

ECOLOGICAL ASSESSMENT

Ferns Graveyard

Co. Wexford

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1 SUMMARY

Deborah D’Arcy was commissioned by Ferns Community Development Association (FCDA) to prepare an Ecological Appraisal (EA) to accompany the Conservation Management Plan for Ferns Graveyard.

This Ecological Appraisal Report (EA) reports on the surveys and community liaison with FCDA with regard to the conservation of natural heritage features at ferns Graveyard and identifies any ecological constraints associated with the proposed conservation works to the boundary walls of the graveyard church, advises on mitigation measures required and makes recommendations for appropriate vegetation management and other actions to promote biodiversity at the site.

Ferns Graveyard is located 0.9km west of from the River Bann which is part of the Slaney River Valley SAC (site code: 000781). No significant constraints with respect to Appropriate Assessment Screening of the Conservation Plan or associated proposed works were identified during this Ecological Appraisal.

The habitats at Ferns Graveyards include old stone walls (BL1), Scattered trees and Parkland (WD5) including a moderately species rich dry neutral grassland (GS1) and a small area of broadleaved woodland (WD1).

Historic graveyards are important for the conservation small areas of semi-natural grasslands as these sites are rarely if ever fertilised and have potential to support species rich grasslands. In addition, there may be associations between the flora at the site and the medieval history of the site. The study of relict plants (descendants of introduced or cultivated plants by people in the past) at castle sites has been given attention recently in Ireland by the “Sowing Seeds of Interdisciplinary Work” a project funded by the Castle Trust (MacGowan, 2021; Dempsey K. 2021).

Historic sites provide a stable and protected place for flora associated with old walls including vascular plants, bryophytes and lichens. Historic graveyard sites may be very important for lichens because they have changed little over decades or even centuries, and this allows slow growing lichen species the time and ecological continuity that they need to become established and flourish. The diversity of stone used in buildings and memorials maintains lichen diversity.

There are three particular notable findings:

The graveyard site is evaluated as of **county conservation value** due to the occurrence of Harebell (*Campanula rotundifolia*), This is the only site in Wexford where it is found. It is not clear whether it is native at this site or an ancient introduction.

The site is also of **high local importance and possibly of county significance** for the presence of the locally rare bryophytes – the liverwort *Porella playphylla* and the moss *Gymnostomum viridulum* that grow on the walls.

Bee hives present in the woodland are kept by a local beekeeper and are notable in that they are hives for the native black bee *Apis mellifera mellifera*. Pure populations of the native black bee need to be protected as this subspecies is a highly valuable gene pool for the protection of this subspecies in Europe.

The walls also support a range of herb species, ferns, bryophytes and lichens taking advantage of the old stone wall niche habitats on the site. The grassland within the graveyard is currently moderately species rich and was cut on a regular mowing regime until this year when the frequency was reduced

as part of the investigations for this project. Continuation of this reduced mowing regime is recommended and will increase the ecological value of the site for plants, pollinating insects, birds and bat species.

There is a risk of direct removal and /or damage to the habitat of two rare bryophytes, the liverwort *Porella playphylla* and the moss *Gymnostomum viridulum* during the repair works to the walls.

There is also a risk of trampling or disturbance of the habitat of the Harebell which is the only recorded site for this species in Wexford during the conservation works with increased activity on the site and the storage materials etc.

The loss of these species from the site would be a significant negative effect at the county scale.

To avoid impacts to these species the protective measures outlined in Section 7 of the Ecological Assessment should be implemented to prevent removal or damage to these species. These measures should be incorporation into the method statements.

The works will inevitably involve some removal of other vegetation from the walls. In the interest of maintaining the wall flora diversity, it is strongly recommended that ferns, bryophytes (mosses and liverworts) and lichens should be retained on the walls where possible and that provision is made for this in the works method statements.

There were no signs of the crevices in the walls being used as bird nesting sites and few suitable crevices. It is possible that some of the dense ivy or other bushy vegetation within and around the boundary walls and memorials could be used for nesting. Clearance of ivy or other tree/ shrub growth should take place outside the bird breeding season (which occurs March 1st – August 31st). If this schedule cannot be accommodated, the vegetation should first be checked for nesting birds prior to works.

The boundary walls were assessed as having low potential to support bat roosts. There are some crevices that could possibly be suitable for individual bats. The possibility of disturbance to bats or entombing of bats during repointing works and the works is considered to be a low risk. It is recommended that the walls are checked by an ecologist prior to works as a precaution. In the unlikely event that a bat is encountered during the works advice is provided in the mitigation measures in the Ecological Assessment Report.

It is recommended that some bat boxes and bird boxes are installed in the small area of woodland on the site.

2 INTRODUCTION

Deborah D'Arcy was commissioned by Ferns Community Development Association to prepare an Ecological Appraisal (EA) to accompany a Conservation Management Plan for Ferns Graveyard, Co. Wexford (ITM 677619 622080). A Conservation Management Plan is required primarily to conserve the old boundary walls of the graveyard which are of historical significance retaining elements of medieval architectural masonry. A section of the southern boundary wall which adjoins a public footpath and road collapsed and there is a risk of further collapse along other sections of the wall. The conservation plan also identifies other vulnerabilities and concerns associated with the graveyard relating to its archaeological, historic, cultural, built and natural heritage with the aim of ensuring the site is maintained and preserved for future generations.

The aim of the conservation plan is to establish a framework which will ensure the preservation and enhancement of the site for future generations and achieve the following objectives:

- To understand the historical and archaeological significance of the site
- Preserve the built heritage of the old graveyard and address the condition of the boundary wall
- To assess, identify, evaluate and mitigate against current threats and vulnerabilities to the old graveyard
- To preserve and enhance the sites biodiversity and mitigate against climate change
- Create awareness of this historic graveyard and ensure its preservation for locals and visitors alike

Ferns Graveyard is the site of a 7th Century monastic foundation by St Aidan (Mogue) and later an important medieval ecclesiastical centre. Ferns Graveyard is an archaeological site and a Recorded Monument (WX015-003008) that is afforded statutory protection under the National Monuments Acts. In addition to being a registered monument the graveyard contains other protected objects of archaeological significance including the base and shaft of a high cross (WX015-003013) and cross slab (WX015-003030). Pieces of medieval architectural masonry are visible throughout the graveyard as well as being incorporated into the boundary wall.

The graveyard is under the ownership and management of Wexford County Council. The graveyard parkland is maintained through a local community employment benefit scheme.

This Ecological Appraisal Report (EA) reports on the surveys and community liaison with FCDA with regard to the conservation of natural heritage features at ferns Graveyard and identifies any ecological constraints associated with the proposed conservation works to the boundary walls of the graveyard church, advises on mitigation measures required and makes recommendations for appropriate vegetation management and other actions to promote biodiversity at the site.

- The key objectives of the EA are to:
- To describe the existing ecology of the site with particular reference to flora and bat and bird species
- Identify the likely ecological constraints associated with the project;
- Identify any mitigation measures likely to be required, following the 'Mitigation Hierarchy';

- Identify any additional surveys that may be required to progress the works.
- Identify the opportunities offered by a project to deliver ecological enhancement.
- Recommend appropriate vegetation management for the site.

2.1 THE AUTHOR

Deborah D'Arcy is an Ecologist with an MSc in Ecological Assessment and 12 years' experience of ecological consultancy carrying out Appropriate Assessments and ecological impact assessments for a range of development types including residential, quarry, roads and greenways. Deborah has provided a number of ecological assessments for Heritage Sites and also prepared numerous biodiversity action plans for community groups. Deborah is competent in botanical, habitat and faunal surveys and has also worked in the role of ecological clerk of works.

This report has been produced using all reasonable skill and care. As a member of CIEEM, the chief professional body for Ecologists in Ireland, Deborah D'Arcy is bound by their professional code of conduct.

2.2 ECOLOGICAL IMPORTANCE OF HISTORIC SITES

Historic buildings and sites are well known as potential roost sites for bat species and nesting sites for bird species in some cases iconic species such as Barn owls and Kestrels. However, historic buildings are also very important for the conservation of a range of flora and other lesser-known fauna and in some cases rare species.

Historic sites particularly remote sites provide a stable and protected place for flora associated with old walls including vascular plants, bryophytes and lichens and can be particularly important for lichen conservation and can have a high diversity of lichens. Historic sites may be very important for lichens because they have changed little over decades or even centuries, and this allows slow growing lichen species the time and ecological continuity that they need to become established and flourish. The diversity of stone used in buildings and memorials maintains lichen diversity.

A recent paper *Protecting the threatened flora of old walls* (Doogue et al., 2024) published in the BSBI Irish Botanical News outlined the importance of old walls for flora and fauna. Constructed from stone materials available locally and secured in place with limestone mortar with a variety of construction methods and design features coupled with features of deterioration over time leads to the development of various ecological niches where characteristic flowering plants, ferns, mosses, lichens and invertebrates. In addition, the use of limestone mortar on building stone other than limestone enables lime loving species to spread and exist outside their usual range. The orientation of the walls of buildings influences the level of light or degree of shelter and effects which species grow where.

Walls composed of calcareous rock (e.g. limestone) or cemented with lime-rich mortar are often colonised by the mosses *Homalothecium sericeum*, *Rhynchostegiella tenella*, *Ctenidium molluscum* and several small cushion-forming acrocarp moss species. Occasionally, much rarer moss species such as *Entosthodon muhlenbergii* and *Leucodon sciuroides* are found on base-rich walls (Doogue et al., 2024).

Old walls provide a refuge for some plants particularly those that are becoming rare due to pressures such as agricultural intensification. Some colonies of very rare species are endangered by re-pointing older stonework, or by other less necessary cosmetic actions.

In addition to their significance for plant species, old walls provide suitable lime-rich environmental conditions for a number of rare woodlice (e.g. *Porcellio spinicornis*) and some species of terrestrial mollusc. Cavity nesting solitary bee species sometimes make nests in old stone walls and loose masonry.

There are a number of plant species associated with old walls from early periods, for example, species associated with the castles and tower houses of the Norman era. Several species were used and probably introduced by medieval herbalists e.g. Alexanders (*Smyrniium olustratum*) which is often found on historic sites.

Modern research methods at the molecular level are now able to detect differences in the genetic composition of different colonies of certain species and therefore it may be possible to ascertain the historical provenance of these colonies, and thereby elucidate the practices of medieval and pre-medieval religious orders, herbalists and gardeners highlighting the importance of historic sites as sources of information and evidence.

The variety of lichens on stonework is regarded as ecologically and historically significant with a direct correlation between the composition of the flora and the passage of time (<https://britishlichensociety.org.uk/conservation/monuments-urban>). Lichens have been used to date rock surfaces, buildings and monuments and assist in archaeological interpretation. The diversity of the flora can also be a reliable indication of the level of atmospheric pollution which in itself is one of the most serious factors in the deterioration of ancient monuments. Lichens can both cause deterioration and have a bioprotective action on stonework (Cozzolino et al., (2022).

The value of the flora and fauna of old walls warrants careful consideration during conservation works. Heritage sites are a place of refuge for many plant species, and there is a need to consider both the protection of monuments and the conservation of biodiversity and to consider the bioprotective action exerted by certain species which act as a barrier against weathering and thermal stress.

It is also important to raise awareness of the damage that can be done by inappropriate cleaning of walls and herbicide use by site managers and this should be an important part of the ongoing management after conservation works at these valued historic sites.

2.3 LEGISLATION PERTAINING TO EUROPEAN SITES - APPROPRIATE ASSESSMENT

Article 6(3) of the Habitats Directive 92/43/EEC establishes the requirement for Appropriate Assessment. The Habitats Directive is transposed into Irish Law by the European Communities Natural Habitats Regulations S.I. No. 477 of 2011

Article 6(3) "Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

All plans and projects require screening for Appropriate Assessment for potential impacts to European designated sites. If potential significant negative effects on a European designated site cannot be ruled out then Appropriate Assessment and a Natura Impact Statement is required.

2.4 PROTECTED SPECIES LEGISLATION

This Ecological Appraisal Report (EA) has been compiled having regard for relevant national legislation including:

- EU Habitats Directive 92/43/EEC
- EU Birds Directive (2009/147/EC)
- The Wildlife Act (1976) as amended
- The EC Birds and Natural Habitats Regulations, 2011

2.5 LEGISLATION AND BATS

There are nine resident species of bats in Ireland. All bat species are protected by Irish and European Union law. The EU 'Habitats' Directive (92/43/EC; transposed into Irish law by EC Birds and Natural Habitats Regulations (S.I 477 of 2011) provides legal protection for bats and their roosts. All nine bat species are protected under Annex IV of the Habitats Directive. One species, the lesser horseshoe bat, is also included on Annex II and Special Areas of Conservation have been designated to ensure the protection of its important breeding, roosting and foraging areas.

Under the Wildlife Act all bat species are protected under the Wildlife Act 1976 as amended. All species of Irish bats are listed under Schedule 5 of the Wildlife Act (1976). Under Section 23 (5), it is an offence to:

- Intentionally kill, injure, or take a bat
- Wilfully interfere with any structure or place used for breeding or resting by a bat

It should be noted that, for the purposes of this legislation, the breeding and resting places of bats are considered to be protected whether bats are actually present in them at the time or not.

Under the Birds and Natural Habitats Regulations (2011), all bat species are listed on the First Schedule and Regulation 51 makes it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat particularly during the period of breeding, hibernating or migrating;
- Damage or destroy a breeding site or resting place of a bat;
- Keep, sell, transport, exchange, offer for sale or offer for exchange any bat taken in the wild.

Provision is made in Regulation 54 of the Habitats Regulations for the Minister to grant, in strictly specified circumstances, a derogation licence permitting the above listed activities "where there is no satisfactory alternative, and the derogation is not detrimental to the maintenance of the populations of the species ... at a favourable conservation status..."

Although there is apparent overlap between the Wildlife Acts and the Habitats Regulations, in legal terms they are construed as one. No action in relation to bats which would not be permitted under the Habitats Regulations may be licensed under the Wildlife Acts. Derogation licences granted under the Regulations include reference to the relevant provisions of the Wildlife Acts to ensure that all requirements for licensing are covered in the one document.

2.6 LEGISLATION FOR THE PROTECTION OF BIRDS

All species of wild birds are protected by the Wildlife Act. Under Section 22 subsection (4) and subject to the exceptions specified in subsection (5) it is an offence to:

- b) injure a protected wild bird otherwise than while hunting it,
- c) wilfully take or remove the eggs or nest of a protected wild bird otherwise than under and in accordance with such a licence,
- d) wilfully destroy, injure or mutilate the eggs or nest of a protected wild bird
- (e) wilfully disturb a protected wild bird on or near a nest containing eggs or unflown young.

Section 22 (5) (h) provides “it shall not be an offence for a person while constructing a road or while carrying on any archaeological operation, building operation or work of engineering construction or while constructing or carrying on such other operation or work as may be prescribed, unintentionally to kill or to injure a protected wild bird or to remove for conservation purposes or unintentionally to destroy, injure or mutilate the eggs or nest of a protected wild bird.

2.7 BAT ECOLOGY

Most bats will use a variety of roosts of different types throughout the year which includes trees, buildings and underground sites with some species showing a preference for particular roost types i.e. some species primarily use building roosts (Pipistrelle and Leisler’s bats) and some are associated with buildings and tree roosts e.g. brown long-eared bat. The majority of species form maternity roosts in the roofs of buildings taking advantage of the warmth provided by the sun on the roof. In winter, bats of most species have been recorded hibernating in various parts of buildings, such as inside cavity walls, around window frames, under ridge-tiles and in cooler areas with stable temperatures. Some preliminary investigations of swarming sites have been conducted in Ireland. These sites are usually large caves and significant numbers of bats of several species have been shown to congregate at them over short periods in the autumn (Marnell et al., 2022). The seasonal activity of bats is summarised in Table 1.1.

Table 2-1 Bat activity across the year (adapted from Marnell et al., 2022)

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Hibernation (activity in mild weather)		Bats becoming more active		Maternity sites Babies born in late May/June. Young independent by July-August			Mating and swarming sites		Hibernation (activity in mild weather)		

2.8 METHODOLOGY

This Ecological Appraisal Report (EA) has been prepared having regard for best practice guidance including:

- CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.
- NRA (2009) *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority).
- Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th Edition). The Bat Conservation Trust, London
- Marnell, F., Kelleher, C. & Mullen, E. (2022) *Bat mitigation guidelines for Ireland v2*. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland
- Roche N. and Aughney T. (2022). *Bats and Heritage Structures*. Bat Conservation Ireland, Dublin Ireland.

2.9 DESKTOP RESEARCH

A desk study was carried out to gather information on the ecology of the site and surrounding areas. References reviewed are named where appropriate. The locations and boundaries of all Natura 2000 sites (European Sites), National Heritage Areas (NHAs) and proposed NHAs (pNHAs) within the vicinity of the site were identified. The current boundary shapefiles (SAC 2024/12, SPA 2024/01, NHA 2019/06 and pNHA 2015/11) were downloaded from the NPWS website and incorporated into a QGIS mapping project (QGIS 3.4). Other map data reviewed included the National Survey of Native Woodlands, Irish Semi-natural grasslands survey, EPA river routes, OSI maps, aerial photography and EPA maps (www.gis.epa.ie/Envision). The Flora Protection Order datasets were reviewed.

Biological records from the National Biodiversity Data Centre (NBDC) for the site and surrounding area (1, 2 and 10 km grid squares) were reviewed (last accessed on 16.10.2025) and account taken of notable species including any rare, protected, threatened and invasive species.

2.10 ECOLOGICAL SURVEYS

Deborah D’Arcy undertook the ecological walkover surveys including a habitat and vascular plant flora survey, bird survey and a daytime assessment of the boundary walls for their potential to be bats roosting. Dr Joanne Denyer, ecological consultant and bryophyte specialist carried out a bryophyte (moss and liverwort) survey of the boundary walls.

2.10.1 Habitats and flora

The habitats of the site were surveyed and classified having regard for *A Guide to Habitats in Ireland* (Fossitt, 2000). The habitat and flora survey of the site were conducted over several visits to the graveyard on 5th April, 30th May, 12th June and 1st July, 2025. The bryophyte survey was carried out on 13th August 2025. This is within the optimal season for flora surveys.

2.10.2 Bird survey

Walkover bird surveys were conducted on the same days as the habitat surveys 5th April, 30 May and July 2025. During the course of the ecological field survey, bird species seen or heard were recorded

and features of the graveyard suitable as nesting sites were noted. Account was taken of bird activity in the general area of the site.

2.10.3 Bat habitat suitability and Preliminary bat roost assessment

A preliminary ground level roost assessment of the boundary walls was conducted to look for features that bats could use for roosting (PRFs). All aspects of the walls were examined for features such as cracks, crevices, fissures, and ivy that could be used as bat roosts and to record any signs of bat use such as droppings, staining or claw marks.

A bat activity or emergence survey was not undertaken due the low potential bat roost (PBR) suitability of the walls. It would not be possible to conduct useful emergence survey given the extent of the walls at the site and temporary and opportunistic nature of any use of the walls by bats.

2.10.4 Constraints to field surveys

There were no significant constraints to surveys.

3 RESULTS

3.1 SITE LOCATION

Ferns Old Graveyard in the historic village of Ferns, Co. Wexford. The graveyard is a wedge-shaped site (dims c. 110m N-S; c. 60-100m E-W) and is accessed via the R772 Road. The graveyard is defined by old stone walls and is bounded to the north by St. Edan's Church of Ireland Cathedral (**WX015-003002**), to the east by agricultural grassland which contains St Mary's Abbey and Tower (**WX015-003004**) and to the south by Station Road.

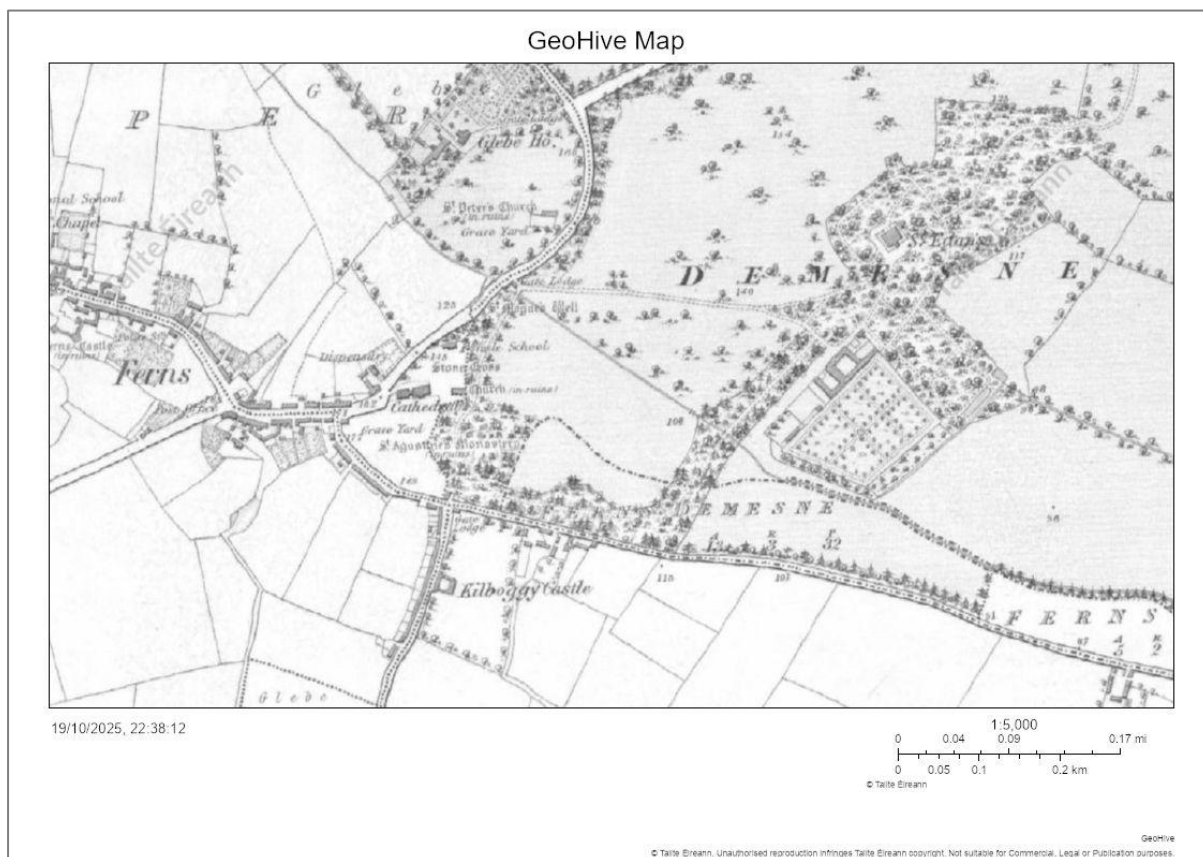
Ferns Graveyard is located 0.9km west of from the River Bann which is part of the Slaney River Valley SAC (site code: 000781). The location of the site is shown in Figure 2-1.

Figure 3-1 Site Location



Review of Tailte Eireann Historical OS 6-inch map (1829-1842) shows Ferns Graveyard. The boundary walls follow the line of the townland boundary of Ferns Demesne. Historically there was mixed conifer and deciduous woodland directly adjacent to the east which is no longer present and this woodland extended around and through St Edan’ Park Demesne which borders the River Bann. A treeline along the western boundary of St Edan’s Cathedral is indicated on the 6-inch map where there is a treeline of mature sycamore trees currently present.

Figure 3-2 Tailte Eireann OS 6-inch map



3.2 EUROPEAN DESIGNATED SITES

Natura 2000 is a network of sites of European conservation importance designated by EU Member States. In Ireland, these include Special Areas of Conservation (SACs), designated under the Habitats Directive (92/43/EEC) and Special Protection Areas (SPAs) for birds, designated under the Birds Directive (79/49/EEC and amendments as codified in 2009/147/EC).

There is one SAC within approximately 10km of Ferns Graveyard – the Slaney River Valley SAC. The River Bann which is included in the Slaney River Valley SAC is 0.9km to the east of the site. The Wexford Harbour and Slobbs SPA is situated just over 10km at Enniscorthy. Details of these European Sites are listed in Table 2-1.

Table 3-1 European designated sites within 10km

European Site	Distance (km) from Carnagh Church
Slaney River Valley SAC 00781	0.9 E
Wexford Harbour and Slobs SPA	12 S

The Slaney River Valley SAC is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the EU Habitats Directive (* priority); numbers in brackets are Natura 2000 codes:

Annex I Habitats	Annex II species
[1130] Estuaries	[1029] Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>),
[1140] Tidal Mudflats and Sandflats	[1095] Sea Lamprey (<i>Petromyzon marinus</i>)
[1330] Atlantic salt meadows	[1096] Brook Lamprey (<i>Lampetra planeri</i>)
[1410] Mediterranean salt meadows	[1099] River Lamprey (<i>Lampetra fluviatilis</i>)
[3260] Floating River Vegetation	[1103] Twaite Shad (<i>Alosa fallax</i>)
[91A0] Old Oak Woodlands	[1106] Atlantic Salmon (<i>Salmo salar</i>)
[91E0] Alluvial Forests*	[1355] Otter (<i>Lutra lutra</i>)

The Wexford Harbour and Slobs SPA is Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest (SCI) for wintering waterbirds, breeding terns, hen harrier and wetlands (NPWS, 2012).

The site is divided between the natural estuarine habitats of Wexford Harbour, the reclaimed polders known as the North and South 'Slobs', and the tidal section of the River Slaney.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive for holding an assemblage of over 20,000 wintering waterbirds, for wetlands and the following Special Conservation Interest (SCI) species:

Species of Conservation Interest for the Wexford Harbour and Slobs SPA		
Natura 2000 code/Common name	Scientific name	Nature of population
A004 Little Grebe	<i>Tachybaptus ruficollis</i>	wintering
A005 Great Crested Grebe	<i>Podiceps cristatus</i>	wintering
A017 Cormorant	<i>Phalacrocorax carbo</i>	wintering
A028 Grey Heron	<i>Ardea cinerea</i>	wintering
A037 Bewick's Swan	<i>Cygnus columbianus</i>	wintering
A038 Whooper Swan	<i>Cygnus cygnus</i>	wintering
A046 Light-bellied Brent Goose	<i>Branta bernicla hrota</i>	wintering
A048 Shelduck	<i>Tadorna tadorna</i>	wintering
A050 Wigeon	<i>Anas penelope</i>	wintering
A052 Teal	<i>Anas crecca</i>	wintering

Species of Conservation Interest for the Wexford Harbour and Slobs SPA		
Natura 2000 code/Common name	Scientific name	Nature of population
A053 Mallard	<i>Anas platyrhynchos</i>	wintering
A054 Pintail	<i>Anas acuta</i>	wintering
A062 Scaup	<i>Aythya marila</i>	wintering
A067 Goldeneye	<i>Bucephala clangula</i>	wintering
A069 Red-breasted Merganser	<i>Mergus serrator</i>	wintering
A082 Hen Harrier	<i>Circus cyaneus</i>	post-breeding/roost
A125 Coot	<i>Fulica atra</i>	wintering
A130 Oystercatcher	<i>Haematopus ostralegus</i>	wintering
A140 Golden Plover	<i>Pluvialis apricaria</i>	wintering
A141 Grey Plover	<i>Pluvialis squatarola</i>	wintering
A142 Lapwing	<i>Vanellus vanellus</i>	wintering
A143 Knot	<i>Calidris canutus</i>	wintering
A144 Sanderling	<i>Calidris alba</i>	wintering
A149 Dunlin	<i>Calidris alpina</i>	wintering
A156 Black-tailed Godwit	<i>Limosa limosa</i>	wintering
A157 Bar-tailed Godwit	<i>Limosa lapponica</i>	wintering
A160 Curlew	<i>Numenius arquata</i>	wintering
A162 Redshank	<i>Tringa totanus</i>	wintering
A179 Black-headed Gull	<i>Chroicocephalus ridibundus</i>	wintering
A183 Lesser Black-backed Gull	<i>Larus fuscus</i>	wintering
A195 Little Tern	<i>Sterna albifrons</i>	breeding
A395 Greenland White-fronted goose	<i>Anser albifrons flavirostris</i>	wintering
A999 Wetlands		

3.3 PROPOSED NATURAL HERITAGE AREA (PNHA)

Proposed NHAs are nature conservation sites which were published on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. Prior to statutory designation, pNHAs are subject to limited protection, in form of Agri-farm planning schemes supporting the objectives of maintaining and enhancing the conservation status of pNHAs, NPWS approval before payment of afforestation grant on pNHAs lands and recognition of the Forest Service ecological value of pNHAs by Planning and Licencing Authorities.

Leskinfere Church (pNHA site code: 702) at Clogh is a pNHA for a nursery colony of Natterer's Bats is located about 15km NE of Ferns Graveyard.

3.4 SURFACE WATER

Ferns Graveyard is located within the Bann surface water subcatchment (SC_010 ID 12_13) of the Slaney & Wexford Harbour Catchment (ID12). The Rosemary Hill stream, a second order watercourse

is situated approximately 150m to the north of the graveyard. It is a tributary of the Bann River located 0.9km to the east of the graveyard.

The WFD status (2016-2021) for the Bann is moderate. The WFD risk status is at risk of failing to meet water quality objectives. The significant pressure identified by the EPA for these watercourses is river urban wastewater.

3.5 GEOLOGY, SOILS AND GROUNDWATER

The site is underlain by the Campile Formation described as felsic volcanics. The soils are classified as the Clonroche Association described as brown earth well drained mineral soils.

The site is in the area of the Enniscorthy ground waterbody (IE_SE_G_061) and described as Regionally Important Aquifer - Fissured bedrock. Groundwater vulnerability for the site is classified as high.

3.6 BOTANICAL RECORDS

The Flora of Wexford (Green, 2022) reported the occurrence of Harebell (*Campanula rotundifolia*) at Ferns graveyard recorded in 2022. This is a rare plant in the east of Ireland. The other nearest records for this plant are located in Wicklow and Kilkenny.

Ferns Graveyard lies within the hectad T04. National Biodiversity Data Centre (NBDC) records for notable plant species at the 1km resolution (T0249) which overlaps the graveyard are included in Table 2-2 **Error! Reference source not found.**.. Corn marigold is a plant of arable fields and ruderal waste round. Similarly common cudweed is associated with a range of dry open and disturbed ground habitats. There is very little to no suitable habitat for these species in the graveyard.

There are no records for bryophytes (mosses and liverworts) at the 1km grid square resolution.

The Flora Protection Order 2022 dataset was reviewed. There are no records for protected plant within the 10km grid square (hectad).

The Flora Protection Order bryophyte dataset (FPO bryophytes_CSV_23Jan18) was reviewed to check for known locations of protected bryophytes in the county (<https://www.npws.ie/maps-and-data/flora-protection-order-map-viewer-bryophytes>). One protected moss occurs at Camolin where it is associated with the flood zone of the River Bann.

Table 3-2 NBDC Records of rare-threatened vascular plant species for the 1km grid square T0249

Species	Record count	Date of last record	Dataset	Status
Corn Marigold (<i>Glebionis segetum</i>)	1	13/09/1991	The Flora of County Wexford	Near threatened
Common Cudweed (<i>Filago vulgaris</i>)	1	31/07/1992	The Flora of County Wexford	Vulnerable

Invasive flora

The 1km grid squares (T0149 and T0249) overlapping the village of Ferns were reviewed for records of invasive plant species. Two species, Japanese knotweed and Three-cornered leek listed on the Third

Schedule of the Bird and Natural Habitats Regulations 2011 and the First Schedule of EU (Invasive Alien Species) Regulations 2024 have been previously recorded in the area.

Table 3-3 NBDC for Invasive plant species within T01049 and T0249

Species	Record count	Date of last record	Dataset	Status
Japanese Knotweed (<i>Fallopia japonica</i>)	9	13/07/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: EU Invasive Alien Species Regulation No. 1143/2014; Regulation S.I. 477/2011 (Ireland); High Risk Invasive Species (2013 Report) Invasive Species: Regulation S.I. 374/2024 (Ireland)
Three-cornered garlic (<i>Allium triquetrum</i>)	1	07/05/2018	The Flora of County Wexford	Invasive Species: Regulation S.I. 477/2011 (Ireland); Detailed Risk Assessment: Medium Risk Invasive Species (2013 Report); Invasive Species: Regulation S.I. 374/2024 (Ireland); Invasive Species: Detailed Risk Assessment : Moderate Risk
Traveller's-joy (<i>Clematis vitalba</i>)	1	03/09/2017	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Medium Risk Invasive Species (2013 Report)
Turkey Oak (<i>Quercus cerris</i>)	2	14/09/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Medium Risk Invasive Species (2013 Report)

3.7 HABITATS AND FLORA ON SITE

Habitats were classified according to the Heritage Council scheme (Fossitt, 2000) and are described below.

Stone Walls (BL1)

The 19th Century first edition OS maps depict the stone walls. The walls retain pieces of medieval architectural masonry. They are built with rubble sandstone and quartz and extend of approximately 440m around the site. The northern boundary wall along the roadside is a low wall approximately 1m in height while the remainder of the boundary walls are up to 3 m in height. There is bushy ivy growing on the eastern boundary wall with the field at two locations for a total extent of approximately 30m.

A list of vascular plant species recorded for the site is provided in Section 8 (Appendix A) and a list of bryophyte flora recorded from the walls is provided in Section 9 (Appendix B). A variety of lichens were noted on the walls, burial tombs and the gravestones.

Vascular plants

There are a variety of ferns and small herbaceous plant growing on the walls. There is profuse fern growth on the inside of the southern boundary wall and also along the eastern roadside boundary wall. There is a good diversity of plant species growing on the walls and along the southern and northern boundary walls ferns growth is prolific on parts of the walls. The vascular plants recorded from the walls are listed in Table 3-4. Notable among these are those plant species that are characteristic and generally restricted to old stone walls including pellitory-of-wall, rue-leaved saxifrage, squirrel-tailed fescue and the ferns species rusty back fern, maidenhair spleenwort and polypody ferns.

Recent studies (MacGowan 2021; Wyse Jackson, 2014) on relict plants and historical uses of plants have documented some past uses of plant associated with historic castle sites. Table 3-4 **Error! Reference source not found.**notes these historical uses for the plants found growing on the walls of ferns graveyard which may be linked with the history of the site.

Although many of these species are common and widespread in Ireland and on all sorts of walls, of particular note is pellitory-of-wall which is only found growing on old walls particularly on old castle, tower houses and abbeys. It was known for many different medical uses in medieval times. (McGowan, 2021; Wyse Jackson, 2014).

Also of note is rue-leaved saxifrage which has a limited distribution in Ireland and there are only 9 records for rue-leaved saxifrage in the 10km square (T04) on the Botanical Society of Britain and Ireland BSBI database showing it is uncommon in the local area.

Table 3-4 Vascular plant flora of the walls and historical uses (as noted in McGowan, 2021)

Common name	Scientific name	Historic uses
Cat's ear	<i>Hypochaeris radicata</i>	-
Common daisy	<i>Bellis perennis</i>	-
Common polypody	<i>Polypodium vulgare</i>	Used as a medicinal snuff!
Common ragwort	<i>Jacobaea vulgaris</i>	Widespread veterinary & medicinal uses
Herb robert	<i>Geranium robertianum</i>	A long history of many medicinal uses & as a treatment for 'red water' in cattle.
Ivy	<i>Hedera helix</i>	Numerous medical & veterinary uses
Maidenhair spleenwort	<i>Asplenium trichomanes subsp. Quadrivalens</i>	Used to treat ailments of the spleen
Naval wort	<i>Umbelliscus rupestris</i>	Many medicinal & veterinary uses, leaves can be eaten & can be used to make red & yellow dyes
Nipplewort	<i>Lapsana communis</i>	Leaves eaten & plant used to treat cuts & bruises & to help with breast-feeding problems

Common name	Scientific name	Historic uses
Pellitory-of-the wall	<i>Parietaria judaica</i>	Many medicinal uses including as a laxative, a diuretic, a treatment for skin, bladder & menstrual problems
Prickly sow thistle	<i>Sonchus asper</i>	Long eaten as a vegetable
Rue-leaved saxifrage	<i>Saxifraga tridactylites</i>	No recorded uses
Rusty back fern	<i>Asplenium ceterach</i>	Medicinal uses for 'fluxes of the belly'
Southern polypody	<i>Polypodium cambricum</i>	
Squirrel-tail fescue	<i>Vulpia bromoides</i>	-
Wavy bittercress	<i>Cardamine flexuosa</i>	-
White stonecrop	<i>Sedum album</i>	A recent introduction with no known uses in Ireland
Willowherb	<i>Epilobium spp.</i>	-
Yorkshire fog	<i>Hocus lanatus</i>	-



Rue-leaved saxifrage growing with moss on the low roadside wall



Profuse growth of moss and ferns on the southern boundary wall



Low boundary wall on roadside



Overgrowth of ivy on the eastern wall

Bryophytes

Thirty-three species of mosses and liverworts (bryophytes) were recorded by Joanne Denyer from the walls around the graveyard. The walls have a good diversity of bryophytes and slightly unusual species. The bryophyte flora is of high local importance. Two bryophyte species of particular interest were recorded:

Porella platyphylla (liverwort) is rare in the local area. It has only been recorded in 3 other sites in the County. It was recorded from several sections of wall, both inside and out. It was last recorded from this hectad (T04) in 1897 by Canon Gibson. Location given as 'Dermot MacMurrough Castle'. It is found:

Gymnostomum viridulum (moss)

This rare moss is tiny and is only a couple of millimeters high and forms a small brown mat in a crevice in the wall. It only has 3 other sites in the county and is very south-eastern in its distribution.

The location of these rare bryophytes is given in Table 3-5.

Table 3-5 Location of notable bryophytes

No.	Species	Location	Irish Grid ref	X (ITM)	Y (ITM)
1	<i>Porella platyphylla</i>	West roadside wall near hanging baskets, pavement site	T02105 49737	702047	649769
2	<i>Porella platyphylla</i>	Small amount, pavement side, in crevice	T02139 49673	702081	649705
3	<i>Porella platyphylla</i>	Lower wall of graveyard	T02134 49681	702076	649713
4	<i>Porella platyphylla</i>	Large amount on inner graveyard wall near trees where ivy has been cleared from wall	T02189 49645	702131	649677
5	<i>Gymnostomum viridulum</i>	Forming tiny mat in crevice on wall, pavement side, just along (east) from broken wall and fence	T02137 49670	702079	649702

Figure 3-3 Pictures showing one location of each of the bryophytes

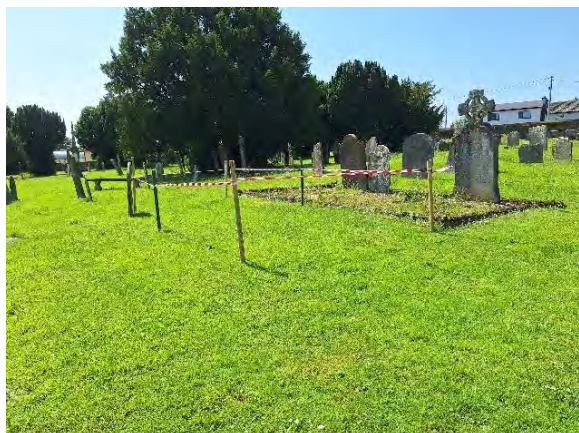
*Porella platyphylla**Gynostomum viridulum* (close up)*Porella platyphylla* southern boundary wall*Gynostomum viridulum*

Scattered Trees and parkland (WD5)

The graveyard composed of a regularly mown dry neutral grassland (GS1) with clusters of ornamental trees is best described as a scattered trees and parkland habitat (WD5).

The grassland characteristic of old graveyards undulates in places indicating the position of old graves. It is moderately species rich especially in localised areas (e.g. on the more free draining sloped areas of undulations). The grassland has a range of flowering herbaceous species indicative of semi-natural grassland such as selfheal, lesser trefoil, common mouse-ear, yarrow, ribwort plantain cat's ear, common bird's foot trefoil, creeping buttercup and common sorrel. The moss *Rhytidiadelphus squarrosus* was frequent in some areas of the grassland. Waxcap fungi were noted which are indicative of unimproved semi-natural grasslands.

The regionally rare Harebell (*Campanula rotundifolia*) is growing on thin soil at the edge a grave near the entrance to the graveyard. This area was temporarily excluded from the mowing regime to allow it to grow to confirm that that it was still present. In August 2025, 20 flowering stems of Harebell were counted in 3 patches within an area of 90x40 cm. Each patch was within 30 cm of each other. Other species growing in the grassland with the Harebell included red fescue, Yorkshire fog, germander speedwell, willowherb, white clover and willowherb.



Exclusion zone for Harebell



Germander speedwell, common daisy, cat's ear, ribwort plantain, dandelion, self heal



Comon sorrel



Tree group planted near the eastern boundary wall

Broadleaved Woodland (WD1)

There is a small area of woodland at the southern corner of the graveyard. The canopy is dominated by the non-native sycamore with two ash trees also present. The understorey is not well developed with just some elder present. There is a large mature shrub of the high impact invasive species cherry laurel shrub in the corner by the wall.

The ground flora is composed of tall herbaceous species with frequent common hogweed and cow parsley and occasional hedge woundwort, broadleaved dock and alexanders. Beneath these tall species, ivy creeps across the woodland floor with the occasional occurrence of smaller woodland species primrose, herb robert and ground ivy (*Glechoma hederacea*). Moss species recorded in the woodland included *Kindbergia praelonga* and *Thamnobryum alopecurum*.

Trees occur in the graveyard as single trees and groups. There are several mature yew trees, a group of sycamore, scot's pine and elder and a group of yew with Lawson's cypress. Adjacent to the eastern boundary wall a group of young mature Grey alder, (*Alnus incana*), pedunculate oak, sycamore, holly and ash. Within the crypt by the Cathedral there is yew, elder, bramble and the non-native invasive snowberry (*Symphoricarpos albus*).

The ground flora underneath the tree groups is composed of shade tolerant woodland species such ivy, cleavers, hedge woundwort, willowherbs, and ground ivy.

Dry meadow grassland and grassy verges (GS2)

There is a small area of long dry meadow grassland adjacent to the woodland. This has not been cut in recent years and there is a thick thatch of leaf litter beneath the sward. The grassland is species poor dominated by Yorkshire fog, with occasional false oat grass, cock's-foot grass. Herb species include frequent common sorrel, with occasional common hogweed, cow parsley, broadleaved dock and creeping buttercup.

Grassy verges occur along the boundary walls, under trees and in other areas around graves where the mower can't reach. This adds some diversity in terms of species and structure to the grassland habitat. The unmown areas had hedge woundwort, ground ivy, bush vetch, nettle, cleavers and dog violet.



Woodland with bee hives



Dry meadow grassland next to woodland



Grassy verges where the mower cant reach



Ground Ivy flowering against the wall

Recolonising bare ground

There are patches of disturbed ground including areas along the boundary walls which have been disturbed from clearing vegetation or areas within certain graves that are gravelled or subject to previous vegetation clearance. These areas are generally colonised with ivy, bramble, cleavers, nettle and herb robert or smaller ruderal species such as willowherbs, white clover, dandelion, spear thistle. Pellitory-of-the wall was also found in some of the gravelled graves.

Ornamental/non-native shrub (WS3)

Adjacent to the graveyard boundary there is a small area along the northern boundary next to main road planted with shrubbery and garden plants/ wildflower species.

3.8 THREATS

3.8.1 Threats to wall flora

In July it was noted that hanging baskets planted with annual bedding plants were hung along the northern boundary roadside wall. This presents a threat to the rare characteristic flora of the wall and the uncommon liverwort species that is growing on the wall. The baskets eliminate light reaching the mosses growing on the wall and detract from the historical aesthetic of the old wall. Recommendations are made below for an alternative to hanging baskets at this location.



3.8.2 Threat- Wildflower seed sowing

One area of disturbed ground adjacent to the Chapter House had been sown with wildflower seed probably following repair works to the Abbey walls. A wide variety of wildflowers had been planted including but not limited to cornflower, gypsophila, sweet william, calendula, chamomile, bitter candy tuft and bugloss which were growing with native smooth sow-thistle, forget-me-knot, groundsel, nettle, field bindweed and willowherbs

The sowing of wildflower seed is not recommended. This introduces plants that are not native to Ireland and/or not indigenous to the local area. In the historic setting there is the additional issue of adding seeds to the soil that could confuse the study of the ecological history of the site in future years.



3.9 INVASIVE PLANT SPECIES

No legally controlled Third Schedule invasive plant species were recorded in the graveyard. Two invasive plant species were recorded cherry laurel (*Prunus laurocerasus*) in the woodland and snowberry (*Symphoricarpos alba*) in the crypt near the cathedral.

Other non-native shrubs that have a tendency to seed and spread included *Cotoneaster franchettii* and *Cotoneaster horizontalis*.

4 FAUNA

4.1 BIRDS

NBDC records were reviewed for the grid squares (T0149 and T0249) overlapping ferns. Records for birds are provided in Table 4-1 below. The list is reflective of common garden and parkland birds and the rural village setting.

No bird nests were noted in the boundary walls and there were few suitable crevices for nesting birds. However, the bushy ivy growing over the eastern boundary wall provides suitable nesting habitat for small passerine species such as blackbirds, robin, wren, for example. The groups of trees and shrubbery, e.g. the dense yew shrubs or elderberry, may provide some nesting opportunities for small birds.

The woodland canopy may provide nesting sites for pigeons or rooks but no nests were confirmed during the surveys. The woodland understorey is absent or very sparse and does not currently offer suitable nesting habitat for birds.

Rooks and Jackdaws were noted feeding on the grassland and flocks of starlings gathered on the treetops in the graveyard. Swallows fed over the grassland occasion. Robin and blackbird were also recorded during surveys in the undergrowth of the woodland and tree groves.

Overall, the bird diversity in the graveyard was limited reflecting the scarcity of dense hedgerow or scrub habitat for nesting.

Table 4-1 Records of bird species from the monad T0249

Species	Record county	Date of last record	Data source	Designation
Blackbird (<i>Turdus merula</i>)	2	19/02/2018	Birds of Ireland	Green
Buzzard (<i>Buteo buteo</i>)	1	14/09/2017	Birds of Ireland	Green
Collared Dove (<i>Streptopelia decaocto</i>)	6	19/03/2021	Birds of Ireland	Green
Dunnock (<i>Prunella modularis</i>)	1	30/07/2017	Birds of Ireland	Green
Goldfinch (<i>Carduelis carduelis</i>)	2	09/01/2019	Birds of Ireland	Green
Grey Wagtail (<i>Motacilla cinerea</i>)	1	17/01/2018	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
House Sparrow (<i>Passer domesticus</i>)	2	26/08/2020	Birds of Ireland	Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Lesser Redpoll (<i>Acanthis cabaret</i>)	2	17/01/2018	Birds of Ireland	Protected Species: Wildlife Acts Green
Pheasant (<i>Phasianus colchicus</i>)	1	05/09/2017	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive >> Annex II, Section I Annex III, Section I
Pied Wagtail (<i>Motacilla alba yarrellii</i>)	3	10/12/2021	Birds of Ireland	Protected Species: Wildlife Acts Green
Robin (<i>Erithacus rubecula</i>)	2	17/08/2020	Birds of Ireland	Protected Species: Wildlife Acts

Species	Record county	Date of last record	Data source	Designation
Siskin (<i>Spinus spinus</i>)	1	30/07/2017	Birds of Ireland	Protected Species: Wildlife Acts
Song Thrush (<i>Turdus philomelos</i>)	1	19/02/2018	Birds of Ireland	Protected Species: Wildlife Acts
Starling (<i>Sturnus vulgaris</i>)	1	23/11/2019	Birds of Ireland	Threatened Species Birds of Conservation Concern - Amber List
Swallow (<i>Hirundo rustica</i>)	2	26/08/2020	Birds of Ireland	Protected Species Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Yellowhammer (<i>Emberiza citrinella</i>)	1	30/07/2017	Birds of Ireland	Protected Species: Birds of Conservation Concern - Red List

4.2 BATS

Bats are strictly protected species under domestic Irish wildlife legislation - the Wildlife Act - and under EU legislation – the Habitats Directive. Bats roost in buildings and other structures such as bridges as well as natural crevices in trees, cliffs and caves. Bat species have slightly different roosting requirements, some species prefer to roost in open attic spaces, others prefer to roost in small crevices such stonework. Bats may use heritage structures are different times of the year and may move around using attic a roof spaces for breeding but choose clears and underground sites for hibernation in the winter months (Roche & Augney, 2022).

The purpose of the bat assessment is (1) to determine if bat roosts could be impacted by the works i.e. do the boundary walls which will be undergoing repair have potential to support bat roosts or is there any evidence of previous bat use.

The bat assessment considers desktop research for known roosts in the area, an appraisal of the suitability of the walls and the surrounding habitat for bats to assess the likelihood of bats using the walls as a roost site.

4.2.1 Bat species records

There are no records for species at the 1km resolution on the NBDC database for this area. Records for the 10km grid square T04 were reviewed. Seven species of bats have been recorded in the wider 10km area. This included the common and widespread common pipistrelle, soprano pipistrelle and Leisler's bat and the more uncommon species brown-long eared bats (associated with woodlands), Daubenton's bat (associated with watercourses) and the little-known whiskered bat and Nathusius' pipistrelle.

A subsequent species-specific search revealed that common pipistrelle, soprano pipistrelle, Leisler's bat, Nathusius's pipistrelle have been recorded on the rural roads to the south of Ferns during the Bat Conservation Ireland Car based Monitoring scheme. Daubenton's bat have been recorded 1 km south of the Ferns Village and would be expected to occur along the Bann River as this species is associated with watercourses.

Many species of bats are closely associated with the built environment, both for breeding and hibernation. Common pipistrelle and soprano pipistrelle are Ireland's two smallest species and commonly recorded in both urban and rural areas. Pipistrelles are frequently found roosting in houses, although they also roost in other locations such as tree holes. In houses they prefer to occupy confined spaces rather than the main attic space. These species are the most likely species to be found roosting in the confined paces of crevices in the walls at Ferns.

Table 4-2 NBDC records for bat species within the hecatd T04

Species	Record Numbers	Date of last record	Dataset	Designation
Brown Long-eared Bat (<i>Plecotus auritus</i>)	41	06/08/2023	National Bat Database of Ireland	Protected Species: EU Habitats Directive Annex IV ; Protected Species: Wildlife Acts
Common Pipistrelle (<i>Pipistrellus pipistrellus sensu stricto</i>)	33	24/08/2019	National Bat Database of Ireland	Protected Species: EU Habitats Directive Annex IV ; Protected Species: Wildlife Acts
Daubenton's Bat (<i>Myotis daubentonii</i>)	2	19/06/2018	National Bat Database of Ireland	Protected Species: EU Habitats Directive Annex IV ; Protected Species: Wildlife Acts
Leisler's Bat (<i>Nyctalus leisleri</i>)	15	19/06/2018	National Bat Database of Ireland	Protected Species: EU Habitats Directive Annex IV ; Protected Species: Wildlife Acts
Nathusius's Pipistrelle (<i>Pipistrellus nathusii</i>)	1	24/08/2019	National Bat Database of Ireland	Protected Species: EU Habitats Directive Annex IV ; Protected Species: Wildlife Acts
Pipistrelle (<i>Pipistrellus pipistrellus sensu lato</i>)	5	21/03/2013	National Bat Database of Ireland	Protected Species: EU Habitats Directive Annex IV ; Protected Species: Wildlife Acts
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	44	07/06/2022	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex

Species	Record Numbers	Date of last record	Dataset	Designation
				IV Protected Species: Wildlife Acts
Whiskered Bat (<i>Myotis mystacinus</i>)	1	31/07/2008	National Bat Database of Ireland	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts

4.2.2 Landscape suitability for bat species

Bat Conservation Ireland's habitat suitability index¹, available to view on the NBDC online mapping portal, classifies the landscape in which the site is located, as having a moderate habitat suitability for bats (with a score of 24.56 for all bat species). The area has the highest suitability for soprano pipistrelle, common pipistrelle, brown long eared bat (*Plecotus auritus*) and Leisler's bat.

At the site level, the site provides some suitable foraging and commuting habitat. The boundary walls as linear features may be used by bats as a commuting route. The small area of woodland may attract bats for foraging but in general the small area of the woodland and the managed nature of the grassland coupled indicate the site is not likely to be an important foraging area for bats.

The ruin of the St Mary Abbey to the east of the round tower may be suitable as a bat roost and possibly the Cathedral Church.

Table 4-3 Landscape suitability index for bat species

All Bats	24.56
<i>Pipistrellus pygmaeus</i>	31
<i>Plecotus auritus</i>	39
<i>Pipistrellus pipistrellus</i>	34
<i>Rhinolophus hipposideros</i>	0
<i>Nyctalus leisleri</i>	31
<i>Myotis mystacinus</i>	23
<i>Myotis daubentonii</i>	27
<i>Pipistrellus nathusii</i>	5
<i>Myotis nattereri</i>	31

¹Lundy, M.G., Aughney, T., Montgomery, W.I., & Roche, N. (2011) *Landscape conservation for Irish bats and specific roosting characteristics*. Bat Conservation Ireland. Accessed: September 28th, 2025.

4.2.3 Preliminary roost assessment of the walls

The boundary walls were inspected both sides for suitable crevices and for signs of bat usage such as bat droppings stuck to walls, staining or the presence/absence of cobwebs at the entrance to crevices.

The walls are range in height and are approximately 2-4m in height.

The walls have a few Potential Roost Features (PRFs) including:

- Gaps and cavities within rubble stonework;
- Loose and missing mortar creating cavities
- Crevices resulting from dislodged stones;
- Voids behind ivy cover

There are some crevices and cavities within sheltered areas of the walls which are suitable for use by individual crevice-dwelling bats (e.g. *Pipistrellus* spp., *Myotis* spp.) for occasional night roosts or day roosts. However, the number of suitable crevices with enough depth for bats to shelter is very limited. No signs of bat use were found.

Overall, the walls were assessed as having a very low potential to be used as a bat roost.

Figure 4-1 Examples of crevices in walls



Example of crevices eastern boundary wall field side



Examples of crevices in southern boundary wall

4.3 NON-VOLANT MAMMALS

The only record for mammals in the village area is for Fox. Protected mammals recorded in the wider tetrad (T04J) are listed in Table 4-4. There are records for otter (*Lutra lutra*) along the River Bann at Doran's Bridge and at Ferns Lower. The watercourse and associated riparian habitat provide good habitat for otter.

The site is not suitable for pine marten, badger, red squirrel or Irish stoat due to the lack of extensive woodland, hedgerows or scrub in proximity of the site. The undergrowth of the woodland may be suitable for hedgehog and pygmy shrews. Crevices in the base of walls may also provide shelter for pygmy shrews.

Table 4-4 Records for mammals within grid square T04J

Species	Record count	Date of last record	Data source	Designation
Badger (<i>Meles meles</i>)	5	24/08/2017	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts
Hedgehog (<i>Erinaceus europaeus</i>)	8	12/01/2021	Hedgehogs of Ireland	Protected Species: Wildlife Acts
Irish Stoat (<i>Mustela erminea</i> subsp. <i>hibernica</i>)	4	10/06/2024	Irish Stoats of Ireland	Protected Species: Wildlife Acts
Otter (<i>Lutra lutra</i>)	4	02/12/2015	Atlas of Mammals in Ireland 2010-2015	Protected Species: EU Habitats Directive Annex II; Annex IV Protected Species: Wildlife Acts

4.4 REPTILES AND AMPHIBIANS

There are no drainage ditches on the site and therefore no breeding habitat for amphibians on the site. The amenity grassland and stone wall features provide suitable habitat for common lizard however the surrounding area is intensive agriculture and not optimal for common lizard. The population of lizards on the site (if any) is anticipated to be very small.

4.5 INVERTEBRATES

The grassland on the site contains a range of herb species which support pollinating insects such as clovers, vetches and Asteraceae that would provide nectar for pollinating insects. Low numbers of meadow brown and red admiral butterflies were recorded on the site during the surveys in addition to the white-tailed bumble bee, common carder bee and red-tailed bumble bee feeding on the grassland. A reduced mowing scheme will increase the value of the site for pollinating insects.

The stone walls provide niches for snails, spiders, centipedes etc. Some solitary bees species use stone walls for nesting, but no bee nesting sites were observed during the surveys.

The bee hives that are kept by a local beekeeper are hives for the native black bee *Apis mellifera mellifera*. This was confirmed by a DNA test done in Galway. The native bee was originally widespread throughout the whole of northern Europe but has since hybridised with other sub-species and is not common. Scientific research and DNA analysis has confirmed the Irish *Apis mellifera mellifera* strain to be both pure and distinct. Pure populations need to be protected as this subspecies is a highly valuable gene pool for the protection of this subspecies in Europe and is of considerable conservation interest (Hasset et al., 2018).

5 CONSERVATION EVALUATION

The site is evaluated as of county conservation value due to the occurrence of Harebell (*Campanula rotundifolia*). This is the only site in Wexford where it is found. It is not clear whether it is native at this site or an ancient introduction (Green 2022). Harebell is frequently found in part of the north and west of Ireland but very rare elsewhere (Parnell & Curtis 2012). Old graveyard sites can be important refuges for wildflower species as these sites are not fertilised or ploughed.

The site is also of high local importance and possibly of county significance for the presence of the locally rare bryophytes – the liverwort *Porella playphylla* and the moss *Gymnostomum viridulum*.

In addition, the site is of significance for the conservation of the native in bee hives tended to by expert local bee keeper.

Otherwise, the site is a small area of relatively undisturbed habitat that is of some value to other wildlife due to the diversity of flora species found on the site and the range of wildlife species that could seek shelter within the walls possibly including small mammals such as the pygmy shrew and invertebrate species.

The walls support a range of herb species, ferns, bryophytes and lichens taking advantage of the old stone wall niche habitats on the site. The grassland within the graveyard is currently moderately species rich and was cut on a regular mowing regime until recently when the frequency was reduced as part of the investigations for this project. Continuation of this reduced mowing regime would increase the ecological value of the site for plants, pollinating insects, birds and bat species.

Churchyards and burial grounds provide a stable and protected place for bryophytes and lichens and are particularly important for lichen conservation and can have a high diversity of lichens. Churchyards are important for lichens because they have changed little over decades or even centuries, and this allows slow growing lichen species the time and ecological continuity that they need to become established and flourish. The diversity of stone used in church buildings and memorials maintains lichen diversity.

Birds

There was no evidence of the use of the walls by nesting birds however the bushy ivy on the eastern boundary wall provides suitable nesting habitat. Overall, the walls and the site is of low significance as a nesting site for birds.

Ivy growth is of local value to bird species such as blackbird, house sparrows, chaffinch, wren, robin, starlings, great tits, and blue tits. It is a potential nest sites and a source of berries. Ivy flowers are also an important nectar source for bees and butterflies in late summer and autumn. Where ivy growth does not present a threat to the historic features such as on trees it should be retained.

Bats

The walls have been assessed as having low potential to be used as bat roost. Due to mostly shallow crevices. A few suitable crevices offer potential roosting opportunities for individual or low numbers of bats.

A low suitability for bat roosts is described in Collins (2023) as “A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding

habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site but could be used by individual hibernating bats).

6 POTENTIAL ECOLOGICAL IMPACTS AND CONSTRAINTS TO WORKS

A summary of the conservations actions and works includes:

- Establish a steering group with key stakeholders to oversee implementation.
- Prioritise boundary wall repairs with expert guidance and seek funding
 - Internal collapse is evident in at least two separate locations along Station Road.
 - The eastern boundary wall is in moderate condition with mortar leeching visible
 - The section along the main street to the northwest appears relatively stable
 - A large bulge and crack are visible in the northern section of wall when viewed from the cathedral grounds, just west of the church
- Conduct a full, detailed survey of all memorials, including 3-D recording, and digitise results.
- Regularly assess memorial conditions to prevent damage.
- Develop visitor guidelines to prevent harmful cleaning of memorials and inappropriate memorial additions.
- Remove damaging vegetation (trees and overgrowth causing damage to memorials) in consultation with ecologist and archaeologist
- Improved way finding and interpretative signage and relocate information panels for better accessibility.
- Include the graveyard in digital access initiatives.
- Survey and catalogue medieval masonry; explore secure storage.
- Encourage further research, including geophysical surveys and data analysis.
- Share research publicly via tours, guides, maps, and online resources.
- Promote public engagement through media and events.

The proposed conservation works will take place following agreement with the NMS, and under the appropriate frameworks (Archaeological Licence or Ministerial Consent).

6.1 APPROPRIATE ASSESSMENT SCREENING

All projects require Appropriate Assessment screening to assess the potential for significant adverse effects on European sites.

As a preliminary appraisal, based on the small nature of the project and the minimal construction works likely to be involved which will be undertaken manually, no significant constraints are anticipated in terms of Appropriate Assessment Screening.

A source-pathway-receptor (S-P-R) analysis was undertaken. The works will involve the use of lime mortar which is toxic to aquatic species and a source of pollution. However, the works are small in scale and are undertaken manually reducing the likelihood of spillage. It is assumed that there will be responsible construction site management and waste disposal during the course of the works in compliance with relevant water pollution and waste disposal regulations.

The Bann River and SAC boundary are 0.9km from the graveyard. A tributary of the Bann lies 150m to the NE of the graveyard. The groundwater vulnerability is high.

There are no drainage ditches on the site so there is no surface water hydrological connection between the site of works and the stream to the NE or The River Bann.

Ferns graveyard lies within the catchment of the Bann River which is part of the Slaney River Valley SAC. The site does not lie within a catchment of a designated population of pearl mussels which is upstream further north but lies within a catchment of other extant populations of pearl mussels. Otter are a qualifying interest for the Slaney River Valley SAC and occur along the River Bann. There is no suitable habitat on the site otter and no disturbance to otter is likely from the works. The nearest suitable habitat for otter is 150m from the site.

Given the small-scale nature of the works, the manual construction works and the absence of a direct hydrological connection to the stream, and the distance to The River Bann there is negligible risk of pollutant transfer to the Slaney River Valley SAC or the Wexford Harbour and Slobbs SPA which is located 12 km to the south.

Overall, given the small scale and manual nature of the works and lack of surface water pathways and the distance of 0.9km to the River Bann and 150 m to the nearest tributary stream, no likely significant negative effects are anticipated from the works. It should be possible to screen the project out from Appropriate Assessment once a clear outline of the works methodology is available.

6.2 POTENTIAL IMPACTS TO FLORA

There is a risk of direct removal and / damage to the habitat of two rare bryophytes, the liverwort *Porella playphylla* and the moss *Gymnostomum viridulum* during the repair works to the walls.

There is also a risk of trampling or disturbance of the habitat of the Harebell which is the only recorded site for this species in Wexford during the conservation works with increased activity on the site and the storage materials etc.

The loss of these species from the site would be a significant negative effect at the county scale.

To avoid this the protective measures outlined in Section 7 should be implemented to prevent removal or damage to these species. These measures should be incorporation into the method statements.

In addition, the walls support a diverse range of plants, ferns and other mosses and liverworts. The works will inevitably involve some removal of vegetation from the walls. In the interest of maintaining the wall flora diversity, it is strongly recommended that ferns, bryophytes (mosses and liverworts) and lichens should be retained on the walls where possible and that provision is made for this in the works method statements (See Section 7).

6.3 POTENTIAL IMPACTS TO BATS

The boundary walls were assessed as having very low potential to support bat roosts. There are a small number of crevices that could possibly be suitable for individual bats. The possibility of disturbance to bats or entombing of bats during repointing works and the works is considered to be a very low risk. It is recommended that the walls are checked by an ecologist prior to works as a precaution. In the unlikely event that a bat is encountered during the works advice is provided in the mitigation measures in Section 7 below.

6.4 POTENTIAL IMPACTS TO BIRD SPECIES

There were no signs of the crevices in the walls being used as nest sites and few suitable crevices. It is possible that some of the dense ivy or other bushy vegetation within and around the boundary walls and memorials could be used for nesting.

The removal of this vegetation will remove suitable nesting habitat for birds such as blackbird or wren robins or tits species. Given the small extent of the vegetation and taking account of territorial behaviour no more than one or two nesting pairs are likely to nest in this vegetation. There is suitable alternative sites in hedgerows in the wider area for these species. No significant impact to birds will result from the conservation repair works.

The clearance of ivy and other bushy vegetation has potential to disturb nesting birds during the breeding season which is prohibited under the Wildlife Act. Removal of bushy ivy from the walls should be avoided during the nesting season (March 1st to August 31st). If this schedule cannot be accommodated, the vegetation should first be checked for nesting birds prior to works (Refer to Section 7).

7 PROTECTED AND RARE SPECIES CONSTRAINTS AND ECOLOGY RECOMMENDATIONS

This section outlines measures that are:

- (1) Required (i.e. due to legal constraints for protected species) in the context of the implementation of the Conservation Management Plan and in the interests of the protection of the rare Plant Harebell and rare bryophyte species on the walls and other wall flora where possible.
- (2) Recommendations in the interests of the conservation of biodiversity at the site.

Measures that are **required** must be incorporated into the Conservation Plan, works methodology and tender documents in order to comply with legislation and/or in the interests of protecting rare or threatened flora species.

Measures that are **recommended** should be incorporated into the conservation plan, works methodology and tender documents in the interests of the conservation of biodiversity and potentially ecological history of the site if the Conservation Planning Team and NMS are in agreement that they will not conflict with the conservation repairs and preservation of the structure and/ or undermine the Conservation Management Plan.

7.1 PROTECTIVE MEASURES FOR BIRDS AND OTHER WILDLIFE

All species of wild birds, their nests, eggs and unflown young are protected by the Wildlife Act.

The common lizard is protected under the Wildlife Act.

Due diligence is required during the works

- Removal of mature bushy ivy or other dense vegetation which is damaging the walls or monuments should take place between September and February (incl.) i.e. outside the breeding season for birds. If this schedule cannot be accommodated, then the vegetation will need to be checked by an ecologist for the presence of nesting birds prior to removal. If an

active nest is detected, vegetation removal will need to be postponed until the young have fledged.

- All crevices/ voids in the walls should be checked for nests prior to commencement of works or the erection of scaffolding. If an active bird nest is found, it will be necessary to postpone the works until the young have fledged.
- All crevices should be brushed out prior to infilling to check for lizards and to remove any invertebrates to avoid entombing these animals.

7.2 PROTECTIVE MEASURES FOR BATS

All bat species are protected by Irish and European Union law.

The EU 'Habitats' Directive (92/43/EC; transposed into Irish law by EC Birds and Natural Habitats Regulations (S.I 477 of 2011) provides legal protection for bats and their roosts and all bat species are protected under the Wildlife Act 1976 as amended.

All bat roosts are protected whether or not bats are present at the time.

Given the low suitability of the boundary walls to support a bat roost, the risk of encountering a bat roost during the works is considered very low. It is considered sufficient that adopting a precautionary working method is sufficient to avoid any impact to bats or risk of offence.

The following precautionary measures should be implemented on site and be incorporated into work method statements:

- Prior to works commencing, an ecologist should inspect the walls for signs of bat use and will advise on the mitigation required to avoid impacts to the roost such as leaving the crevice unfilled.
- All works contractors undertaking vegetation removal and/ or building repair works should be informed by the ecologist of the possibility of encountering a bat and the legal protection of bats and be advised of the precautions below.
- During the works all crevices should be checked prior to removing stones using a torch and stones should be removed slowly and carefully. Similarly, crevices should be checked prior to repointing.
- Should a bat be encountered during the works all works should cease and the NPWS or an ecologist contacted immediately for advice.
- If a crevice that is confirmed as a bat roost must be altered or filled for repair works, an application to NPWS for a derogation licence under Regulation 54 of the Birds and Natural Habitats Regulations will be required. The bat ecologist will make the application to NPWS and advise on any further mitigation measures required.
- In the event of a derogation licence being required, any exclusion of bats, removal or alteration of a roost site will require compensation e.g. by the installation of bat boxes on trees in the woodland.

7.3 PROTECTION OF RARE FLORA DURING WALL REPAIRS

In order to protect the rare moss and liverwort that are located on the southern and northern boundary wall the following protective measures will need to be put in place and incorporated into the works method statement in particular to conserve these species.

Prior to any works to the wall, an ecologist with the necessary expertise to identify the rare moss and liverwort should be engaged to survey the wall and locate the rare species and to advise and implement on the mitigation measures required. Figure 7-1 below illustrates where they have been recorded during the 2025 surveys.

Where they can be protected in situ, suitable protection should be set up to ensure they are not accidentally disturbed. For example:

- Fencing or tape around that part of the wall to exclude access with signage
- If fencing not suitable then marking the area of the wall clearly using crayon or tape attached to the wall surface to delineate the protected area.

If removal of damage to these species during the wall repair works cannot be avoided, then they should be transplanted to another part of the wall which will not be affected. The transplant (or receptor site) should be similar to the original site in terms of height, aspect, light conditions and moisture etc.

The moss and liverwort should be tended to (e.g. watering in dry weather) until its rhizoids have established in the new habitat.

In addition, the area containing Harebell near the -entrance to the graveyard should be protected with fencing or red tape to protect the area from excessive trampling during the works and / or storage of materials in the area.

Figure 7-1 Location of rare bryophytes to be protected during works



No.	Species	Location	Irish Grid ref
1	<i>Porella platyphylla</i>	West roadside wall near hanging baskets, pavement	site T02105 49737
2	<i>Porella platyphylla</i>	Small amount, pavement side, in crevice	T02139 49673
3	<i>Porella platyphylla</i>	Lower wall of graveyard	T02134 49681
4	<i>Porella platyphylla</i>	Large amount on inner graveyard wall near trees where ivy has been cleared from wall	T02189 49645
5	<i>Gymnostomum viridulum</i>	Forming tiny mat in crevice on wall, pavement side, just along (east) from broken wall and fence	T02137 49670
6	Harebell	Adjacent to grave plinth	

To conserve other wall flora, it is recommended that the following accommodations are also incorporated into work method statements and tender documents in the interest of conservation of botanical diversity at the site.

- In the interest of maintaining the wall flora diversity the removal of moss and ferns from the crevices of the structure and stone walls should be avoided if possible. Ferns and mosses do not have true root systems and therefore should not present a threat to the structure of the building. The presence of fern and moss growth helps to preserve the aged look of the building and walls. Where removal of ferns and moss is necessary some patches of moss and ferns should be left to act as a source for recolonization of the church and stone walls.
- When removing and / or reinstating stones, the stones should be stored vegetation side up, the moss and lichens retained on the surface and the stones replaced with the vegetation facing outwards in the original aspect/ orientation where possible.
- Power washing or cleaning of the building/stone walls or gravestones should be avoided in order to retain the lichen, fern and moss growth on the walls.

The array of lichens on the church walls and gravestones are a particular feature on this site and should be protected. According to the British Lichen Society the effect of management procedures including repairs to stonework, the removal or repositioning of memorials particularly the laying down gravestones, the application (or removal) of rendering and mortar, and the growth (or removal) of vegetation, particularly ivy, can have a significant effect on the number of lichen species found on a church building, boundary wall or tombstone. The British Lichen Society provides guidance on conserving lichens during repair works to churchyards.

<https://britishlichensociety.org.uk/conservation/churchyard-lichen-conservation>.

Some key points are:

- Repair only where necessary. If repairing a wall, for example, try to do small sections at a time with an interval of several years between repairs. This allows for lichen re-colonisation from the original stonework.
- Replace eroded stone with a stone similar in geology to that used in the building.
- Re-point with lime-based mortar rather than cement.
- Take particular care of areas of intact medieval stonework where significant lichen communities are often present. Those on the south and west walls of the church flourish in the unshaded conditions usually found there, whereas those on the north wall are adapted to damper and shadier conditions. Try not to alter these conditions.
- Reuse as much of the original material as possible.
- When rebuilding, retain the aspect of walling stones that noticeably support lichens, particularly south facing or capping stones.
- Ivy and other plants climbing over the church and boundary walls smother the existing lichen flora and inhibit lichen establishment. They should be actively discouraged by cutting at the root and allowing the dead plant to fall away naturally. Physical removal may damage mortar and stone.
- Specific lichens prefer different niches. The aspect of a memorial is very important. If this is altered some lichen species will die. Removing or relocating a tombstone is to be avoided; where removal is unavoidable a lichenological survey should be undertaken first.
- Relocate stones to replicate the original aspect and light conditions.

- Ancient chest tombs often have significant lichen communities particularly on the flat tops. Ivy and other vegetation should not be permitted to grow over them.
- Weedkillers should not be used around the base of a tombstone. They are absorbed upwards by the capillary effects of sedimentary stones, this damages the lichen flora and leaves an unsightly stain.

7.4 MANAGEMENT OF VEGETATION OVERGROWTH ON WALL – IVY REMOVAL

. It is recommended to cut ivy at the base to allow it to die off prior to removal. Herbicide use should be avoided on the site. Where necessary to control ivy growth or to kill tree stumps or invasive plant species, herbicides should be kept to the minimum required, applied carefully/ spot treated or use Ecoplugs® where possible or appropriate as Ecoplugs® will have less impact on surrounding flora.

7.5 MANAGEMENT OF GRASSLAND WITH HAREBELL (*CAMPANULA ROTUNDIFLORA*)

To protect Harebell and encourage it to flower and spread, the area containing Harebell should not be mown from April to September. Perhaps some decorative wooden cones or stakes could be used to delineate the area during the summer or spring instead of the red tape.



7.6 GRAVEYARD GRASSLAND MANAGEMENT

During the course of the preparation of this conservation management plan consultations were held with the FCDA and the LES scheme who manage the graveyard with regard to the management of the grassland.

The regular mowing regime was reduced to approximately every 4 weeks to allow the grassland to grow longer and to flower between mowings. The grassland management staff had some reservations as to whether the machinery (ride-on cut and collect machine and manual mowers) would be able to cut the longer sward. There was also an issue as to where to compost the cuttings.

It was agreed to trial the new mowing regime to see how the machinery managed the cut and as a temporary solution to compost the cuttings in one area within the woodland.

Alternatives to composting in the woodland were considered including disposal at a green waste facility but this is not possible due to insurance issues for transport.

The reduced mowing regime was implemented for the summer months without incident and the machinery was successful in mowing the grassland.

It is recommended to continue to manage the grassland on the reduced growing regime of approximately every 4-6 weeks to encourage and maintain the diversity of herb species within the grassland. Old graveyard sites can support species rich grasslands as they are seldom if ever fertilised. There is most likely a good seed bank in the soil. Grasslands require management to maintain and increase their species richness.

The grassland on the site is relatively species rich at least in localised areas and at the time of the survey was mown short. It was evident that cuttings are removed which is good practice.

It would be of benefit to biodiversity and to the aesthetics of the graveyard to adopt a reduced mowing regime to promote a low flowering meadow grassland.

The following guidance is provided for appropriate grassland management to maintain a mid-length sward but to allow wildflowers to grow and flower.

A reduced mowing regime to maintain a mid-length sward has several benefits.

- It allows herbaceous species such as dandelions, clovers and other wildflowers to flower.
- The grassland can be managed with a conventional push or ride on mower.
- It maintains public access – the sward is not too long.
- The relaxed look of the grassland aligns aesthetically with the historic site.

7.6.1 Reduced Mowing regime guidance

The aim of the grassland management is to allow the native wildflowers present in the grassland to flower and set seed.

It is important to remove all grass cuttings after mowing. Avoid the use of a mulching mower.

Grass cuttings should be removed for composting.

Wildflowers thrive in a nutrient poor soil. By removing the cuttings with each cut, fertilisation of the soil is prevented leading to a gradual reduction in nutrients with a resulting increase in the number and diversity of wildflower species.

The aim of the reduced mowing regime is to allow low growing wildflower species to flower and set seed. Cut the grass using the highest blade setting and only when the sward gets to a length when further growth means the sward will be unmanageable.

Following the guidelines of the All-Ireland Pollinator Plan -Actions for councils the approximate grass cutting schedule is as follows:

- Delay the first spring cut until mid-April to allow dandelions to flower.
- Second cut at end of May
- Third cut in mid-July (maximises growth of clovers and other wildflowers)
- Fourth cut at the end August
- Fifth cut after mid-October

If necessary, the frequency of cutting can be increased or decreased depending on the rate of grass growth but grass should not be cut from the beginning of March until mid-April or from the end of May until mid-July to ensure that dandelions and clovers flower which are very important nectar sources for pollinators.

7.6.2 Grass cutting composting

During the trial reduced mowing regime for this conservation management plan, the grass cuttings were composted in the woodland. This may lead to an excessive build up decomposing grass. It would be preferable to have a designated composting “box” or delineated area within the graveyard or better still in the adjacent agricultural field for composting the grass cuttings.

It is recommended that an alternative for the composting of the cuttings is considered. Perhaps a local farmer would be willing to take the cuttings or permit an area in the adjacent field to be used.

Alternatively grass cuttings can be disposed to a composting waste facility if there is a convenient site available.

Long flowering dry meadow grassland

It is recommended that the small area of long meadow grassland which is fenced off adjacent to the woodland is cut once and year in September and the cuttings removed. With this management regime, over time it would be expected to become more species. September is the best time to do this to avoid any disturbance to birds nesting in the woodland from machinery usage.

The long grass which is only a small area could be cut with a strimmer and raked off. Try to cut the grass as sort as possible and rake off all the dead thatch to let light down to the soil as this will help other herbaceous species to germinate and grow.

In the absence of any management this area will become scrub. Overtime this could provide good nesting habitat on the graveyard for birds however this may not be desirable as it will reduce access to the woodland and also may not be advisable in the graveyard setting where graves may be susceptible to damage from trees roots.

A similar annual cut and collect could be implemented for the grassy verges along the boundary walls and in and around the graves where the mower can't reach. This will be of benefit to biodiversity by having a range of sward lengths around the graveyard providing both foraging and shelter habitat for insects and seeds for birds.

7.7 ALTERNATIVES FOR HANGING BASKETS

As noted above, the practice of putting decorative hanging baskets on the old stone walls should be discouraged. This presents a threat to the characteristic wall flora and detracts from the aesthetics of the old wall.

As an alternative, the streetscape could be enhanced by locating some planter boxes around the bus top. These could be strategically placed to help conceal or soften the appearance of the bus top.

These could be planted up with perennial pollinator friendly plants. Perhaps some traditional culinary herb species would be most appropriate referencing the historic graveyard in the background e.g. Rosemary (*Salvia rosmarinus*), Oregano (*Origanum vulgare*), Thyme (*Thymus vulgaris*) and mints (*Mentha* so.) or lavender (*Lavandula* sp.). This would also make waiting for the bus a more sensuous experience!

7.8 WOODLAND MANAGEMENT

Woodland management should bear in mind that the beekeepers need access to the bee hives for maintenance and care of the bees and the bees need a clear flight path to the bee hives.

If trimming of the tall ground flora is required to maintain access then it would be advisable to remove the cuttings. This may help to reduce the dominance of the taller herbaceous species and promote the growth of smaller woodland flora species such as primroses.

Where the growth of understorey shrub species such as hawthorn or holly does not conflict with the conservation of the walls, memorials or access to the bee hives – a few saplings of hawthorn or holly if they arise could be marked with flags or tree protection and protected during the strimming to encourage a denser understorey in the centre of the woodland.

7.9 INVASIVE SPECIES MANAGEMENT

It is recommended to remove the cherry laurel tree from the woodland. If not removed it will certainly regrow and probably spread in the woodland over time. It is growing against the wall and damages the wall so will require removal in any case as part of the works. It should be cut near the base. To prevent regrowth, herbicide will have to be used unless the stump can be ground down or removed. Herbicide can be applied to holes drilled in the stump. Regrowth should be monitored and herbicide treatment repeated until growth ceases.

To protect the walls from further damage for trees and their roots, trees should not be planted near the walls and in general it is advisable not to plant trees or any shrubs in the graveyard due to the archaeological sensitivity. Natural regeneration of trees from seedlings near the walls can be prevented by mowing a strip along the walls once a year to control any seedling growth.

A similar method can be used to remove scrub from the memorials where this is a required for the preservation of the memorial.

The invasive plant Snowberry (*Symphoricarpos albus*) is growing within the memorial along the northern boundary. Snowberry spreads through suckering, the rhizome can grow rapidly and out-compete native plants. The berries are poisonous to humans.

Options for the removal of this to be considered include:

- Digging out (subject to archaeological supervision and approval)

- Cutting the snowberry to ground and regular repeated cutting back of the regrowth.
- Cutting the snowberry down to ground level and covering with landscape black sheeting to exclude light. It may take 2 years or so for the rhizome to die off.
- Herbicide use as a last resort.

7.10 OTHER BIODIVERSITY ENHANCEMENT

To enhance the site for birds and bats, it is recommended to install 3 bat boxes - Schwegler 1 FF bat box- or similar design would be suitable in the trees in the woodland. These should be hung a minimum of 3m from the ground (to deter predators) and attached to the trees orientated in different directions for example SE, S, SW to provide a range of temperature conditions. The boxes can be attached to the same tree or different trees.

Choose trees that have no ivy on the trunk and no branches for 1m radius around the location of the box so that there is a clear flight line for bats to box. Trees on the edge of the woodland may be more suitable.

Alternative suitable designs include:

Beaumaris: <https://www.vivara.ie/wildlife-products/bats/beaumaris-bat-box-small>

Chambord: <https://www.vivara.ie/wildlife-products/bats/chambord-wooden-bat-box>

It is recommended to install one or two bird boxes spaced well apart in the woodland to allow for territorial behaviours. Standard bird boxes suitable for crevice nesting species such as tit species or sparrows would be suitable.

Refer to Birdwatch Ireland for advice on bird boxes <https://birdwatchireland.ie/irelands-birds-birdwatch-ireland/garden-birds/nestboxes/>

Attach the bird boxes to a tree with a wire strap (rather than a nail) as high off the ground as possible between 2-4 m to deter predators. Ensure that the location is sheltered away from strong winds, rain and hot sun. Tilt the box forward a bit so rain run off the roof.

7.11 FURTHER RESOURCES

The National Biodiversity Data Centre has excellent resources to guide councils and community groups on managing sites for biodiversity and specifically for pollinating insects and provide advice on grassland cutting regimes. Further resources can be found here: <https://pollinators.ie/resources/>

The British Lichen Society has further resources; <https://britishlichensociety.org.uk/conservation/churchyard-lichen-conservation>



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8 APPENDIX A PLANT SPECIES RECORDED ON THE SITE

Table 8-1 Vascular Plant species recorded on the site (excluding wildflower species sown)

Common name	Scientific name
Ash	<i>Fraxinus excelsior</i>
Alexanders	<i>Smyrniolum olustratum</i>
Bramble	<i>Rubus fruticosus</i>
Broadleaved dock	<i>Rumex obtusifolius</i>
Broadleaved willowherb	<i>Epilobium montanum</i>
Bush vetch	<i>Vicia sepium</i>
Cat's-ear	<i>Hypochaeris radicata</i>
Cherry laurel	<i>Prunus laurocerasus</i>
Cleavers	<i>Gallium aparine</i>
Cock's-foot	<i>Dactylis glomeratus</i>
Common bent	<i>Agrostis capillaris</i>
Common bird's-foot-trefoil	<i>Lotus corniculatus</i>
Common daisy	<i>Bellis perennis</i>
Common mallow	<i>Malva sylvestris</i>
Common mouse-ear	<i>Cerastium fontanum</i>
Common ragwort	<i>Jacobea vulgaris</i>
Common Sorrel	<i>Rumex acetosa</i>
<i>Cotoneaster franchettii</i>	<i>Cotoneaster franchettii</i>
Cotoneaster sp.	<i>Cotoneaster sp.</i>
Cow parsley	<i>Anthriscus sylvestris</i>
Creeping bent	<i>Agrostis stolonifera</i>
Creeping buttercup	<i>Ranunculus repens</i>
Crucifer species	<i>Brassica spp.</i>
Curled dock	<i>Rumex crispus</i>
Cut-leaved crane's-bill	<i>Geranium dissectum</i>
Dandelion	<i>Taraxacum officinale agg.</i>
Dog violet	<i>Viola sp.</i>
Elder	<i>Sambucus niger</i>
False oat grass	<i>Arrhenatherum elatius</i>
Forget me knot	<i>Myosotis sp.</i>
Germander speedwell	<i>Veronica chamaedrys</i>
Great willowherb	<i>Epilobium hirsutum</i>
Greater plantain	<i>Plantago major</i>
Grey alder	<i>Alnus incana</i>
Ground ivy	<i>Glechoma hedeacea</i>
Groundsel	<i>Senecio vulgaris</i>

Common name	Scientific name
Harebell	<i>Campanula rotundifolia</i>
Hart's-tongue fern	<i>Asplenium scolopendrium</i>
Hedge woundwort	<i>Stachys sylvatica</i>
Herb robert	<i>Geranium robertianum</i>
Hoary willowherb	<i>Epilobium parviflorum</i>
Hogweed	<i>Heracleum sphondylium</i>
Holly	<i>Ilex aquifolium</i>
Intermediate polypody fern	<i>Polypodium interjectum</i>
Ivy	<i>Hedera helix</i>
Japanese spirea	<i>Spiraea japonica</i>
Larch	<i>Larix decidua</i>
Lesser stitchwort	<i>Stellaria graminea</i>
Lesser trefoil	<i>Trifolium dubium</i>
Maidenhair spleenwort	<i>Asplenium trichomanes</i>
Navalwort	<i>Umbilicus rupestris</i>
Nettle	<i>Urtica dioica</i>
Nipplewort	<i>Lapsana communis</i>
Oak sp.	<i>Quercus sp.</i>
Pedunculate oak	<i>Quercus robur</i>
Peillitory-of-the-wall	<i>Parietaria judaica</i>
Perennial rye-grass	<i>Lolium perenne</i>
Prickly sow thistle	<i>Sonchus asper</i>
Prickly sow-thistle	<i>Sonchus asper</i>
Primrose	<i>Primula vulgaris</i>
Ragwort	<i>Jacobaea vulgaris</i>
Red clover	<i>Trifolium pratense</i>
Red dead-nettle	<i>Lamium purpureum</i>
Red fescue	<i>Festuca rubra</i>
Ribwort plantain	<i>Plantago lanceolata</i>
Rusty back fern	<i>Asplenium ceterach</i>
Scots pine	<i>Pinus sylvestris</i>
Self heal	<i>Prunella vulgaris</i>
Smooth sow thistle	<i>Sonchus oleraceus</i>
Southern polyody fern	<i>Polypodium cambricum</i>
Spear thistle	<i>Cirsium vulgare</i>
Squirrel-tail fescue	<i>Vulpia bromoides</i>
Sycamore	<i>Acer pseudoplatanus</i>
Wavy bitter-cress	<i>Cardamine flexuosa</i>
White clover	<i>Trifolium repens</i>
Willowherb sp.	<i>Epilobium sp.</i>
Yarrow	<i>Achillea millefolium</i>
Yew	<i>Taxus baccata</i>

Common name	Scientific name
Yorkshire fog	<i>Holcus lanatus</i>
Bryophytes – grassland and woodland	
	<i>Rhytidiadelphus squarrosus</i>
	<i>Kindbergia praelonga</i>
	<i>Thamnobryum aloepercurm</i>

9 APPENDIX B BRYOPHYTE SPECIES LIST FOR WALLS AND PHOTOGRAPHS

Figure 9-1 List of bryophyte species recorded for the stone walls

Species	Grid ref
<i>Porella platyphylla</i>	T02105 49737
<i>Porella platyphylla</i>	T02139 49673
<i>Porella platyphylla</i>	T02134 49681
<i>Porella platyphylla</i>	T02189 49645
<i>Gymnostomum viridulum</i>	T02137 49670
<i>Amblystegium serpens</i>	
<i>Barbula unguiculata</i>	
<i>Brachythecium rutabulum</i>	
<i>Bryum capillare</i>	
<i>Ceratodon purpureus</i>	
<i>Didymodon insulanus</i>	
<i>Didymodon rigidulus</i>	
<i>Didymodon vinealis</i>	
<i>Grimmia pulvinata</i>	
<i>Hypnum cupressiforme</i> var. <i>cupressiforme</i>	
<i>Hypnum cupressiforme</i> var. <i>resupinatum</i>	
<i>Kindbergia praelonga</i>	
<i>Neckera complanata</i>	
<i>Orthotrichum anomalum</i>	
<i>Orthotrichum cupulatum</i>	
<i>Orthotrichum diaphanum</i>	
<i>Oxyrrhynchium hians</i>	
<i>Pseudocrossidium hornschurchianum</i>	
<i>Pseudocrossidium revolutum</i>	
<i>Ptychomitrium polyphyllum</i>	
<i>Rhynchostegiella tenella</i>	
<i>Rhynchostegium confertum</i>	
<i>Schistidium crassipilum</i>	
<i>Streblotrichum convolutum</i> var. <i>commutatum</i>	
<i>Streblotrichum convolutum</i> var. <i>convolutum</i>	
<i>Syntrichia montana</i> var. <i>montana</i>	
<i>Syntrichia papillosa</i>	
<i>Tortula muralis</i>	
<i>Trichostomum crispulum</i>	
<i>Zygodon viridissimus</i> s.str.	
<i>Myriocoleopsis minutissima</i>	

Figure 9-2 Photos of the rare bryophytes in situation

Gynostomum viridulum



Porella platyphylla

