	M
2409	Lime Tilia spp.	L		2431	Oak Quercus spp.	M
2410	Oak Quercus spp.	L		2432	Oak Quercus spp.	M
2411	Oak Quercus spp.	L		2433	Oak Quercus spp.	H
2412	Oak Quercus spp.	L		2434	Oak Quercus spp.	M
2413	Oak Quercus spp.	L		2435	Oak Quercus spp.	M
2414	Oak Quercus spp.	L		2436	Oak Quercus spp.	M
2415	Ash Fraxinus spp.	L		2437	Oak Quercus spp.	M
2416	Oak Quercus spp.	M		2438	Oak Quercus spp.	M
2417	Oak Quercus spp.	M		2439	Ash Fraxinus spp.	L
2418	Oak Quercus spp.	M		2440	Oak Quercus spp.	L
2419	Oak Quercus spp.	M		2441	Oak Quercus spp.	L
2420	Oak Quercus spp.	M		2442	Spruce Picea spp.	L
2421	Oak Quercus spp.	M		2443	Spruce Picea spp.	L
2422	Cherry Prunus spp.	L		2444	Spruce Picea spp.	L
2423	Cherry Prunus spp.	L		4604	Oak Quercus spp.	M

Detector survey

Bat emergent surveys were carried out in optimal conditions towards the end of the bat survey season. Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Daubentons bats (*Myotis daubentonii*) were observed foraging along hedgerows and over the pond respectively (Figure 2). Three Soprano Pipistrelle (Pipistrellus pygmaeus) were detected emerging from any of the onsite buildings or trees.

Potential impacts of proposed redevelopment on bats

As bats were observed emerging from the building on site that is proposed to be demolished a bat derogation licence from NPWS is required for its removal. The hedgerows on site have few features that would act as potential roosting areas with the exception of larger trees mainly around the perimeter of the site which have moderate potential for bat roosting. The development would result in a loss of foraging habitat as the hedgerows would be removed. There is potential for lighting to impact the foraging activity in the vicinity of the pond, perimeter treeline and riparian corridor. It is essential that these areas are not lit and comply with bat lighting guidelines[1]. The trees that have moderate (M) or high potential (H) for bats roosting may have individual bats present that could be injured during felling (if required). Mitigation measures in the form of additional roosting sites will be required to offset actual (house) and possible roosting sites (ivy clad trees).

Mitigation measures

Mitigation measures are required in relation to the roosting of these animals are needed during the proposed works.

1) A derogation licence has been applied for from NPWS for the removal of the building on site with the assistance of a bat specialist. Receipt of the application was acknowledged by NPWS on the 9th November 2020.
2) The exterior hedgerows should be retained where possible and in particular the large trees noted in Figure 1. If trees of Moderate of High bat roosting potential are to be felled, they should be inspected for bat presence prior to felling. Additional native hedgerows should be planted where possible, forming linear features and dimly lit foraging corridors where possible. If a bat roost is found a derogation licence will be required.
3) It is essential that lighting in the vicinity of the pond, perimeter treeline and riparian corridor complies with bat lighting guidelines[2] and these areas are not directly lit during construction and operation. Discussions have taken place with the lighting engineers to limit light spill in all important bat foraging areas and hedgerows and these measures have been incorporated into the design.
4) Additional areas of roosting potential need to be incorporated on site. 10 bat boxes should be placed on site in areas that have poor access, lighting and high potential for occupation. Areas would include in the vicinity of the pond and on the larger trees in the riparian corridor.

[1] https://www.batconservationireland.org/wp-content/uploads/2013/09/BCIrelandGuidelines_Lighting.pdf

[2] https://www.batconservationireland.org/wp-content/uploads/2013/09/BCIrelandGuidelines_Lighting.pdf

Plate 2. Attenuation pond with good foraging activity.

Predicted and residual impact of the proposal

The removal of the derelict house on site will result in the loss of a recent roost for three Soprano pipistrelle bats. Mitigation measures will result in additional roosing sites through the provision of bat boxes, and additional buildings on site. The lighting strategy and hedgerow planting are seen as crucial to the long term use of the site by bats and this has been prepared in a sensitive manner to bat ecology. Lighting of the site, in particular the pond, perimeter treeline and riparian corridor must comply with bat lighting guidelines.

References

Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1982
Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979
EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive) 1992
European Communities (Birds and Natural Habitats) Regulations 2011 Government of Ireland, Dublin
Kelleher, C. and Marnell, F. 2007 *Bat Mitigation Guidelines for Ireland – Irish Wildlife Manuals No. 25*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin
Marnell, F., Kingston, N. and Looney, D. 2009 *Ireland Red List No. 3: Terrestrial Mammals.* National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin
Wildlife Act 1976 and Wildlife Amendment Acts 2000 and 2010. Government of Ireland.

Legal status and conservation issues – bats

All Irish bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Acts (2000 and 2010). Also, the EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat *Rhinolophus hipposideros* is further listed under Annex II. Across Europe, they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions.

All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II.
The current status and legal protection of the known bat species occurring in Ireland is given in the following table.

Common and scientific name	Wildlife Act 1976 & Wildlife (Amendment) Acts 2000/2010	Irish Red List status	Habitats Directive	Bern & Bonn Conventions
Common pipistrelle *Pipistrellus pipistrellus*	Yes	Least Concern	Annex IV	Appendix II
Soprano pipistrelle *P. pygmaeus*	Yes	Least Concern	Annex IV	Appendix II
Nathusius pipistrelle *P. nathusii*	Yes	Not referenced	Annex IV	Appendix II
Leisler's bat *Nyctalus leisleri*	Yes	Near Threatened	Annex IV	Appendix II
Brown long-eared bat *Plecotus auritus*	Yes	Least Concern	Annex IV	Appendix II
Lesser horseshoe bat *Rhinolophus hipposideros*	Yes	Least Concern	Annex II Annex IV	Appendix II
Daubenton's bat *Myotis daubentonii*	Yes	Least Concern	Annex IV	Appendix II
Natterer's bat *M. nattereri*	Yes	Least Concern	Annex IV	Appendix II
Whiskered bat *M. mystacinus*	Yes	Least Concern	Annex IV	Appendix II
Brandt's bat *M. brandtii*	Yes	Data Deficient	Annex IV	Appendix II

Also, under existing legislation, the destruction, alteration or evacuation of a known bat roost is a notifiable action and a derogation licence has to be obtained from the *National Parks and Wildlife Service* before works can commence.
It should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a licence to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by NPWS. The details with regards to appropriate assessments, the strict parameters within which derogation licences may be issued and the procedures by which and the order in relation to the planning and development regulations such licences should be obtained, are set out in Circular Letter NPWS 2/07 "*Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997 - strict protection of certain species/applications for derogation licences*" issued on behalf of the Minister of the Environment, Heritage and Local Government on the 16th of May 2007.
Furthermore, on 21st September 2011, the Irish Government published the European Communities (Birds and Natural Habitats) Regulations 2011 which include the protection of the Irish bat fauna and further outline derogation licensing requirements re: European Protected Species.

APPENDIX 5.2 APPLICATION FOR A LICENCE TO ALLOW DEMOLITIONS OF DOMESTIC BUILDING WITH POTENTIAL BAT USE

An Roinn Ealaíon, Oidhreachta agus Gaeltachta
Department of Arts, Heritage and the Gaeltacht

European Communities (Birds and Natural Habitats) Regulations 2011

Application for a Licence to allow demolition of domestic building with potential for bat-use

- This form should be completed by the home owner or occupier.
- Please complete this application form using **dark ink** and BLOCK CAPITALS.
- Please ensure that you answer questions fully in order to avoid delays.
- NPWS will aim to determine whether a licence should be issued within 15 working days of receipt of a completed application.
- If you experience any problems filling in this form, please contact the Species Licensing Unit (details opposite).

Wildlife Licensing Unit,
National Parks & Wildlife Service,
7 Ely Place
Dublin 2
Phone: 01 8883242

Email: wildlifelicence@ahg.gov.ie

Advice on bat presence at this site has been given by Bryan Deegan MCIEEM, following an onsite survey (insert the name of NPWS officer)

Having carefully considered this and discussed alternative solutions, I wish to apply for a licence under Section 54 of the European Communities (Birds and Natural Habitats) Regulations 2011.

Part A. The Applicant: Personal details

These questions relate to the owner or occupier, or a person acting on their behalf, who will be the **named licensee**. As the licensee you will be responsible for ensuring compliance with the licence and its conditions, even though you may employ another person to act on your behalf.

1. (a) Name of applicant

Title (Mr/Mrs/Miss/Ms)	Forename(s)	Surname
MR.	**Bryan**	**Deegan**

(b) Address

Town	
County	
Tel number	
Mobile number	
Email address	**bryan@altemar.ie**

(c) Address where works are to be carried out if different from (b) above

	Gorey Bridge
	Y25 P7F4
Town	**Gorey**
County	**Co. Wexford**

Part B. The Application:

2. Species of Bat. Please indicate which species is affected by the proposed works.

soprano pipistrelle (*Pipistrellus pygmaeus*)	X
Other (Please specify)	

3. Satisfactory alternatives:

The continued use by bats (if present) of the existing structures is unviable for the reason given below and there is no satisfactory alternative solution other than to safely exclude the bats, thus destroying any potential roost. Mitigation is proposed through the provision of bat boxes in the new housing development.

4. Activity to be licensed:

Removal of derelict house	X	Removal of roost in eaves of house (3 Soprano pipistrelle)

5. Purpose of licence

Public health	The bats are causing intolerable smell or noise within the property which is affecting the residents' health or the health of their family. The resident of the property finds the presence of the bats disturbing to the extent that it is threatening their health or the health of their family.	
Serious damage	Continued bat access is causing damage to the property and this is likely to continue for as long as the roost is present.	
Conservation	It is proposed to demolish the house as part of a housing development (Phase 2). Mitigation is proposed.	X

Part C. Declarations.

6. I understand that this licence application will be considered by the Species Licensing Unit in conjunction with the report submitted by the local NPWS representative and the accompanying bat survey report.

I understand that the deliberate killing, injuring, capturing or disturbing of bats, or damage or destruction of their roosts is illegal without a licence and that it is a legal requirement to comply with the conditions of any licence I may be granted following this application. I understand that NPWS may visit to check compliance with a licence.

I authorise employees of NPWS to enter the site which is the subject of this application for the purpose of monitoring and inspecting the permitted works where a prior appointment has been agreed.

Signature of the Applicant		Date	2nd November 2020
Name in BLOCK LETTERS	Bryan Deegan (MCIEEM)		

APPENDIX - 9.1 AMBIENT AIR QUALITY STANDARDS

Ambient Air Quality Standards

National standards for ambient air pollutants in Ireland have generally ensued from Council Directives enacted in the EU (& previously the EC & EEC). The initial interest in ambient air pollution legislation in the EU dates from the early 1980s and was in response to the most serious pollutant problems at that time which was the issue of acid rain. As a result of this sulphur dioxide, and later nitrogen dioxide, were both the focus of EU legislation. Linked to the acid rain problem was urban smog associated with fuel burning for space heating purposes. Also apparent at this time were the problems caused by leaded petrol and EU legislation was introduced to deal with this problem in the early 1980s.

In recent years the EU has focused on defining a basis strategy across the EU in relation to ambient air quality. In 1996, a Framework Directive, Council Directive 96/62/EC, on ambient air quality assessment and management was enacted. The aims of the Directive are fourfold. Firstly, the Directive's aim is to establish objectives for ambient air quality designed to avoid harmful effects to health. Secondly, the Directive aims to assess ambient air quality on the basis of common methods and criteria throughout the EU. Additionally, it is aimed to make information on air quality available to the public via alert thresholds and fourthly, it aims to maintain air quality where it is good and improve it in other cases.

As part of these measures to improve air quality, the European Commission has adopted proposals for daughter legislation under Directive 96/62/EC. The first of these directives to be enacted, Council Directive 1999/30/EC, has been passed into Irish Law as S.I. No 271 of 2002 (Air Quality Standards Regulations 2002) and has set limit values which came into operation on 17th June 2002. The Air Quality Standards Regulations 2002 detail margins of tolerance, which are trigger levels for certain types of action in the period leading to the attainment date. The margin of tolerance varies from 60% for lead, to 30% for 24-hour limit value for PM_{10}, 40% for the hourly and annual limit value for NO_2 and 26% for hourly SO_2 limit values. The margin of tolerance commenced from June 2002 and started to reduce from 1st January 2003 and every 12 months thereafter by equal annual percentages to reach 0% by the attainment date. A second daughter directive, EU Council Directive 2000/69/EC, has published limit values for both carbon monoxide and benzene in ambient air. This has also been passed into Irish Law under the Air Quality Standards Regulations 2002.

The most recent EU Council Directive on ambient air quality was published on the 11/06/08 which has been transposed into Irish Law as S.I. 180 of 2011. Council Directive 2008/50/EC combines the previous Air Quality Framework Directive and its subsequent daughter directives. Provisions were also made for the inclusion of new ambient limit values relating to $PM_{2.5.}$ The margins of tolerance specific to each pollutant were also slightly adjusted from previous directives. In regard to existing ambient air quality standards, it is not proposed to modify the standards but to strengthen existing provisions to ensure that non-compliances are removed. In addition, new ambient standards for $PM_{2.5}$ are included in Directive 2008/50/EC. The approach for $PM_{2.5}$ was to establish a target value of 25 µg/m^3, as an annual average (to be attained everywhere by 2010) and a limit value of 25 µg/m^3, as an annual average (to be attained everywhere by 2015), coupled with a target to reduce human exposure generally to $PM_{2.5}$ between 2010 and 2020. This exposure reduction target will range from 0% (for $PM_{2.5}$ concentrations of less than 8.5 µg/m^3 to 20% of the average exposure indicator (AEI) for concentrations of between 18 - 22 µg/m^3). Where the AEI is currently greater than 22 µg/m^3 all appropriate measures should be employed to reduce this level to 18 µg/m^3 by 2020. The AEI is based on measurements taken in urban background locations averaged over a three-year period from 2008 - 2010 and again from 2018-2020. Additionally, an exposure concentration obligation of 20 µg/m^3 was set to be complied with by 2015 again based on the AEI.

Although the EU Air Quality Limit Values are the basis of legislation, other thresholds outlined by the EU Directives are used which are triggers for particular actions. The Alert Threshold is defined in Council Directive 96/62/EC as "a level beyond which there is a risk to human health from brief exposure and at which immediate steps shall be taken as laid down in Directive 96/62/EC". These steps include undertaking to ensure that the necessary steps are taken to inform the public (e.g. by means of radio, television and the press).

The Margin of Tolerance is defined in Council Directive 96/62/EC as a concentration which is higher than the limit value when legislation comes into force. It decreases to meet the limit value by the attainment date. The Upper Assessment Threshold is defined in Council Directive 96/62/EC as a concentration above which high quality measurement is mandatory. Data from measurement may be supplemented by information from other sources, including air quality modelling.

An annual average limit for both NO_X (NO and NO_2) is applicable for the protection of vegetation in highly rural areas away from major sources of NO_X such as large conurbations, factories and high road vehicle activity such as a dual carriageway or motorway. Annex VI of EU Directive 1999/30/EC identifies that monitoring to demonstrate compliance with the NOX limit for the protection of vegetation should be carried out distances greater than:

- 5 km from the nearest motorway or dual carriageway
- 5 km from the nearest major industrial installation
- 20 km from a major urban conurbation

As a guideline, a monitoring station should be indicative of approximately 1000 km^2 of surrounding area.
Under the terms of EU Framework Directive on Ambient Air Quality (96/62/EC), geographical areas within member states have been classified in terms of zones. The zones have been defined in order to meet the criteria for air quality monitoring, assessment and management as described in the Framework Directive and Daughter Directives. Zone A is defined as Dublin and its environs, Zone B is defined as Cork City, Zone C is defined as 23 urban areas with a population greater than 15,000 and Zone D is defined as the remainder of the country. The Zones were defined based on among other things, population and existing ambient air quality.

EU Council Directive 96/62/EC on ambient air quality and assessment has been adopted into Irish Legislation (S.I. No. 33 of 1999). The act has designated the Environmental Protection Agency (EPA) as the competent authority responsible for the implementation of the Directive and for assessing ambient air quality in the State. Other commonly referenced ambient air quality standards include the World Health Organisation. The WHO guidelines differ from air quality standards in that they are primarily set to protect public health from the effects of air pollution. Air quality standards, however, are air quality guidelines recommended by governments, for which additional factors, such as socio-economic factors, may be considered.

Air Dispersion Modelling

The inputs to the DMRB model consist of information on road layouts, receptor locations, annual average daily traffic movements, annual average traffic speeds and background concentrations. Using this input data, the model predicts ambient ground level concentrations at the worst-case sensitive receptor using generic meteorological data. The DMR B has recently undergone an extensive validation exercise as part of the UK's Review and Assessment Process to designate areas as Air Quality Management Areas (AQMAs). The validation exercise was carried out at 12 monitoring sites within the UK DEFRAs national air quality monitoring network. The validation exercise was carried out for NO_X, NO_2 and PM_{10}, and included urban background and kerbside/roadside locations, "open" and "confined" settings and a variety of geographical locations.

In relation to NO_2, the model generally over-predicts concentrations, with a greater degree of over-prediction at "open" site locations. The performance of the model with respect to NO_2 mirrors that of NO_X showing that the over-prediction is due to NO_X calculations rather than the NO_X:NO_2 conversion. Within most urban situations, the model overestimates annual mean NO_2 concentrations by between 0 to 40% at confined locations and by 20 to 60% at open locations. The performance is considered comparable with that of sophisticated dispersion models when applied to situations where specific local validation corrections have not been carried out.

The model also tends to over-predict PM_{10}. Within most urban situations, the model will over-estimate annual mean PM_{10} concentrations by between 20 to 40%. The performance is comparable to more sophisticated models, which, if not validated locally, can be expected to predict concentrations within the range of 50%. Thus, the validation exercise has confirmed that the model is a useful screening tool for the Second Stage Review and Assessment, for which a conservative approach is applicable.

APPENDIX - 9.2 TRANSPORT INFRASTRUCTURE IRELAND SIGNIFICANCE CRITERIA

Magnitude of Change	Annual Mean NO_2 / PM_{10}	Annual Mean $PM_{2.5}$
Large	Increase / decrease ≥4 µg/m³	Increase / decrease ≥2.5 µg/m³
Medium	Increase / decrease 2 - <4 µg/m³	Increase / decrease 1.25 - <2.5 µg/m³
Small	Increase / decrease 0.4 - <2 µg/m³	Increase / decrease 0.25 - <1.25 µg/m³
Imperceptible	Increase / decrease <0.4 µg/m³	Increase / decrease <0.25

Table A1: Definition of Impact Magnitude for Changes in Ambient Pollutant Concentrations

Absolute Concentration in Relation to Objective/Limit Value	Change in Concentration Note 1		
	Small	Medium	Large
Increase with Scheme			
Above Objective/Limit Value with Scheme (≥40 µg/m³ of NO_2 or PM_{10}) (≥25 µg/m³ of $PM_{2.5}$)	Slight Adverse	Moderate Adverse	Substantial Adverse
Just Below Objective/Limit Value with Scheme (36 - <40 µg/m³ of NO_2 or PM_{10}) (22.5 - <25 µg/m3 of $PM_{2.5}$)	Slight Adverse	Moderate Adverse	Moderate Adverse
Below Objective/Limit Value with Scheme (30 - <36 µg/m³ of NO_2 or PM_{10}) (18.75 - <22.5 µg/m³ of $PM_{2.5}$)	Negligible	Slight Adverse	Slight Adverse
Well Below Objective/Limit Value with Scheme (<30 µg/m³ of NO_2 or PM_{10}) (<18.75 µg/m³ of $PM_{2.5}$)	Negligible	Negligible	Slight Adverse
Decrease with Scheme			
Above Objective/Limit Value with Scheme (≥40 µg/m³ of NO_2 or PM_{10}) (≥25 µg/m³ of $PM_{2.5}$)	Slight Beneficial	Moderate Beneficial	Substantial Beneficial
Just Below Objective/Limit Value with Scheme (36 - <40 µg/m³ of NO_2 or PM_{10}) (22.5 - <25 µg/m³ of $PM_{2.5}$)	Slight Beneficial	Moderate Beneficial	Moderate Beneficial
Below Objective/Limit Value with Scheme (30 - <36 µg/m³ of NO_2 or PM_{10}) (18.75 - <22.5 µg/m³ of $PM_{2.5}$)	Negligible	Slight Beneficial	Slight Beneficial
Well Below Objective/Limit Value with Scheme (<30 µg/m³ of NO_2 or PM_{10}) (<18.75 µg/m³ of $PM_{2.5}$)	Negligible	Negligible	Slight Beneficial

Note 1 *Well Below Standard = <75% of limit value.*

Table A2: Air Quality Impact Significance Criteria For Annual Mean NO_2 and PM_{10} and $PM_{2.5}$ Concentrations at a Receptor

Absolute Concentration in Relation to Objective/Limit Value	Change in Concentration Note 1		
	Small	Medium	Large
Increase with Scheme			
Above Objective/Limit Value with Scheme (≥35 days)	Slight Adverse	Moderate Adverse	Substantial Adverse
Just Below Objective/Limit Value with Scheme (32 - <35 days)	Slight Adverse	Moderate Adverse	Moderate Adverse
Below Objective/Limit Value with Scheme (26 - <32 days)	Negligible	Slight Adverse	Slight Adverse
Well Below Objective/Limit Value with Scheme (<26 days)	Negligible	Negligible	Slight Adverse
Decrease with Scheme			
Above Objective/Limit Value with Scheme (≥35 days)	Slight Beneficial	Moderate Beneficial	Substantial Beneficial
Just Below Objective/Limit Value with Scheme (32 - <35 days)	Slight Beneficial	Moderate Beneficial	Moderate Beneficial
Below Objective/Limit Value with Scheme (26 - <32 days)	Negligible	Slight Beneficial	Slight Beneficial
Well Below Objective/Limit Value with Scheme (<26 days)	Negligible	Negligible	Slight Beneficial

Note 1 *Where the Impact Magnitude is Imperceptible, then the Impact Description is Negligible*

Table A3: Air Quality Impact Significance Criteria For Changes to Number of Days with PM_{10} Concentration Greater than 50 µg/m³ at a Receptor

APPENDIX - 9.3 DUST MINIMISATION PLAN

The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to develop a workable and transparent dust control strategy, the following management plan has been formulated by drawing on best practice guidance from Ireland and the United Kingdom.

Site Management

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design and effective control strategies.

At the construction planning stage, the siting of activities and storage piles will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance (see Figure 9.1 for the windrose for Casement Aerodrome). As the prevailing wind is predominantly south-westerly, locating construction compounds and storage piles downwind of sensitive receptors will minimise the potential for dust nuisance to occur at sensitive receptors.

Good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or quickly implementing effective control measures before the potential for nuisance occurs. When rainfall is greater than 0.2mm/day, dust generation is generally suppressed. The potential for significant dust generation is also reliant on threshold wind speeds of greater than 10 m/s (19.4 knots) (at 7m above ground) to release loose material from storage piles and other exposed materials. Particular care should be taken during periods of high winds (gales) as these are periods where the potential for significant dust emissions are highest. The prevailing meteorological conditions in the vicinity of the site are favourable in general for the suppression of dust for a significant period of the year. Nevertheless, there will be infrequent periods were care will be needed to ensure that dust nuisance does not occur.

The following measures shall be taken in order to avoid dust nuisance occurring under unfavourable meteorological conditions:

- The Principal Contractor or equivalent must monitor the contractors' performance to ensure that the proposed mitigation measures are implemented and that dust impacts and nuisance are minimised;
- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions;
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details;
- It is recommended that community engagement be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses;
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out;
- The Principal Contractor or equivalent must monitor the contractors' performance to ensure that the proposed mitigation measures are implemented and that dust impacts and nuisance are minimised;
- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions;
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details;
- It is recommended that community engagement be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses;
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out;
- It is the responsibility of the contractor at all times to demonstrate full compliance with the dust control conditions herein;
- At all times, the procedures put in place will be strictly monitored and assessed.

The dust minimisation measures shall be reviewed at regular intervals during the works to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust using best practice and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and satisfactory procedures implemented to rectify the problem. Specific dust control measures to be employed are described below.

Site Roads / Haulage Routes

Movement of construction trucks along site roads (particularly unpaved roads) can be a significant source of fugitive dust if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25 to 80%.

- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles using unpaved site roads.
- Access gates to the site shall be located at least 10m from sensitive receptors where possible.
- Bowsers or suitable watering equipment will be available during periods of dry weather throughout the construction period. Research has found that watering can reduce dust emissions by 50%. Watering shall be conducted during sustained dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use.
- Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.

Land Clearing / Earth Moving

Land clearing / earth-moving works during periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust.
- During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.

Storage Piles

The location and moisture content of storage piles are important factors which determine their potential for dust emissions.

- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the site. Where possible storage piles should be located downwind of sensitive receptors.
- Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust. The regular watering of stockpiles has been found to have an 80% control efficiency.
- Where feasible, hoarding will be erected around site boundaries to reduce visual impact. This will also have an added benefit of preventing larger particles from impacting on nearby sensitive receptors.

Site Traffic on Public Roads

Spillage and blow-off of debris, aggregates and fine material onto public roads should be reduced to a minimum by employing the following measures:

- Vehicles delivering or collecting material with potential for dust emissions shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust.
- At the main site traffic exits, a wheel wash facility shall be installed if feasible. All trucks leaving the site must pass through the wheel wash. In addition, public roads outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary.

Summary of Dust Mitigation Measures

The pro-active control of fugitive dust will ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the satisfactory performance of the contractor. The key features with respect to control of dust will be:

- The specification of a site policy on dust and the identification of the site management responsibilities for dust issues.
- The development of a documented system for managing site practices with regard to dust control.
- The development of a means by which the performance of the dust minimisation plan can be regularly monitored and assessed; and
- The specification of effective measures to deal with any complaints received.

APPENDIX 10.1 PHOTO-MONTAGE REPORT

Photo-montage Report

Clonattin, Gorey

DECEMBER 20

Photomontage Methodology

3D Modelling
2D CAD drawings were supplied by Reddy Architecture + Urbanism. Visual Lab used these drawings to produce a detailed 3D model of the proposed building and associated landscaping. Existing topographical surveys were also provided by Reddy Architecture + Urbanism.

Photography
All photographs we taken by BML Media using a high resolution Sony 7R2 35mm Camera with a 24 mm Cannon mark 2 shift lens.

A plumb line was used to mark the position of the center of the camera and to confirm a camera height of 1.75m. A mark was sprayed on the ground at each camera position and a photograph taken of the camera position for reference. Additional detail photographs of the site area and surrounds were also taken for reference purposes using a variety of lenses.

Survey Information
In all cases the camera positions and control points were surveyed by CSS Surveys. Key static points that were visible in the photographs were also surveyed to serve as control points. The camera positions and control points were then related back and aligned into the Base Model (all at National Grid).

Base Model
The provided topographical survey and proposed model were over-laid and aligned to create a 'Base' model file. This Base model allowed for the accurate alignment of the proposed buildings, camera positions and reference points. This Base model was updated throughout the design process.

Photo matching
Using 3D Studio Max software a virtual camera was positioned using the camera locations from surveyed information and an accurate fit between the camera and the photograph was achieved by precisely matching the surveyed static features (control points) in the rendering to the corresponding points in the background photograph.

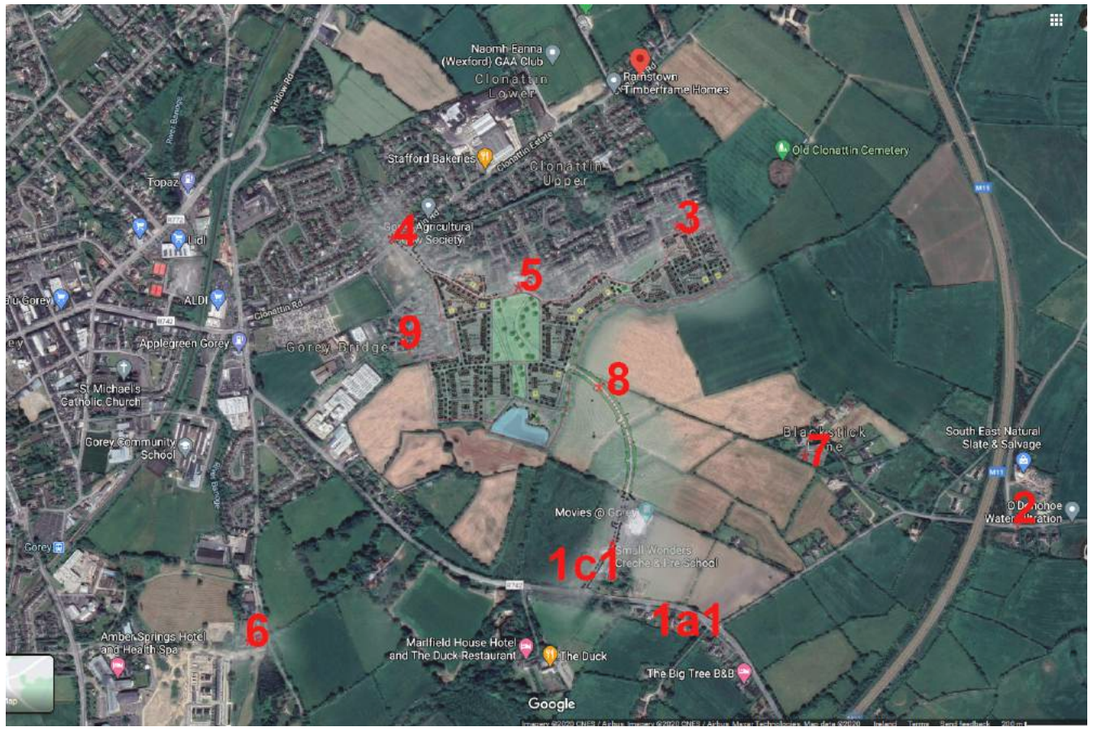
Rendering
The models were textured and rendered using VRAY rendering engine. The materials and lighting were adjusted to try an mimic real work scenarios - building within the scene were used as a reference to obtain valuable visual clues as to how the light would react with the proposed building. A computer image was produced (rendered) and then combined with the background photograph using digital compositing software. Using the detail photographs for reference the images were then cropped to remove any parts that would be screened by existing trees, topography or buildings, leaving only the parts, which would be visible. The photo montages are presented as "proposed", with additional proposed planting.

Presentation
As photography cannot present what the eye sees in reality, it is intended that the photo montages are used as a tool to aid visual assessment. They should be viewed on site and compared with the real scene.

Each view is presented on 3 sheets:
Sheet 1 - Existing site pre construction
Sheet 2 - Proposed scheme
Sheet 3 - Where applicable a 3rd sheet is added showing an outline of the proposed scheme with a red line

Conclusion
We have outlined our procedure for the generation of the photo-match. We have re-verified our results and we are confident that these images give a fair and true representation of the proposed development.

Notes
Subject to accurate survey information, the position and scale of a building in a scene can be verified mathematically. Whilst position, height and scale will be objectively accurate, subjective judgment must be used when lighting is being assessed and therefore a definitive and objectively verified agreement on lighting is not possible.
Visual Lab recommends that all parties are mindful that Environmental Statement photo montage should be used as a complement to site based assessment.



Location of Camera's

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visual lab

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 11:37 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 11:37 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 11:37 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

VIEW 1c1 EXISTING

Date: 25/09/2020 Time: 11:06 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

VIEW 1c1 PROPOSED

Date: 25/09/2020 Time: 11:06 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 10:28 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 10:28 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 10:02 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 10:02 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 15:08 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 15:08 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 14:28 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 14:28 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 14:04 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 14:04 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 12:20 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 12:20 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 12:20 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 12:58 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 12:58 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

VIEW 9

EXISTING

Date: 25/09/2020 Time: 14:44 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 14:44 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

PHOTO-MONTAGE REPORT: Clonattin, Gorey

Date: 25/09/2020 Time: 14:44 Lens: 24 mm

Field of view for a 50 mm Lens

Field of view for a 24 mm Lens

APPENDIX 14.1 ARCHAEOLOGICAL TESTING REPORT

IAC Archaeology

ARCHAEOLOGICAL ASSESSMENT
AT
CLONATTIN, GOREY,
COUNTY WEXFORD

LICENCE: 20E0560

ON BEHALF OF: AXIS CONSTRUCTION LTD

I.T.M.: 716623/659674

LICENCEE: JOHN O'NEIL
AUTHOR: JOHN O'NEIL

REPORT STATUS: FINAL

JANUARY 2021

IAC PROJECT REF.: J3551

DOCUMENT CONTROL SHEET

DATE	DOCUMENT TITLE	REV.	PREPARED BY	REVIEWED BY	APPROVED BY
27.01.21	Archaeological Test Excavation at Clonattin, Gorey, Co. Wexford	0	J. O'Neill	G. Corbett	F. Bailey

IRISH ARCHAEOLOGICAL CONSULTANCY LTD
ARCHAEOLOGY & CONSERVATION CONSULTANTS

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ABSTRACT

IAC Archaeology has prepared this report on behalf of Axis Construction Ltd to study the impact, if any, on the archaeological and historical resource of the proposed residential development, which is located at Clonattin, Gorey, Co. Wexford (ITM 716623/659674). The testing was undertaken by John Ó Néill under licence 20E0560 and followed on from recommendations made within a draft EIAR Chapter compiled by Jacqui Anderson and Grace Corbett of IAC Archaeology (Corbett and Anderson 2019).

There are nine recorded monuments within 1km of the proposed development area, in addition to three sites listed in the SMR. The closest of these is a graveyard (WX007-034002), c. 174m northeast, containing the ruins of a Romanesque church (WX007-034001) and architectural fragments (WX007-034003).

Cartographic sources revealed the proposed development area was adjacent to the former demesne lands of Clonatin House. However, the demesne no longer survives as it has since been extensively developed. Analysis of aerial photography suggests the northern half of the proposed development area was disturbed during the construction of the adjacent housing development. The field inspection confirmed the disturbed nature of the northern half of the site and no archaeological features were identified. Although the southern end of the site does not appear to have been subject to largescale previous disturbance, the area was largely overgrown in many places, with deposits of material scattered across the site together with smaller areas of disturbance.

Archaeological testing was carried out over the course of four days in October 2020 using a mechanical excavator fitted with a flat grading bucket. A total of 21 trenches were excavated across the site measuring c. 1,875 linear metres. The trenches targeted the open green space to investigate the archaeological potential of the site. Testing did not reveal any areas of archaeological significance.

The proposed access road to the east of the proposed development area was not accessible at the time of testing. As such, ground disturbances associated with the development have the potential to adversely impact archaeological remains within this area that survive without surface expression. Furthermore, there may be an adverse impact on small or isolated archaeological remains that may survive within the development area, outside of the footprint of the excavated test trenches.

It is recommended that the access road is subject to archaeological testing prior to construction going ahead, once the lands become available. Should any archaeological remains be identified in this area, further archaeological mitigation may be required, such as preservation in-situ or by record. Any further mitigation will require approval from the National Monuments Service of the DoCHG.

It is recommended that all topsoil stripping associated with the proposed development be monitored by a suitably qualified archaeologist. If any features of archaeological

Clonattin, Gorey,
County Wexford

Archaeological Test Excavation
Licence 20E0560

potential are discovered during the course of the works further archaeological mitigation may be required, such as preservation *in-situ* or by record. Any further mitigation will require approval from the National Monuments Service of the DoCHG.

CONTENTS

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1 INTRODUCTION

1.1 GENERAL

The following report details the results of a programme of archaeological testing undertaken at Clonattin, Gorey, Co. Wexford, prior to the proposed residential development. This assessment has been carried out to ascertain the potential impact of the proposed development on the archaeological resource that may exist within the proposed development area. The assessment (Licence 20E0560) was undertaken by John Ó Néill of IAC Archaeology (IAC), on behalf of Axis Construction Ltd.

Test trenching commenced at the site on 12th October 2020 and continued for four days. This was carried out using a 13 tonne 360 degree tracked excavator, with a flat, toothless bucket, under strict archaeological supervision. A total of 21 trenches were mechanically investigated across the test area which measured c. 1,743 linear metres. This report follows on from a draft EIAR Chapter carried out by IAC Archaeology which recommended a programme of archaeological testing (Corbett and Anderson 2019).

1.2 THE DEVELOPMENT

The proposed strategic housing development at this site in Clonattin, Gorey will include the demolition of the existing buildings and will provide 363 no. residential units, a creche, public open space, a new access road connecting to Courtown Road. All associated site development works and services provisions including parking, bin storage, substations, landscaping and all services required to facilitate the proposed development (Figure 2).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 INTRODUCTION

The proposed development area is located in the townlands of Clonattin Upper and Goreybridge, Gorey, County Wexford. There are nine recorded monuments within 1km of the proposed development area, in addition to three sites listed in the SMR (Figure 1). The closest of these is a graveyard (WX007-034002), c. 174m northeast, containing the ruins of a Romanesque church (WX007-034001) and architectural fragments of that church (WX007-034003).

Prehistoric Period

Mesolithic Period (c. 7000–4000BC)

Although recent discoveries may suggest a human presence in the southwest of Ireland as early as the Upper Palaeolithic (Dowd and Carden 2016), it is generally believed that the first colonisation of the island as a whole took place in the Mesolithic period. During this time, people fished, foraged, and hunted to sustain themselves and appeared to live a transient lifestyle, migrating in order to exploit seasonal resources. As a result of this mobile lifestyle, little settlement evidence remains. Often the only evidence of Mesolithic activity is scatters of flint implements and the by-products of their manufacture. Occasionally, shell middens are found to date to this period. There is little evidence for the Mesolithic in County Wexford and no evidence in the vicinity of the proposed development area.

Neolithic Period (c. 4000–2500BC)

During the Neolithic period, agriculture was introduced and adopted as a way of life in Ireland. As a result, communities became less mobile as stock rearing and cereal cultivation became common. It was during this period that the megalithic tomb tradition emerged. There are four main types of megalithic tomb- court cairns, portal tombs, passage tombs and the wedge tombs of the early Bronze Age. However, there are no recorded Neolithic sites within the environs of the proposed development area.

Bronze Age Period (c. 2500–800BC)

The Bronze Age saw the production of metal for the first time. During this period the megalithic tomb tradition declined and ended in favour of a focus on the individual in burial. An urn burial (WX007-055/WX007-055001) was discovered c. 739m southwest of the proposed development area during quarrying in 1989. The cremation within the urn was confirmed to represent an adult female.

Another site type thought to reveal a glimpse of domestic life at this time is the burnt mound or *fulacht fia*. A common site within the archaeological record, they are commonly interpreted as temporary cooking sites but may have been used for other industrial or even recreational functions. These sites may have been used on a seasonal basis. They survive as low mounds of charcoal-enriched soil mixed with an abundance of heat-shattered stones. They are usually horseshoe-shaped and located in low-lying areas near a water source and are often found in clusters. Even when levelled by recent activity, such as ploughing, they are identifiable as burnt spreads in the landscape. A

fulacht fia (WX007-070) was excavated (Licence E3493) in advance of the construction of the N11 Gorey to Arklow road scheme, c. 638m northeast of the proposed development area. This fulacht was located adjacent to a small stream which also flows directly to the southeast of the proposed development site.

Single upright standing stones are a common feature of the Irish landscape and are known by various names such as *gallán* or *leacht*. They may date to different periods and serve different functions, but excavation has shown that some may mark pre-historic burials, while some may signify a route-way, a boundary, or serve a commemorative role. Generally speaking, it is likely that most date to the Bronze Age, apart from those that can be seen to be Ogham stones. The orientation of a stone may have had a significance, with their long axis aligned to another stone or toward a cairn on a mountain top, although the latter is difficult to prove. Occasionally standing stones are found which are all that remain of a formerly more complex megalithic monument. Some it must be said, could well have been erected in modern times as scratching posts for cattle. A standing stone (WX007-061) is recorded c. 556m west of the proposed development area. It is a small standing stone and does not appear on the historic mapping of the area.

Iron Age Period (c. 800BC – AD400)

Compared to the rest of Irish prehistory there is relatively little evidence in Ireland, as a whole, representing the Iron Age, though development-led archaeological investigations in recent decades has added to our knowledge of the Irish Iron Age. As in Europe, two phases of the Iron Age have been proposed in Ireland; the Hallstatt and the La Tène (Raftery 1994). While there is little evidence of the Hallstatt period in Ireland, La Tène influences are clearly identifiable in the metalwork of the period.

There are no recorded sites of Iron Age date in the vicinity of the proposed development area.

Early Medieval Period (AD400–1100)

The early medieval period is portrayed in the surviving literary sources as entirely rural, characterised by the basic territorial unit known as a *túath* (MacCotter 2008). These *túaths* were grouped into larger polities known as *trícha cét*, ruled over by local dynastic kings who were in turn ruled by provincial kings. Byrne (1973) estimates that there were probably at least 150 kings in Ireland at any given time. According to most recent estimates, each *túath* would have consisted of between 1,700 and 3,300 subjects, based on estimates placing the population of Ireland in the early medieval period as between a quarter and a half a million people (Stout 2017).

The lands around Gorey were ruled by the *Uí Chennselaig* sept of the *Uí Dega* (Culleton 1999, 32). The *Uí Chennsailaig* were a powerful branch of the *Laigin*. Ferns, c. 16km to the southwest of the Gorey, functioned as the seat of powers of successive *Uí Chennselaig* kings. During the 7th and 8th centuries, control of the wider area now known as Wexford was consolidated by *Uí Chennselaig*, which forced out the *Uí Bairrche*. Possession of Ferns came to mean the possession of power. From c. AD 769

the abbey there was elevated to the rank of royal monastery, replacing St. Mullin's in Carlow as the principal religious base in south Leinster.

From AD 795 onwards, Viking raids are recorded in the area now known as County Wexford. The county name itself derives from the Viking name for "the bay of the flats" – *Waesfjords*. Ferns, the focus of religious and political power, was raided in AD 834 and again in AD 930, when the old monastery founded in the 6th century was plundered. The Vikings of Wexford soon came to accommodation with the *Uí Chennselaig* and were subsumed into the local and regional politics of the period.

During this period, enclosures known as ringforts were common throughout the country. These enclosed farmsteads were intimately connected to the division of land and the status of the occupant. A *bóaire*, for example, was a free farmer possessed of a plough team of oxen with household servants, workmen and dependants of various status, from free to unfree (MacCotter 2008). Ringforts are usually defined as a broadly circular enclosure delimited by an earthen bank and ditch (rath) or by a stone wall (cashel or caher). The space enclosed by the ditch or wall is known as the lios in early literature. It is likely that many of the single univallate ringforts relate to residences of *bóaire*. Larger, more prominently placed ringforts, with more than one enclosing wall or bank are likely to have been the residences of local kings (Stout 1997). Dating evidence from excavated ringforts suggests they were primarily built between the 7th and 9th centuries AD (ibid, 22–31). O'Sullivan *et al.* suggest that there are 'at least 60,000 early medieval settlement enclosures on the island' (2014). A number of ringforts are recorded within 1km of the site. The closest of these (WX012-001) is located c. 300m south of the proposed development area. A further four ringforts are located c. 525m east (WX007-035), c. 762m east (WX007-036), c. 530m south (WX012-002) and c. 705m southwest (WX012-030) of the site.

Medieval Period (AD1100–1600)

The first of the Anglo-Norman landings took place in County Wexford, at the invitation of the former king of Leinster, Dermot MacMurrough. The Anglo-Normans, joined by 500 *Uí Chennselaig* men, took the Viking town of Wexford and the town of Ossory. Through a policy of military force and integration, the Anglo-Normans extended their control over large tracts of the country over the following century. Marriages between Norman leaders and the women of Ireland's great families aided this integration. The Norman feudal culture, techniques, language, and legal systems were to have a profound effect on Wexford after 230 years of Norse influence.

In order to consolidate their hold upon these newly conquered territories, the Anglo-Norman grantees constructed motte and bailey castles on their holdings. While it is possible that many of these mottes may have endured in use into the 15th century (O'Conor 2002), a second phase of Anglo-Norman castle building followed from the late 12th century and saw the construction of more permanent stone-built structures.

Historic documents indicate that there may have been a small settlement at Gorey in the 13th century as a payment of 13 shillings was made by 'the community of the town (ville) of Gorey' in 1296 (SMR file). Evidence for medieval activity was also identified

during excavations in 2007 in the town, when the remains of a small metal working site were identified (WX007-082).

The ruins of a Romanesque church (WX007-034001) is located within a graveyard (WX007-034002) c. 174m northeast of the proposed development area. The graveyard is delineated by an earthen bank and architectural fragments which once formed a Romanesque doorway are also recorded within the graveyard (WX007-034003). This church is thought to have been a cell of the monastery at Ferns (Gwynn and Hadcock 1970, 198).

Post-medieval Period (AD1600-1900)

Following the Gaelic Resurgence of the 14th and 15th centuries, the Tudor era saw a focused attempt to reconquer and pacify the entire country during the reigns of Henry VIII and Elizabeth I. The Elizabethan implementation of the 'Surrender and Regrant' policy allowed the monarch to continue colonising Ireland at a time when the treasury funds were too low to afford a war. The policy was to induce native leaders to put their lands under the protection and ultimate ownership of the crown. The implication was that if they did not, it would be taken away from them anyway. Under the Irish custom the clan itself owned the land, not any individual and this included the chief. He administered it during his lifetime but could not will any part of it on his death at which time it reverted to the charge of the *tanaiste* or appointed successor for the clan, not necessarily his son and heir.

The inducement was that on re-granting the chieftain would personally own the land and could will it in any way he desired, the aim of which was to break up the clan system and to put the lands and the owners within the control of the crown. However, the crown could take the land back at any time and this occurred frequently over the coming years. Confiscated lands were granted to 'undertakers' – suitable English people of the new faith who would undertake to purchase available land at a very low price on agreement that it would be sub-let exclusively to English Protestants.

In 1618, King James I gave directions that the Wexford Plantation was to have a plantation town. The result was the grant of a charter to Bishop Ram, Protestant Bishop of Ferns and Leighlin, in 1619, and the development of a town, initially called Newborough and later Gorey. The plantation of Wexford was the first colonial settlement undertaken by the Dublin government after the massive introduction of British settlers into Ulster at the beginning of the 17th century (Loeber and Stouthamer-Loeber 1987). It was initiated in order to settle the northern part of the county, which had never been fully penetrated following the Anglo-Norman conquest of the 12th century and where the native Irish sept, the McMurrough Kavanaghs, retained a strong presence. Large tracts of land, ranging from 1000 to 3000 acres, belonging to families of both old Gaelic and Anglo-Norman stock were confiscated and colonial strong houses, subsequently destroyed in the rebellion of the 1640s, sprang up throughout the landscape.

Gorey was laid out on a grid pattern of c. 14 acres and was not thought to have been defended with a wall. The Main Street runs east–west through the centre of the original

town area. The site of the parish church of Gorey town, within a rectangular enclosure, is located within Gorey Corporation Lands. No visible remains of the church survive.

Following the pacification of the county, the 17th and 18th centuries saw a dramatic rise in the establishment of large residential houses in Wexford. The large country house was only a small part of the overall estate of a large landowner and provided a base to manage often large areas of land that could be located nationwide. Lands associated with the large houses were generally turned over to formal gardens, which were much the style of continental Europe. This style of formal avenues and geometric gardens designs was gradually replaced during the mid-18th century by the adoption of parkland landscapes – to be able to view a large house within a natural setting. Although the creation of a parkland landscape involved working with nature, rather than against it, considerable constructional effort went into their creation. Earth was moved, field boundaries disappeared, streams were diverted to form lakes and quite often roads were completely diverted to avoid travelling anywhere near the main house or across the estate (McDonagh 2010). The former demesne of Clonatin House lies c. 37m north of the proposed development area, however this demesne has been significantly altered through the construction of a large housing estate across much of the area.

2.2 SUMMARY OF PREVIOUS ARCHAEOLOGICAL FIELDWORK

A review of the Excavations Bulletin (1970–2019) has revealed that although a number of archaeological investigations have taken place in the environs of the proposed development area in Gorey, little of archaeological significance was been identified.

A *fulacht fia* (WX007-070) was excavated (Licence E3493) in advance of the construction of the N11 Gorey to Arklow road scheme, c. 638m northeast of the proposed development area. A single pit was also identified and excavated (Licence E3679, WX007-081), c. 960m north-northeast of the proposed development area as part of the same scheme.

TABLE 1: Archaeological Investigations which Failed to Identify Archaeology

LICENCE	LOCATION	DISTANCE FROM SITE	REFERENCE
10D039; 10R110	River Banogue	Varies	Bennett 2010:768
99E0086	Mill Lands, Gorey	c. 345m west	Bennett 1999:881
05E0153	21–22 Esmonde Street Lower	c. 646m west	Bennett 2005:1644
08E0195	39 Esmonde Street	c. 702m west	Bennett 2008:1281

2.3 CARTOGRAPHIC ANALYSIS

William Petty, *Down Survey Map, Parish of Liskin, Kilmaclogue, Kiltinen and part of Toome*, c. 1655

Gorey 'fort' and town are marked on this map, however there is little detail. A number of significant buildings are marked in the landscape, including what appear to be a church and a castle or tower. Large areas of the surrounding lands are annotated as

unforfeited lands. Contemporary seventeenth century sources indicate that the earlier name for Goreybridge was recorded as Aghedaugh, Aghdave, Aghdawe and Aghdaw (see logainm.ie), all likely incorporating *Áth-* or 'ford' referencing the location of the bridge.

First Edition Ordnance Survey Map, 1839–40, scale 1:10,560 (Figure 3)

This is the first accurate historic mapping coverage of the area containing the proposed development area. The site is shown c. 37m south of demesne of Clonatin House, with the principal structures, parkland and gate lodges also depicted. The townland boundary between Clonatin Upper and Courteencurragh forms the southeastern boundary of the proposed development area and is consists of a small stream. The townland boundary between Goreybridge and Raheenagurren East forms the southwestern boundary of the proposed development area, while the townland boundary between Clonatin Upper and Goreybridge runs northwest-southeast through the proposed development area. Killmakilloge graveyard (WX007-034002) is depicted with the church (WX007-034001) annotated as in ruins by this time. A roman Catholic Chapel and graveyard are also depicted c. 404m west of the proposed development area.

Ordnance Survey Map, 1936, scale 1:2,500 (Figure 4)

There is little change to the proposed development area at this time. Killmakilloge graveyard (WX007-034002) and associated church (WX007-034001) are still depicted. Clonatin House and demesne appears unchanged. The R.C. Chapel within St. Michael's Cemetery is no longer shown, with the graveyard having expanded eastwards.

2.4 AERIAL PHOTOGRAPHIC ANALYSIS

Inspection of the aerial photographic coverage of the proposed development area held by the Ordnance Survey (1995-2013), Google Earth (2010–2019), and Bing Maps (2020) revealed that the northern half of the proposed development area has been disturbed by the construction of the adjacent housing development. No features of archaeological potential were identified from the aerial photography.

3 ARCHAEOLOGICAL TESTING

3.1 GENERAL

Test trenching took place on the 12th October 2020, using a 13 tonne 360 degree tracked excavator equipped with a flat, toothless bucket under strict archaeological supervision. Any investigated deposits were preserved by record. This was by means of written, drawn, and photographic records.

A total of 21 trenches were excavated across the site measuring c. 1,875 linear metres (Figure 5). Test trenches were laid out to excavate a sample portion of the site, across the various fields. There were three complete fields, containing trenches 5 to 21 and four trenches (numbered 1 to 4) located in fields that had been truncated by the previous development of earlier phases of Clonattin Village (to the immediate north of the proposed development). Trench 2 was located in Clonattin Upper townland, while the remainder were in Goreybridge townland.

As there were no surface features deemed to have potential archaeological significance, testing was only constrained by overhead power lines and underground surfaces. For the layout of the test trenches see Figure 5 (details for each trench are given in Appendix 1).

Test trenches proposed for an access road to the east of the proposed development were not excavated at this time as the lands were not available for testing. Currently the lands are under grass with patches of dense vegetation such as gorse, hawthorns and brambles. The northern boundaries of the area tested had seen some construction related activity in the early 2000s, during works associated with the construction of Clonattin Village, but had not been significantly modified. A reservoir constructed at the southeast corner of the proposed development is connected via an access road and pipe trenches to Clonattin Village. The siting of test trenches took the location of works associated with their construction into account.

The test trenches were excavated to determine, as far as reasonably possible, the location, extent, date, character, condition, significance and quality of any surviving archaeological remains threatened by the proposed development. Test trenching was also carried out to clarify the nature and extent of existing disturbance and intrusions and to assess the degree of archaeological survival in order to formulate further mitigation strategies. These are designed to reduce or offset the impact of the proposed development scheme.

3.2 TESTING RESULTS

Testing identified the topsoil across the site as a light brown silty clay. This varied in depth between 0.25 m in depth to 0.80 m. The latter height was present where the soil had been deliberately built up to form a bank (apparently during works associated with pipe-laying on the site in recent decades). In general, where there was variation within trenches the depth of soil increased from north-south as the area being tested tended to slope slightly towards the south.

The subsoil varied between areas of compact orange, grey-brown, grey and white clays with patches of solid iron panning and dense mineralisation. The relatively light hue of the topsoil and iron panning indicated podzolisation had occurred or begun to take place. It was notable that the subsoil was relatively uneven and included localised hollows and irregularities. Evidence for cultivation, such as plough marks, was minimal and the uneven surface of the subsoil suggested that the area tested had not been systematically ploughed in the past.

The results of individual test trenches are included in Appendix 1 and overall results are discussed below.

No areas of archaeological interest were noted during testing. Despite the proximity of Kilmakilloge church and graveyard (RMP WX007-034002, WX007-034001 and WX007-034003) to the northeast of the proposed development, there was a noticeable absence of archaeologically significant material in the topsoil as well as buried features. Where material was present in the topsoil it generally took the form of 19th and 20th century pottery, glass, brick and some iron objects, likely discarded on the fields to disperse household waste (eg see Plate 4 for topsoil finds from Trench 17). There was a greater density of this material in the fields containing Trenches 10 to 16 and Trenches 17 to 21. These two fields coincide with lands held by Edward Keelty in Griffiths Valuation (which dates from the 1850s).

The field containing Trench 2 was on the margins of the large holding of John Glascott of Clonatin House in Clonattin Upper townland. The remaining trenches (Trench 1, Trenches 3 to 9) lay within lands held by Andrew Noctor. Griffiths Valuation does not record any houses located within this landholding, while there were four houses recorded within the property held by Edward Keelty including Keelty's own and houses occupied by George Wafer, Elizabeth Connor and William Rowan. The density of occupation appears to be reflected in the increased frequency of contemporary material discarded onto the fields, likely as manuring, and visible within the topsoil during testing.

Changes in the subdivision of the site between the various editions of the Ordnance Survey maps (see Section 2.3) coincided with some of the subsurface features noted in testing. Field drains were noted in the trenches in the lands held by Edward Keelty at the time of Griffiths Valuation. Similar drainage features did not appear to be present within the lands held by Andrew Noctor and appeared to predate the subdivision of Keelty's property in the late nineteenth century. The attempts at drainage and the manuring noted above likely explain the higher rateable value per acre given to Keelty's holding (relative to Andrew Noctors) as part of Griffith's Valuation.

A field boundary that was indicated on the first edition of the Ordnance Survey maps and was along the line of Trenches 7 and 8 (within the lands held by Andrew Noctor). There was nothing found to correspond to the general location of that field boundary suggesting it may have been relatively ephemeral.

3.3 CONCLUSIONS

There are nine recorded monuments within 1km of the proposed development area, in addition to three sites listed in the SMR. The closest of these is a graveyard (WX007-034002), c. 174m northeast, containing the ruins of a Romanesque church (WX007-034001) and architectural fragments (WX007-034003).

Cartographic sources revealed the proposed development area was adjacent to the former demesne lands of Clonatin House. However, the demesne no longer survives as it has since been extensively developed. Analysis of aerial photography suggests the northern half of the proposed development area was disturbed during the construction of the adjacent housing development. The field inspection confirmed the disturbed nature of the northern half of the site and no archaeological features were identified. Although the southern end of the site does not appear to have been subject to largescale previous disturbance, the area was largely overgrown in many places, with deposits of material scattered across the site together with smaller areas of disturbance.

A total of 21 trenches were excavated across the site measuring c. 1,875 linear metres. Test trenches were laid out to excavate a sample portion of the site, across the various fields. No areas of archaeological interest were noted during testing.

The desktop study and archaeological testing has not identified any archaeological sites or materials likely to be impacted by the proposed development. As archaeological testing covers a sample of the area of the proposed development, there is still a possibility that previously unrecognised archaeological sites are present within the proposed development, but outside the area that was tested.

4 IMPACT ASSESSMENT AND MITIGATION STRATEGY

Impacts can be identified from detailed information about a project, the nature of the area affected, and the range of archaeological resources potentially affected. Archaeological sites can be affected adversely in a number of ways: disturbance by excavation, topsoil stripping; disturbance by vehicles working in unsuitable conditions; and burial of sites, limiting access for future archaeological investigation.

4.1 IMPACT ASSESSMENT

- The proposed access road to the east of the proposed development area was not accessible at the time of testing. As such, ground disturbances associated with the development have the potential to adversely impact archaeological remains within this area that survive without surface expression. Furthermore, there may be an adverse impact on small or isolated archaeological remains that may survive within the development area, outside of the footprint of the excavated test trenches.

4.2 MITIGATION

- It is recommended that the access road is subject to archaeological testing prior to construction going ahead, once the lands become available. Should any archaeological remains be identified in this area, further archaeological mitigation may be required, such as preservation in-situ or by record. Any further mitigation will require approval from the National Monuments Service of the DoCHG.

- It is recommended that all topsoil stripping associated with the proposed development be monitored by a suitably qualified archaeologist. If any features of archaeological potential are discovered during the course of the works further archaeological mitigation may be required, such as preservation *in-situ* or by record. Any further mitigation will require approval from the National Monuments Service of the DoCHG.

It is the developer's responsibility to ensure full provision is made available for the resolution of any archaeological remains, both on site and during the post excavation process, should that be deemed the appropriate manner in which to proceed.

Please note that all recommendations are subject to approval by the National Monuments Service of the Heritage and Planning Division, Department of Culture, Heritage, and the Gaeltacht.

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CARTOGRAPHIC SOURCES

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ELECTRONIC SOURCES

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www.osiemaps.ie – Ordnance Survey aerial photographs dating to 1995-2013; and 6-inch/25-inch maps.

www.archaeology.ie – DoCHG website listing all SMR/RMP sites.

www.askaboutireland.ie/griffith-valuation - Griffiths Valuation (1847-1864)

www.heritagemaps.ie – The Heritage Council web-based spatial data viewer which focuses on the built, cultural and natural heritage around Ireland and offshore.

www.googleearth.com – Satellite imagery of the proposed development area.

www.logainm.ie – placenames database.

APPENDICES

APPENDIX 1 TRENCH RESULTS

TRENCH	LENGTH (m)	WIDTH (m)	DEPTH (m)	ORIENTATION	DETAILS
1	85	2	0.25 - 0.30 m	northeast-southwest	Topsoil was a 0.25 to 0.30 m in depth and a light brown silty clay topsoil. Overlying compact orange to grey-brown clay with iron panning. Topsoil finds included nineteenth century pottery, glass and brick. Two modern linear features (0.4 m wide) were found to cross the trench at 30 m and 33 m from the southwestern end. There was nothing of archaeological significance noted.
2	64	2	0.35 to 0.80 m	northeast-southwest	Topsoil to a depth of 0.35 to 0.80 m of light brown silty clay topsoil was present, with increasing amount of construction debris and other material towards the northeastern end of the trench. This covers a compact grey-white clay with orange mottling at the southwest. The ground appeared to have been stripped previously for the 30 m towards the northern eastern end. There was nothing of archaeological significance noted.
3	77	2	0.35	northwest-southeast	Trench 3 was the only trench located in Clonattin Upper townland, with the townland boundaries with Goreybridge and Courteencurragh located to the immediate east and south of the trench. In Trench 3, 0.35 to 0.40 m of light brown silty clay topsoil was present, overlying a compact grey-white clay with orange mottling. At 33 m from the southeastern end of the trench a 0.75 m linear feature ran roughly perpendicular to the line of the trench. This was found to be a field drain, containing 0.30 m of a compact grey clay overlying a deposit of stones. A second field drain was identified 9 m further north in the trench. There was nothing of archaeological significance noted.
4	67	2	0.35-0.40	northwest-southeast	In Trench 4, 0.35 to 0.40 m of light brown silty clay topsoil was present, overlying a compact grey-white clay with orange mottling. There was nothing of archaeological significance noted.
5	100	2	0.3-0.5	East northeast-west southwest	Trench was aligned just to the east of north-south and is recorded here as east northeast-west southwest. Topsoil was found to be 0.3-0.5 m deep and mainly a light brown silty clay over compact clay that varied from orange to grey in colour. At 11.5 m from the north eastern end of the trench a deposit of light brown silty clay, 0.5 m wide, extended into the trench for 1.6 m from the south-western baulk. This was investigated and found to have a shallow curved base and was up to 50 mm deep. This appeared to be entirely natural and simply represented topsoil infilling a natural irregularity in the subsoil. At 37 m from the north eastern end of the trench there was a shallow bank (*c.* 0.5 m in height and up to 5 m wide at the base) which the trench cut through. This ran for a considerable length within the field on an alignment slightly more towards northeast-southwest than Trench 5. Trench 5 cut the bank obliquely for a distance of 10 m (between 37 m and 49 m from the northernmost end of the trench). The test trench identified modern material incorporated into the bank and a gravel deposit underneath the bank (apparently covering a pipe trench). Nothing of archaeological significance was noted in the trench.
6	100	2	0.35	East northeast-west southwest	Similar to Trench 5, Trench 6 was aligned just to the east of north-south and is recorded here as east northeast-west southwest. Topsoil was 0.3-0.5 m deep and a light brown silty clay. Subsoil was a compact clay that varied from orange to grey in colour. At 60 m from the northernmost end of the trench it crossed a former fence line (an east-west post and wire fence). Around 1 m to the south of the fence a linear feature ran parallel to the existing fence posts. This was a deposit of mid-brown silty clay, 0.3 m wide and up to 0.20 m deep. Modern glass and other finds indicated it was of recent date. At 65 m from the

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					east northeast end of the trench cut a shallow bank (*c.* 0.5 m in height and up to 5 m wide at the base) which was also cut by Trench 5. In Trench 6 the bank was also found to contain modern material and overlay the same gravel deposit. As the bank had changed direction between Trench 5 and Trench 6, the width of the bank within Trench 6 was 8 m. A second bank, 6 m beyond the first bank, was also cut by the trench and appeared to have been constructed of the same materials and presumably at the same time. Nothing of archaeological significance was noted in the trench.
7	100	2	0.3	north-south	Trench aligned roughly north-south. On the first edition Ordnance Survey (but not subsequent maps) the field in which Trench 7 was located had been subdivided with a field boundary shown running roughly northeast-southwest. Trench 7 crossed the line of this field boundary around 40-50 m from the northernmost end of the trench but nothing could be identified in testing to correspond with this field boundary. Testing identified that 0.30 m of a light brown silty clay topsoil was present overlying an uneven subsoil of orange clay and grey clay, some containing rounded pebbles. Nothing of archaeological significance was noted in the trench.
8	100	2	0.3-0.8	north-south	Trench aligned roughly north-south. As with Trench 7, the first edition Ordnance Survey (but not subsequent maps) show the same field subdivided by a field boundary running roughly northeast-southwest. Trench 8 crossed the line of this field boundary around 60-70 m from the northernmost end of the trench. A more recent field boundary of fence posts and wire was present at 64 m from the northernmost end of the trench. There was some disturbance around this modern fence but nothing could be identified in testing to correspond with the earlier field boundary shown on the Ordnance Survey. Some 0.30 m of a light brown silty clay topsoil was present

					overlying an uneven subsoil of orange clay and grey clay. Nothing of archaeological significance was noted in the trench.
9	100	2	0.35-0.65	north-south	Trench aligned roughly north-south. There was 0.30 m of a light brown silty clay topsoil present covering an undulating subsoil of orange clay and grey clay. Nothing of archaeological significance was noted in the trench.
10	50	2	0.3	north-south	Topsoil was 0.30 m deep and was a light brown silty clay. Cream ware noted in the topsoil. It overlay orange and grey clay subsoil. Stone-filled field drain noted at 23 m from the northern end of the trench (running roughly southwest-northeast). There was nothing of archaeological significance noted.
11	50	2	0.3	north-south	Across the trench 0.30 m of light brown silty clay topsoil was present, with some creamware noted in the topsoil. This overlay compact grey and orange clay subsoil with some iron panning. There was nothing of archaeological significance noted.
12	100	2	0.30-0.40	north-south	Topsoil varied in depth from 0.30 to 0.40 m and was a light brown silty clay. Cream ware was noted in the topsoil. Subsoil is a mixture of compact orange and grey clays. A stone-filled field drains was noted at 11.5 m from the northern end of the trench (aligned southwest-northeast). There was nothing of archaeological significance noted.
13	100	2	0.3-0.40	north-south	Topsoil varied in depth from 0.30 to 0.40 m and was a light brown silty clay. Cream ware and half a horse shoe were noted in the topsoil. It overlay subsoil of compact orange, grey and grey-brown clays which was uneven but not as uneven as Trench 13. Stone-filled field drains were noted at 47 m and 57 m from the northern end of the trench. There was nothing of archaeological significance noted.
14	50	2	0.3-0.40	north-south	Topsoil varied in depth from 0.30 to 0.40 m and was a light brown silty clay. Cream ware and half a horse shoe were noted in the topsoil. It overlay subsoil of compact orange, grey and grey-brown clays which was uneven but not as

					uneven as Trench 13. There was nothing of archaeological significance noted.
15	100	2	0.30-0.40	north-south	Topsoil varied in depth from 0.30 to 0.40 m, getting deeper towards the southern end, and was a light brown silty clay. One or two small sherds of cream ware were noted in the topsoil. Undulating subsoil of compact orangey and grey-white clays. Stone-filled field drain noted at 17 m from the northern end of the trench. There was nothing of archaeological significance noted.
16	100	2	0.30-0.40	north-south	Light brown silty clay topsoil present to a depth of 0.30 m to 0.40 m. Cream ware, stone ware, red-glazed and brown-glazed earthen wares, black glass and brick were noted in the topsoil. Topsoil overlay compact orange clay at the northern end of the trench, with grey-brown and grey clays towards the southern end. Surface of subsoil very uneven but appears to be entirely natural rather than related to agricultural activity. One linear feature, 0.20 m wide cross the trench roughly southwest-northeast at 12 m from the northern end of the trench. This was found to be a shallow hollow filled with topsoil and may have been agricultural or even a wheel rut. At 30 m from the northern end of the trench, a 0.75 m wide linear feature was filled with re-deposited subsoil to a depth of 0.60 m with a stone drain at the base. This was aligned roughly southwest-northeast (see Trench 17 below). There was nothing of archaeological significance noted.
17	100	2	0.30-0.40	north-south	In Trench 17, 0.30 to 0.40 m of light brown silty clay topsoil was present, overlying a compact orange clay with some solid iron panning and mineralisation. Towards south end of trench the subsoil became less compact and was a grey clay. A 0.60 m wide stone-filled field drain was located running northwest-southeast and entering the trench on the west at 34 m from the northern end and exiting on the east at 36 m from the northern end.

					There was nothing of archaeological significance noted.
18	100	2	0.25-0.40	north-south	Topsoil varied in depth from 0.25 to 0.40 m and was a light brown silty clay. Cream ware, stone ware, red-glazed earthen ware, glass and brick were all noted in the topsoil. It overlay a compact orange clay with some solid iron panning and mineralisation. Towards the south end of the trench the subsoil became less compact and was a grey clay. Some tree roots present. The 0.60 m wide stone-filled field drain noted in Trench 17 was continued into Trench 18 and ran northwest-southeast, entering the trench on the west at 21.5 m from the northern end and exiting on the east at 23.5 m from the northern end. There was nothing of archaeological significance noted.
19	100	2	0.25-0.40	north-south	Topsoil varied in depth from 0.25 to 0.40 m and was a light brown silty clay. Cream ware, black ware and brick fragments noted in the topsoil. Topsoil overlay a compact orange to grey-brown clay with some large areas of solid iron panning. Iron pan more frequent towards north end of trench. A 0.60 m wide stone and brick filled field drain ran northeast-southwest, entering the trench on the west at 14 m from the southern end and exiting on the east at 15.5 m from the southern end. There was nothing of archaeological significance noted.
20	50	2	0.35-0.45	east-west	Across the trench between 0.30 and 0.40 m of light brown silty clay topsoil was present, some creamware and an iron spring noted in the topsoil. This overlay compact grey-white clay subsoil with orange mottling and some iron panning and mineralisation. There was nothing of archaeological significance noted.
21	50	2	0.30-0.40	east-west	In Trench 21, 0.30 to 0.40 m of light brown silty clay topsoil was present, overlying a compact grey-white clay with orange mottling and some iron panning and mineralisation. Topsoil finds included glass, cream ware, water pipe fragments and a sherd of red-

					glazed earthenware. There was nothing of archaeological significance noted.

APPENDIX 2 RMP SITES WITHIN THE SURROUNDING AREA

SMR NO.	WX007-034002
RMP STATUS	Yes
TOWNLAND	Clonatin Upper
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717240/660104
CLASSIFICATION	Graveyard
DIST. FROM DEVELOPMENT	c. 174m northeast
DESCRIPTION	Located on a low-lying landscape with an E-W stream c. 160m to the S. The Romanesque parish church of Kilmakilloge (WX007-034001-) is within a D-shaped graveyard (dims. c. 70m N-S; c. 60m E-W) defined by an earthen bank.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-034001
RMP STATUS	Yes
TOWNLAND	Clonatin Upper
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717250/660115
CLASSIFICATION	Church
DIST. FROM DEVELOPMENT	c. 198 northeast
DESCRIPTION	Located on a low-lying landscape with an E-W stream c. 160m to the S. The Romanesque parish church of Kilmakilloge is within a D-shaped graveyard (dims. c. 70m N-S; c. 60m E-W) defined by an earthen bank. Portion of the N wall (L 11.5m) and the W wall (L 2.6m) survive to a H of c. 3m with evidence of antae. The remainder of the building is indicated by banks and scarps (L 25m; Wth c. 7m). Twelve cut stones in the graveyard are from a Romanesque doorway which was in the W gable, and the church originally had a separate nave and chancel according to John O'Donovan writing c. 1840 (O'Flanagan 1933, vol. 1, 10).
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-034003
RMP STATUS	Yes
TOWNLAND	Clonatin Upper
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717250/660115
CLASSIFICATION	Architectural fragments

DIST. FROM DEVELOPMENT	c. 213m northeast
DESCRIPTION	The Romanesque parish church of Kilmakilloge (WX007-034001-) is within a D-shaped graveyard (WX007-034002-). Twelve cut stones in the graveyard are from a Romanesque doorway which was in the W gable, and the church originally had a separate nave and chancel according to John O'Donovan writing c. 1840 (O'Flanagan 1933, vol. 1, 10).
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-035
RMP STATUS	Yes
TOWNLAND	Courteencurragh
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717630/660083
CLASSIFICATION	Ringfort - unclassified
DIST. FROM DEVELOPMENT	c. 525m east
DESCRIPTION	Marked faintly as a circular enclosure (diam. c. 30m) on the 1839 ed. of the OS 6-inch map, and situated on a level, low-lying landscape with a NE-SW stream c. 40m to the NW. No feature is visible at ground level in pasture.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX012-001
RMP STATUS	Yes
TOWNLAND	Raheenagurren West
PARISH	Kilmakilloge
BARONY	Ballaghkeen North
I.T.M.	716559/658889
CLASSIFICATION	Ringfort - rath
DIST. FROM DEVELOPMENT	c. 532m south
DESCRIPTION	Depicted as a circular feature on the 1839 ed. of the OS 6-inch map and as a circular hachured feature, perhaps with a bank, in the grounds of Marlsfield House on the 1925 ed. Situated on a rise in a low-lying area with a NE-SW stream c. 20m to the NW. This is a raised oval area (dims. 43m N-S; 34m E-W) defined by a scarp (H 1.2m) that is used as a tennis court, with slight traces of bank (Wth c. 1.5-2m; int. H 0.2m) on the permieter N-E-S.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-061
RMP STATUS	Yes
TOWNLAND	Gorey Corporation Lands
PARISH	Kilmakilloge
BARONY	Gorey

I.T.M.	715863/659457
CLASSIFICATION	Standing stone
DIST. FROM DEVELOPMENT	c. 556m west
DESCRIPTION	Situated c. 40m from the W bank of a N-S stream, This is a green slate stone (dims. 0.4m x 0.1m; H 1.5m) oriented ENE-WSW. It is now in the grounds of a school.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-070
RMP STATUS	No
TOWNLAND	Courteencurragh
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717682/660230
CLASSIFICATION	Fulacht fia
DIST. FROM DEVELOPMENT	c. 638m northeast
DESCRIPTION	This site was excavated (E3493) during 2005 as Site 31 and 32 of the N11 Gorey to Arklow link. Situated in a low-lying area with a N-S stream immediately to the W. Several surface deposits of broken and burnt stone material were on the N bank of an E-W palaeo-channel and overaly a pit or trough (diam. 1.8m) at the N edge of the channel filled with silts and burnt stone which extended around it (dims 4m x 3m). There is a second, smaller pit c. 3.5m to the W. The mound material overlay an area with stake-holes that appears to have been outside the burnt mound area. (McCullough 2008)
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-055001
RMP STATUS	Yes
TOWNLAND	Gorey Corporation Lands
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	715737/659201
CLASSIFICATION	Urn burial
DIST. FROM DEVELOPMENT	c. 739m southwest
DESCRIPTION	Fragments of an encrusted urn (WX007-055----) and fragments of a vase urn that was inverted over cremated bone were found in the face of a gravel quarry in 1989. The cremation represented an adult female. (Ó Floinn 2011)
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-055
RMP STATUS	Yes

TOWNLAND	Gorey Corporation Lands
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	715737/659201
CLASSIFICATION	Urn burial
DIST. FROM DEVELOPMENT	c. 739m southwest
DESCRIPTION	Fragments of an encrusted urn and fragments of a vase urn that was inverted over cremated bone (WX007-055001-) were found in the face of a gravel quarry in 1989. The cremation represented an adult female. (Ó Floinn 2011)
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-036
RMP STATUS	Yes
TOWNLAND	Courteencurragh
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717880/660105
CLASSIFICATION	Ringfort - unclassified
DIST. FROM DEVELOPMENT	c. 762m south
DESCRIPTION	Marked faintly as a circular enclosure (diam. c. 60m) on the 1839 ed. of the OS 6-inch map, and situated on a slight rise in a low-lying landscape. No feature is visible at ground level in pasture.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX012-002
RMP STATUS	Yes
TOWNLAND	Raheenagurren West
PARISH	Kilmakilloge
BARONY	Ballaghkeen North
I.T.M.	716747/658548
CLASSIFICATION	Ringfort - unclassified
DIST. FROM DEVELOPMENT	c. 853m south
DESCRIPTION	Marked as large embanked enclosure (ext. diam. c. 65-70m) on the 1839 ed. of the OS 6-inch map with the bank missing NW-NE. It is marked on the 1925 ed. of the map as a more formless area (dims. c. 0.65m x c. 0.65m). Situated on a W-facing slope, nothing is visible at ground level in pasture, and it remains unplanted in a coniferous wood (OSI aerial photographs 2005).
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX012-030
RMP STATUS	No
TOWNLAND	Raheenagurren West
PARISH	Kilmakilloge
BARONY	Ballaghkeen North
I.T.M.	716326/658540
CLASSIFICATION	Ringfort - rath
DIST. FROM DEVELOPMENT	c. 928m southwest
DESCRIPTION	Situated on a slight W-facing slope with a NE-SW stream c. 80m to the NW. The cropmark of a circular enclosure (diam. c. 50m) defined by a single fosse feature is visible on aerial photographs (MM (14) 24–5). Houses have now been built on it.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-081
RMP STATUS	No
TOWNLAND	Clonatin Lower
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717291/660902
CLASSIFICATION	Excavation - miscellaneous
DIST. FROM DEVELOPMENT	c. 960m north-northeast
DESCRIPTION	This site was excavated (E3679) during 2005 as a part of the N11 Gorey to Arklow link at a location used as a construction compound. Situated on top of a slight rise. Soil-stripping revealed a single pit (dims 1.04m x 0.88m; D 0.24m) cut in fire-reddened subsoil that was filled with a black silty clay with charcoal flecks. (Breen 2008)
REFERENCE	www.archaeology.ie/ SMR file

APPENDIX 3 STRAY FINDS WITHIN THE SURROUNDING AREA

Information on artefact finds from the study area in County Wexford has been recorded by the National Museum of Ireland since the late 18th century. Location information relating to these finds is important in establishing prehistoric and historic activity in the study area.

A tanged iron blade (NMI Ref.: 2005:70) is recorded from c. 400m west of the proposed development area.

APPENDIX 4 LEGISLATION PROTECTING THE ARCHAEOLOGICAL RESOURCE

PROTECTION OF CULTURAL HERITAGE

The cultural heritage in Ireland is safeguarded through national and international policy designed to secure the protection of the cultural heritage resource to the fullest possible extent (Department of Arts, Heritage, Gaeltacht, and the Islands 1999, 35). This is undertaken in accordance with the provisions of the *European Convention on the Protection of the Archaeological Heritage* (Valletta Convention), ratified by Ireland in 1997.

THE ARCHAEOLOGICAL RESOURCE

The *National Monuments Act 1930 to 2014* and relevant provisions of the *National Cultural Institutions Act 1997* are the primary means of ensuring the satisfactory protection of archaeological remains, which includes 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' (National Monuments Act 1930 Section 2). A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Register of Historic Monuments, the Record of Monuments and Places, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

OWNERSHIP AND GUARDIANSHIP OF NATIONAL MONUMENTS

The Minister may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

REGISTER OF HISTORIC MONUMENTS

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic monuments and archaeological areas present on the register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the register is illegal without the permission of the Minister. Two months notice in writing is required prior to any work being undertaken on or in the vicinity of a registered monument. The register also includes sites under Preservation Orders and Temporary Preservation Orders. All registered monuments are included in the Record of Monuments and Places.

PRESERVATION ORDERS AND TEMPORARY PRESERVATION ORDERS

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months,

after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

RECORD OF MONUMENTS AND PLACES

Section 12(1) of the 1994 Act requires the Minister for Arts, Heritage, Gaeltacht and the Islands (now the Minister for Culture, Heritage and the Gaeltacht) to establish and maintain a record of monuments and places where the Minister believes that such monuments exist. The record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the state. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994. All recorded monuments on the proposed development site are represented on the accompanying maps.

Section 12(3) of the 1994 Act provides that 'where the owner or occupier (other than the Minister for Arts, Heritage, Gaeltacht and the Islands) of a monument or place included in the Record, or any other person, proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Arts, Heritage, Gaeltacht and the Islands to carry out work and shall not, except in case of urgent necessity and with the consent of the Minister, commence the work until two months after giving of notice'.

Under the National Monuments (Amendment) Act 2004, anyone who demolishes or in any way interferes with a recorded site is liable to a fine not exceeding €3,000 or imprisonment for up to 6 months. On summary conviction and on conviction of indictment, a fine not exceeding €10,000 or imprisonment for up to 5 years is the penalty. In addition they are liable for costs for the repair of the damage caused.

In addition to this, under the *European Communities (Environmental Impact Assessment) Regulations 1989,* Environmental Impact Statements (EIS) are required for various classes and sizes of development project to assess the impact the proposed development will have on the existing environment, which includes the cultural, archaeological and built heritage resources. These document's recommendations are typically incorporated into the conditions under which the proposed development must proceed, and thus offer an additional layer of protection for monuments which have not been listed on the RMP.

THE PLANNING AND DEVELOPMENT ACT 2000

Under planning legislation, each local authority is obliged to draw up a Development Plan setting out their aims and policies with regard to the growth of the area over a five-year period. They cover a range of issues including archaeology and built heritage, setting out their policies and objectives with regard to the protection and enhancement of both. These policies can vary from county to county. The Planning and Development Act 2000 recognises that proper planning and sustainable development includes the protection of the archaeological heritage. Conditions relating to archaeology may be attached to individual planning permissions.

Wexford County Development Plan, 2013–2019

The aim of Waterford's Development plan regarding Built heritage is to "is to preserve and enhance the Built Heritage of the County"

Objectives for the Protection of Archaeological Heritage

AH-01 To conserve and protect archaeological sites, monuments (including their settings), underwater archaeology and objects within the jurisdiction of Wexford County Council including those listed on the Record of Monuments and Places, the Register of Historic Monuments or newly discovered subsurface archaeological remains.

AH-02 To protect the heritage of groups of important national monuments, inclusive of their contextual setting and interpretation, in the operation of development management.

AH-03 To fully consider the protection of archaeological heritage when undertaking, approving or authorising development. In considering such protection, the Council will have regard to the advice and recommendations of the National 330 Monuments Service and the principles set out in Framework and Principles for the Protection of the Archaeological Heritage (Department of Arts, Heritage, Gaeltacht and the Islands, 1999).

AH-04 To require an archaeological assessment for development that may, due to its size, location or nature, have a significant effect upon archaeological heritage and to take appropriate measures to safeguard this archaeological heritage. In all such cases the Planning Authority shall consult with the National Monuments Service in the Department of Arts, Heritage and the Gaeltacht.

AH-05 To promote a presumption in favour of preservation in-situ of archaeological remains and settings when dealing with proposals for development that would impact upon archaeological sites and/or features. Where preservation in-situ is not possible the Council will consider preservation by record in appropriate circumstances.

AH-06 To protect historic and archaeological landscapes, including battlefields, and promote access to such sites provided that this does not threaten the feature.

AH-07 To protect historic urban defences (both upstanding and buried) and associated features and safeguard them from inappropriate development in accordance with

AH-08 To include archaeological landscapes as part of the updated Landscape Character Assessment of the County to be prepared following the publication of a National Landscape Strategy/National Landscape Character Assessment.

AH-09 To identify appropriate archaeological sites in the County to which public access could be provided, and work to secure public access where appropriate in consultation

with the land owner, subject to normal planning and environmental criteria and development management standards.

AH-10 To retain existing street layouts, historic building lines and traditional plot widths which derive from medieval or earlier origin.

AH-11 To protect historical burial grounds within County Wexford and encourage their maintenance in accordance with conservation principles.

Gorey Local Area Plan, 2017–2023

Objective ARH01

To have regard to the Record of Monuments and Places (RMP) and the newly identified sites identified on Map 9 (a) and 9 (b) when dealing with planning applications for development or threats to recorded items. Development shall be controlled in the vicinity of a recorded feature where it detracts from the setting of the feature or where it is injurious to its integrity, cultural or educational value. The Council shall consult with the National Monuments Service in the Department of Arts, Heritage and the Gaeltacht where appropriate.

Objective ARH02

To have regard to the Zone of Archaeological Potential within Gorey town when dealing with planning applications for all development, including local authority own development. This area is identified on Map 9 (a) and 9 (b). Where permission for such proposals is granted, the applicant will have due regard to the recommendations of the National Monuments Service and the Heritage and Planning Division in the Department of Arts, Heritage, and the Gaeltacht. This may involve the employment of a licensed archaeologist at the expense of the developer to record any archaeological remains uncovered and to supervise all excavation works.

APPENDIX 5 IMPACT ASSESSMENT & THE CULTURAL HERITAGE RESOURCE

POTENTIAL IMPACTS ON ARCHAEOLOGICAL AND HISTORICAL REMAINS

Impacts are defined as 'the degree of change in an environment resulting from a development' (Environmental Protection Agency 2003: 31). They are described as profound, significant, or slight impacts on archaeological remains. They may be negative, positive, or neutral, direct, indirect, or cumulative, temporary or permanent.

Impacts can be identified from detailed information about a project, the nature of the area affected, and the range of archaeological and historical resources potentially affected. Development can affect the archaeological and historical resource of a given landscape in a number of ways.

- Permanent and temporary land-take, associated structures, landscape mounding, and their construction may result in damage to or loss of archaeological remains and deposits, or physical loss to the setting of historic monuments and to the physical coherence of the landscape.

- Archaeological sites can be affected adversely in a number of ways: disturbance by excavation, topsoil stripping and the passage of heavy machinery; disturbance by vehicles working in unsuitable conditions; or burial of sites, limiting accessibility for future archaeological investigation.

- Hydrological changes in groundwater or surface water levels can result from construction activities such as de-watering and spoil disposal, or longer-term changes in drainage patterns. These may desiccate archaeological remains and associated deposits.

- Visual impacts on the historic landscape sometimes arise from construction traffic and facilities, built earthworks and structures, landscape mounding and planting, noise, fences, and associated works. These features can impinge directly on historic monuments and historic landscape elements as well as their visual amenity value.

- Landscape measures such as tree planting can damage sub-surface archaeological features, due to topsoil stripping and through the root action of trees and shrubs as they grow.

- Ground consolidation by construction activities or the weight of permanent embankments can cause damage to buried archaeological remains, especially in colluviums or peat deposits.

- Disruption due to construction also offers in general the potential for adversely affecting archaeological remains. This can include machinery, site offices, and service trenches.

Although not widely appreciated, positive impacts can accrue from developments. These can include positive resource management policies, improved maintenance and access to archaeological monuments, and the increased level of knowledge of a site or historic landscape as a result of archaeological assessment and fieldwork.

PREDICTED IMPACTS

The severity of a given level of land-take or visual intrusion varies with the type of monument, site or landscape features and its existing environment. Severity of impact can be judged taking the following into account:

- The proportion of the feature affected and how far physical characteristics fundamental to the understanding of the feature would be lost;
- Consideration of the type, date, survival/condition, fragility/vulnerability, rarity, potential and amenity value of the feature affected;
- Assessment of the levels of noise, visual and hydrological impacts, either in general or site-specific terms, as may be provided by other specialists.

APPENDIX 6 MITIGATION MEASURES & THE CULTURAL HERITAGE RESOURCE

POTENTIAL MITIGATION STRATEGIES FOR CULTURAL HERITAGE REMAINS

Mitigation is defined as features of the design or other measures of the proposed development that can be adopted to avoid, prevent, reduce, or offset negative effects.

The best opportunities for avoiding damage to archaeological remains or intrusion on their setting and amenity arise when the site options for the development are being considered. Damage to the archaeological resource immediately adjacent to developments may be prevented by the selection of appropriate construction methods. Reducing adverse effects can be achieved by good design, for example by screening historic buildings or upstanding archaeological monuments or by burying archaeological sites undisturbed rather than destroying them. Offsetting adverse effects is probably best illustrated by the full investigation and recording of archaeological sites that cannot be preserved *in situ*.

DEFINITION OF MITIGATION STRATEGIES

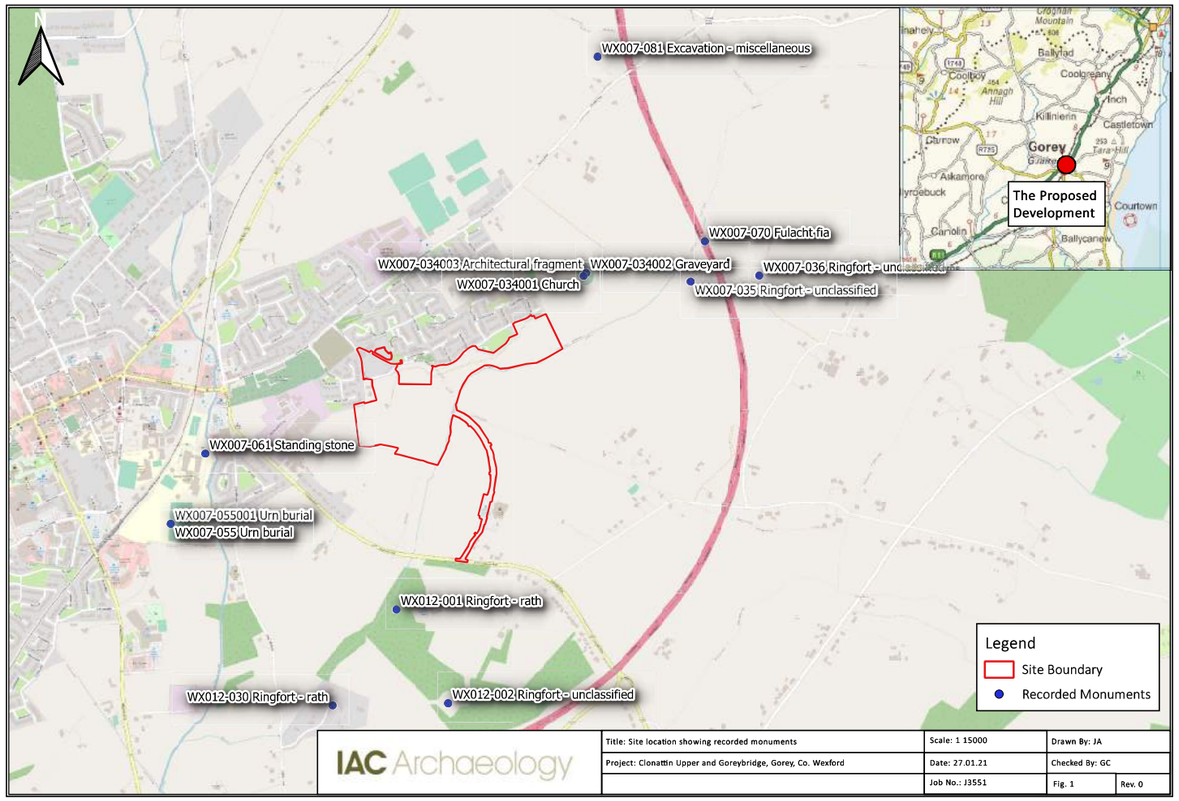
ARCHAEOLOGICAL RESOURCE

The ideal mitigation for all archaeological sites is preservation *in situ*. This is not always a practical solution, however. Therefore, a series of recommendations are offered to provide ameliorative measures where avoidance and preservation *in situ* are not possible.

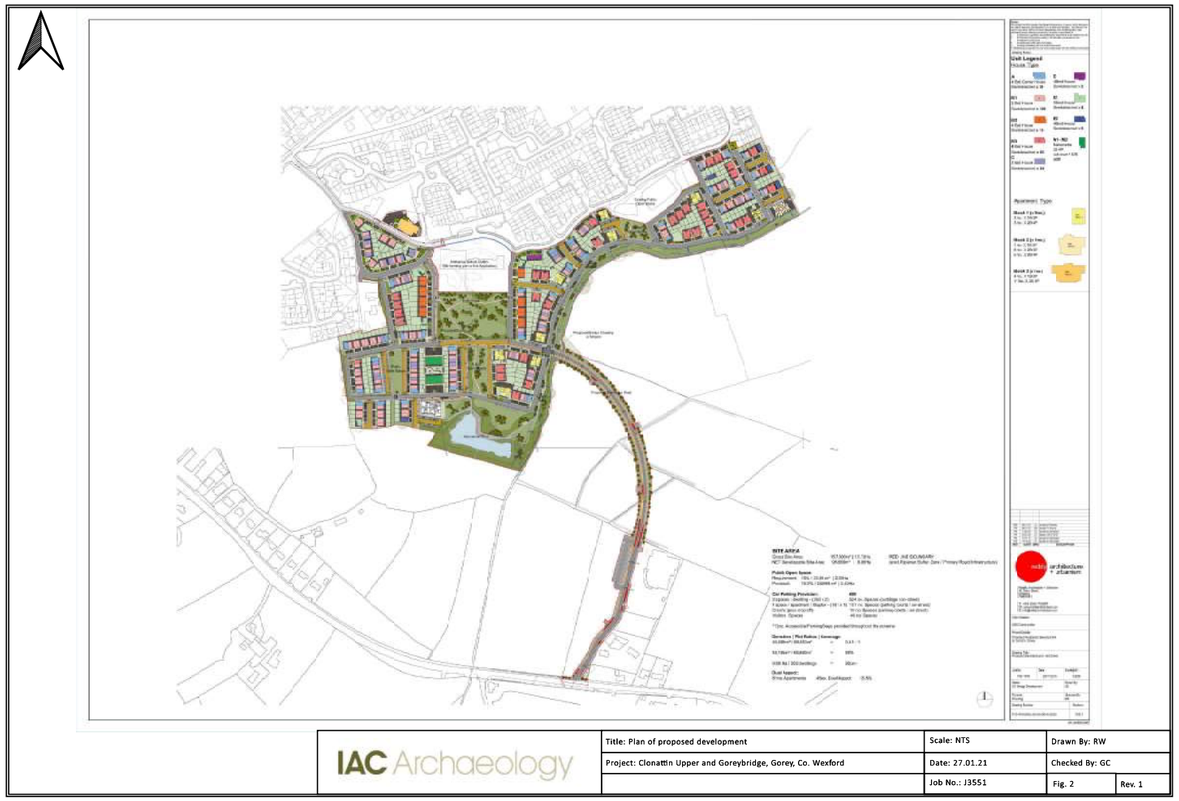
Full Archaeological Excavation involves the scientific removal and recording of all archaeological features, deposits, and objects to the level of geological strata or the base level of any given development. Full archaeological excavation is recommended where initial investigation has uncovered evidence of archaeologically significant material or structures and where avoidance of the site is not possible. (CIfA 2014b)

Archaeological Test Trenching can be defined as 'a limited programme... of intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land or underwater. If such archaeological remains are present test trenching defines their character and extent and relative quality.' (CIfA 2014a)

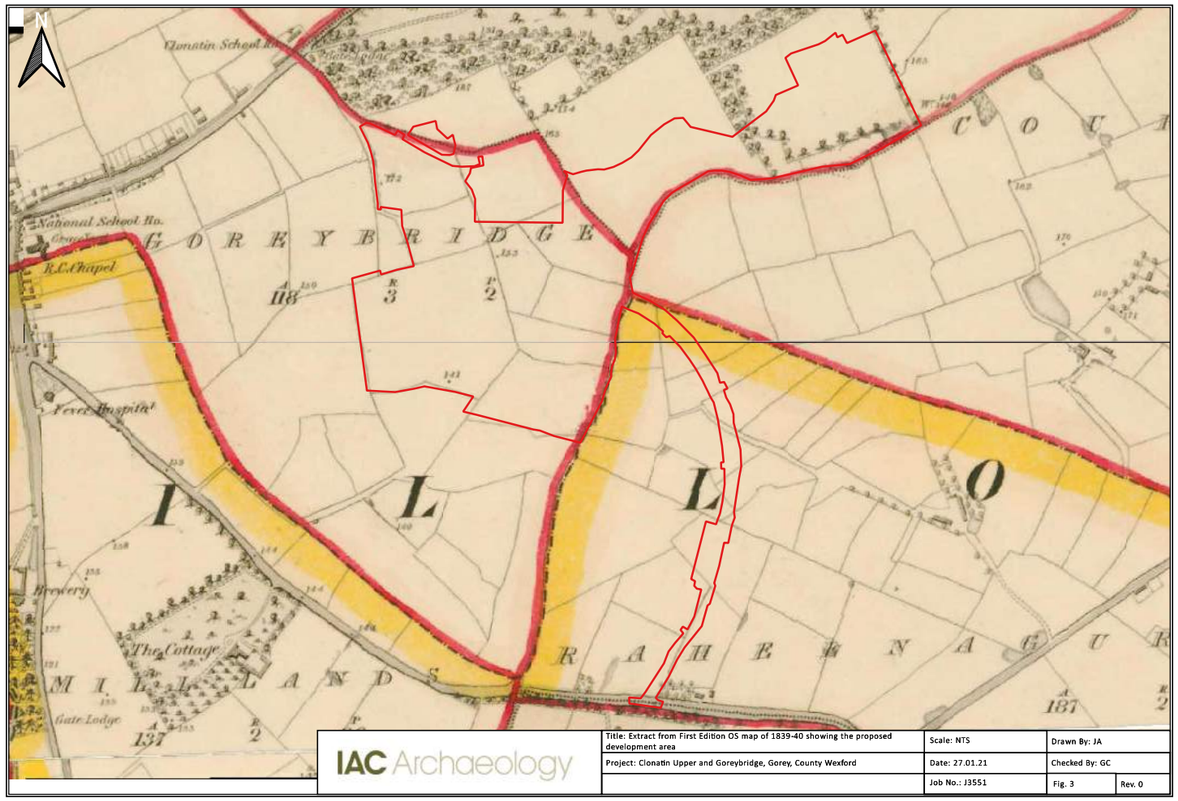
Archaeological Monitoring can be defined as a 'formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons within a specified area or site on land or underwater, where there is possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.' (CIfA 2014c)



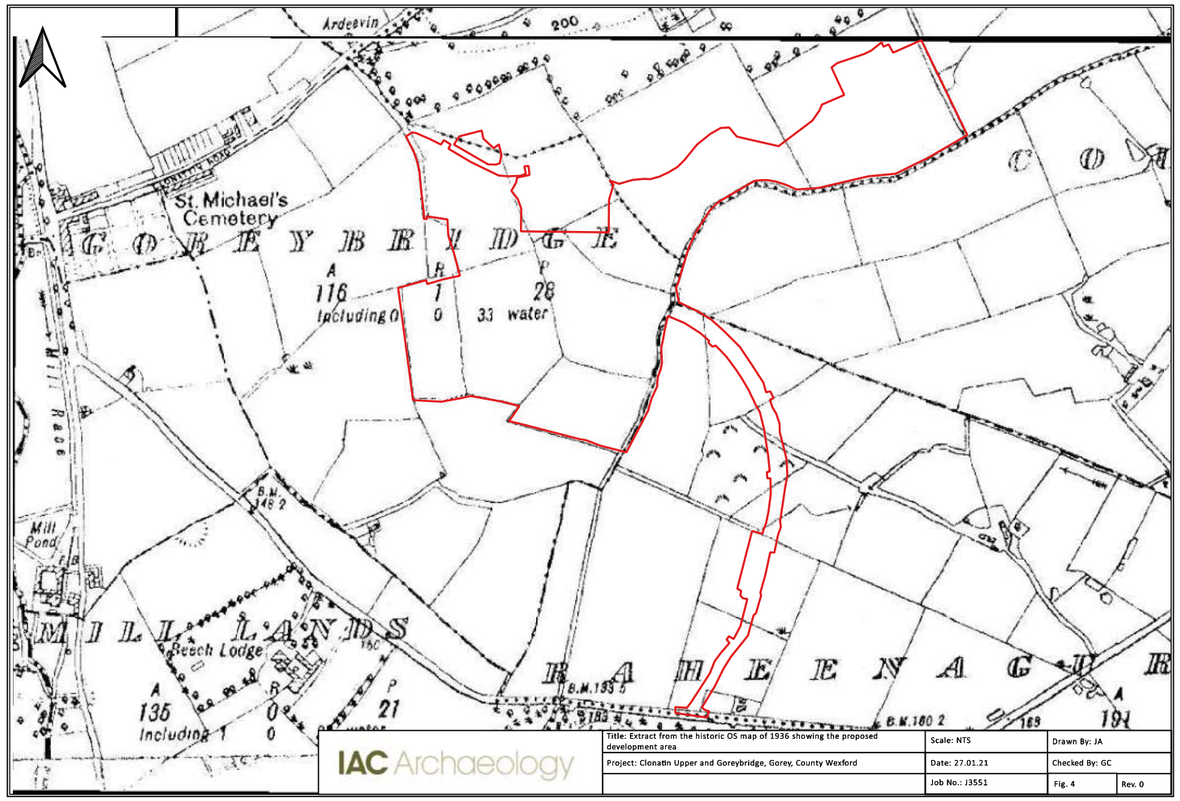
IAC Archaeology	Title: Site location showing recorded monuments	Scale: 1 15000	Drawn By: JA	
	Project: Clonattin Upper and Goreybridge, Gorey, Co. Wexford	Date: 27.01.21	Checked By: GC	
		Job No.: J3551	Fig. 1	Rev. 0



IAC Archaeology	Title: Plan of proposed development	Scale: NTS	Drawn By: RW	
	Project: Clonattin Upper and Goreybridge, Gorey, Co. Wexford	Date: 27.01.21	Checked By: GC	
		Job No.: J3551	Fig. 2	Rev. 1



IAC Archaeology	Title: Extract from First Edition OS map of 1839-40 showing the proposed development area	Scale: NTS	Drawn By: JA
	Project: Clonatin Upper and Goreybridge, Gorey, County Wexford	Date: 27.01.21	Checked By: GC
		Job No.: J3551	Fig. 3 Rev. 0



IAC Archaeology	Title: Extract from the historic OS map of 1936 showing the proposed development area	Scale: NTS	Drawn By: JA
	Project: Clonatin Upper and Goreybridge, Gorey, County Wexford	Date: 27.01.21	Checked By: GC
		Job No.: J3551	Fig. 4 Rev. 0

Plate 1 Trench 7, facing north

Plate 2 Trench 15, facing south

Plate 3 Trench 17, facing north

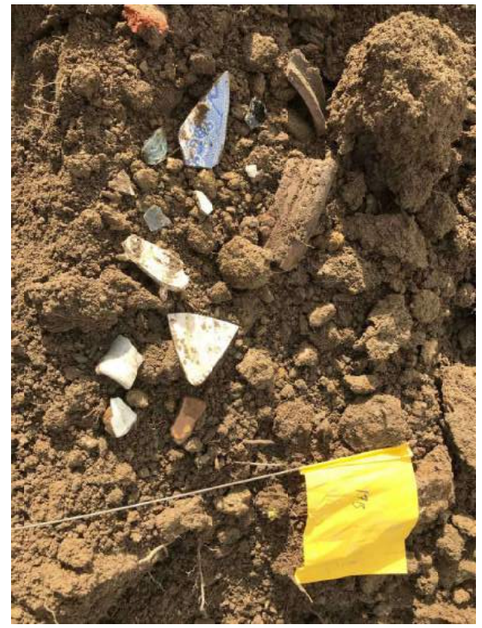


Plate 4 Topsoil finds, Trench 17

APPENDIX 14.2 RMP/SMR SITES

SMR NO.	WX007-034002
RMP STATUS	Yes
TOWNLAND	Clonattin Upper
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717240/660104
CLASSIFICATION	Graveyard
DIST. FROM DEVELOPMENT	c. 174m northeast
DESCRIPTION	Located on a low-lying landscape with an E-W stream c. 160m to the S. The Romanesque parish church of Kilmakilloge (WX007-034001-) is within a D-shaped graveyard (dims. c. 70m N-S; c. 60m E-W) defined by an earthen bank.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-034001
RMP STATUS	Yes
TOWNLAND	Clonattin Upper
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717250/660115
CLASSIFICATION	Church
DIST. FROM DEVELOPMENT	c. 198 northeast
DESCRIPTION	Located on a low-lying landscape with an E-W stream c. 160m to the S. The Romanesque parish church of Kilmakilloge is within a D-shaped graveyard (dims. c. 70m N-S; c. 60m E-W) defined by an earthen bank. Portion of the N wall (L 11.5m) and the W wall (L 2.6m) survive to a H of c. 3m with evidence of antae. The remainder of the building is indicated by banks and scarps (L 25m; Wth c. 7m). Twelve cut stones in the graveyard are from a Romanesque doorway which was in the W gable, and the church originally had a separate nave and chancel according to John O'Donovan writing c. 1840 (O'Flanagan 1933, vol. 1, 10).
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-034003
RMP STATUS	Yes
TOWNLAND	Clonattin Upper
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717250/660115
CLASSIFICATION	Architectural fragments
DIST. FROM DEVELOPMENT	c. 213m northeast
DESCRIPTION	The Romanesque parish church of Kilmakilloge (WX007-034001-) is within a D-shaped graveyard (WX007-034002-). Twelve cut stones in the graveyard are from a Romanesque doorway which was in the W gable, and the church originally had a separate nave and chancel according to John O'Donovan writing c. 1840 (O'Flanagan 1933, vol. 1, 10).
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-035
RMP STATUS	Yes
TOWNLAND	Courteencurragh
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717630/660083
CLASSIFICATION	Ringfort - unclassified
DIST. FROM DEVELOPMENT	c. 525m east
DESCRIPTION	Marked faintly as a circular enclosure (diam. c. 30m) on the 1839 ed. of the OS 6-inch map, and situated on a level, low-lying landscape with a NE-SW stream c. 40m to the NW. No feature is visible at ground level in pasture.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX012-001
RMP STATUS	Yes
TOWNLAND	Raheenagurren West
PARISH	Kilmakilloge
BARONY	Ballaghkeen North
I.T.M.	716559/658889
CLASSIFICATION	Ringfort - rath
DIST. FROM DEVELOPMENT	c. 300m south
DESCRIPTION	Depicted as a circular feature on the 1839 ed. of the OS 6-inch map and as a circular hachured feature, perhaps with a bank, in the grounds of Marlsfield House on the 1925 ed. Situated on a rise in a low-lying area with a NE-SW stream c. 20m to the NW. This is a raised oval area (dims. 43m N-S; 34m E-W) defined by a scarp (H 1.2m) that is used as a tennis court, with slight traces of bank (Wth c. 1.5-2m; int. H 0.2m) on the permieter N-E-S.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-061
RMP STATUS	Yes
TOWNLAND	Gorey Corporation Lands
PARISH	Kilmakilloge
BARONY	Gorey

I.T.M.	715863/659457
CLASSIFICATION	Standing stone
DIST. FROM DEVELOPMENT	c. 556m west
DESCRIPTION	Situated c. 40m from the W bank of a N-S stream, This is a green slate stone (dims. 0.4m x 0.1m; H 1.5m) oriented ENE-WSW. It is now in the grounds of a school.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-070
RMP STATUS	No
TOWNLAND	Courteencurragh
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717682/660230
CLASSIFICATION	Fulacht fia
DIST. FROM DEVELOPMENT	c. 638m northeast
DESCRIPTION	This site was excavated (E3493) during 2005 as Site 31 and 32 of the N11 Gorey to Arklow link. Situated in a low-lying area with a N-S stream immediately to the W. Several surface deposits of broken and burnt stone material were on the N bank of an E-W palaeo-channel and overaly a pit or trough (diam. 1.8m) at the N edge of the channel filled with silts and burnt stone which extended around it (dims 4m x 3m). There is a second, smaller pit c. 3.5m to the W. The mound material overlay an area with stake-holes that appears to have been outside the burnt mound area. (McCullough 2008)
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-055001
RMP STATUS	Yes
TOWNLAND	Gorey Corporation Lands
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	715737/659201
CLASSIFICATION	Urn burial
DIST. FROM DEVELOPMENT	c. 739m southwest
DESCRIPTION	Fragments of an encrusted urn (WX007-055----) and fragments of a vase urn that was inverted over cremated bone were found in the face of a gravel quarry in 1989. The cremation represented an adult female. (Ó Floinn 2011)
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-055
RMP STATUS	Yes
TOWNLAND	Gorey Corporation Lands
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	715737/659201
CLASSIFICATION	Urn burial
DIST. FROM DEVELOPMENT	c. 739m southwest
DESCRIPTION	Fragments of an encrusted urn and fragments of a vase urn that was inverted over cremated bone (WX007-055001-) were found in the face of a gravel quarry in 1989. The cremation represented an adult female. (Ó Floinn 2011)
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-036
RMP STATUS	Yes
TOWNLAND	Courteencurragh
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717880/660105
CLASSIFICATION	Ringfort - unclassified
DIST. FROM DEVELOPMENT	c. 762m east
DESCRIPTION	Marked faintly as a circular enclosure (diam. c. 60m) on the 1839 ed. of the OS 6-inch map, and situated on a slight rise in a low-lying landscape. No feature is visible at ground level in pasture.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX012-002
RMP STATUS	Yes
TOWNLAND	Raheenagurren West
PARISH	Kilmakilloge
BARONY	Ballaghkeen North
I.T.M.	716747/658548
CLASSIFICATION	Ringfort - unclassified
DIST. FROM DEVELOPMENT	c. 530m south
DESCRIPTION	Marked as large embanked enclosure (ext. diam. c. 65-70m) on the 1839 ed. of the OS 6-inch map with the bank missing NW-NE. It is marked on the 1925 ed. of the map as a more formless area (dims. c. 0.65m x c. 0.65m). Situated on a W-facing slope, nothing is visible at ground level in pasture, and it remains unplanted in a coniferous wood (OSI aerial photographs 2005).
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX012-030
RMP STATUS	No
TOWNLAND	Raheenagurren West
PARISH	Kilmakilloge
BARONY	Ballaghkeen North
I.T.M.	716326/658540
CLASSIFICATION	Ringfort - rath
DIST. FROM DEVELOPMENT	c. 720m southwest
DESCRIPTION	Situated on a slight W-facing slope with a NE-SW stream c. 80m to the NW. The cropmark of a circular enclosure (diam. c. 50m) defined by a single fosse feature is visible on aerial photographs (MM (14) 24–5). Houses have now been built on it.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	WX007-081
RMP STATUS	No
TOWNLAND	Clonattin Lower
PARISH	Kilmakilloge
BARONY	Gorey
I.T.M.	717291/660902
CLASSIFICATION	Excavation - miscellaneous
DIST. FROM DEVELOPMENT	c. 960m north-northeast
DESCRIPTION	This site was excavated (E3679) during 2005 as a part of the N11 Gorey to Arklow link at a location used as a construction compound. Situated on top of a slight rise. Soil-stripping revealed a single pit (dims 1.04m x 0.88m; D 0.24m) cut in fire-reddened subsoil that was filled with a black silty clay with charcoal flecks. (Breen 2008)
REFERENCE	www.archaeology.ie/ SMR file

APPENDIX 14.3 LEGISLATION PROTECTING THE ARCHAEOLOGICAL RESOURCE

PROTECTION OF CULTURAL HERITAGE

The cultural heritage in Ireland is safeguarded through national and international policy designed to secure the protection of the cultural heritage resource to the fullest possible extent (Department of Arts, Heritage, Gaeltacht and the Islands 1999, 35). This is undertaken in accordance with the provisions of the European Convention on the Protection of the Archaeological Heritage (Valletta Convention), ratified by Ireland in 1997.

THE ARCHAEOLOGICAL RESOURCE

The National Monuments Act 1930 to 2014 and relevant provisions of the National Cultural Institutions Act 1997 are the primary means of ensuring the satisfactory protection of archaeological remains, which includes 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' (National Monuments Act 1930 Section 2). A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Register of Historic Monuments, the Record of Monuments and Places, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

OWNERSHIP AND GUARDIANSHIP OF NATIONAL MONUMENTS

The Minister may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

REGISTER OF HISTORIC MONUMENTS

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic monuments and archaeological areas present on the register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the register is illegal without the permission of the Minister. Two months' notice in writing is required prior to any work being undertaken on or in the vicinity of a registered monument. The register also includes sites under Preservation Orders and Temporary Preservation Orders. All registered monuments are included in the Record of Monuments and Places.

PRESERVATION ORDERS AND TEMPORARY PRESERVATION ORDERS

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

RECORD OF MONUMENTS AND PLACES

Section 12(1) of the 1994 Act requires the Minister for Arts, Heritage, Gaeltacht and the Islands (now the Minister for the Department of Culture, Heritage and the Gaeltacht) to establish and maintain a record of monuments and places where the Minister believes that such monuments exist. The record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the state. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994. All recorded monuments on the proposed development site are represented on the accompanying maps.

Section 12(3) of the 1994 Act provides that 'where the owner or occupier (other than the Minister for Arts, Heritage, Gaeltacht and the Islands) of a monument or place included in the Record, or any other person, proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Arts, Heritage, Gaeltacht and the Islands to carry out work and shall not, except in case of urgent necessity and with the consent of the Minister, commence the work until two months after giving of notice'.

Under the National Monuments (Amendment) Act 2004, anyone who demolishes or in any way interferes with a recorded site is liable to a fine not exceeding €3,000 or imprisonment for up to 6 months. On summary conviction and on conviction of indictment, a fine not exceeding €10,000 or imprisonment for up to 5 years is the penalty. In addition, they are liable for costs for the repair of the damage caused.

In addition to this, under the European Communities (Environmental Impact Assessment) Regulations 1989, Environmental Impact Statements (EIS) are required for various classes and sizes of development project to assess the impact the proposed development will have on the existing environment, which includes the cultural, archaeological and built heritage resources. These document's recommendations are typically incorporated into the conditions under which the proposed development must proceed, and thus offer an additional layer of protection for monuments which have not been listed on the RMP.

THE PLANNING AND DEVELOPMENT ACT 2000

Under planning legislation, each local authority is obliged to draw up a Development Plan setting out their aims and policies with regard to the growth of the area over a five-year period. They cover a range of issues including archaeology and built heritage, setting out their policies and objectives with regard to the protection and enhancement of both. These policies can vary from county to county. The Planning and Development Act 2000 recognises that proper planning and sustainable development includes the protection of the archaeological heritage. Conditions relating to archaeology may be attached to individual planning permissions.

Wexford County Development Plan 2013–2019

The aim of Waterford's Development plan regarding Built heritage is to "is to preserve and enhance the Built Heritage of the County"

Objectives for the Protection of Archaeological Heritage

AH-01 To conserve and protect archaeological sites, monuments (including their settings), underwater archaeology and objects within the jurisdiction of Wexford County Council including those listed on the Record of Monuments and Places, the Register of Historic Monuments or newly discovered subsurface archaeological remains.

AH-02 To protect the heritage of groups of important national monuments, inclusive of their contextual setting and interpretation, in the operation of development management.

AH-03 To fully consider the protection of archaeological heritage when undertaking, approving or authorising development. In considering such protection, the Council will have regard to the advice and recommendations of the National 330 Monuments Service and the principles set out in Framework and Principles for the Protection of the Archaeological Heritage (Department of Arts, Heritage, Gaeltacht and the Islands, 1999).

AH-04 To require an archaeological assessment for development that may, due to its size, location or nature, have a significant effect upon archaeological heritage and to take appropriate measures to safeguard this archaeological heritage. In all such cases the Planning Authority shall consult with the National Monuments Service in the Department of Arts, Heritage and the Gaeltacht.

AH-05 To promote a presumption in favour of preservation in-situ of archaeological remains and settings when dealing with proposals for development that would impact upon archaeological sites and/or features. Where preservation in-situ is not possible the Council will consider preservation by record in appropriate circumstances.

AH-06 To protect historic and archaeological landscapes, including battlefields, and promote access to such sites provided that this does not threaten the feature.

AH-07 To protect historic urban defences (both upstanding and buried) and associated features and safeguard them from inappropriate development in accordance with

AH-08 To include archaeological landscapes as part of the updated Landscape Character Assessment of the County to be prepared following the publication of a National Landscape Strategy/National Landscape Character Assessment.

AH-09 To identify appropriate archaeological sites in the County to which public access could be provided, and work to secure public access where appropriate in consultation with the land owner, subject to normal planning and environmental criteria and development management standards.

AH-10 To retain existing street layouts, historic building lines and traditional plot widths which derive from medieval or earlier origin.

AH-11 To protect historical burial grounds within County Wexford and encourage their maintenance in accordance with conservation principles.

Gorey Local Area Plan 2017–2023

Objective ARH01
To have regard to the Record of Monuments and Places (RMP) and the newly identified sites identified on Map 9 (a) and 9 (b) when dealing with planning applications for development or threats to recorded items. Development shall be controlled in the vicinity of a recorded feature where it detracts from the setting of the feature or where it is injurious to its integrity, cultural or educational value. The Council shall consult with the National Monuments Service in the Department of Arts, Heritage and the Gaeltacht where appropriate.

Objective ARH02
To have regard to the Zone of Archaeological Potential within Gorey town when dealing with planning applications for all development, including local authority own development. This area is identified on Map 9 (a) and 9 (b). Where permission for such proposals is granted, the applicant will have due regard to the recommendations of the National Monuments Service and the Heritage and Planning Division in the Department of Arts, Heritage and the Gaeltacht. This may involve the employment of a licensed archaeologist at the expense of the developer to record any archaeological remains uncovered and to supervise all excavation works.

APPENDIX 14.4 IMPACT ASSESSMENT AND THE CULTURAL HERITAGE RESOURCE

POTENTIAL IMPACTS ON ARCHAEOLOGICAL AND HISTORICAL REMAINS

Impacts are defined as 'the degree of change in an environment resulting from a development' (Environmental Protection Agency 2017). They are described as profound, significant or slight impacts on archaeological remains. They may be negative, positive or neutral, direct, indirect or cumulative, temporary or permanent.

Impacts can be identified from detailed information about a project, the nature of the area affected and the range of archaeological and historical resources potentially affected. Development can affect the archaeological and historical resource of a given landscape in a number of ways.

- Permanent and temporary land-take, associated structures, landscape mounding, and their construction may result in damage to or loss of archaeological remains and deposits, or physical loss to the setting of historic monuments and to the physical coherence of the landscape.

- Archaeological sites can be affected adversely in a number of ways: disturbance by excavation, topsoil stripping and the passage of heavy machinery; disturbance by vehicles working in unsuitable conditions; or burial of sites, limiting accessibility for future archaeological investigation.

- Hydrological changes in groundwater or surface water levels can result from construction activities such as de-watering and spoil disposal, or longer-term changes in drainage patterns. These may desiccate archaeological remains and associated deposits.

- Visual impacts on the historic landscape sometimes arise from construction traffic and facilities, built earthworks and structures, landscape mounding and planting, noise, fences and associated works. These features can impinge directly on historic monuments and historic landscape elements as well as their visual amenity value.

- Landscape measures such as tree planting can damage sub-surface archaeological features, due to topsoil stripping and through the root action of trees and shrubs as they grow.

- Ground consolidation by construction activities or the weight of permanent embankments can cause damage to buried archaeological remains, especially in colluviums or peat deposits.

- Disruption due to construction also offers in general the potential for adversely affecting archaeological remains. This can include machinery, site offices, and service trenches.

Although not widely appreciated, positive impacts can accrue from developments. These can include positive resource management policies, improved maintenance and access to archaeological monuments, and the increased level of knowledge of a site or historic landscape as a result of archaeological assessment and fieldwork.

PREDICTED IMPACTS

The severity of a given level of land-take or visual intrusion varies with the type of monument, site or landscape features and its existing environment. Severity of impact can be judged taking the following into account:

- The proportion of the feature affected and how far physical characteristics fundamental to the understanding of the feature would be lost;

- Consideration of the type, date, survival/condition, fragility/vulnerability, rarity, potential and amenity value of the feature affected;

- Assessment of the levels of noise, visual and hydrological impacts, either in general or site-specific terms, as may be provided by other specialists.

APPENDIX 14.5 MITIGATION MEASURES AND THE CULTURAL HERITAGE RESOURCE

POTENTIAL MITIGATION STRATEGIES FOR CULTURAL HERITAGE REMAINS

Mitigation is defined as features of the design or other measures of the proposed development that can be adopted to avoid, prevent, reduce or offset negative effects.

The best opportunities for avoiding damage to archaeological remains or intrusion on their setting and amenity arise when the site options for the development are being considered. Damage to the archaeological resource immediately adjacent to developments may be prevented by the selection of appropriate construction methods. Reducing adverse effects can be achieved by good design, for example by screening historic buildings or upstanding archaeological monuments or by burying archaeological sites undisturbed rather than destroying them. Offsetting adverse effects is probably best illustrated by the full investigation and recording of archaeological sites that cannot be preserved in situ.

DEFINITION OF MITIGATION STRATEGIES

ARCHAEOLOGICAL RESOURCE

The ideal mitigation for all archaeological sites is preservation in situ. This is not always a practical solution, however. Therefore, a series of recommendations are offered to provide ameliorative measures where avoidance and preservation in situ are not possible.

Archaeological Test Trenching can be defined as 'a limited programme of intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present field evaluation defines their character, extent, quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate' (CIfA 2014a).

Full Archaeological Excavation can be defined as 'a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design' (CIfA 2014b).

Archaeological Monitoring can be defined as 'a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive (CIfA 2014c).

Underwater Archaeological Assessment consists of a programme of works carried out by a specialist underwater archaeologist, which can involve wade surveys, metal detection surveys and the excavation of test pits within the sea or riverbed. These assessments are able to access and assess the potential of an underwater environment to a much higher degree than terrestrial based assessments.